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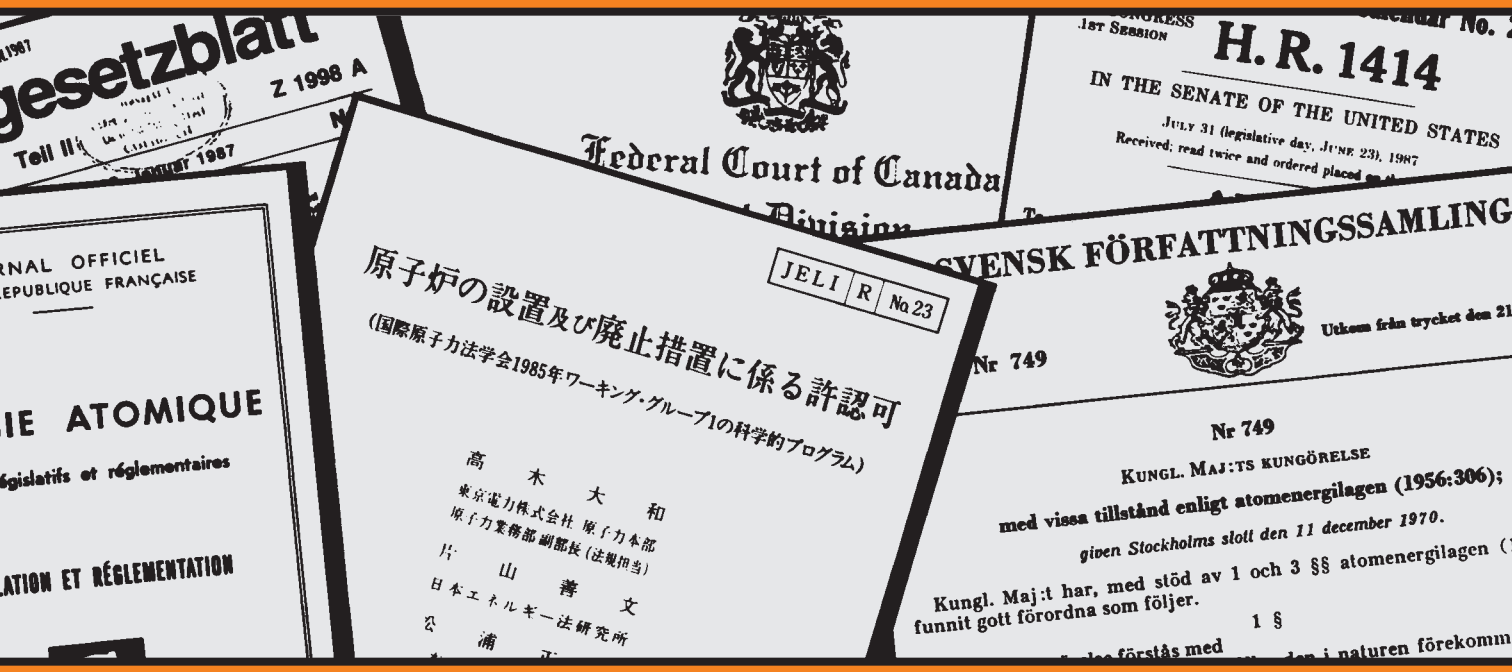

BULLETIN 62/DECEMBER 1998

NUCLEAR ENERGY AGENCY

OECD
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PERSPECTIVES DE LA SCIENCE, DE LA TECHNOLOGIE ET DE L'INDUSTRIE

1998

ORGANISATION DE COOPÉRATION ET DE DÉVELOPPEMENT ÉCONOMIQUES

NUCLEAR LAW
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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.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996) and Korea (12th December 1996). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

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 OECD Member countries, except New Zealand and Poland. The Commission of the European Communities takes part in the work of the Agency.

The primary objective of the 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, the 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.

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A Short History of Nuclear Non-Proliferation

by Ben Sanders*

Introduction: Prehistory

The following is a rough sketch of the nuclear non-proliferation regime, the set of measures put in place to deter the spread of nuclear weapons. It aims to give a brief description of events that shaped the regime, and to indicate the rationale for its major components. It was originally written to assist participants in the Advanced Training Seminar on the "Rules governing International Transfers of Nuclear and Nuclear-related Material, Equipment and Technology, and the Transport of Radioactive Materials" in seeing more clearly how rules governing international transfers of nuclear and nuclear-related material, equipment and technology, and the transport of radioactive materials, function as elements of the regime. As was seen at the Advanced Training Seminar, those rules themselves are part of that picture, and as such, are basic components of the nuclear non-proliferation regime.[1]

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* Mr. Sanders is the Executive Chairman of the Programme for Promoting Nuclear Non-Proliferation. This article is the exclusive responsibility of its author and does not necessarily reflect the views of his Organisation, the Programme for Promoting Nuclear Non-Proliferation, or of any member of its Core Group. This article was prepared for the EC/IAEA/NEA Advanced Training Seminar on the Rules governing International Transfers of Nuclear and Nuclear-Related Material, Equipment and Technology, and the Transport of Radioactive Materials, held at Tallinn, Estonia, on 24-28 August 1998. Nevertheless, the views expressed herein do not necessarily reflect the views of any of those sponsoring Organisations.

1. The unsuspecting reader should be warned at the outset that the term 'regime' is used here – as in many other publications on the subject of nuclear non-proliferation – in a rather misleading manner, and for want of a better term. Generally, 'regime' denotes an orderly system of measures that regulate a particular action or actions or a well-defined situation. The term also implies that those measures are promulgated by an accepted authority and are enforceable. None of this directly applies to the nuclear non-proliferation "regime". It is neither "orderly", in the sense of consisting of building blocks that fit snugly together according to a well thought-out scheme, nor is it a "system", in the sense of having been planned in a deliberate order. Most of the measures have been adopted, one by one, as the need for them became obvious or the opportunity for their adoption opened up, by groups of states whose composition varied from measure to measure. There is no single authority that has adopted or sanctioned all measures involved, nor are most of them readily enforceable. The main reason why, nevertheless,

Concern about the risk of nuclear war breaking out has existed since the beginning of the nuclear era, more than half a century ago. That concern has grown with the fear that the ability to manufacture nuclear weapons would spread to ever more countries. This paper gives a brief overview of the steps that have been taken to stem that spread.

At the end of World War II only one country possessed nuclear weapons: the United States of America. The USA realised from the outset that it could not maintain this monopoly forever and its closest allies, Great Britain and Canada, which had co-operated in the development of the atomic bomb, shared the wish not only to prevent the spread of these frightful weapons, but to make available to the world the information needed for the development of atomic energy. In an Agreed Declaration on Atomic Energy, of 15 November 1945, the President of the USA and the Prime Ministers of Great Britain and Canada stated that they were prepared to share "on a reciprocal basis with others of the United Nations" information on the practical industrial application of atomic energy "just as soon as effective enforceable safeguards against its use for destructive purposes [could] be devised". The Declaration called for the establishment within the United Nations of a Commission among whose tasks would be to "control atomic energy to the extent necessary to ensure its use only for peaceful purposes", to make specific proposals "for the elimination from national armaments of atomic weapons ..." and for "effective safeguards by way of inspection and other means, to protect complying states against the hazards of violations and evasions".[2]

The issue was discussed with the Soviet Union in Moscow and as a result, on 27 December 1945, the now four nations issued a joint communiqué which called for a United Nations Atomic Energy Commission that should be established by the General Assembly and should report to the Security Council. At its first session, the General Assembly, on 24 January 1946, unanimously adopted a resolution to this effect – its very first resolution.[3] Like the Agreed Declaration, the Assembly's resolution dealt simultaneously with the questions of peaceful uses of atomic energy, its control, the elimination of nuclear weapons and the verification of compliance. It would be the task of the new Commission to make specific proposals in all these areas.

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we call this kaleidoscope of measures a "regime" is to imply that the various components should be seen as subordinated into a single structure erected against nuclear proliferation, however incomplete and ramshackle it may be. The term reflects, in fact, an optimistic view of what, in the long run, should come to be a world-wide, watertight barrier against nuclear proliferation.

2. See Paul C. Szasz, *The Law and Practices of the International Atomic Energy Agency*, Legal Series No. 7, IAEA, Vienna, 1970, pages 11 and 12. The fact that it was felt necessary to seek the means of charging a special body with activities one might have assumed the United Nations to undertake as a matter of course is due to the circumstance that the UN Charter preceded by several months the disclosure that nuclear weapons existed so that it was obviously impossible for the drafters to take them into account. It is fair to speculate that, had these dates been reversed and had it been possible to write the Charter in the awareness of the existence of nuclear weapons, the drafters would surely have sought to include provisions for ways in which the United Nations should deal with the threat to international peace and security of nuclear proliferation. It is also fair to assume that one element of the Charter; i.e. the veto power of the permanent members of the Security Council, would have been dealt with differently.

3. The history of the UN Atomic Energy Commission is set out at some length in a United Nations publication, "*The United Nations and Disarmament 1945-1970*", UN sales no. 70.IX.1, pages 11-24.

The Baruch Plan

The UN Atomic Energy Commission (UNAEC) met for the first time in June 1946. On that occasion the US Representative, Bernard Baruch, proposed the creation of an International Atomic Development Authority (IADA), which would be entrusted with all phases of the development and uses of atomic energy. IADA would have among its tasks to:

(i) develop a thorough control system;

(ii) obtain, through surveys and by other means, complete and accurate information on the world supplies of uranium and thorium, which would then be brought under its domination;

(iii) exercise complete managerial control over any production of fissionable materials and to own and control all such material;

(iv) be vested with the exclusive right to conduct research on atomic explosives;

(v) distribute throughout the world the activities and stockpiles entrusted to it;

(vi) promote the peaceful uses of atomic energy;

(vii) have full freedom of access, through its representatives, to all intrinsically dangerous activities (as these might be defined from time to time) – though, due to its complete operating control over these, its inspection functions could be limited to detecting clandestine atomic operations and to checking on the less dangerous activities that might be conducted under its license;

(viii) recruit its personnel on the basis of proven competence but also, so far as possible, internationally.

As the summary referred to in the second endnote to this paper put it, "The Authority was to conduct continuous surveys of supplies of uranium and thorium and bring the raw materials under its control. It was to possess the exclusive rights both to conduct research in the field of atomic explosives and to produce and own fissionable material. All other nuclear activities were to be permitted only under license of the Authority, which would lease, under safeguards, denatured fissionable materials. Dangerous activities of the Authority and its stockpiles were to be decentralised and strategically distributed. All nations were to grant the freedom of inspection deemed necessary by the Authority. Mr. Baruch stressed the importance of immediate punishment for infringements of the rights of the Authority and maintained that: "There must be no veto to protect those who violate their solemn agreements not to develop or use atomic energy for destructive purposes." In the terms of the Plan, once a system of control and sanctions was effectively operating, further production of atomic weapons would cease, existing stocks would be destroyed and all technological information would be communicated to the Authority."

It is important for the purpose of this paper to stress that the Baruch Plan used the term "safeguards" as consisting of more than mere verification ("inspection and other means") and as necessarily requiring adequate physical control. Both the Baruch Plan and the above-mentioned UN resolution reflected the conviction that safeguards are needed to prevent the proliferation of the military use of atomic energy. Although these documents contain an element of disarmament – the

UN resolution speaks of the "elimination from national armament of atomic weapons" – international safeguards were not seen primarily as a disarmament measure but were in the first place intended as an assurance against nuclear armament by those states which did not yet have the capability of manufacturing atomic weapons. Thus, long before the concept of "proliferation" was formulated, non-proliferation was thought of as a corollary to the inevitable, if obviously not always desirable, spread of nuclear knowledge and capability. In other words, the main purpose was "peaceful promotion without military proliferation".[4]

The Baruch Plan and a number of counterproposals were the subject of long and heated debate, first in the UNAEC and subsequently in the Security Council and in the General Assembly of the United Nations. In 1949 the USSR detonated its first nuclear device and in 1952 the United Kingdom did the same. Meanwhile the US had produced a modest stockpile of nuclear material for military purposes. Obviously, the grandiose scheme of establishing an international authority that would control all nuclear materials was no longer viable. Thus died the first attempt at non-proliferation through international ownership and control. In further attempts the disarmament aspect would be secondary or lacking altogether, but the non-proliferation idea would live on. It would be reflected in a multitude of measures of which the most important are mentioned in this paper.

Atoms for Peace

The first practical step to a multinational non-proliferation regime was again taken in the UN General Assembly, in the form of a proposal called the "Atoms for Peace Plan", advanced by US President Dwight D. Eisenhower in 1953. The Atoms for Peace Plan was based on the idea that it would be possible to promote the peaceful uses of atomic energy, as well as nuclear disarmament, by transferring fissionable material from military to civilian uses. The Plan foresaw the creation of an international atomic energy agency that would dispose of a stock of nuclear material hitherto earmarked for military purposes, which was to be used exclusively for peaceful ends. While not expressly mentioning the concept of safeguards, the Eisenhower Plan clearly implied their pre-eminent role and reflected the assumption that as peaceful uses increased, international verification would spread its web over the world and reduce the danger of nuclear-capable nations proliferating.

The International Atomic Energy Agency

The Statute of the International Atomic Energy Agency (IAEA) was opened for signature on 20 October 1956 and its safeguards provisions became the basis for the nuclear verification and monitoring activities that have been applied in the forty years that followed. Article II of the Statute requires the Agency to "ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such as way as to further any military purpose". Article III A.5 authorises the Agency to establish and administer safeguards in three categories of cases: (a) in connection with the assistance provided by the Agency or at its request, under its supervision or control; (b) at the request of the parties to any bilateral or multilateral arrangement; and (c) at the request of a state, to any nuclear activity of that state. Article XI F.4 provides that any project of the Agency for research on or development or practical application of atomic energy must

4. For a fuller description of this philosophy, see Benjamin Sanders, *Safeguards Against Nuclear Proliferation*, A SIPRI Monograph, MIT Press, 1975, 114 pp.

include undertakings by the states involved that the assistance provided shall not be used in such a way as to further any military purposes and that the project shall be subject to safeguards.

IAEA Safeguards

The Agency's Statute itself does not contain any obligation for a state to submit to Agency safeguards, except where it is a beneficiary of an Agency project. In the other two categories of cases listed in Article III, the reason for accepting safeguards may be either the fact that the state concerned is a party to a legal instrument obliging it to accept such safeguards or has other reasons for doing so - most usually because it is the recipient of nuclear material or equipment and the state supplying this has made it a condition that Agency safeguards should be applied in connection with such items. On such occasions, especially in the past, the obligation to submit to safeguards would be contained in a bilateral agreement for the provision of nuclear material or installations, of which many have been concluded by the United States, the United Kingdom and Canada, that provided for the transfer to the IAEA of the safeguards function. Much more often now, the obligation follows from a multilateral agreement such as the Treaty for the Prohibition of Nuclear Weapons in Latin America (the Treaty of Tlatelolco of 1967)[5] or the Non-Proliferation Treaty (NPT), which oblige parties to accept IAEA safeguards on all their nuclear activities; agreements to that effect are usually referred to nowadays as full-scope or comprehensive safeguards agreements. The IAEA Statute enables the Agency to accept safeguards responsibility in these various cases, but this is not in itself sufficient: the Agency can only carry out safeguards on the basis of a specific agreement with the state or states concerned.

It is not the intention here to go into detail about these agreements or about the IAEA's safeguards systems that have come about in the years since the organisation was established. This occurred, at least initially, in a rather haphazard fashion. In 1958, the IAEA was instrumental in the provision of Canadian natural uranium for a research reactor in Japan. This made it necessary for the Agency to agree with Japan on safeguards measures, even before the Agency had had the opportunity to elaborate such measures in a systematic way. There were several reasons why it was considered necessary to devise a generally applicable system. In the first place, the Agency could not discriminate among states in the way it would apply its safeguards and therefore needed a single system that could be applied everywhere. Secondly, countries had to know what to expect and the IAEA's safeguards personnel had to know in advance how they would have to apply safeguards. Thirdly, the Agency's Board of Governors, which has the statutory function of approving agreements concluded by the Agency, including, obviously, agreements for the application of safeguards, and which determines the action to be taken in the case of non-compliance, was clearly interested in the standardisation of such agreements. Thus came about the identification of the safeguards system with the agreements the Agency was to conclude for the application of safeguards.

The earliest safeguards system[6] stated somewhat vaguely that it consisted of "principles and procedures established for the information and appropriate guidance of Member States as well as for the guidance of the Board itself in the administration of safeguards by the Agency". This was

5. The name of the Treaty was subsequently changed to include also the Caribbean.

6. IAEA Document INFCIRC/26 of 1961, which related only to reactors of less than 100 MW(th). This first "Safeguards Document" foresaw that provisions covering other types of nuclear facilities would be developed as the need for them arose.

subsequently extended in scope. A system of wider scope was approved by the Board in 1965.[7] This stated expressly that it was "... for the information of Member States, to enable them to determine in advance the circumstances and manner in which the Agency would administer safeguards, and for the guidance of the organs of the Agency itself, to enable the Board and the Director General to determine readily what provisions should be included in agreements relating to safeguards and how to interpret such provisions" and it said that its provisions would become binding when and to the extent they were incorporated in an agreement with the state concerned.

Safeguards under the NPT

In July 1968, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was opened for signature. Studies made in the IAEA in preparation for its role under the Treaty found that a new safeguards system would be called for to apply, pursuant to the Treaty, to a country's entire range of peaceful uses of nuclear energy. After the NPT entered into force, on 5 March 1970, the Agency's Board of Governors established an open-ended committee "to advise it on the Agency's safeguards responsibilities in connection with the NPT and on the content of the agreements which would be required in connection with that Treaty". The committee's report was completed in March of 1971, as a set of recommendations for the contents of safeguards agreements; it was in fact a complete safeguards system designed to enable the Agency to apply safeguards pursuant to the Treaty. On 20 April 1971, the Board authorised the Director General to use it as the basis for the agreements required by the NPT. Ever since it has set the terms for the application of safeguards under the Treaty.[8] Later, a variety of circumstances, not entirely unforeseen even at the time the system was adopted, foremost among them the realisation after the war in the Persian Gulf that Iraq, a party to the NPT, had been engaged in an ambitious nuclear-weapons programme carried out entirely outside the IAEA's safeguards, made it necessary for the safeguards system to be extended in scope and methods. On 15 May 1997, the Board approved a model protocol to the standard safeguards agreements, designed to reinforce the effectiveness and efficiency of Agency safeguards. The provisions of this protocol take effect as and when they are accepted by states.[9]

Around the time the IAEA started to develop its first safeguards system, several newly established regional organisations did the same. Almost simultaneously, six western European states adopted the Treaty of Rome, establishing EURATOM as the nuclear branch of the European Economic Community, and the (then) Organisation for European Economic Co-operation (OEEC) established the European Nuclear Energy Agency, or ENEA. Both bodies set up their own administrative regulations, including safeguards systems. The various negotiations took place independently, but subsequently formal relationships were established between the respective bodies and the IAEA, notably in connection with safeguards. It may be less generally remembered that the Organisation of American States (OAS) created an Inter-American Nuclear Energy Commission (IANEC) which, somewhat like the ENEA, had the task of promoting the development of peaceful

7. IAEA Document INFCIRC/66. This was extended in 1966 and 1968 and is still in force as INFCIRC/66/Rev.2. Since the "INFCIRC/66 system", as it has come to be known, applies to individual nuclear activities, it is employed in states that are not parties to the NPT or to any other instrument, such as a Nuclear-Weapon-Free Zone that would require them to conclude a so-called comprehensive safeguards agreement.

8. For a thorough survey of the evolution of the safeguards system up to 1985, see David Fischer and Paul Szasz; Jozeph Goldblat, Editor, *Safeguarding the Atom: A Critical Appraisal*, SIPRI, Taylor & Francis, London and Philadelphia, 1985, 243 pp.

9. IAEA Document INFCIRC/540.

uses of nuclear energy in the southern part of the western hemisphere; like its European counterpart, it was authorised to establish joint projects. Its activity, however, fell victim to an apparent lack of interest among its member states and the dwindling importance of the OAS.

The efforts so far referred to all had in common an element of promotion and an element of prevention, based as they were on the premise that underlay every related measure since the Baruch Plan, that the world should profit from the peaceful uses of nuclear energy and that there should be barriers to the use of nuclear energy for the development of weapons. As we have seen in the brief reference to the early efforts and as one can see amply illustrated in the literature about, particularly, the efforts of the United States to combine the export of nuclear facilities, equipment, material and technology with measures to prevent their misuse, the fear of proliferation was ever present but not always fully recognised.

Peaceful Uses and the NPT

No international instrument reflects this dichotomy more clearly than the NPT. In that Treaty non-nuclear-weapons States parties undertake not to manufacture or otherwise acquire nuclear weapons[10]. That might be seen as the "negative" side of adherence to the NPT: the principal undertaking "not to". In "positive" terms, Article IV of the Treaty confirms "the inalienable right of all the parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination". Article IV goes on to say that all the parties to the Treaty "have the right to participate in ... the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy".

There is little or no literature to document in so many words the philosophy that combined an injunction "not to" with the promise "thou shalt have". There is an obvious problem with a promise to supply technology, equipment and material for peaceful uses which also lend themselves for the production of nuclear weapons. At the time, however, the international community felt that this conundrum had been resolved through parties' submission to international verification, which would demonstrate their good faith. The doubts seem to have come only afterwards, and then in particular from a small number of nuclear exporters who were in a position to profit from a well-established position in the global nuclear market.

I represented the IAEA at a month-long Conference of Non-Nuclear-Weapon States that was held in the summer of 1968 in Geneva, after the General Assembly had approved the text of the NPT. One of my main occupations at that Conference was assuring delegates that safeguards – which were widely suspected as a serious impediment to the free application of nuclear energy – would not stand in the way of legitimate uses and would in fact be helpful in promoting international trade and co-operation in the field. The Conference had lengthy discussions on that issue. Its final declaration

10. Pursuant to Article IX, paragraph 3 of the Treaty, a nuclear-weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967. As we saw before, the US did so in 1945, the USSR in 1949, and the UK in 1952. Subsequently, France staged its first nuclear explosion in 1962 and China in 1964. Accordingly, these five states for the purposes of the Treaty, are the only nuclear-weapon States; all other states are, by exclusion, non-nuclear-weapon States. India tested for the first time in 1974, and Pakistan did so in 1998. In terms of the NPT, these two states cannot be considered nuclear-weapon States and unless the Treaty is amended, which is unlikely, they can only accede to it as non-nuclear-weapon States, which means that they have to submit to international safeguards "with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons ..." or, in other words, they would have to give up their nuclear weapons.

included the view that "... possibilities for the peaceful use of nuclear energy have increased, which is of particular importance for the economic development of non-nuclear-weapon countries and for an accelerated development of the developing countries. It is imperative to ensure conditions which would promote the peaceful uses of nuclear energy, encourage international co-operation in this area, ensure unhampered flow of nuclear materials under appropriate and effective international safeguards, as well as information, scientific knowledge and advanced nuclear technology exclusively for peaceful purposes on a non-discriminatory basis." At the conference, I was able to note repeatedly the basic assumption obviously held by the majority of delegations that once parties had accepted IAEA safeguards, nothing would stand in the way of their unhampered access to the blessings of the peaceful uses of nuclear energy. That safeguards might eventually be deemed to be an insufficient guarantee certainly does not seem to have played any part in the proceedings and if it occurred to any of the suppliers, they did not alert prospective customers to this fact.

The Issue of Nuclear Trade

International trade in nuclear technology, equipment and materials is fundamental to the peaceful uses of nuclear energy. Article III, 2 of the NPT sets the basic conditions for such trade in requiring each State Party to undertake:

> "not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subjected to the safeguards required by this Article."

This is a crucial part of the Treaty. It not only requires a state to refrain from using its nuclear material for proscribed purposes and to accept safeguards to verify its compliance, but it also requires that nuclear material is not exported without safeguards being applied at its destination and that material and equipment suitable to be used for nuclear purposes should only be sold abroad on condition that the nuclear activity for which they are intended will in turn be covered by safeguards.

The adoption of this Article represented the first instance of general agreement among suppliers to make the export of certain nuclear items conditional on safeguards at the receiving end. This had not been the case before. There had been several cases of exporter states managing to make a deal at least in part because they did not require the application of safeguards in the recipient country. There was an obvious danger that safeguards might become hostage to commercial competition.[11] At this point, however, the first thing to be done was to agree on the items to which export controls would have to be applied and to define in detail the meaning of the phrase "*equipment or material especially designed or prepared for the processing, use or production of special fissionable material*". This was important because if a particular component was seen to fall under that definition, it would "trigger" safeguards at the installation where it was used, even if all the rest of that installation was built indigenously.

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11. An early illustration of this situation may be read in the statement by the German delegate at the 1966 General Conference of the IAEA, which expressed the readiness of the (then) Federal Republic of Germany to include in its contracts for the supply of nuclear materials and equipment to countries outside the area of the European communities a clause requiring safeguards to be applied by the Agency, *provided other supplying countries were willing to impose the same condition.* See Sanders, *op.cit.*, pages 16-21.

The Zangger Committee

In the early 1970s, a committee was set up of most of the principal nuclear supplier countries, under the chairmanship of Professor Claude Zangger, for the purpose of reaching a common understanding on the interpretation and implementation of Article III, 2, with a view to establishing conditions for fair commercial competition in this respect. An important task of the Committee was to draw up a list of materials, equipment and components that would trigger the application of safeguards. A first version of the "Trigger List" was completed in August 1974. It has since been under almost continuous review and the "Zangger Committee" has gone on to play an important role in the nuclear export regime. One item that was not covered in the initial list was the provision of know-how; nor did that list initially deal with dual-use items. This matter was developed in much detail at the Advanced Training Seminar.

It should be noted that since the NPT expects its non-nuclear-weapon parties to submit to IAEA safeguards the source or special fissionable material in all its peaceful nuclear activities, Article III, 2, as interpreted by the Trigger List, is applicable in principle only to non-parties to the Treaty.

Concerns and Initiatives

Meanwhile, concern arose that international safeguards might not by themselves be sufficient to prevent states from realising prohibited nuclear ambitions. Several developments occurred to feed this concern. Argentina and Brazil – neither of them party to the NPT – were seen to develop a rivalry which in the eyes of expert observers had all the makings of an incipient nuclear arms race. At the same time, Germany was contemplating the export to Brazil of a complete nuclear fuel cycle (this is described in greater detail in endnote number 14). Pakistan, another non-party, had made an agreement with France for the supply of a reprocessing plant. Combined with its natural-uranium power reactor at Karachi, this might have put it in the way of starting a nuclear-weapons programme.[12] The Republic of Korea was also preparing to construct a reprocessing plant. Taiwan was thought to have plans in that respect as well, and there were clear indications that Israel was embarked on an ambitious nuclear weapon programme. In 1974 India staged what it called a "peaceful nuclear explosion". American pressure succeeded in having the deals with Pakistan and South Korea cancelled, and its influence in Taiwan was great enough to reverse developments there. The Brazil/Germany deal, however, was consummated, albeit under IAEA safeguards.

All these events led to a growing international preoccupation with the danger of nuclear proliferation and to the overt recognition that international safeguards by themselves would be unable to stem this tide. Moves to meet this concern took two forms. One was an attempt to find a less "proliferation-prone" fuel cycle, in which the presence of highly-enriched uranium and plutonium – the essential ingredients of nuclear weapons – could be avoided and in particular, no use would be made of the option of "breeding" plutonium as a fuel for a future generation of reactors. To this end, in 1977, US President Carter took the initiative of launching the International Fuel Cycle Evaluation (INFCE), in the hope of identifying a fuel cycle in which the use of the so-called "sensitive"

12. In fact, Pakistan acquired its weapon-capability principally along the uranium enrichment route. Its first steps in that direction were based on ultra-centrifuge blueprints purloined in the Netherlands. Parts and materials for the installation are said to have been maintained bit by bit in a variety of other western countries. Only a few weeks ago, a German national was convicted in his own country for the clandestine supply to Pakistan of parts for a centrifuge to enrich uranium.

technologies, facilities and materials could be avoided. This attempt to find a "technical fix" for an insoluble physical problem did not succeed, notwithstanding several years of intensive research and deliberations, and the production of thousands of pages of reports, bound in eight fat volumes. The single most important conclusion from the report might have been the sentence that "No single judgement can be made about the risks of diversion from different fuel cycles that is valid both now and in the future."[13]

In practice since the late 1970s, the interest in what has become known as the "Plutonium Economy" has decreased, as the demand for nuclear energy lessened. It is difficult to predict at this stage if current developments, in particular a greater awareness of the ecological advantages of nuclear energy over the use of fossil fuel, will bring greater use of nuclear energy. It is doubtful, however, that this would have much impact on the proliferation concern and the way to deal with it. Events in the Democratic People's Republic of Korea (DPRK) and Iraq have shown that states determined to embark on a nuclear weapons programme, notwithstanding the fact that they are parties to the NPT, are likely to have recourse to the use of facilities that are not part of the declared fuel cycle at which IAEA safeguards are applied. Those facilities would either be used exclusively, or almost exclusively, for the production of weapons-grade material or they would be specifically constructed for that purpose. In a way, therefore, the INFCE effort has turned out not to be fully relevant.[14]

Export Controls

The other way of avoiding that international nuclear trade would increase the risk of proliferation was by adopting a policy of not exporting items that might help recipients manufacture nuclear weapons; in other words, a policy of denial. As pointed out before, this was not a simple proposition: unless all potential suppliers of a given item could agree to the export policy to be followed in regard to that item, i.e. whether or not and under what conditions they should supply such items, the country that set the least stringent conditions would have the competitive advantage. In 1974, Canada, the Federal Republic of Germany, France, Japan, the Soviet Union, the United Kingdom and the United States met in London to discuss further restrictions on their nuclear exports. France had in the past been criticised for exporting items that were seen as apt to add to the recipients' ability to run a nuclear weapons programme; examples: the reprocessing plants of Pakistan and the Republic of Korea, referred to above. The essential differences between the work of what became known as the "Nuclear Suppliers Group" (NSG) and that of the Zangger Committee (all

13. For an excellent brief summary of the rationale for INFCE, see Fischer and Szasz, *op. cit.*, pages 104-105.

14. The relative irrelevance of the assumption that it might be possible, and would in any case be desirable, to avoid a "proliferation-prone fuel cycle" was illustrated in the case of Brazil. In the mid-1970s, Brazil approached the (then) Federal Republic of Germany for the supply of a complete nuclear fuel cycle connected with the use of pressurised-water reactors, using low-enriched uranium. The deal would include all necessary facilities: a uranium-processing plant, an enrichment facility, a fuel fabrication facility, power reactors, and a spent fuel reprocessing plant. At that time, Brazil was not a party to the NPT nor to any other instrument, such as the Treaty of Tlatelolco, that would oblige it to put all its nuclear installations under IAEA safeguards. Germany, however, undertook to ensure that all installations to be constructed pursuant to its agreement with Brazil would be submitted to IAEA safeguards. However, this left Brazil free to construct other facilities without submitting those to safeguards. Brazil purchased only part of the items covered by its deal with Germany. At the same time it developed what became known as a "parallel programme" which was not under safeguards and which was intended for military purposes, both the development of propulsion units for the navy and, presumably, the production of nuclear material for explosive purposes. This effort was stopped in the 1990s and Brazil has since joined both the Tlatelolco Treaty and the NPT.

initial NSG members except France were members of the Zangger Committee) is that, beside the fact that they applied also to NPT parties, the Guidelines drawn up by the NSG listed, among other things, items in regard to which exporters should "exercise restraint" – that is, the export of such items was to be discouraged. Furthermore, supplier nations could set certain conditions, including the requirement that their consent would have to be obtained before uranium enrichment equipment would be used to achieve an enrichment level above 20 per cent; the requirement that they would have to give their consent before material supplied or obtained from supplied facilities was reprocessed; and before certain "sensitive" items were re-exported. For the first time, the Guidelines also required that physical protection would have to be provided for all items on the Trigger List.

The membership of the NSG has since grown to almost 30. Most recently it has dealt with the issues of guidelines governing the export of dual-use materials and technology; i.e. items defined as having "*legitimate non-nuclear uses, but [which] if diverted, could make a major contribution to nuclear explosive and unsafeguarded nuclear-fuel cycle activities*". Under the Guidelines, such items may only be transferred to a non-nuclear-weapon state if they are accompanied by IAEA or equivalent (e.g. EURATOM) safeguards. Here also, the suppliers' veto over retransfers applies.

Ever since the NSG was created, the fact of its existence has been the object of severe criticism on the part, especially, of developing countries, which maintain that the restrictions practised by what is often pejoratively called the "Suppliers' Club" run counter to the letter and the spirit of the NPT. To recall: Article IV of the Treaty confirms the "*inalienable right of all the Parties to the Treaty to [benefit from the] use of nuclear energy for peaceful purposes without discrimination*". Supplier states, on the other hand, note that the pertinent provision of Article IV ends with the phrase "*... in conformity with Articles I and II of this Treaty*": the Articles of this Treaty, which forbid nuclear-weapon states to help non-nuclear-weapon states obtain or produce nuclear weapons, respectively contain the obligation for non-nuclear-weapon states to refrain from obtaining or producing nuclear weapons. Suppliers accordingly maintain that it is part of their basic obligations under the Treaty not to supply anyone with the means to make nuclear weapons.[15]

Developing states have expressed this criticism most clearly in the framework of the United Nations, and in the five-yearly Review Conferences of the NPT. Those conferences, which serve the purpose of "*..[reviewing] the operation of the Treaty with a view to assuring that [its] purposes are realised*",[16] are the obvious forum for a discussion between those states parties that emphasise the primacy of the 'inalienable right' confirmed in Article IV, of obtaining any facility, material or technology that would serve their nuclear programme and those who stress that a watertight non-proliferation regime requires the imposition of certain unavoidable restrictions. The issue is a traditional subject of profound disagreement, fuelled by the fear of developing nations that industrial states may use their supposed preoccupations about nuclear proliferation to deprive potential competitors of the means to develop their own nuclear industries, and also to discriminate among recipient states.[17] There have been attempts to bridge the gap, but this has proven to be difficult.

15. For a good, brief exposé on the rationale of nuclear export controls, see the Editor's Preface in Harald Müller, Editor, *Nuclear Export Controls in Europe*, European University Press, Brussels, 1995; 275 pp.

16. NPT, Article VIII, 3. Review Conferences have been held every five years since 1975. The Review Conference of 1995, 25 years after the entry into force of the Treaty, was combined with the 'extension conference' foreseen to be held that year in accordance with Article X, 2. That conference decided that the Treaty should continue in force indefinitely. The next Review Conference is due in the year 2000.

17. A case in point is the situation of Iran (Islamic Republic of) as against that of the DPRK. In the 1970s, German firms were in the process of constructing a two-unit nuclear power station near Bushehr on the shore of the Persian Gulf. With the advent of the Iranian revolution work stopped and during the Iran/Iraq war of the early

Suggestions for some form of involvement of actual or potential recipient states in the deliberations of the NSG have not so far been met, and it is too early to say whether and in what form they might eventually be realised. However, the NSG are taking steps to give greater transparency to their work. As a first step, a working group on transparency has been created, which in October of last year, held a seminar in Vienna to explain the NSG's activities and receive views from delegations of states that do not belong to the NSG. At a subsequent session of the Preparatory Committee for the NPT review conference of 2000, however, this effort did not seem to have struck the critics of the NSG as particularly convincing by itself, although the fact that suppliers and recipients had been able to discuss their differences seemed to have been appreciated as representing some progress. The matter remains a potential source of conflict, however, capable of weakening the non-proliferation regime, and the two sides need to continue efforts to find some form of accommodation.

Supporting Measures: The Security Council

Reverting to what might be called the category of basic measures that underpin the non-proliferation regime, mention should be made here especially of various declarations which reflect the intentions of states with regard to the regime. As indicated in endnote number 2 to this paper, taking the text of the Charter literally, this would appear not to present an immediate legal or political basis for any UN activities in the area of non-proliferation, and could not be seen as the basis for the global non-proliferation regime. In the aftermath of the discovery of Iraq's clandestine efforts to produce a range of weapons of mass destruction and the means to deliver them, the UN Security Council, on 31 January 1992, took the unprecedented step of interpreting the Charter through a statement of its President, which, to all intents and purposes, said that it was one of the tasks of the Security Council to deal with the proliferation of all weapons of mass destruction. In the President's declaration, the Council pronounced proliferation to constitute a threat to international peace and security, the area of Chapter VII of the Charter, where the Council has its pre-eminent responsibility. In addition, according to the Declaration, the members of the Council "*... commit [ed] themselves to working to prevent the spread of technology related to the research for or production of such weapons and to take appropriate action to that end*".[18] The Declaration, further, refers to the NPT and emphasises "*the integral role in the implementation of that Treaty of fully effective IAEA safeguards, as well as the importance of effective export controls*". In so doing, the Security Council's

1980s, a partially completed structure was damaged by aerial bombardment. Since then, several western countries, in particular the USA, have expressed the suspicion that Iran is engaged in a nuclear weapons programme and have called for a stop to any nuclear exports to that country. The Russian Federation has made a deal with Iran to complete the power station and the US is involved in an ongoing campaign to dissuade Moscow to go through with this plan. On the other hand in the early 1990s, the DPRK, like Iran a party to the NPT and subject to full-scope IAEA safeguards, was suspected of producing plutonium for weapons purposes in a research reactor that was under safeguards and of being in the midst of constructing several large plutonium-producing reactors. Trying to have this ambitious programme stopped, the USA made a deal with the DPRK (known as the 'Agreed Framework') under which, among other things, the USA, Japan and South Korea will construct in the North two large power reactors and, pending the start of operations, supply the North with the heavy fuel oil it needs to meet its energy requirements. Meanwhile, the DPRK has undertaken to freeze its own nuclear programme and to allow a limited measure of IAEA safeguards (which, when it was confronted with its clandestine nuclear activities, it had rejected altogether). The juxtaposition of a country that is suspected of being interested in the development of nuclear weapons being denied nuclear supplies as against a country that is found out in a clandestine activity and is, as some see it, rewarded with nuclear supplies, is obviously anomalous. For details about the nuclear situations in the two countries, see Rodney W. Jones and Mark G. McDonough, with Toby Dalton and Gregory Koblentz, *Tracking Nuclear Proliferation: A Guide in Maps and Charts, 1998*, Carnegie Endowment for International Peace, Distributed by Brookings Institution Press, pages 147-160 and 169-186.

18. UN Document S/PV.3046.

Declaration obviously, if to some extent retroactively, legitimises non-proliferation measures such as those contained in the NSG Guidelines.

Questions of Enforcement

The Declaration of the Council's President also contains the statement that "*The members of the Council will take appropriate measures in the case of any violations notified to them by the IAEA.*" This raises the difficult issue of enforcement; i.e. the question of what international organisations can do if it is determined that states are in non-compliance with treaty undertakings. The IAEA's Statute says that if inspectors find any non-compliance they must report this to the Agency's Director General, who shall transmit that report to the Board of Governors. The Board in turn must call on the state or states concerned to "*remedy forthwith any non-compliance which it finds to have occurred*" and it also must report this to all member states, to the Security Council and to the UN General Assembly. If the state does not "*take fully corrective action within a reasonable time*", the Board may curtail or suspend assistance given by the Agency to the state (which of course only applies if the safeguards violated pertain to items provided by the Agency) or it may suspend the state from the exercise of the privileges and rights of membership.

This is clearly not a very impressive remedy, although in some cases the fear of the publicity which the Board is supposed to give to the infringement may operate as a deterrent. More important is the authority of the Security Council in such a case – laid down in the IAEA's Statute, as we have seen, but since the Declaration of 1992 recognised to be implicit in the Charter. In the case of Iraq the Council has shown that if it is of one mind it can impose far-reaching sanctions. Even where it does not do so, as in the case of the DPRK, an unambiguous reprimand from the Council can give a state or group of states political support for action towards a solution. The problem, as always, is in the way the Security Council decisions are adopted: those need not only a majority of the members, but among them all five permanent members must concur. These days, we see that, in the case of Iraq, the United States and Great Britain are in favour of keeping the sanctions in full effect until Iraq has clearly shown that it has divested itself of all weapons of mass destruction and all the means to produce them. Russia and France, on the other hand, who have strong commercial interests in Iraq, want the sanctions lifted or at least softened. Even though, as this is being written, Iraq is adopting an uncooperative attitude towards any UN verification activities, there does not appear to be a consensus among the permanent members in favour of a forceful response. It is highly unlikely that there would be a consensus among the permanent members in favour of military action, should Iraq wish to profit from the situation by renewed non-co-operation. In the DPRK, one of the reasons why the USA had to resort to a policy of what might be described as bribery, was that China opposed an outright condemnation by the Security Council. Since this paper was originally drafted the DPRK also seems to have adopted a much more assertive attitude. In short, as usual in international affairs, except in the extremely rare case that the entire international community can agree on specific retaliatory action, it is extremely difficult to punish the violation of a Treaty obligation.[19]

Security Assurances

The issue of nuclear weapons is, in the first place, a matter of security: the security of the nuclear-weapon States, which think they need them, mainly for deterrence, and the security of the

19. See Fischer and Szasz, *op. cit.*, pages 135-152.

non-nuclear-weapon States, which wish to be spared from falling victim to their use. When the NPT was negotiated, over 30 years ago, the non-nuclear-weapon States sought to balance their renunciation of nuclear weapons against an undertaking from the nuclear-weapon States that they would reduce and eventually eliminate their nuclear arsenals. Meanwhile, until the nuclear playing field would be levelled, when all states would be "non-nuclear", and the probability of nuclear weapons being used would be reduced to practically zero, the non-nuclear-weapon States sought a means of preventing nuclear weapons from being used against them. They did so, in the first instance, by seeking binding assurances from the States with nuclear weapons that they would not use them against States that did not have such weapons. The non-nuclear-weapon States worked hard to get a provision of this kind incorporated into the NPT but they did not manage to persuade the others. Ever since, they have called for the adoption of a generally applicable international convention on security assurances. It goes without saying that if the non-nuclear-weapon States could be sure that nuclear-weapon-States would not use such weapons against them, they would find it easier to adhere to the regime that obliges them forever to abstain from acquiring nuclear weapons.

In June 1968, when the negotiations on the NPT were complete, the three depositary states of the Treaty, the USSR, the UK and the USA, expressed the intention that they would provide or support immediate assistance, in accordance with the Charter, to any non-nuclear-weapon State Party to the NPT "*that is a victim of an act or an object of a threat of aggression in which nuclear weapons are used*". The Security Council took note of this in its resolution 255 (1968), of which the preamble specifically referred to the concern of non-nuclear-weapon States Party to the NPT that in conjunction with their adherence to the Treaty, appropriate measures be undertaken to safeguard their security. A more extensive resolution to the same effect was adopted shortly before the opening of the 1995 NPT Review and Extension Conference; this time the undertaking, i.e. the security assurances, came from all five recognised nuclear-weapon States.[20]

The two resolutions contain "positive" security assurances, under which the nuclear-weapon States promise their help in the case of attack or threat of attack by nuclear weapons on non-nuclear-weapon States. As such, they are no doubt important elements of the regime. However, the world-wide legally binding assurance **not** to use nuclear weapons against non-nuclear-weapon States, which the majority of non-nuclear-weapon States have been seeking for so long, is still missing. This is seen by many as a serious shortcoming in the non-proliferation regime as it stands now, and it is a source of controversy at each Review Conference.

Nuclear-Weapon-Free Zones

Up to this point the paper has dealt with the global aspects of the non-proliferation regime. This also has some significant regional components. So far, four treaties have been concluded for the denuclearisation of specific inhabited regions: the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Treaty of Tlatelolco) of 1967; the South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga) of 1986; the African Nuclear-Weapon-Free Zone Treaty of 1996 (Treaty of Pelindaba); and the Treaty on the Southeast Asia Nuclear Weapon-Free Zone (Treaty of Bangkok) of 1995. There are also two treaties that ban nuclear activities in specific non-populated areas: the Antarctic Treaty of 1959, which prohibits all nuclear activities in that area, and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, the so-called Outer Space Treaty of 1967, in which States Parties

20. See note number 10.

undertake "*not to place in orbit around the Earth any objects carrying nuclear weapons or any other kind of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner*".

The nuclear-weapon-free zone arrangements have many elements in common: they all prohibit the manufacture and acquisition by their member states of nuclear weapons and the deployment of such weapons on their territories, and demand safeguards that are as a rule applied by the IAEA.[21] Several of them also include provisions regarding peaceful uses of nuclear energy. They also generally include protocols pursuant to which non-regional states that have geographical responsibilities in the region undertake to behave there as countries from the region and undertake not to use or threaten the use of nuclear weapons against the region.

This last-mentioned feature briefly brings us back to the issue of security assurances. All the agreements that provide for the establishment of non-nuclear-weapon zones also contain some form of annex or protocol under which nuclear-weapon states commit themselves not to use, or threaten the use of, nuclear weapons against the states of the zone. By thus associating themselves with the zonal arrangements, nuclear-weapon states in fact give the members of the zone a binding negative security assurance.[22] Nuclear-weapon-free zones are not only important building blocks in the non-proliferation regime, but they also serve as vital elements of their members' security.

The first of the series of present nuclear weapon-free zones,[23] the Tlatelolco Treaty, has become the model for all others. It is older than the NPT and is obliquely referred to in the latter Treaty's Article VII, which says that "*Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories*." The somewhat negative tone of the article reflects the doubt of western delegates to the NPT negotiations about the value of the Tlatelolco Treaty and the more general concern that the concept of nuclear-weapon-free zones was to some extent contrary to the (nuclear) first-use doctrine of the western nuclear-weapon states. The latter were disposed in particular against suggestions from members of the Warsaw Treaty Organisation for the establishment of nuclear-weapon-free zones in Central Europe and the Balkans, which the West considered incompatible with NATO's nuclear policies. Moreover, the United States navy was concerned that its freedom of movement on the high seas might be impeded by the constraints of an international treaty.[24] Nevertheless, over the years the

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21. In the framework of the Tlatelolco Treaty, Argentina and Brazil, which for long had avoided the acceptance of full-scope IAEA safeguards, have agreed on an interesting combination of bilateral inspection and verification that has been associated with the IAEA's safeguards system more or less along the lines of the arrangements made between the IAEA and Euratom for the application of safeguards in the latter's territory. A good description of the background of this arrangement can be found in a chapter "Factors in the Decisions by Argentina and Brazil to Accept the Non Proliferation Regime" by Dr. John R. Redick, in Barry R. Schneider and William L. Dowdy, *Pulling Back from the Nuclear Brink*, Frank Cass Publishers, London and Portland, Oregon, 1998, pages 67-79.

22. Not all nuclear-weapon States have yet adhered to every Protocol of every nuclear-weapon-free zone arrangement. In adhering, in some cases nuclear-weapon States customarily stipulate certain exceptions to their assurance.

23. A very informative series of articles about the Treaty can be found in *Disarmament, a periodic review by the United Nations*, Vol. XI, No. 1, Winter 1987-1988, pages 61-91. The author of the first article, the late Mexican Ambassador Alfonso Garcia Robles, is generally considered the father of the Treaty; he received the Nobel Prize for this achievement.

24. The book by David Fischer, *Towards 1995: The Prospects for Ending the Proliferation of Nuclear Weapons*, United Nations Institute for Disarmament Research (UNIDIR), Dartmouth Publishing Company, Aldershot, UK and Brookfield, USA, 1993, 292 pp., contains a chapter devoted to nuclear-weapon-free zones, which gives a good, short survey of the rationale for such zones and of proposals for additional ones.

concept of nuclear-weapon-free zones has gained considerable support and they are now also recognised by former opponents as potentially useful elements of the non-proliferation regime.

In 1975, a comprehensive study of the nuclear-weapon-free zone concept was made by a study group working under the auspices of the Conference of the Committee on Disarmament (the forerunner of the present Disarmament Conference), in Geneva.[25] While this did not do much more than reiterate the principles reflected in the Tlatelolco Treaty, it contributed to keeping the positive trend alive. This is illustrated in the Final Document of the Tenth Special Session of the General Assembly, on disarmament, that was held in New York in the late spring of 1978. Paragraph 60 of the Final Document, repeating a conclusion reached in the study, states that "*The establishment of nuclear-weapon-free zones on the basis of arrangements freely arrived at among the States of the region concerned constitutes an important disarmament measure.*" In the three paragraphs that follow, the Final Document paraphrases the study in listing the modalities of creating such zones and refers to several areas where such zones either exist or might usefully be set up.

One of the areas referred to in the Final Document was the African region. At the time, it seemed doubtful that Africa could be denuclearised. South Africa was suspected of having nuclear ambitions (rightly, as it turned out) and there were also suggestions that Algeria, which was about to embark on a sizeable nuclear research programme, might have military plans in that area. Nevertheless, persistent efforts in the framework of the Organisation of African Unity and the United Nations resulted, within a little over a decade, in the development of a nuclear-weapon-free zone for Africa. Fundamental changes in South Africa's domestic policy in 1990 were followed by the disclosure in 1993 that it had manufactured seven nuclear devices, that it had dismantled them and that it would accede to the NPT as a non-nuclear-weapon State. To underpin the public recognition that its security would be best served by the demonstrated renunciation of the nuclear option, Pretoria gave the IAEA safeguards staff every possibility to verify that all nuclear material was present and accounted for.[26]

The decisive factor in the creation of the Tlatelolco Treaty was the Cuban missile crisis, when Latin and Central American countries came face to face with the real possibility that they might soon be in the middle of a nuclear missile exchange. The Rarotonga Treaty came about primarily because Pacific Islanders, mindful of the nuclear tests that earlier had made some of their territory uninhabitable and were still going on in Mururoa and Fangataufa, hoped to be able to banish all nuclear testing from their area; they also sought to prevent the dumping of nuclear waste in the region. The birth of the African zone was initially hastened by concern about South Africa and eventually facilitated by events in that country. The Treaty of Bangkok is seen as conceived in the first place to ban Chinese and American nuclear weapons from the region; its drafters no doubt also hoped to ensure the absence of nuclear weapons from all of southern Asia. The Bangkok Treaty was sometimes seen as a step towards the encirclement of the entire southern hemisphere with a nuclear-weapon-free belt, but this move has been frustrated by the recent tests in southern Asia.

Mention must be made here of several proposals for further nuclear-weapon-free zones, among them a proposal by Belarus for a nuclear-weapon-free zone "from the Baltic to the Black Sea"; the active campaign of Central Asian states for a zonal arrangement in their region; and the move by

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25. *Comprehensive Study of the Question of Nuclear-Weapon-Free Zones in all its Aspects*, Special Report of the Conference on Disarmament, United Nations, New York, 1976, 98 pp., UN sales no. 76.I.7.

26. See Olu Adeniji, *"The African Nuclear-Weapon-Free Zone Treaty: The Pelindaba Text and its provisions"*, in *Disarmament*, a periodic review by the United Nations, Vol. XIX, No. 1, 1996, pages 1 - 20.

the two Koreas, so far frustrated, to denuclearise their peninsula. These initiatives are worth pursuing; nuclear-free zones are a concept whose time may have come in many parts of the world, where regional problems call for regional solutions. A prominent proposal, made originally by Iran with specific reference to nuclear weapons, and strongly pushed ever since by Egypt, to make the Middle East into a zone free of weapons of mass destruction, has been under discussion virtually ever since there were reports about Israel's nuclear-weapon programme. This is an issue of heated dispute in many international fora, prominent among them, NPT Review Conferences. There is clearly little chance of an early agreement on this subject. Meanwhile, reports of other states of the region harbouring nuclear-weapon ambitions add to the relevance of the subject.

PTBT and CTBT

The nuclear non-proliferation regime is further supported by a variety of agreements of global scope of which the rationale is as much disarmament as non-proliferation. Foremost among those are the two treaties that prohibit nuclear testing: the Limited (or Partial) Test Ban Treaty (PTBT), which bans nuclear weapon tests in the atmosphere, in outer space and underwater, and entered into force in 1963, and the Comprehensive Test Ban Treaty (CTBT), which was opened for signature in September 1996. The main reason why a prohibition on nuclear tests is considered as a non-proliferation measure is that, while a simple nuclear device could probably be put together without testing with the reasonable expectation that it will explode, it is said to be very difficult, if not impossible, to produce a more sophisticated so-called "boosted" weapon without making sure of its effectiveness through a nuclear test.

Control and Reduction of Nuclear Material

For completeness' sake, mention should be made also of a different approach to reinforcing the non-proliferation regime, which is by adopting measures that reduce the risk of nuclear-material diversion, in addition to safeguards and export controls. Among such measures there have been various schemes – both global and regional – for the storage under international (i.e. the IAEA's) supervision of plutonium not immediately required for peaceful uses by the countries participating in the scheme.[27] Another idea has been the creation of international fuel-cycle projects and the co-location of facilities that would operate under some form of international authority; this presumably would reduce the possibility of diversion, facilitate the application of safeguards and cut down on transport of nuclear material. One variation on this theme is the initiative of the two major nuclear-weapon states of submitting nuclear material from their military stockpiles, that has been declared surplus to their needs, under international safeguards. The ways in which this is to be carried out is under active discussion; one technical issue to be solved is how to do this without revealing to the international inspectorate, classified information. One proposal which has long been the subject of serious consideration and which was explicitly mentioned by the NPT Extension Conference of 1995 as a high priority among necessary nuclear non-proliferation and disarmament steps, is an internationally supervised agreement on the cut-off of the production of nuclear materials for weapons purposes – the Fissile Material Cut-Off Treaty (FMCT). Discussions on the FMCT are currently taking place in the Geneva Conference on Disarmament, but disagreements on several

27. Article XII, A 5 of the Agency's Statute makes express provision for this measure, by giving the organisation the "right" to "require" that surplus plutonium be deposited with it. This provision is a vestige of the Baruch Plan, which foresaw direct control over nuclear material.

aspects, particularly the scope of the Treaty (should it cover just the production of further fissile material or should it also pertain to stocks of material already produced?) as well as the extent and mode of verification, have so far prevented it from being realised.

Physical Protection

The Advanced Training Seminar for which this article was originally produced has given much attention to the physical protection of nuclear material against theft and diversion, during national and international transport, and the protection against sabotage of nuclear facilities. In assuring that nuclear material remains where it is supposed to be, physical security is a logical corollary of nuclear safeguards. International efforts in this area began in the early 1970s, when the IAEA began to publish recommendations for the physical protection of nuclear material. In 1977, the Agency published a comprehensive set of non-binding recommendations for States' systems of physical protection; requirements for protection of nuclear material in use and storage, and for physical protection of nuclear material in transit.[28] The initial modest approach was a lead-in to an ever wider effort to encourage states to agree on protection standards for nuclear material in international transport and domestic use, storage and transport. Following suggestions made at the first Review Conference of the NPT, in 1975, the idea took hold of incorporating some of the recommendations into a Convention. Accordingly, the Convention on the Physical Protection of Nuclear Material was opened for signature in March 1980; it entered into force in 1987. Since then, there have been proposals for revision and extension which remain under active consideration.

The issue of physical protection is evidently connected with countries' domestic security and the maintenance of law and order. The IAEA has always used great caution towards attempts to internationalise activities in this field to avoid infringing upon states' sovereign rights. States have become well aware of the importance of the issue, however, and are increasingly prepared to be advised on the subject, in the interest of security and safety.

Nuclear Material Trafficking

A relatively new feature in the nuclear non-proliferation context is that of international trafficking in nuclear materials. So far, this phenomenon has appeared only in very few instances. Cases reported in the press have pertained so far to only small quantities of nuclear material relevant for nuclear-weapon production. The great majority of smuggling cases of nuclear material involved very small quantities and rarely anything but natural or low-enriched uranium, viz. nothing directly useful in a military programme. The majority of cases pertained to other radioactive material – sometimes by itself potentially harmful but of no relevance to the production of nuclear weapons. However, even if the risk of significant quantities of nuclear material suitable for use in a weapons programme being obtained by individuals or governments interested in the production of such weapons is small, the potential effects are so large that it cannot be disregarded. The great majority of states, if perhaps not all, will do what they can to minimise that risk. This is clearly part of every state's police functions; the only aspects of the issue that might lend themselves to international action are the exchange of information on instances of nuclear-material trafficking – such as the nature of the material involved; the source from which and the way in which it was obtained; the perpetrator(s); the route by which it is being, or has been, smuggled; and the presumed destination –

28. See IAEA document INFCIRC/225/Rev.1, of June 1977.

and possibly the provision of advice on experiences gained by states in attempts to prevent and/or follow up on cases of nuclear-material trafficking. Efforts of this kind can form a valuable element of the non-proliferation regime.

Conclusion

This summary tries to show that no single measure by itself can prevent the spread of the capability to manufacture nuclear weapons. The world community, regional organisations, and individual countries have devised a multitude of ways to reduce the risk of a nuclear weapons spreading. The resulting set of agreements, understandings, regulations, adopted in a world-wide, regional and national context, forms a variegated, kaleidoscopic structure with great strengths as well as large holes. That structure has met its purpose in important cases and it has failed in other instances.

This paper has tried to indicate, in very general terms, how the structure – which for want of a better term we call the non-proliferation regime – came about and how it operates – or is meant to operate. It is of the greatest importance that government officials and academics involved in the topic should be aware that it is each of their States and every one of their governments that must do what they can to make the regime work and to reinforce it where it shows shortcomings. From the enforcement of Security Council sanctions in cases of non-compliance, down to police action against traffickers in radioactive materials, it is States that must make the regime function, in their own enlightened interest, just as it is States' ignorance and lack of care that can make it fail. It is States' rules and regulations and the way they are enforced that form the foundations on which the regime is built. And it is through co-operation between States that the requirements of the non-proliferation regime can be met and its promises can be converted into reality.

The New Austrian Act on Third Party Liability for Nuclear Damage

by Monika Hinteregger∗

Introduction

On 7 October 1998, the Austrian Parliament adopted the Federal Law on Civil Liability for Damages caused by Radioactivity[1] which completely re-examines the principles governing liability for damages caused by ionising radiation. It governs the operation of nuclear plants, the carriage of radioactive material and the handling of radionuclides. The new liability law enters into force on 1 January 1999 and covers nuclear damages that are caused after this date. It replaces the 1964 Law on Civil Liability for Nuclear Damage (Atomhaftpflichtgesetz),[2] which, however, will remain applicable for nuclear damages caused before 1 January 1999.

The deficiencies of the 1964 law, discovered by the public in the wake of the Chernobyl disaster, have been the subject of legal[3] and political debate for the last decade. In the first place, it was deemed bizarre that the law only applied to nuclear installations situated in Austrian territory, in light of the fact that the operation of nuclear power plants in order to produce electrical energy is, due to a 1978 referendum, prohibited by law.[4] In Austrian territory there are only three small research reactors, which present comparatively low risks to their environment. The hazards of foreign nuclear power plants, however, were only covered by fault-based liability and nuisance law,[5] originally intended to regulate conflicts between neighbouring land owners.[6] Extremely low liability amounts and the fact that liability was restricted even in cases of negligence on the part of the liable person were considered an unfair privilege granted solely to the nuclear industry.

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1. *Bundesgesetz über die zivilrechtliche Haftung für Schäden durch Radioaktivität (Atomhaftungsgesetz 1999).*

2. *Bundesgesetz vom* 29 April 1964 *über die Haftung für nukleare Schäden (Atomhaftpflichtgesetz), BGBl 1964/117.* This law was substantially amended by the Federal Law, BGBl I 1997/140, that entered into force on 1 July 1998.

3. Helmut Koziol: *Österreichisches Haftpflichtrecht,* Vienna, 1984, vol. 2, 2nd ed., pp. 445 - 482; Georg Wilhelm: *Betreffs Atomhaftpflicht Handlungsbedarf!* ecolex 1996, pp. 653-654; Monika Gimpel-Hinteregger: *Das österreichische Atomhaftungsrecht,* in: *Umweltbundesam*t, Atomare Risken – Wirtschaftliche und rechtliche Aspekte, Vienna 1997, pp. 50-59.

4. *Atomsperrgesetz, BGBl 1978/676.*

5. Section 364 (a) of the Austrian Civil Code (ABGB).

6. See Monika Gimpel-Hinteregger: *Das österreichische Atomhaftungsrecht,* in: *Umweltbundesamt, Atomare* Risken – *Wirtschaftliche und rechtliche Aspekte,* Vienna 1997, pp. 55-56.

In the course of this discussion, heavy opposition was raised against the principle of legal channelling as well. Although Austria has not yet ratified either the Paris[7] or the Vienna Convention,[8] the old Austrian law concentrated liability for nuclear damage exclusively on the operator of the nuclear plant. Combined with the operator's limited liability or limited resources, this inevitably meant a detriment to the legal position of the injured person that was unique in Austrian tort law. Furthermore, releasing every other person, especially the supplier of services or products, from liability, involves the risk of inducing these persons to reduce the level of care exercised.

It soon became quite clear that the field of third party liability for nuclear damages needed radical change. In 1995 the Austrian Parliament adopted a resolution[9] in which the Federal Government was requested to revise and modernise the Austrian Nuclear Liability Law, and above all to adjust liability amounts to reflect the hazardous nature of nuclear installations, to abate the privileges operators of nuclear plants enjoy under fault-based liability and to eliminate legal channelling.[10] In addition, the Federal Government was ordered not to present the Paris Convention for ratification until essential improvements, namely the elimination of legal channelling, were made. As legal channelling is also indispensable for the accession to the Convention on Supplementary Compensation for Nuclear Damage ("SCC"),[11] this option, temporarily taken into consideration by some political pressure groups, was turned down too. Finally, the Federal Government and Parliament decided to completely break away from the approach toward nuclear liability law taken by the Paris and Vienna Convention.

The outcome of this political process, the new Nuclear Liability Law, stands in sharp contrast to the basic principles of international nuclear law. Liability is unlimited in amount. Legal channelling is, to a great extent, eliminated and there is no exclusive jurisdiction, as is provided for by international nuclear liability law. The new law makes sure that an Austrian court has jurisdiction, and that Austrian law is applicable, if nuclear damage occurs in Austria, regardless of where it was caused. Further contents of the new law are a substantial extension of the definition of nuclear damage and regulations in order to facilitate the proof of causality.

Although the Austrian legislature has decided not to be a part of the international nuclear liability regimes for the moment, this is not necessarily meant to be forever. The Austrian Parliament has taken an intense interest in the further development of the international nuclear liability system. According to Section 30 of the new Nuclear Liability Act, the Federal Government is obliged to report regularly to the Parliament on the development of the international instruments on nuclear liability. In a simultaneously adopted resolution,[12] the Parliament holds out the prospect of revising its decision if the international system of nuclear liability improves to such an extent that it is able to ensure adequate compensation for nuclear damages. For that purpose, the Federal Government is

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7. Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960 (as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982).

8. Convention on Civil Liability for Nuclear Damage of 21 May 1963, IAEA Legal Series, No. 3, Re. 10, Agreement No. 1277.

9. Resolution of 9 February 1995, 89 BlgNR XIX.GP.

10. These requirements were repeated by the Resolution of 10 July 1997, 74 BlgNR XX.GP.

11. Convention on Supplementary Compensation for Nuclear Damage of 12 September 1997.

12. Resolution of 7 October 1998, 1415 BlgNR XX.GP, annex 2.

further requested to continue participating actively in international negotiations in order to support the development of this system.

Major provisions of the new Nuclear Liability Act

1. Scope of liability

The Nuclear Liability Act 1998 covers two different fields of liability: liability for damages caused by radiation from nuclear plants and nuclear material and liability for damages caused by radiation from radionuclides. The damage may be caused by ionising radiation alone or in combination with the other hazardous properties of the nuclear material or radionuclide.[13] The definition of nuclear material follows the definition given by the Federal Law Establishing a Security Control in the Field of Nuclear Energy,[14] which itself is based on Article 18 of the Convention on the Establishment of a Security Control in the Field of Nuclear Energy.[15] According to this definition the term nuclear material means "special fissionable material"[16] and "source material".[17] A nuclear plant is a plant containing nuclear material in such an arrangement that a self-sustaining chain process of nuclear fission can occur, such as nuclear reactors or facilities for the production, processing, utilisation, storage, reprocessing or disposal of nuclear material, including isotope isolation plants. Liable persons are the operator of a nuclear plant, the carrier of nuclear substances and the holder of radionuclides.

The liability imposed on the operator of a nuclear plant and the carrier of nuclear material is unlimited, is irrespective of fault, and does not depend on the occurrence of a nuclear incident. The carrier is liable for damages caused during the carriage of nuclear material by land, air or sea unless he or she proves that he or she neither knew nor should have known that the goods transported were nuclear material.[18] The operator of a nuclear plant is the holder of the licence and any other person who is entitled to control the operation of the nuclear plant and who actually derives or is at least in the factual or legal position to derive its operating profits.[19] This allows for the possibility of piercing the corporate veil in cases where intercorporate regulations abusively exempt the controlling company from liability by shifting the liability to an under-endowed operating company. The operator of a nuclear plant is liable for all damage caused by the operation of the plant including the dismantling of the plant and the disposal of radioactive inventory.[20] The operator's liability also

13. See Section 5(1) concerning radioactive substances and Section 9(1) concerning radionuclides.

14. *Sicherheitskontrollgesetz*, BGBl 1992/415.

15. BGBl 1960/20.

16. Article II section 1 sub-paragraph 1: The term "special fissionable material" means plutonium-239, uranium-233, unranium enriched in the isotopes 235 or 233, any material containing one or more of the foregoing, according to the statute of the IAEA.

17. Article II section 1 sub-paragraph 3: The term "source material" means uranium containing the mixture of isotopes occurring in nature, uranium depleted in the isotope 235, thorium, any of the forgoing in the form of metal, alloy, chemical compound, or concentrate.

18. Section 4.

19. Section 2 sub-paragraph 4.

20. Section 3(1).

covers damages caused outside his or her plant by radioactive material originating from the plant if the damage is caused before another operator has taken charge of this material, or, where the material was sent to the operator, if the damage is caused after the operator has got the legal right to dispose of the material.[21]

The operator's liability under the Nuclear Liability Act does not cover damages to the nuclear plant itself and to any other nuclear plant, in operation or under construction, situated on the same site, or to any property on the site of the plant which is used or was used in connection with that plant. The carrier shall not be liable for damages to the means of transport used to forward the nuclear substances involved.[22] Apart from this exemption, no grounds of exoneration from liability are provided. Events like acts of armed conflict, hostilities, civil war or insurrection, as provided for in the Vienna[23] or the Paris Convention,[24] do not discharge the operator or carrier from liability. It is presumed that, even under such circumstances, it is up to the liable person to take adequate precautions.

The operator of a nuclear plant situated on Austrian territory is required to maintain insurance covering his or her liability for nuclear damage of at least 5.6 billion ATS (approximately 400 million Euro) plus 560 million ATS (40 million Euro) for interest and costs. For research and pilot plants, the minimum amount is fixed at 560 million ATS plus 56 million ATS for interest and costs.[25] The carrier of nuclear material is obliged to maintain insurance coverage of at least 560 million ATS plus 56 million ATS for interest and costs. For the carriage of source material, the minimum amount is 56 million ATS plus 5.6 million ATS for interest and costs.[26] This insurance has to cover all damages that are caused during its term of validity. Damages due to war, acts of armed conflict, hostilities, civil war, riot or insurrection are excluded from the scope of the insurance policy.[27]

The liability imposed on the holder of radionuclides is fault-based.[28] The holder is exonerated from liability upon proof that due care was exercised by him (her) and his (her) employees. The burden of proof lies with the holder.[29] If the radionuclide was used for medical treatment, the holder's burden of proof is only related to the technical circumstances of the utilisation of the radionuclide. The proof of medical malpractice, on the other hand, is regulated by contractual liability law. Liability is unlimited and must be covered by financial security in the way and to the extent customary in the ordinary course of business.[30]

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21. Section 3(2).

22. Section 5(2).

23. See Article 4(3) of the Vienna Convention (as amended by the Protocol of 12 September 1997).

24. See Article 9 (providing that a grave natural disaster of an exceptional character is as ground of exoneration, unless excluded by national legislation).

25. Section 6.

26. Section 7.

27. Section 6(1) and Section 7(1).

28. See Section 9(1).

29. See Section 9(2).

30. See Section 10.

All claims can also be brought directly against the insurer. Where there are several insurers, the insurers are jointly and severally liable. The same holds true concerning the liable person and the insurer(s).[31]

2. Concurrent liability and multiple tortfeasors

Principally, liability for nuclear damage is not channelled to the operator of the nuclear plant or to the carrier of nuclear material. The Nuclear Liability Law does not restrict any liability obligations provided by other liability provisions. The injured person is free to assert his or her claim for nuclear damages against the operator of a nuclear plant or against the carrier of nuclear material pursuant to this law or to another law as well as to another person. Claims may be based, for example, on the general provisions of tort law, on products liability law or on state liability law.

The right of the injured person to enforce a claim by legal action against the supplier of products or services to a nuclear plant, however, is restricted. The action will be dismissed if the defendant can prove that an action against the operator will lead within a reasonable period of time to a decision, that this decision can be enforced, and that there are sufficient funds available to ensure compensation on behalf of the operator.[32] If this assumption proves false, the case against the supplier can be reopened. This provision is intended to make sure that responsibility for nuclear damages stays primarily with the operator, who is in the best position to prevent the damage and to provide insurance if damage occurs. Consequently, the operator's right of recourse is barred as well, unless, according to the relevant provisions of the Paris and the Vienna Convention,[33] the damage was caused by an act or omission done with the intent of causing damage, or unless the right of recourse is expressly provided for by contract.[34] With that, the costly necessity to duplicate insurance is reduced, although not totally omitted as it is under the scope of the Paris or Vienna Convention.

In cases of multiple causation, each tortfeasor is judged by the relevant liability law applicable. Insofar as the damage cannot be attributed to one tortfeasor, all of them will be held jointly and severally liable.[35] Contributory negligence on behalf of the injured party leads to apportionment of the loss.[36]

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31. Section 24.

32. Section 16(2).

33. See Article 6 sub-paragraph (f) of the Paris Convention and Article X of the Vienna Convention (as amended by the Protocol of 12 September 1997).

34. Section 19(3).

35. Section 18.

36. Section 15 in connection with Section 1304 Civil Code (ABGB).

3. Concept of nuclear damage

The definition of nuclear damage was significantly broadened.[37] The restrictions provided for by the old Nuclear Liability Law[38] were eliminated and, according to the new concept of nuclear damage as provided by the SCC and the revised Vienna Convention,[39] new categories of damage, such as environmental damage or costs of preventive measures, were introduced.

Section 11(1) provides simply that compensation of property damage also includes decontamination costs. Pursuant to this section, compensation for loss of life or personal injury and loss of property or damage to property shall be regulated by the general provisions of tort law. The person who has suffered such loss or damage is also entitled to claim economic losses arising from these damages.[40] In this context it is worth mentioning that it is a general principle of Austrian tort law that damage for personal injury covers compensation for pain and suffering, even when liability is absolute.

If the damage to property presents a significant impairment of the environment, costs of measures of reinstatement are to be reimbursed, even if these costs exceed the market value of the impaired good.[41] The plaintiff may ask for advance payment. The amount exceeding the market value of the impaired good, however, has to be refunded if restoration to the original condition is not performed within a reasonable amount of time. Impairment of the environment that is not at the same time damage to property does not entitle one to damages.

Liability for nuclear damage also comprises the costs of preventive measures taken to remove an imminent threat of causing damage. The entitlement to this claim lies with the person who actually has paid the costs.[42] "Further loss or damage caused by such measures", as provided for in Article 1(1) sub-paragraph (k)(vi) of the Vienna Convention and in Article I sub-paragraph (f)(vi) of the SCC, as well as "loss of income deriving from an economic interest in any use or enjoyment of the environment, incurred as a result of a significant impairment of the environment",[43] and "any other economic loss"[44] are only recoverable if that damage can be classified as loss of income. Even then, the claim is limited in amount. Together with compensation for nonpecuniary damage, pursuant to section 11, subsection 3, the amount must not exceed ATS 560 000 (approximately 40 000 Euro) per person.[45] Nonpecuniary damage will be awarded if a person, due to preventive measures or

37. See Section 11.

38. Section 12 of the old Nuclear Liability Law granted compensation for pain and suffering only on the condition of long infirmity. This restriction has already been eliminated by the amendment of 1997.

39. See Article I, sub-paragraph f SCC and Article 1(1) sub-paragraph k of the Vienna Convention (as amended by the Protocol of 12 September 1997).

40. As is expressly provided by Article I, sub-paragraph (f)(iii) of the SCC and Article 1(1) sub-paragraph (k)(iii) of the revised Vienna Convention.

41. Section 11(2).

42. Section 11(3).

43. Article 1(1) sub-paragraph k (v) of the revised Vienna Convention and Article I, sub-paragraph f (v) SCC.

44. Article 1(1) sub-paragraph k (vii) of the revised Vienna Convention and Article I, sub-paragraph f (vii) SCC.

45. Section 11(4).

radioactive contamination, is forced to undergo a radical and unwanted change of life, for example, the giving up of a home, job or business.

4. Proof of causation

Personal injury due to nuclear radiation ranges from acute radiation exposure, to only statistically registered damage, to genetic damage which will only come to bear on future generations. If radiation does not immediately lead to a specific radiation disease, the person affected by radiation will be in a difficult position to establish the causal link. To ease the burden of proof in such cases, Section 12(1) establishes a presumption of causality. If an injured person can submit reasonable evidence of having been physically exposed to nuclear radiation originating from a nuclear plant, from nuclear material or radionuclides, it will be presumed that the injury was caused by nuclear radiation, provided that nuclear radiation is known to be a cause of such damage. The presumption can be rebutted by the defendant by proving that it is probable that the damage was not caused by nuclear radiation. For the rebuttal it would be sufficient to show that in the case under consideration other causes were more probable than nuclear radiation.

This presumption of causality cannot be applied by a patient if radionuclides were used for the purpose of medical treatment.[46]

Sections 13 and 14 regulate the right of the person who has suffered nuclear damage to access to specific information held by the liable persons.

5. Jurisdictional provisions and applicable law

As liability is not limited in amount there is no need for exclusive jurisdiction. According to Section 22, the plaintiff has the right to bring the action or the motion for a temporary injunction both before the court in the jurisdiction in which the damage has been caused, as well as before the court in the jurisdiction in which the damage has occurred. Claims concerning preventive measures can also be brought before the court where the preventive measures were performed.

One main goal of the new law is to make sure that if nuclear damage, though caused in a foreign state, occurs in Austrian territory, an Austrian court will have jurisdiction and Austrian law will be applicable. Section 23, therefore, provides that Austrian law is applicable if radiation from a foreign territory causes nuclear damage in Austria. Under this precondition, the injured person has the right to require the application of Austrian law. However, if nuclear damage has occurred in a foreign territory, the situation is different. If Austrian law is applicable – a fact that is determined by the private international law of the state that has jurisdiction – the plaintiff will only be able to benefit from the Austrian law insofar as his or her national law would provide for compensation as well.[47] The plaintiff, therefore, can not recover for the loss if the damage, for instance, has already become statute-barred under this law, or if the required sum exceeds the provided liability amount, or if the action against the defendant was barred because of legal channelling. The main target of this provision, apart from the wish of providing an incentive for other states to grant the same benefits as the Austrian law, is to protect the Austrian suppliers to nuclear plants, as they are amongst the very

46. Section 12(2).

47. Section 23(2).

few suppliers in the world who, in future, will not be protected by legal channelling. While it seemed fair enough to make them liable for the damages they cause to Austrians and to nationals of states that do not provide for legal channelling, it was deemed out of proportion to give the right of legal action against a supplier to nationals of these states that reject such an action.

STUDIES

Regulatory and Institutional Framework for Nuclear Activities in the Slovak Republic*

I. GENERAL REGULATORY REGIME

1. Introduction

On 1 January 1993, the former Czechoslovakia was divided into the Slovak Republic and the Czech Republic. To ensure a smooth transition of legal regimes, it was agreed that, *inter alia*, all acts, regulations and decisions in the field of nuclear energy and ionising radiation would continue to apply until subsequent legislation was enacted, provided that such laws were consistent with the Constitution of the Slovak Republic.

On 1 April 1998, the National Council passed the Act on the Peaceful Use of Nuclear Energy (and on alterations and amendments to Act No. 174/1968 Zb.[48] on State Supervision of Work Safety as amended by Act of the National Council of the Slovak Republic No. 256/1994 Z.z.[49]) [Act No. 130/1998 Z.z.] (hereinafter referred to as the "Act"). It came into force on 1 July 1998 and provides a comprehensive framework for the regulation of nuclear activities in the Slovak Republic. Throughout the legislation there are provisions for implementing legal regulations, some of which have been promulgated, with others under preparation or still to be prepared. Until replaced by such implementing regulations, the regulations in force in the former Czechoslovakia remain in force, provided that such regulations are consistent with the new Act.

In the former Czechoslovakia, the principal authority regulating nuclear activities was the Czechoslovak Atomic Energy Commission (*Ceskoslovenska Komisia pre atómovúenergiu – CSAEC*). Its successor in the Slovak Republic is the Nuclear Regulatory Authority of the Slovak Republic (*Úrad Jadrového Dozoru Slovenskej republiky – ÚJD-SR*) (hereinafter referred to as the "Authority").

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* This study was prepared by the NEA Secretariat in co-operation with the Slovak authorities.

48. Zb. (*Zbierka*), meaning from the collection of laws of the former Czechoslovakia.

49. Z.z. (*Zbierka zákonov*), meaning from the collection of laws of the Slovak Republic, which start from 1 January 1993.

The responsibilities and tasks of the Authority are identified in Act No. 2/1993 Z.z., which specifies its independent status in nuclear safety matters.

The Slovak Republic is heavily dependent on external primary energy resources, importing more than 80 per cent of its needs, particularly oil, gas and nuclear fuel from the Russian Federation. This makes the efficient generation of electrical power of crucial importance. The unit cost of electricity generated by nuclear power plants in the Slovak Republic is half that of electricity generated by its fossil power plants.

At Jaslovské Bohunice there are two VVER 440/230 (first generation) and two VVER 440/213 (second generation) nuclear reactors, representing nearly half of the country's electricity production. Within Bohunice V-1 nuclear power plant (NPP), units 1 and 2 were commissioned in 1978 and 1980, respectively, and within Bohunice V-2 NPP, units 3 and 4 were commissioned in 1984 and 1985, respectively. An earlier unit at the Bohunice NPP (Bohunice A1) is in the process of being decommissioned. The Bohunice site includes an interim spent fuel storage facility for spent fuel from the VVER reactors, as well as facilities for radioactive waste treatment.

At Mochovce, an additional VVER 440/213 reactor was commissioned and connected to the grid in 1998, with a further reactor still under construction and due to be commissioned in 1999. Two more units of the same type are under consideration for this site for the first decade of the next century. Also at Mochovce, there is a disposal facility for low and medium level radioactive waste, which is currently in the process of being licensed.

2. Mining Regime

There has been no uranium mining in the Slovak Republic since its discontinuation in 1990. There are, however, still in force, mining laws which applied to the previous mining of uranium. These laws are as follows:

a) Section 34(1)(b) of Act No. 44/1988 Zb. on protection and utilisation of mineral resources (the Mining Act), as amended by Act No. 498/1991 Zb.;

b) Section 11 of Act No. 51/1988 Zb. on mining activities, explosives and State mining, as amended;

c) Section 5(c), Sections 6(1) and 6(2)(e) and annexes Nos. 9 and 10 to Decree of the Slovak Mines Inspectorate [*Slovensky bansky urad*] No. 89/1988 Zb. on rational utilisation of exclusive deposits, on permits for and registration of mining activities, as amended by Decree of the Slovak Mines Inspectorate No. 16/1992 Zb.

3. Nuclear Materials and Equipment

Section 9(1) of the Act defines "nuclear materials" as comprising the following "source materials": natural uranium, depleted uranium, thorium and any of these materials in the form of metal, alloy, chemical compounds or concentrates and materials containing one or more of the aforementioned substances in a minimum quantity of 0.005 kg; and the following "special fissionable materials": plutonium-239, 241, uranium-233, uranium enriched in 235 or 233 isotopes and materials containing one or more of the aforementioned isotopes in a minimum quantity of 0.005 g.

The Act exempts from the definition of "nuclear materials" uranium and thorium ore during mining and processing [Section 9(2)].

Nuclear materials may only be procured and used on the basis of a permit issued by the Authority [Section 10(1)]. The permit may be for a specified period of time, but the maximum period is ten years [Section 10(2)].

The general requirements for the issuance of an authorisation (both in respect of nuclear materials and for nuclear installations) are set out in Sections 5, 6 and 7 of the Act. In brief, Section 5 sets out the qualifications required of the applicant, Section 6 lays down the details required in the application form and Section 7 states when and in what form the decision must be issued by the Authority.

An authorisation is terminated on expiry of its period of validity, by a decision of the Authority to withdraw the authorisation, by the holder of the authorisation being struck off the commercial register, or, in the case of a natural person, by the death or declaration of death of that person [Section 8(1)]. An authorisation may be withdrawn or restricted by the Authority if: the holder of the authorisation ceases to meet the conditions under which it is issued; the holder of an authorisation, while carrying out activities, in some significant way threatens the life or health of persons or causes damage to the environment; or the Authority subsequently ascertains that the authorisation was issued on the basis of incorrect or incomplete information [Section 8(2)].

If a person has procured or is using nuclear materials and does not observe the obligations arising out of the permit and, further, does not remedy the breach within the period stipulated by the Authority, the Authority may require the nuclear materials to be transferred, at the expense of the person concerned, to another person who has an authorisation [Section 10(5)]. In the case of nuclear materials in respect of which the owner is not known or which were procured in violation of this Act, the Authority is required to order the holder of an authorisation to manage such materials, with reimbursement of the consequent expenses being made in accordance with Section 17(10) of the Act [Section 10(6)].

Under Section 12(1) any persons (legal or natural) who produce, process, store or procure nuclear materials are obliged to:

a) keep accounting and operational records of these materials and submit reports of the accounting records to the Authority;

b) appoint an employee with a special qualification, and his deputy, to keep accounting and operational records of control of nuclear materials, and notify the Authority of their names;

c) notify the relevant police authorities, the Ministry of Health and the Authority, without delay, of any loss or misappropriation of nuclear materials;

d) inform the Authority of any interference with equipment under surveillance by the Authority or an international organisation under an international safeguards agreement, and of any accident which led to or could have led to violation of the integrity of nuclear material; and

e) enable access, in the presence of inspectors from the Authority, of inspectors from international organisations under an international safeguards agreement governing nuclear substances, and to provide them with the necessary support during their inspections.

Details of the requirements for accounting and operational records, and for the control and notification of incidents relating to nuclear materials, are to be established by a regulation issued by the Authority [Section 12(2)]. Until then, the legal framework for nuclear material accountancy and control is set out in Regulations issued by the Czechoslovak Atomic Energy Commission [Regulation No. 28/1977 Zb. of 12 April 1977]. These are comprehensive in nature and, *inter alia*, nominate who is responsible [Articles 5 and 7], the details to be kept [Article 6], physical inventories to be taken [Article 8], reports to be made to the Authority [Article 9] and various other provisions aimed at ensuring the accurate tracking of nuclear materials.

The Authority plays a central role in the regulation of nuclear materials and its powers in relation to nuclear materials are, *inter alia*, set out in Chapter 6 of the Act. In particular, the Authority is empowered to issue permits for receiving nuclear materials and their utilisation, the management of spent fuel and radioactive waste, the import or export of nuclear materials and equipment, and the transportation of nuclear materials [Section 31(b)]. It performs State supervision of nuclear materials and equipment and of the arrangements in place for their physical protection [Section 32(1)].

4. Nuclear Installations

a) Licensing

Under Section 13(1) of the Act "nuclear installation" means:

a) installations and facilities incorporating a nuclear reactor utilising a controlled fission chain reaction;

b) installations and facilities for the production, treatment and storage of nuclear materials;

c) installations and facilities for the disposal of spent nuclear fuel;

d) installations and facilities for the processing, conditioning, storage and disposal of radioactive waste.

The general rule under the Act is that any use of nuclear energy requires an authorisation issued by the Authority [Section 4(1)]. In particular, the Authority is responsible for issuing authorisations, *inter alia*, for the siting, design, construction, importation, commissioning, operation and reconstruction of nuclear installations and their decommissioning; the design, planning, construction, manufacture, importation, assembly, testing, maintenance, repair and reconstruction of selected equipment; and the specialist training of nuclear installation employees at specialist institutions.

The general provisions governing who may apply for authorisations, the form of applications and when and in what form the Authority's decision must be made in respect of

authorisations are set out in Sections 5, 6 and 7 of the Act (see Section 3 of this Study, *supra*, in relation to Nuclear Materials and Equipment).

Licensing for the construction of nuclear installations is dealt with separately in Section 14 of the Act. First, the construction of nuclear installations is governed by the Construction Act [Act No. 50/1976 Zb.], unless otherwise stipulated in the Act [Section 14(1)]. The construction of a nuclear installation may only be carried out by a holder of an authorisation (in the Act referred to as the "builder") on the basis of a permission granted by the Authority [Section 14(2)]. The Authority decides on whether to issue a permission on the basis of a written application from the builder supported by the following documents: safety analysis report; design specifications; provisional plan for the management of radioactive waste and, if appropriate, of spent nuclear fuel; conceptual plan for decommissioning of the nuclear installation; classification of selected equipment by safety classes; preliminary physical protection plan; quality assurance programme for construction; preliminary on-site emergency plan; proposal of limits and conditions for safe operation; preliminary programme for pre-operational inspection of the nuclear installation; and preliminary radiation monitoring programme of the environment in the vicinity of the nuclear installation.

As a condition to granting permission for construction, the Authority may require the fulfilment of specified nuclear safety requirements [Section 14(5)]. Following the issuance of a statement of intent by the Authority regarding permission for the construction of a nuclear installation, there is a requirement for evaluation of the proposal by the Ministry of Environment under Act No. 127/1994 Z.z. on environmental impact assessment [Section 14(6)].

In addition to the provisions governing construction in the Act, there are also detailed regulations to be observed, which, at the moment, are those issued by the former Czechoslovakian authorities [Regulation No. 2/1978 Zb. on the assurance of nuclear safety in designing, approving and constructing a nuclear power installation; Regulation No. 4/1979 Zb. on the general criteria for the assurance of nuclear safety in siting and constructing a nuclear power installation; and Regulation No. 378/1992 Zb. of the Slovak Commission of the Environment].

To commission and operate a nuclear installation, as with construction, the holder of an authorisation ("operator") must obtain a permission from the Authority [Section 15(1)]. To obtain a permission to commission a nuclear installation, the operator is required to submit an application supplemented by the safety documentation stipulated in Section 15(2) of the Act. This safety documentation falls into two categories: that submitted for approval and that submitted for review. A permission to operate a nuclear installation is issued by the Authority on submission of an application supplemented by a report evaluating the commissioning stages of the nuclear installation [Section 15(3)]. The permission for commissioning or operating a nuclear installation may be made conditional upon fulfilment of requirements relating to nuclear safety [Section 15(4)]. The operator must adhere to the assessed or approved documentation submitted under Section 15(2), which may only be deviated from with the prior permission from the Authority [Section 15(5)].

As with construction of a nuclear installation, in addition to the provisions of the Act there are also detailed regulations to be observed with respect to the commissioning and operation of a nuclear installation. The regulations presently in force derive from the former Czechoslovakia [Regulation No. 6/1980 Zb. on the assurance of nuclear safety in the commissioning and operation of nuclear power installations].

The Authority may extend the validity of a permission issued for the operation of a nuclear installation, depending on the current state of the installation and on the basis of supplementary safety documentation [Section 16(1)].

b) Inspection

The Authority is empowered under the Act to perform State supervision of: nuclear safety at nuclear installations; management of radioactive waste and spent nuclear fuel; nuclear materials, special materials and equipment; physical protection of nuclear installations, nuclear materials and radioactive waste from nuclear installations; and emergency planning.

In carrying out State supervision, the Authority is required under the Act to:

a) conduct inspections of workplaces, operations and facilities at nuclear installations, to determine how applicable duties are being fulfilled, and whether operating limits and conditions and quality assurance systems are being adhered to;

b) inspect fulfilment of obligations arising out of international agreements relating to nuclear safety and management of nuclear materials and radioactive waste (including spent fuel);

c) investigate accidents, incidents and selected malfunctions at their place of occurrence;

d) verify the conduct of obligatory reviews, surveys, operational checks and tests on selected equipment at nuclear installations;

e) order the corrective actions for deficiencies affecting nuclear safety;

f) assess nuclear safety at nuclear installations independently of their operator; and

g) inspect the content and practices of emergency plans.

There is an obligation on the part of the holders of authorisations, or other persons responsible for nuclear materials, to submit all materials, documentation, information and expert analyses required for State supervision. They must also co-operate with the Authority, as required for it to carry out State supervision, and apply the results of its findings in their activities [Section 33(1)]. The Authority is required to make reports to the Government and the relevant public service bodies, on deficiencies identified and the measures taken to remedy them [Section 33(3)].

Inspectors appointed by the Authority must have the required qualifications and have passed an inspector's examination [Section 34(2)]. During the performance of State-governed inspection, they are required to prove their identity using the identification card issued by the Authority [Section 34(3)].

Under the Act an inspector is authorised:

a) to have access at any time to facilities and areas in nuclear installations and to areas in which nuclear materials, special materials and equipment are located, or radioactive waste management is being conducted; to carry out reviews and control actions in them; to require the submission of relevant evidence and documentation, information and

explanations; to ensure that employees have the appropriate professional qualifications, and in particular, that the selected employees are familiar with regulations; to control the implementation of conditions for the performance of work; to identify the status, causes and consequences of operating events; to check the status of emergency planning;

b) following discussion of identified deficiencies with the operator, to give binding orders for the necessary steps to eliminate such deficiencies; and

c) to confiscate the certificate of a particular professional qualification if the relevant employee has flagrantly or repeatedly violated operating procedures or is unsuitable as regards the particular professional qualification.

As a means of enforcement, the Authority is empowered to impose various penalties for violations under the Act [Section 36]. This includes the power to impose a further penalty of up to double the amount of the initial penalty on a person who has not remedied the deficiencies for which the initial penalty was imposed within the given period [Section 36(6)]. A penalty may be imposed within a year of the date that the Authority identified the breach, but no later than three years from the day when the breach took place [Section 36(7)]. The imposition of a penalty on a holder of an authorisation does not impinge upon the criminal responsibility of the holder's employees [Section 36(9)]. Penalties are to be paid into the State Fund for Decommissioning of Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste [Section 36(10)].

c) Emergency Response

Under the terms of the Act, an "event at a nuclear installation" means an event in which there is a risk of an infringement of nuclear safety at the nuclear installation during its commissioning, operation or decommissioning [Section 24(1)].

Events at nuclear installations are divided into:

a) a malfunction causing an infringement of nuclear safety requirements, or identification of deficiencies which could have led to the occurrence of an accident or emergency situation;

b) an accident which caused minor damage to a nuclear installation or harm to the health of employees, which led however to an automatic shutdown, or enforced shutdown for maintenance, infringement of limits and conditions, release of radioactive materials or contamination or irradiation of employees;

c) an emergency situation in which the nuclear installation was seriously damaged or there was or might have been serious harm to health due to the impact of ionising radiation or release of radioactive materials into the environment.

An operator is obliged to take preventive and corrective measures in a timely manner and eliminate without delay all situations which could pose a threat to nuclear safety or to human life or health; to give notification of events to the Authority, and, in the case of accidents or emergency situations, also to the Ministry of the Interior; identify the causes of such events and take corrective action based on the identified causes; to take steps in the operation of the nuclear installation to prevent their recurrence; and to inform the public of the occurrence of incidents and accidents.

In the event of a hazard arising, or if serious circumstances arise which are of significance for nuclear safety, physical protection or emergency readiness, the Authority may order the holder of an authorisation to take certain steps, including a reduction in output or shutdown of a nuclear installation or cessation of its construction, to cease using nuclear material or to cease radioactive waste management [Section 35].

Under the Act, the Authority is required to identify the causes and circumstances of accidents, emergency situations and serious malfunctions. This does not detract from the specific regulations which govern the investigation of exceptional incidents [Section 24(6)].

"Emergency planning", as defined in the Act, means a set of measures to identify and bring under control accidents at nuclear installations and to identify and bring under control releases of radioactive substances into the natural environment during the use and transportation of nuclear materials or radioactive waste [Section 25(1)]. An emergency plan is documentation, the content of which is a set of technical and organisational measures required to bring events under control or to mitigate their consequences [Section 25(2)]. Emergency plans fall into the following categories:

a) emergency plan for nuclear installation ("on-site emergency plan") which contains planned measures to be taken on-site, linked to a plan for the protection of the public;

b) a plan for protection of the public which contains measures to protect public health and property and the environment in the hazard area, also linked to the on-site emergency plan;

c) emergency transport procedure in relation to the transportation of nuclear materials or radioactive waste (see under Section 9 of this Study, *infra,* in relation to Transport).

The operator is responsible for preparation of an on-site emergency plan [Section 25(5)], which must be submitted to the Authority for approval and to the Ministry of Internal Affairs for consideration six months prior to the planned commencement of commissioning of a nuclear installation [Section 25(9)]. The local authorities are responsible for the plan for protection of the public within regions, districts and communities, with the Ministry of the Interior being responsible for co-ordination [Section 25(6)]. The Ministry of the Interior is responsible for civil defence during radiological accidents and for assistance in case of a nuclear accident or radiological emergency (Law on Civil Protection No. 42/1994 Z.z.).

Prior to the commissioning of a nuclear installation, emergency plans must be practised, and during the operation of nuclear installations certain parts of emergency plans must be practised and evaluated at set intervals [Section 25(14)].

There is a general obligation on the part of operators and State authorities to make available to the Authority data required to evaluate accidents and to forecast their development. The data might consist of technological data from the nuclear installation, radiation monitoring data, meteorological data and other data as requested by the Authority [Section 25(18)].

The Slovak Republic succeeded to the 1986 Convention on Early Notification of a Nuclear Accident and to the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 10 February 1993.

d) Decommissioning

Under the Act it is the operator who is made responsible for the decommissioning of a nuclear installation (which for the purposes of Section 19 does not include a radioactive waste or spent nuclear fuel repository) and who must ensure that the financial means are available to do so [Section 19(2)]. Act No. 254/1994 Z.z. and Decree No. 14/1995 Z.z. establish a State Fund for the decommissioning of nuclear power plants and the management of spent fuel and radioactive waste arising from their decommissioning. The Act was adopted by the National Council (Parliament) on 25 August 1994 and entered into force on 1 January 1995. The Fund, which is established as a separate legal entity, is managed by the Ministry of Economy which appoints the Fund's Director. The Ministry has also set up a Steering Committee made up of seven members, experts in the fields of nuclear energy, health, environmental protection, economy and public administration to provide advice on the distribution of funds.

The operator must submit an updated conceptual plan for decommissioning, together with an environmental impact statement (pursuant to Act No. 127/1994 Z.z. on environmental impact assessment) [Section 19(3)]. Decommissioning may only commence on the basis of a permit from the Authority, the issuance of which is conditional upon an application from the operator supported by documentation on nuclear safety during decommissioning. In the case of the nuclear installation being decommissioned in several steps, a permit from the Authority is required for each step [Section (4)].

e) Nuclear Safety

Nuclear safety and quality assurance are dealt with in Chapter 4 of the Act. "Nuclear safety" is defined as meaning the status and ability of a nuclear installation and its staff to prevent the uncontrolled development of a fission chain reaction or the inadmissible release of radioactive substances or ionising radiation into the workplace environment or the natural environment and to limit the consequences of accidents [Section 20(1)]. The operator is responsible for nuclear safety and must ensure that there are adequate financial and human resources to meet this responsibility [Section 20(2)].

During the building and commissioning of a nuclear installation and throughout its period of operation, the builder and operator must perform a comprehensive and systematic evaluation of nuclear safety and take steps to eliminate any deficiencies identified. The frequency and scope of the evaluations are to be set out in regulations issued by the Authority [Section 20(6)]. The operator must ensure that radiation exposure of employees and other persons to ionising radiation caused by the operation of a nuclear installation is kept below the set limits and at the lowest reasonably achievable level [Section 20(7)].

In addition to governing the safety aspects of radioactive waste management (see Section 7 of this Study, infra), Regulation No. 67/1987 Zb. stipulates the requirements for the documentation on safety which must be provided with an authorisation application for the siting, construction and operation of nuclear installations.

The Act contains detailed provisions regarding the need for training and testing of employees with professional qualifications at nuclear installations [Section 21]. The Act gives inspectors of the Authority the power to confiscate certificates of professional qualification if there are grounds for doing so [Section 34].

As an element of nuclear safety, there are provisions in Chapter 4 of the Act which deal specifically with the issue of quality assurance [Section 22]. The operator, in brief, must set up an appropriate organisational structure, procedures and sources to define and adhere to quality assurance requirements for nuclear installations and activities [Section 22(1)].

In addition to the Act, there are many decrees which regulate safety in the design, siting, construction, commissioning and operation of nuclear facilities [Regulations No. 2/1978 Zb., No. 4/1979 Zb. and No. 6/1980 Zb.], which regulate the quality assurance of classified equipment of nuclear installations [Regulation No. 436/1990 Zb.], which regulate evaluation of special professional abilities of selected personnel from nuclear installations [Regulation No. 191/1989 Zb.], which ensure nuclear safety in the course of radioactive waste management [Regulation No. 67/1987 Zb.] and, finally, which ensure safety during the testing of devices for nuclear materials transport and disposal [Regulation No. 8/1981 Zb.].

Regulation No. 9/1985 Zb. deals with the assurance of nuclear safety at nuclear research installations.

The Slovak Republic ratified the 1994 Convention Nuclear Safety on 7 March 1995 and it entered into force on 24 October 1996.

5. Trade in Nuclear Materials and Equipment

The Act expressly precludes the issuance of an authorisation to a foreign importer of nuclear installations, selected equipment or services. The receiver of such equipment and services must be the holder of an authorisation under Section 4(2) (which can only be granted to a legal person with its registered head office in the Slovak Republic or to a natural person with permanent or long term residence in the country [Section 5(1) and (2)] or the holder of a licence or permit issued in accordance with specific regulations [Section 4(4)]). In respect of the latter, Section 10 of the Act provides that a permit from the Authority is required for the import or export of nuclear materials or equipment under specific regulations. Such specific regulations include two Decrees (cited in footnote 9 to Section 10), namely the Decree of the Federal Ministry of Foreign Trade No. 50/1992 Zb., which implements Act No. 547/1990 Zb. (on the management of special substances and their control), and the Decree of the Economics Ministry No. 15/1998 Z.z. on conditions for the issuance of an official permit for the import and export of goods and services. Act No. 547/1990 Zb. specifies that the Ministry of the Economy is the authority with jurisdiction to issue export-import licences for nuclear materials and other sensitive items. The accounting and control aspects of such trade are dealt with by Decrees No. 50/1992 Zb. and 505/1992 Zb.

6. Radiation Protection

Act No. 272/1994 Z.z. on protection of human health and Act No. 290/1996 Z.z. on the safety of the health of the population lays down the requirements for radiation protection based on the International Commission for Radiological Protection (ICRP) recommendations and IAEA standards in this area. In implementation of these Acts a draft Governmental Decree on Radiation Protection is under preparation by the Ministry of Health. The Decree will replace Regulation No. 65/1972 of the Czechoslovak Ministry of Health governing the radiation protection of workers, the public and the environment against ionising radiation sources. As a matter of general principle, the main objective

for radiation protection is to keep the radiological consequences related to the use of ionising radiation as low as reasonably achievable (ALARA).

Radiation protection is also addressed in the Act, first, in the statement of general principles applicable to the peaceful use of nuclear energy [Section 3(3)] and, secondly, in relation to the safe operation of nuclear installations (see Section 4 of this Study, *supra*, in relation to *Nuclear Installations, (e) Nuclear Safety*). In respect of the latter, the operator must ensure that exposure of employees and other persons to ionising radiation caused by the operation of a nuclear installation is kept below the set limits during all operational states and activities, and at the lowest reasonably achievable level [Section 20(7)].

Generally, however, it is the Ministry of Health which is the regulatory authority responsible for radiation protection at nuclear installations, medical installations and other workplaces with ionising radiation. The supervision of workplaces is performed by the Institute for Hygiene and Epidemiology (under the Ministry of Health), managed by the Chief Hygienist, with the Nuclear Regulatory Authority also involved at nuclear installations as part of its responsibility for nuclear safety.

The Slovak Republic succeeded to the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 1 January 1993.

7. Radioactive Waste Management

Under the Act, the safe disposal of radioactive waste, including the disposal of spent fuel, is the responsibility of a legal person appointed or entrusted for this purpose by the Ministry of the Economy on the terms established in the Act and by specific regulations. A radioactive waste repository may only be sited on land owned by the State [Section 17(12)]. With respect to radioactive waste management, the Authority is responsible under Sections 17 and 18 of the Act for supervising radioactive waste originating from nuclear installations and for repositories for all types of radioactive waste. The Ministry of Health is designated under Act No. 290/1996 Z.z. as the responsible authority for supervising radioactive waste originating from all other sources until their treatment and transportation for final disposal.

Regulation No. 67/1987 Zb. lays down the basic technical and organisational requirements for ensuring nuclear safety and the prevention of releases of radioactivity into the environment in the course of radioactive waste management. It also sets out mandatory radioactive waste management procedures for authorities, organisations and their staff involved in the design, commissioning, operation or decommissioning of nuclear installations, including the basic safety requirements for all steps of radioactive waste management, such as collection, segregation, storage, treatment, conditioning and finally, the disposal of radioactive waste.

Radioactive waste is defined under the Act as non-useable materials in gaseous, liquid or solid form which may not be released into the environment because of the content of radionuclides in them or because of contamination by radionuclides [Section 17(1)]. The levels of radionuclides which cause materials to be defined as waste are laid down in Decree No. 65/1972 Zb. on the radiation protection of workers, the public and the environment against ionising radiation (the Ministry of Health is now preparing a draft Governmental Decree on Radiation Protection to replace the decree from the former Czechoslovakia). “Spent nuclear fuel” means irradiated nuclear fuel withdrawn from a nuclear reactor [Section 18(1)].

The generator of radioactive waste has a general obligation to manage its generation in such a manner that its quantity and activity are kept to the lowest reasonably achievable level [Section 17(13)].

Authorisations for the management of radioactive waste and spent nuclear fuel are issued by the Authority [Section 4(2)(d)]. “Radioactive waste management” means the collection, segregation, storage, treatment, conditioning, handling, transportation and disposal of radioactive waste from nuclear installations and conditioning for transportation and disposal of institutional radioactive waste [Section 17(2)]. “Management of spent nuclear fuel” means storage, reprocessing, handling, transportation and disposal of spent nuclear fuel in a spent nuclear fuel repository [Section 18(2)]. “Storage of radioactive waste or spent nuclear fuel” means their temporary emplacement in sites, facilities or equipment that enable them to be isolated and monitored and the environment to be protected [Section 2(b)]. “Disposal of radioactive waste or spent nuclear fuel” means their permanent emplacement in a radioactive waste or spent nuclear fuel repository [Section 2(c)].

The generator of radioactive waste is responsible for the safe management of the waste from its first occurrence until it is transferred to a radioactive waste repository, unless the Authority specifies otherwise [Section 17(6)]. Similarly, the producer of spent nuclear fuel is responsible for its management until its transfer to a spent nuclear fuel repository [Section 18(3)]. A “radioactive waste or spent nuclear fuel repository” means a site, facility or equipment on the surface or underground used for disposal of radioactive waste or spent nuclear fuel, which enable them to be isolated and monitored and the natural environment to be protected [Section 2(d)].

The provisions applying to the management of radioactive waste apply also to the management of spent nuclear fuel [Section 18(4)].

The costs associated with the management of radioactive waste and spent nuclear fuel, including monitoring of repositories after they have been sealed and the relevant research and development, are to be reimbursed by the originator of the waste [Section 17(8)]. Where the generator is not known or is not capable of managing the waste, the Authority is required to appoint someone with a radioactive waste management authorisation. In its decision the Authority must define the scope of management and the method of reimbursement of costs [Section 17(9)]. The costs of management where the generator is not known are to be reimbursed by the State Fund for Decommissioning of Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste. A generator who is subsequently identified must reimburse the costs arising from the management to the Fund [Section 17(10)].

The Fund is regulated under Act No. 254/1994 Z.z. on the State Fund for Decommissioning Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste [see also Regulation No. 14/1995 Z.z.]. For details of the management of the Fund, see Section 4 of this Study, *supra*, in relation to *Nuclear Installations, (d) Decommissioning*. The Fund is financed by several means, including contributions by nuclear power plant operators, bank and State funding and other sources.

Importation of radioactive waste into the Slovak Republic is prohibited, except for the return of radioactive waste which arose during reprocessing and conditioning of radioactive materials exported for this purpose, provided the re-importation of this waste has received a permit in advance from the Authority [Section 17(14)].

The Slovak Republic signed the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 30 September 1997.

8. Non-Proliferation and Physical Protection

The Slovak Republic succeeded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 1 January 1993 and to the 1979 Convention on the Physical Protection of Nuclear Material on 10 February 1993. The Authority is the official contact point for international bodies dealing with non-proliferation regimes such as the Nuclear Suppliers Group or the Zangger Committee.

On 1 January 1993 the Slovak Republic succeeded to the Safeguards Agreement with the IAEA, which had entered into force between the IAEA and Czechoslovakia on 3 March 1972 (INFCIRC/173).

For details of the system of accountancy and monitoring of nuclear materials, see *supra*, Section 3 of this Study, in relation to *Nuclear Materials and Equipment*.

Physical protection of nuclear installations and nuclear materials is dealt with in Section 23 of the Act. "Physical protection" means a system of technical and organisational measures, the aim of which is to prevent unauthorised activities with nuclear installations or nuclear materials, especially their misuse or intentional damage [Section 23(1)]. It is the operator who is responsible for the physical protection of a nuclear installation [Section 23(2)].

A consignor or carrier when nuclear materials are being transported, and legal or natural persons who use nuclear materials, are responsible for the provision of physical protection of the nuclear materials during these activities [Section 23(4)].

In cases of unauthorised access to a nuclear installation or unauthorised handling of nuclear materials, assistance shall be rendered within the limits of their competence by the Police and the Railway Police at the request of the builder, operator, carrier or consignor or user of the nuclear materials [Section 23(6)]. When unauthorised actions have been perpetrated with nuclear installations or nuclear materials, or there is a threat of such actions, the operator, consignor or user of the nuclear materials is required to take the necessary measures and notify the relevant department of the Police and the Authority without delay [Section 23(7)].

The provisions of Section 23 also apply to the physical protection of radioactive waste during its management [Section 17(15)].

In addition to the detailed provisions in the Act, there is Regulation No. 100/1989 Zb. on the physical protection of nuclear installations and nuclear materials. Unlike the provisions in the Act which deal with physical protection, the Regulation expressly excludes the transport of nuclear materials from its scope [Article 1(2) of the Regulation].

9. Transport

Nuclear materials may only be transported on the basis of a transportation permit issued by the Authority to the consignor or carrier [Section 11(1)]. Transportation of nuclear material may only

be carried out in transport equipment of types approved by the Authority [Section 11(2)]. Each transportation of nuclear material requires a separate permit, although for transportation of nuclear material of the same type by the same carrier, a permit may be issued for a longer period of time, but for no longer than one year [Section 11(3)]. The same provisions in the Act apply to the transportation of radioactive waste [Section 17(16)] and spent nuclear fuel [Section 18(4)].

For the obligations of the consignor or carrier when nuclear materials are being transported, see Section 8 of this Study, *supra*, in relation to *Non-Proliferation and Physical Protection.* Legal and natural persons who take part in the transportation of nuclear materials must observe the physical protection requirements set by the consignor [Section 23(5)].

There are specific provisions in the Act dealing with accidents during transportation of nuclear material, radioactive waste or spent nuclear fuel. Thus, a transport accident is defined as meaning an exceptional event which caused harm to health, gave rise to a threat to the health of persons due to the impact of ionising radiation, or caused damage to property as a result of a release of radioactive substances into the natural environment [Section 24(3)]. The consignor must notify the Authority, the Ministry of the Interior and the Ministry of Transport, Post and Telecommunications of the transport accident, and must also inform the public [Section 24(5)].

As part of the emergency planning requirements under the Act, the carrier is required to draw up emergency transport procedures on the basis of obligatory principles from the consignor [Section 25(7)]. These emergency transport procedures must be submitted by the carrier for consideration by the Authority and the public service bodies affected two months prior to the transportation taking place [Section 25(11)]. The emergency transport procedures are to be approved by the Ministry of Transport, Post and Telecommunications [Section 25(12)(c)]. Nuclear materials and radioactive waste may not be transported without approved emergency transport procedures [Section 25(14)].

10. Nuclear Third Party Liability

Compensation for nuclear damage is covered by general regulations on liability for damage e.g. Sections 415 to 450 of the Civil Code [Act No. 40/1984 Zb., as amended], except as otherwise stipulated in the Act or an international agreement to which the Slovak Republic is bound [Section 26(2)]. In fact, the Act contains very detailed provisions on third party liability for nuclear damage, which largely reflect the provisions of the 1963 Vienna Convention on Civil Liability for Nuclear Damage. The Slovak Republic acceded to the Vienna Convention and the 1988 Joint Protocol on the Application of the Vienna Convention and the Paris Convention on 7 March 1995. Both the Vienna Convention and the Joint Protocol entered into force for the country on 7 June 1995.

Section 26(1) of the Act defines “nuclear damage” as detriment to property, loss of life or harm to health caused by an “emergency situation” (as defined in Section 24(2)(c)) or by a “transport accident” (as defined by Section 24(3)). It is also damage that has arisen through the expenditure of costs on measures necessary to avert or reduce irradiation or to restore the natural environment to its previous or an equivalent state, should such measures have been instigated as a result of a nuclear incident [Section 26(3)]. If damage was caused jointly by a nuclear incident and another event not dependent on the nuclear incident, the nuclear damage shall be that part of the damage which was not demonstrably caused by the other event. The operator has the burden of proving the scope of the damage which cannot be categorised as nuclear damage [Section 26(4)].

Liability for nuclear damage caused by a nuclear incident is channelled to the operator [Section 27(1)]. Liability for nuclear damage caused during the transportation of nuclear materials or radioactive waste rests with the carrier who applied for recognition as operator of a nuclear installation and, with the consent of the operator concerned, was recognised by the Authority as the operator [Section 27(2)]. If an operator operates a number of installations located on a territory for which a common internal emergency plan has been approved, they will be taken as a single nuclear installation for the purposes of liability for nuclear damage. More than one nuclear installation on one site, where the operators are different holders of authorisations, may not, however, be taken as a single installation, even if these installations are technically linked together [Section 27(3)].

The operator's limit of liability under the Act for nuclear damage is 2 billion Slovak crowns [Section 28(1)], which does not include interest or costs [Section 28(2)].

Under the Vienna Convention, which has force of law in the Slovak Republic [Section 26(2)], liability for nuclear damage is strict. In meeting claims for compensation for nuclear damage, an operator must meet them as follows:

Group I: Justified claims made within 12 months of the occurrence of the nuclear incident shall be met within 60 days of the date the claim was made. Seventy per cent of the limit of liability specified in Section 28 of the Act may be used to meet claims for compensation for damage which fall within this group. If the damage compensation claims exceed the sum that may be utilised for this Group, compensation claims for damage to health and compensation for cases of death shall be met in full and other claims proportionately.

Group II: Other claims made between 12 and 36 months after the occurrence of a nuclear incident shall be met within 60 days of the claim, and include claims which were met proportionately in Group I.

Group III: When a period of 36 months has elapsed since the occurrence of a nuclear incident, individual claims for compensation for nuclear damage are to be met within 90 days of the claim, but only until the sum specified in Section 28 is exhausted. These include claims which were met proportionately in Groups I and II.

The operator must ensure that the liability for nuclear damage is covered by insurance or some other form of financial cover [Section 30(1)], which must be in place for the duration of operation of the nuclear installation and at least ten years after a nuclear incident [Section 30(2)]. There is an exemption from nuclear damage liability cover for nuclear incidents caused by small amounts of nuclear materials which are assumed not to be capable of giving rise to nuclear damage [Section 30(3)].

II. INSTITUTIONAL FRAMEWORK

1. Regulatory and Supervisory Authorities

a) Nuclear Regulatory Authority

The Nuclear Regulatory Authority (*Úrad Jadrového Dozoru – ÚJD*) of the Slovak Republic is the successor to the former Czechoslovak Atomic Energy Commission. It was established on 1 January 1993 and its powers are based on Act No. 2/1993 Z.z.. The Authority acts as an independent State regulatory body which reports directly to the Government and is directed by a Chairperson appointed by the Government.

Besides the Chairperson, the Authority comprises a small Secretariat and two Departments, one for assessment and inspection activities and one for safety policy assessment and international co-operation. The Inspection Activities Department is headed by the Chief Inspector and based at Trnava, near the Bohunice nuclear power plant, while the Safety Policy and International Co-operation Department is headed by the Vice Chairman and is located at the Bratislava headquarters.

The Authority is responsible for regulation and supervision of the use of nuclear energy. The Authority is also responsible for supervising radioactive waste originating from nuclear installations and for repositories for all types of radioactive waste.

The regulatory powers of the Authority cover the following areas:

- the safety of nuclear installations;
- radioactive waste management;
- safeguards and control over nuclear and dual-use materials;
- quality assurance programmes;
- international agreements and obligations in the field of nuclear safety and nuclear materials.

Details of the tasks of the Authority relating to each of these areas are set out in Chapter 6 of the Act. Of particular importance is the inspection function of the Authority (see Section 4(b) of this Study, *supra*, in relation to *Nuclear Installations, Inspection*).

b) Ministry of Health

The Regional Radiation Protection Body under the Ministry is responsible for radiation protection and for the control of radiation protection measures inside nuclear installations and off-site [Act No. 272/1994 Z.z.]. It is also designated as the responsible authority for supervising radioactive wastes from non-nuclear installations until their treatment and transportation for final disposal. The

Institute for Hygiene and Epidemiology is responsible for providing technical support in the regulation and supervision of radiation protection.

c) Ministry of the Environment

It has control over regional offices which grant site, construction and operating licences and operate the environmental radiation monitoring network, is responsible for environmental impact assessments. The Minister for the Environment also chairs the Government Commission for Radiological Emergencies.

d) Ministry of the Interior

The Ministry is responsible for fire protection, for support of physical protection of nuclear materials and nuclear installations in emergency situations, civil defence during radiological accidents and for assistance in case of a nuclear accident or radiological emergency [Act No. 42/1994 Z.z. on Civil Protection]. In the event of incidents or accidents, the Ministry must be informed by the operator [Section 24(4)].

e) Ministry of Economy

The Ministry is responsible for promoting and developing a nuclear power programme and for preparing related legislation. It issues export and import licences for nuclear materials and sensitive equipment.

Under the Act the Ministry appoints the legal person responsible for the safe disposal of radioactive waste [Section 17(12)].

f) State Office for Occupational Safety

The responsibilities of the Office are set out in Act No. 174/1968 Zb. on State supervision of work safety as amended by Act No. 256/1994 Z.z.. The Office is an independent agency which reports directly to the Government on matters of industrial safety.

2. Public and Semi-Public Agencies

a) Nuclear Power Plant Research Institute

The Nuclear Power Plant Research Institute (*Vyskumny Ustav Jadrovych Elektrarni Trnava a.s. – VUJE*) undertakes research and development in the field of nuclear safety. The Institute also conducts training for the employees of the nuclear power plants at Trnava.

The final training of operating personnel at the Mochovce plant is also carried out with a full-scale simulator which is located on-site.

CASE LAW AND ADMINISTRATIVE DECISIONS

CASE LAW

France

Council of State Judgement on the transfer of the capacity of nuclear operator from La Manche radioactive waste storage facility to the National Radioactive Waste Management Agency (ANDRA) (1998)

The Council of State, in its judgement of 6 February 1998, refused CRILAN's (Anti-Nuclear Committee on Strategy and Information) application to declare that the Decree of 24 March 1995 authorising ANDRA to operate the Channel storage facility for radioactive waste was ultra vires.

The Council of State ruled that it was not necessary to append the counter-signature of the Minister for Research to the authorising Decree, beside those of the Ministers for Industry and the Environment; although he is responsible along with the latter for the supervision of ANDRA, he was not required to adopt any implementing or individual measures for the application of this Decree.

Furthermore, Article 6 of the Decree of 11 December 1963 on major nuclear installations did not provide for a compulsory public enquiry before proceeding with a request to transfer the capacity of nuclear operator from one entity to another; this request should be distinguished from the application, submitted shortly afterwards, for a licence to move from the storage phase to the surveillance phase, which is subject to a separate procedure and decision.

Council of State Decision concerning the procedure governing the underground storage of radioactive waste (1998)

An application was submitted to the Council of State by three private individuals to have declared ultra vires the decision made public by a communiqué dated 6 January 1994, issued by the Ministers of the Interior and Planning, of Industry and of the Environment, authorising ANDRA to carry out geological prospecting work in certain areas of four departments, with a view to installing an underground research laboratory.

Under Article 6 of the Law No. 91-1381 of 30 December 1991 on research into the management of radioactive waste, every project for the construction of an installation gives rise to consultations with the elected representatives and the population of the site under consideration. According to the terms of its implementing Decree of 17 December 1992, these prior consultations on

the choice of site take place amongst the elected representatives of the region, associations and the public in general.

Discussions were organised with elected representatives, consular representatives, socio-professional and trade union representatives and the presidents of environmental protection associations, in each department where it was planned to carry out preliminary research. Prior notification of these consultations was given through the press, radio and television, in order to clarify the location, conditions and purpose of the consultations and to ensure the participation of the public. At a later stage, the public were informed of the results of these discussions.

The Council of State expressed the opinion on 28 November 1997 that, the applications by these three persons to declare the decision which was made public by the communiqué of 6 January 1994 null and void, was not justified.

Sweden

Supreme Administrative Court Decision on the Closure of Barsebäck No.1 Reactor (1998)

The Swedish Government decided on 5 February 1998 that the nuclear power reactor Barsebäck No.1 was to close down by 1 July 1998. The decision was based on the Act on the Phasing-out of Nuclear Power [SFS 1997:1320] (See *Nuclear Law Bulletin* No.61). The owner, *Barsebäck Kraft Aktiebolag* (BKAG), a subsidiary of Sydkraft AB, appealed to the Swedish Supreme Administrative Court (Regeringsrätten), and to the Court of Justice of the European Communities. In its appeal to the Supreme Administrative Court, BKAG demanded that the decision should not be carried into effect until the court had reached a final decision. The main grounds for appeal presented by BKAG are the following: that the decision is in conflict with the Swedish Constitution, with national administrative law and with Community Law. Furthermore, it claims that the enforcement of the decision would lead to severe problems for BKAB as concerns retaining qualified staff, maintaining safety at the second reactor at Barsebäck, and ensuring the company's competitiveness on the market. On May 14 the Court granted a temporary injunction in favour of BKAB, referring to the uncertainty of the outcome of the case.

As a result of this injunction, the Barsebäck nuclear power plant continues to operate both reactors as before. In the meantime, the Government is negotiating an out-of-court settlement with Sydkraft AB. For the time being, it is not known when the Supreme Administrative Court may reach a decision or whether the Court will stay proceedings while awaiting a decision from the Court of Justice of the European Communities. Nor is it known whether a settlement between the government and Sydkraft AB will be reached independently of the outcome of court procedures. So far the Court has held verbal hearings on 8-10 September 1998.

United Kingdom

Court of Appeal Decision concerning the definition of damage to property for the purposes of Section 7(1)(a) of the Nuclear Installations Act 1965 (1998)

The Court of Appeal in its judgement of 10 June 1998 in *Blue Circle Industries plc. v. Ministry of Defence* declared that contamination of the plaintiff's land by radioactive material from an overflowing pond on the defendant's land was a breach of the duty imposed by section 7(1)(a) of the Nuclear Installations Act 1965 not to damage property by an "occurrence involving nuclear matter".

A storm had caused ponds on land belonging to the Ministry of Defence (hereinafter "MOD") to overflow down a stream through marshland belonging to Blue Circle Industries plc. ("Blue Circle") which led to the contamination of the marshland with nuclear material. As a result, the topsoil of the marshland had to be excavated and removed, and the value of the land was affected.

At the court of first instance, it was held that the MOD was guilty of breach of statutory duty under section 7(1)(a) of the Nuclear Installations Act 1965, and accordingly damages were awarded to Blue Circle.

Section 7(1)(a) of the Nuclear Installations Act provides that a site licensee has the duty to secure that no "occurrence involving nuclear matter ... causes injury to any person or damage to any property other than the licensee, being injury or damage arising out of or resulting from the radioactive properties, or a combination of those and any toxic, explosive or other hazardous properties, of that nuclear material".

Counsel for the MOD in the Court of Appeal argued that the damage caused did not constitute physical damage to the property. There had to be physical damage to the property which arose out of or resulted from the physical or chemical properties of the radioactive material deposited in the marshland. The emission of ionising radiation from the plutonium in the soil did not do any physical or chemical damage to the soil and did not pose any risk to health.

The Court held that physical damage to property was not limited to particular types of damage. There had been an alteration in the physical characteristics of the marshland caused by the radioactive properties of plutonium, which had rendered the marshland less useful or valuable. The plutonium had intermingled with the soil and could not be separated from it. The marshland was less valuable because it was unsaleable unless the contaminated soil was removed. The land was therefore physically damaged by the radioactive properties of the plutonium.

The Court also held that the normal rules on assessment of damages applied: Blue Circle was entitled to be compensated under Section 12 of the 1965 Act for all losses which were reasonably foreseeable and not too remote. Blue Circle was therefore entitled to damages not just for the damage to the marshland but also for the resulting diminution in the value and saleability of the whole estate of which it was a part. The damages awarded to the plaintiff amounted to approximately UK£ 6 million inclusive of interest.

U.S.A.

Waste Isolation Pilot Plant (WIPP) *

Background

Transuranic or "TRU" waste began accumulating in the 1940s as a result of the United States' nuclear weapons program. Most TRU waste is in metal drums at sites[1] owned by the Department of Energy. The term TRU waste refers to radioactive waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes with atomic numbers greater than 92 and half-lives greater than 20 years.[2] In the United States, TRU waste results primarily from fuel processing and from fabrication of plutonium weapons and plutonium-bearing reactor fuel.[3] Most of the TRU waste proposed for disposal at WIPP consists of items contaminated as a result of activities associated with the production of nuclear weapons, such as rags, equipment, tools, protective gear, and organic and inorganic sludge.

Following the National Academy of Sciences' recommendation in 1957 that salt domes be investigated as a disposal medium for high-level and transuranic radioactive wastes, scientists with the US Geological Survey identified in the mid-1970's a salt formation east of Carlsbad, New Mexico as a possible site for disposal of transuranic wastes. In 1980, the United States Congress authorised construction of the Waste Isolation Pilot Plant (WIPP) as a research and development facility to demonstrate safe and permanent disposal of transuranic radioactive waste resulting from the defence activities of the United States.

In 1991, the Department completed construction of WIPP, a mine constructed 655 meters below ground surface in an ancient salt formation located on approximately 10 240 acres, 26 miles

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* This note has kindly been prepared by Sophia Angelini, Attorney Adviser in the office of General Counsel for Civilian Nuclear Programmes, US Department of Energy. The facts contained and ideas expressed in this note are the responsibility of the author alone.

1. The majority of TRU waste is stored in 23 sites in 16 states. The major waste-generating sites are in New Mexico, Idaho, Colorado, South Carolina, Washington State, Ohio, Illinois, California, Nevada and Tennessee. Source: WIPP Disposal Phase Draft SEIS-II, DOE/EIS-002-S-2, Chapter 5 (November 1996). Much of the waste will be generated in the future as weapons are disassembled and weapons facilities are decontaminated and decommissioned.

2. The term "transuranic waste" is defined at section 2(18) of the WIPP Act to mean "waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years," except for:

   (a) high-level radioactive waste;

   (b) waste that the Secretary has determined, with the concurrence of the Administrator [of the EPA], does not need the degree of isolation required by the disposal regulations; or

   (c) waste that the Nuclear Regulatory Commission has approved for disposal on a case-by-case basis in accordance with part 61 of title 10, Code of Federal Regulations.

3. US Department of Energy, *Integrated Data Base Report-1996: US Spent Nuclear Fuel and Radioactive Waste Inventories, Projections, and Characteristics*, DOE/RW-0006, Rev. 13, Oak Ridge National Laboratory, Oak Ridge, Tennessee (December 1997).

east of Carlsbad in Southeastern New Mexico. The facility is designed to take advantage of natural geological and hydrological features of the site along with engineered barriers to block waste movement from the repository. For example, it is expected that the salt at WIPP will gradually encase and isolate the waste deposited in the underground rooms.

In 1991, the Department proposed transporting limited amounts of TRU waste in order to conduct a test phase involving temporary burial of waste in underground alcoves at WIPP for scientific study to be followed by retrieval. However, suits were promptly filed in the US District Court for the District of Columbia by the State of New Mexico and environmental organisations alleging violations of environmental laws, including the Resource Conservation and Recovery Act (RCRA),[4] pertaining to management of hazardous waste, and the Federal Land Policy and Management Act (FLPMA)[5] in the context of certain Land Orders. In particular, the plaintiffs argued that WIPP did not have "interim status" under RCRA which would temporarily exempt the facility from RCRA's permit requirements.[6] On 31 January 1992, the US District Court granted an injunction barring introduction of waste at WIPP finding, in part, that the Department could not qualify for interim status under RCRA (because WIPP was not in existence before 19 November 1980) and that (absent interim status or a permit) a test phase involving radioactive and hazardous waste would violate RCRA. On appeal, the US Court of Appeals for the District of Columbia Circuit determined that the Department did in fact qualify for interim status under RCRA but nonetheless granted a permanent injunction against the Department's planned test phase based on the FLPMA Land Order issue.[7]

With this background of litigation, Congress passed the WIPP Land Withdrawal Act[8] in 1992 which withdrew WIPP from the operation of the Land Orders, previously at issue in the courts, and detailed how the Department of Energy should proceed with developing the facility. The Act prohibits disposal of high-level radioactive waste or spent nuclear fuel at WIPP and only TRU waste

4. 42 USC 6901 *et seq.* RCRA comprehensively regulates, from generation to burial, waste designated as hazardous. States may take primary responsibility for RCRA implementation by installing a hazardous waste management program that is approved by the EPA. New Mexico's program largely replicates the Federal program.

5. 43 USC 1701 *et seq.*

6. RCRA gives "interim status" to hazardous waste treatment, storage, and disposal facilities that were in existence prior to 19 November 1980 (the effective date of RCRA) or the effective date of a statutory or regulatory change that first subjects the facility to RCRA's permit requirement, provided the facility has met certain other requirements, 42 USC 6925(e). Interim status allows a facility to operate without a permit during the application process. There is little legislative history regarding this provision; however, presumably Congress sought to allow existing facilities to continue operations, instead of forcing their immediate shutdown upon becoming subject to RCRA's permit requirements.

7. *State of New Mexico v. Watkins,* 969 F.2d 1122 (DC Cir. 1992). In October 1993, the Department announced that it would perform tests with radioactive waste at existing national laboratories rather than in situ at WIPP. In 1996, Congress passed the WIPP Land Withdrawal Act Amendments which amended the original requirement that the Department conduct underground tests at the WIPP site with TRU waste to determine whether it could be disposed of safely.

8. This Act consists of Pub. Law No. 102-579 enacted on 30 October 1992 and does not appear in the United States Code. For additional laws relating to WIPP, see Section 213 of Pub. Law. No. 96-164 enacted 29 December 1979, Section 1433 of Pub. Law No. 100-456 enacted on 29 September 1988, subtitle F of title XXXI of Pub. Law No. 104-201 enacted on 23 September 1996.

resulting from defence activities is planned for disposal at the facility.[9] The total capacity of WIPP by volume is set at 6.2 million cubic feet of TRU waste.[10]

The WIPP Act established the Environmental Protection Agency (EPA) as the regulator of many of the Department's activities. To illustrate, EPA is responsible under the Act for both issuing disposal regulations[11] and determining whether the Department of Energy will comply with those regulations. Thus, the Department may dispose of TRU waste at the WIPP only if the EPA first issues its "certification of compliance" showing that WIPP complies with EPA disposal regulations.[12] The EPA is also responsible for ensuring that the Department complies with other federal environmental laws, regulations and permits pertaining to public health and safety or the environment.[13] Throughout the operation of WIPP, the Department must be re-certified every five years after initial receipt and submit documentation of continued compliance with all laws and regulations applicable to the EPA.

TRU waste containing hazardous constituents regulated under the RCRA[14] in addition to radioactive constituents, is known as "mixed TRU waste" and is regulated by both hazardous waste regulations (e.g. RCRA) and regulations applying only to TRU waste. Some TRU waste may also be contaminated with hazardous materials defined by regulations other than RCRA, such as the Toxic Substances Control Act.[15] Once identified, the Department would continue to manage such wastes in accordance with additional requirements.[16]

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9. The Low-Level Radioactive Waste Policy Act provides that the Federal Government is responsible for disposal of, *inter alia*, TRU waste that is commercial or utility generated. Such commercially generated waste results from activities subject to licensing by the NRC and must therefore be disposed of in a licensed facility. WIPP is not a facility licensed by the NRC and therefore cannot serve for the disposal of commercial TRU waste. The Low-Level Radioactive Waste Policy Act appears in the United States Code at 42 USC 2021b *et seq.*

10. The Department's "Record of Decision for the Department of Energy's Waste Isolation Pilot Plant Disposal Phase" published in the Federal Register on 23 January 1998, 63 Fed. Reg. 3623 (1998) stated that the Department will dispose of up to 175 600 cubic meters (6.2 million cubic feet) of TRU waste generated by defense activities at WIPP after preparation (i.e. treatment, as necessary, including packaging) to meet WIPP's waste acceptance criteria. This will include TRU waste accumulated since 1970 and to be generated over approximately the next 35 years.

11. The EPA radioactive waste disposal regulations appear at Subparts B and C of 40 CFR Part 191. These regulations limit the amount of radioactive material which may escape from a disposal facility, and protect individuals and ground water resources from dangerous levels of radioactive contamination.

12. The EPA Compliance Criteria at 40 CFR Part 194 interpret the general disposal regulations specifically for WIPP and clarify the basis on which EPA's certification decision is made.

13. Section 9 of the WIPP Act requires that the Department of Energy comply, *inter alia*, with the Clean Air Act, Solid Waste Disposal Act, Safe Drinking Water Act, Toxic Substances Control Act, and Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and all related regulations and permits.

14. Section 6903(5) of RCRA defines "hazardous waste" as:

    A solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may:

    (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

    (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

15. 15 USC 2601 *et seq.*

16. *Integrated Data Base*, see footnote 3.

While the Department's activities at WIPP are not subject to regulation by the Nuclear Regulatory Commission,[17] any TRU waste transported by or for the Department of Energy to or from WIPP must be transported in NRC-certified packages that have been determined to satisfy its quality assurance requirements.

On 18 May 1997, the EPA issued its certification that WIPP will comply with the EPA radioactive waste disposal regulations at 40 C.F.R. Part 191.[18] This certification constituted its final approval under the WIPP Act for emplacement of TRU waste to commence, provided the Department complied with all other applicable health and safety standards. On 22 June 1998, the Defense Nuclear Facilities Safety Board (DNFSB)[19] reported to President Clinton and the Secretary of Energy its conclusion that, based on its review of nuclear safety procedures, WIPP could be operated safely. Thus, TRU waste (non-mixed) from specific waste streams from Los Alamos National Laboratory for disposal at WIPP was planned for shipment by the Department in June 1998.[20]

However, litigation involving the 1992 permanent injunction (noted above) concerning the Land Orders,[21] familiar RCRA issues and challenges to the EPA's Certification of Compliance of 18 May 1998 has so far prevented the commencement of waste acceptance. In *State of New Mexico v. Department of Energy*, US District Court for the District of Columbia (case nos. 91-2527 and 91-2929 JGP), filed on 11 June 1998, the State of New Mexico requested a preliminary injunction to prohibit the Department from introducing radioactive waste at WIPP. The New Mexico Environment Department, a State agency regulating WIPP with respect to hazardous waste, argues in part that WIPP does not have a RCRA permit to operate a facility for hazardous or mixed TRU waste, and that the Department cannot establish the actual contents of its containers, and that the Department lacks "interim status" under RCRA which might have allowed operation of a hazardous waste facility without an actual permit. The State of New Mexico argues that shipments should not proceed prior to a ruling on the status of the Court's 1992 injunction and cites the US District Court's order of 30 January 1992 that "... the Department of Energy shall permanently cease all activities relating to the "Test Phase" of transuranic nuclear waste experiments with respect to the WIPP insofar as they involve the introduction or transportation of any such waste into the State of New Mexico." The Department has moved to dismiss on the ground, *inter alia*, that the Court's order does not bar it from shipping non-mixed TRU (i.e. non-hazardous) waste to WIPP for permanent emplacement. The Department also argues that the WIPP Act, enacted after issuance of the 1992 injunction, expressly revoked the Land Orders that were the basis of the Court's injunction and granted a new statutory process "for the construction, experimentation, operation ... disposal ... and other activities associated

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17. As a facility of the Department of Energy, WIPP is not subject to regulation by the Nuclear Regulatory Commission. There are some exceptions to this general rule, specified by statue, such as the Nuclear Waste Policy Act, 42 USC 10101 *et seq.*, which provides that a repository for disposal of high-level radioactive waste and spent nuclear fuel must be licensed, as well as Section 202 of the Energy Reorganization Act of 1974, 42 USC 5801 *et seq.*

18. Subparts B and C of 40 CFR 191 "Environmental Standards for the Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Waste".

19. The DNFSB is an independent federal agency created by Congress in 1988 (42 USC 2286 et seq) to review and evaluate the content and implementation of health and safety standards relating to the design, construction, operation and decommissioning of the defense nuclear facilities of the Department of Energy.

20. The Department anticipates that its sites in Colorado, Idaho and New Mexico will be the first to begin shipping transuranic waste to WIPP. DOENews, *Department of Energy Issues Decisions on Transuranic Waste: Support Opening of the Waste Isolation Pilot Plant*, 22 January 1998.

21. The Department of Energy argues that the WIPP Act of 1992 rendered the Land Order issue moot.

with the purposes of WIPP".[22] Meanwhile, the Department and State of New Mexico have agreed to a joint technical review of the Department's waste characterisation documentation.[23]

While the Department had initially expected to receive a RCRA (Part B) permit for mixed waste at about the same time that the EPA issued its certification, it now appears that the State of New Mexico will not issue this permit before July 1999. The Department's most recent estimate for when it can open WIPP is reportedly January 1999, provided the Court of Appeals for the District of Columbia Circuit lifts the 1992 injunction.[24]

ADMINISTRATIVE DECISIONS

Finland

Council of State Decisions concerning the licences of IVO and TVO (1998)

On 2 April 1998, the Council of State decided, on application by Imatran Voima Oy (IVO), to extend this electricity company's licence to operate the two nuclear power plant units situated in Loviisa by 10 years, i.e. until 31 December 2007. The maximum output allowed (nominal) for both units is 1500 MW (thermal). The existing facilities and storage units which are required for the management of the nuclear fuel and nuclear waste of these two units may also continue operating until the above-mentioned date, subject eventually to the carrying out of necessary extensions.

Furthermore, on 20 August 1998, the Council of State decided, on application by Teollisuuden Voima Oy (TVO), to extend this second company's licence to operate the two nuclear power plant units situated in Olkiluoto by 20 years, i.e. until 31 December 2018. The maximum output allowed (nominal) for both units is 2500 MW (thermal).

The above-mentioned Decisions also contain provisions concerning radioactive waste management. The Decision of 2 April 1998 grants the applicant (IVO) a licence to operate a permanent disposal facility, in order to dispose of low- and intermediate-level radioactive waste from the operation of the two power plant units situated in Loviisa. The licence for this facility, which is to be constructed on the nuclear power plant site, extends until the end of year 2055.

The Decision of 20 August 1998 extends TVO's licences to operate the existing on-site interim storage facilities for spent fuel, intermediate-level nuclear waste and low-level nuclear waste derived from the operation of the nuclear power plant in Olkiluoto, until 31 December 2018.

22. WIPP Act Section 3(a)(3).

23. Three petitions before the US Court of Appeals for the District of Columbia Circuit, involving the State of New Mexico and private organizations, challenge also the EPA Compliance Criteria and Certification of Compliance of May 1998.

24. Shawn Terry, *DOE Rejects New Call for Delay at WIPP*, Inside Energy, 12 October 1998.

NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

Argentina

Organisation and Structure

Decree on the National Atomic Energy Commission (1998)

Decree No. 964 of 14 August 1998 places the National Atomic Energy Commission under the control of the President of the Republic. The Commission, which was previously under the authority of the Secretariat for Science and Technology within the Ministry for Culture and Education, will from now on be a decentralised body of the Presidency. This transfer involves its administrative divisions, its property and real estate, as well as its funds existing at the date of this Decree.

Australia

Radiation Protection

The Radiation Safety (General) Amendment Regulations (Western Australia) (1997)

These amending regulations were published in the Government Gazette of Western Australia of 22 July 1997, No. 119, pp. 3813-3826. The principal amendments made to the General Regulations of 21 February 1983 (see *Nuclear Law Bulletin* 34) are as follows: a number of amendments are made to the definitions in Part I (Preliminary Regulations); a new Regulation 10B is inserted into Part II (General Precautions and Requirements Relating to Radiation Safety), which prohibits the employment of persons under 16 years of age as radiation workers; and a new Regulation 15(5) is inserted, stating that Regulation 15 does not apply to necessary exposure to radiation in the course of diagnosis or treatment conducted or prescribed by a medical practitioner, dentist, chiropractor, podiatrist or physiotherapist and conducted in accordance with the Radiation Safety Act 1975 and these Regulations. A new Regulation (Abnormal or Unplanned Radiation Exposure) provides details of the circumstances constituting such exposure, and of the procedures to be followed in that event. Updated references and technical amendments have also been inserted into Part III on Radioactive Substances and into the Schedules to the Regulations.

Austria

Third Party Liability

Law on Third Party Liability for Nuclear Damage (1998)

A new Law on Third Party Liability for Nuclear Damage was adopted by the Austrian Parliament on 7 October 1998. This legislation introduces fundamental reforms to the regime governing third-party liability for nuclear damage in Austria, which are described in the article by Professor Hinteregger in Chapter One of this Bulletin. The text of this Law will be reproduced in the Supplement to *Nuclear Law Bulletin* No. 63.

Belarus

Radiation Protection

Plan for the Implementation of the Law on Radiation Protection of the Public (1998)

The Council of Ministers approved the Plan for the Implementation of the Law on Public Radiation Protection (see *Nuclear Law Bulletin* Nos. 60 and 61) on 23 March 1998. This Plan includes the development of several state programmes to upgrade the radiation safety infrastructure, and also to prepare and review the following Regulations:

- on State Management in the field of Public Radiation Protection;
- on the Licensing of Activities involving the use of Ionising Radiation Sources;
- on establishing the Single State System for Accounting and Control of Radiation Sources;
- on establishing the Single State System for Accounting and Control of Exposure Doses to Individuals from Different Population Categories.

Radioactive Waste Management

Provisional Sanitary Rules for the Management of Decontamination Waste of Chernobyl Origin (1998)

The Provisional Sanitary Rules for the Management of Decontamination Waste of Chernobyl Origin came into force on 12 March 1998. These Rules define "decontamination waste" as substances formed as a result of work carried out to eliminate the consequences of the Chernobyl accident, with a view to restoring an acceptable radio-ecological environment around industrial and

civil facilities in the contaminated areas. This waste has the following particular characteristics:

- most of this waste is formed in large quantities, and is not normally processed to reduce its concentration or volume;

- its radioactivity is caused mainly by Cs-137, whose specific activity does not normally significantly exceed the minimum values established for radioactive waste;

- its storage, transportation and disposal are carried out in areas where the level of contamination of the soil is close to that of the waste itself.

These Rules include regulations on the collection, temporary storage, transportation, record-keeping and radiation and technical control of decontamination waste at all stages of its handling. The waste must be disposed in repositories of Types 1, 2 and 3, each of which are subject to different construction requirements. The Rules also cover measures to ensure the radiation protection of personnel.

Regulations on Nuclear Trade

Law on Export Control (1997)

The Law of the Republic of Belarus on Export Control was approved on 19 December 1997 and came into force on 6 January 1998. Its scope is set out as follows: "(This Law) *defines the legal bases for activities of state bodies, legal and natural persons of the Republic of Belarus in the field of export control, and regulates relations arising in connection with the movement of objects subject to export control across the customs border of the Republic of Belarus and their subsequent use*."

Article 7 provides that the objects subject to export control include goods, technology and services connected with the nuclear fuel cycle, nuclear materials which can be used for the production of nuclear weapons and nuclear explosive systems, and dual-use goods.

The Law addresses three principal issues, namely:

- ensuring national security and protecting national economic interests, while fulfilling Belarus' international obligations;

- setting up the State System of Export Control which regulates the licensing of imports and exports, inspections, dual-use goods and co-operation with international organisations and export control bodies of other States;

- harmonising the rules and procedures for export control with established international norms and practices.

Decree on the Improvement of State Control over the Movement of Specific Goods Across the Customs Border of the Republic of Belarus (1998)

This Decree was adopted on 10 January 1998 in implementation of the above Law on Export Control. It comprises two sets of Regulations dealing with, respectively, the licensing of specific imports and exports (goods and services), and the official registration of the use of exported or imported goods for specific purposes. The Decree defines the functions of Ministries and other authorised bodies in the field of export control. The Ministry of External Economic Relations is empowered to issue licences for the export of specific goods, and to co-ordinate the activities of all other agencies and institutions involved in export control.

France

Radiation protection

Order setting out work for which employees on fixed-term contracts or personnel from interim employment agencies may not be appointed (1998)

This Order of 12 May 1998 adds a further category to the list of work activities for which employees on fixed-term contracts or personnel from interim employment agencies may not be appointed, namely "any work which may cause exposure to ionising radiation carried out in zones where the hourly radiation dose can exceed 2 millisieverts".

The zones under consideration are the subject of special regulation, being the "orange" and "red" zones (sectors where the dose rates exceed 100 millisieverts per hour and 2 millisieverts per hour respectively) defined in the Order of 7 July 1977. This Order implements Article 18 of Decree No. 75-306 of 28 April 1975, as amended, on the protection of workers in major nuclear installations, which sets out the limits and the corresponding signalling measures which must accompany both specially regulated areas and areas which are completely off-limits within each controlled zone.

The prohibition instituted by the Order of 12 May 1998, therefore, applies only to workers in major nuclear installations.

It should be noted that the Order of 8 October 1990 provides for exceptions to this prohibition, in cases where specific preventive measures, in particular safety training, provide adequate protection against the risks linked to this work, for personnel on short-term contracts or personnel from interim employment agencies.

The Order of 12 May 1998 entered into force on 1 July 1998 and amends the Order of 8 October 1990 accordingly.

Circular concerning the procedure for applications for licences under the Decree of 1995 on releases of liquid and gaseous waste and on samples of water from major nuclear installations (1998)

A Circular of 20 May 1998 sets out the procedural requirements for licence applications under Decree No. 95-540 of 4 May 1995 on releases of liquid and gaseous waste and on samples of water from major nuclear installations. It provides, in particular, details on the following:

- operations which are subject to the procedural requirements in the Decree of 4 May 1995;
- circumstances which require nuclear operators to make licence applications;
- the nature and content of the licensing application file;
- procedural requirements and the licensing application;
- requirements for modification of the licence.

Order on the creation of cards equipped with microprocessors for the personnel of "outside" undertakings carrying out work in major nuclear installations (1998)

This Order of 27 May 1998 lays down requirements for setting up a system of cards equipped with microprocessors, on a one year trial basis, for employees of "outside" undertakings carrying out work in major nuclear installations.

The objective of this experiment, which is under the supervision of the Inspectorate for Health at Work, is to allow the transmission of medical information concerning these employees to in-house doctors, in order to ensure the continuity of their medical surveillance. The Order specifies the categories of information which are contained in the microprocessor card.

The bodies involved include, at present, seven medical services which are responsible for several undertakings each (Pierrelatte, Chinon, Cadarache, Poitiers, Metz, Dunkerque and Ile de France) and medical officers working at ten major nuclear installations situated on the following sites/within the following undertakings (Gravelines, Catenom, Bugey, Tricastin, Saint-Alban, Chinon, Cadarache, Marcoule, La Hague and the company Intercontrôle).

Environmental Protection

Order on the testing and consumption of water, and on releases of all types from installations classified for purposes of environmental protection which are subject to licensing (1998)

This Order of 2 February 1998 is designed to replace the Order of 1 March 1993 on the same subject, which was declared null and void in October 1996 by the Council of State upon application by the Union of Chemical Industries.

The Order regroups, in one single text, the limits for levels of releases in the field of air and water pollution, taking into account an integrated approach to pollution. In this manner, it implements

Community law on industrial releases into French law. Furthermore, it contains numerous other provisions dealing with risk prevention, integration into the surroundings, testing and consumption of water, control of releases and effects on the environment.

Circular on the application of Article 19 of the Law on Air and the Rational Use of Energy, completing the content of the impact assessments for development projects (1998)

This Circular, adopted on 17 February 1998 by the Minister for National and Regional Development and the Environment, describes the application of Article 19 of Law No. 96-1236 of 30 December 1996 on Air and the Rational Use of Energy (which amends Article 2 of Law No. 76-629 of 10 July 1976 on the protection of nature, and adds further requirements to the impact assessments for development projects). The provisions of this Article apply to applications which must be accompanied by an impact study since 1 August 1997.

The following new areas must, from now on, be studied and presented in the impact assessment:

- for all projects which require an impact assessment: "a study of the effects of the project on health", and an analysis of the measures envisaged to counter-effect, reduce and, if possible, compensate the damaging consequences on the environment "and health";

- for projects involving transport infrastructure only:

  – "an analysis of the collective costs of pollution and damage, and the advantages which are created for the community";

  – "an evaluation of energy consumption which would result from the operation of such a project, especially in relation to the travel which may be caused or avoided as a result".

The Circular specifies the standards required in the presentation of these new areas including those that are state-of-the-art.

In respect of the effects on health, the principles which govern the carrying out of the assessment, include, *inter alia*:

- the taking into account of all the relevant areas concerning the risks that this project may pose for human health;

- the evaluation and the impact of the project in relative terms (increased effect) and in absolute terms (cumulative effect);

- the study of the effects on health, taking into account cumulative effects in relation to existing pollution;

- the study of the effects on health through the identification of exposed persons;

- the study of the effects on health during both the construction stage and the operational stage;

- the setting out of conclusions on the health effects in as clear and precise a manner as possible.

Georgia

Regulations on Nuclear Trade

Law on Export Control of Armaments, Military Equipment and Dual Use Products (1998)

On 28 April 1998, the Georgian Parliament adopted the Law on Export Control of Armaments, Military Equipment and Dual Use Products, which came into force on 1 September 1998.

This Law explicitly states that one of the main principles behind regulating exports in Georgia is to adhere to international obligations regarding the non-proliferation of weapons of mass destruction. The following categories of items are subject to export controls: conventional arms and military technology and services connected with their production; nuclear materials, technology, equipment and facilities; special non-nuclear materials and products; dual-use equipment and technologies; radiation sources and isotope products; nuclear, chemical, biological and dual-use technologies which could be used in the creation of weapons of mass destruction or missile weapons in accordance with lists of items established by international non-proliferation regimes.

The Law lays down the principles which govern the export control system in Georgia; namely, the observance of its international obligations, the priority of political interests, verification of the end use of products and accessibility of information on export control legislation. It establishes the duties and powers of the competent government bodies in the field of export control. The Law also outlines the process for obtaining an export licence, and provides that nuclear materials can only be exported if the importing country meets special guarantees. Provision is made for the adoption of further normative acts in implementation of this Law.

Ireland

Radiation Protection

European Community (Radiological and Nuclear Medicine Installations) Regulations (1998)

The above Regulations were adopted on 21 July 1998 [Statutory Instrument No. 250 of 1998] by the Minister for Health and Children, in order to implement the provisions of Council Directive 84/466/Euratom of 3 September 1984 laying down basic measures for the radiation protection of persons undergoing medical examination or treatment (see *Nuclear Law Bulletin*

No. 34) and to provide protection for workers and the general public. The Regulations establish the criteria of acceptability to be met for radiological installations and nuclear medicine installations.

Italy

Radiation Protection

Amendment of the Decrees of 1997 on the criteria for acceptance of radiological equipment used for medical purposes, on quality control measures and on the training of medical staff in the use of ionising radiation in medicine (1997, 1998)

On 29 December 1997, the Minister for Health adopted a Decree which modifies the criteria for acceptance of radiological equipment used in medicine, odontology or nuclear medicine, as set out in a previous Decree of 14 February 1997 (see *Nuclear Law Bulletin* Nos. 56, 59 and 60). This amending Decree was published in the Italian Official Journal on 3 April 1998.

Also, on 29 December 1997, a further Decree was adopted which more precisely defines the manner of preparation of quality control measures, described in a previous Decree of 14 February 1997. This amending Decree was published in the Official Journal on 12 May 1998.

A third Decree of 21 February 1997 on training in the field of radiation protection was amended by a Decree of 15 July 1998 (published in the Official Journal on 30 July 1998).

These modifications were introduced to ensure conformity with the European Union Directive 84/466 on radiation protection of patients, and also to take account of the most recent Directive on the subject (Directive 97/43 of 30 June 1997).

Japan

Organisation and Structure

Law introducing Partial Amendments to the Atomic Energy Basic Law and the Power Reactor and Nuclear Fuel Development Corporation Law (1998)

The Law No. 62 adopted on 13 May 1998, was published on 20 May 1998. It aims to reorganise the Power Reactor and Nuclear Fuel Development Corporation (PNC). The main contents of the Law are as follows:

1. PNC is renamed as Japan Nuclear Cycle Development Institute (JNC).

2. The principal office of JNC is relocated to Ibaraki Prefecture where its main facilities including Tokai Reprocessing Plant and Joyo (experimental fast breeder reactor) are located.

3. JNC is responsible for the following activities:

   - development of the fast breeder reactor and related research;
   - development of nuclear fuel materials for the fast breeder reactor and related research;
   - development of the technology for reprocessing of nuclear fuel materials and related research;
   - development of the technology for the treatment and disposal of high-level radioactive waste;
   - dissemination of the information acquired from the above activities.

   JNC is no longer involved in some of the activities which were amongst the main responsibilities of PNC, such as the mining of nuclear source materials and the development of uranium enrichment technology.

4. JNC will continue to develop the technology for an advanced thermal reactor for a period of five years. However, after this period it will proceed with the storage, treatment and disposal of the waste from the reactor and its eventual decommissioning.

5. JNC willl have a Management Review Board of up to 15 members, which will discuss important issues in consultation with the Chairman, and express its opinion to him concerning the management of JNC.

6. JNC may make its facilities or equipment available to those who undertake the development of nuclear energy.

7. JNC must manage its activities properly and efficiently, giving priority to safety and transparency.

8. The activities of JNC must be carried out according to the principles set out in its Statute which will be adopted by the Prime Minister and approved by the Atomic Energy Commission.

JNC was set up on 1 October 1998. International relations established by PNC remain unaffected by the reorganisation, and thus international agreements to which PNC was a Party shall remain in force, binding JNC, as of 1 October 1998.

Latvia

Radiation Protection

Regulations on the Control of Radioactive Contamination in Food Products (1998)

The above Regulations were adopted on 26 May 1998. They replace the relevant chapter of the national Basic Safety Standards, and fully implement the relevant Euratom Directives in this field. The principal change brought about by the adoption of this legislation is the increase in post-accident values (more than three months after the incident), which have also been defined numerically. These values have been drafted on the assumption that during the first three months, it would be possible to introduce adequate protection measures in order to reduce the limits currently set out in EU legislation by a factor of five.

Transport of Radioactive Materials

Regulations on the Safe Transport of Radioactive Materials (1998)

The Regulations on the Safe Transport of Radioactive Materials were adopted on 28 July 1998, and are based on the IAEA new Safety Standards ST-1 and Council Directive 94/55/EEC.

The main modifications as compared to the ST-1 involve the introduction of new types of packaging (F1 for fissile materials except in the case of air transport and F2 for fissile materials transported by air), the definition of dose limits for transport personnel as equivalent to exposed workers from category B and the inclusion of descriptions of tests in the terms of the regulations, rather that through references to other internal documents.

Madagascar

Radiation Protection

Act on Radiation Protection and Radioactive Waste Management (1998)

Act No. 97-041 on Radiation Protection and Radioactive Waste Management in Madagascar was adopted on 2 January 1998, and was published in the Official Gazette of the Republic of Madagascar on 12 January 1998.

The Law is divided into four titles: General Provisions, Protection against Ionising Radiation, Radioactive Waste Management and Common Provisions.

According to Article 1, the Act regulates all activities which are associated with the peaceful use of nuclear energy in Madagascar in order to ensure protection of the public and the environment, and to guarantee the safety of the radioactive sources involved. It also applies to activities which involve exposure to ionising radiation originating from a non-radioactive source.

The National Authority for Radiological Safety and Protection is responsible for the following activities: the preparation of legislative and regulatory texts dealing with peaceful uses of nuclear energy; the definition and clarification of the various duties of the different competent bodies; the issuance of licences in the manner set out in the Act; the adoption of decisions concerning the effective application of measures established by the Act and its implementing legislation; and the regulation of all aspects of radiological safety and protection in Madagascar. The respective powers of the Technical Body for Radiation Protection and the Central Office for Radioactive Waste Management are also set out in this instrument.

The fundamental principles of radiation protection and radioactive waste management, licensing, working conditions, supervision and declaration of violations, sanctions and interim measures are also governed by the provisions of this Act.

Romania

Organisation and Structure

Restructuring of the Romanian Electricity Authority (1998)

The adoption of Decree No. 365/1998 brought about the restructuring of the Romanian Electricity Authority (RENEL) and created the following new entities:

- *Compania Nationala de Electricitate S.A.* (National Power Company, "CONEL");
- *Societatea Nationala "Nuclearelectrica" S.A.* (National Nuclear Company, "Nuclearelectrica"); and
- *Regia Autonoma pentru Activitati Nulceare* (National Authority for Nuclear Activities).

The National Power Company will be subject to further restructuring and privatisation of its production, transport and distribution activities. The former Nuclear Power Group has been separated from RENEL and was transformed into two separate entities; the National Nuclear Company "*Nuclearelectrica*" and Autonomous Reggie for Nuclear Activities mentioned above. *Nuclearelectrica* has three subsidiaries: for nuclear power production (CEN-PROD – Cernavoda Unit No. 1); nuclear power development (CNE-INVEST – Cernavoda Units No. 2 to 5), and nuclear fuel fabrication (FCN – Pitesi Nuclear Fuel Plant). *Nuclearelectrica* reports to the Ministry for Industry and Trade and is fully State-owned. On 7 August 1998, the Minister for Industry and Trade appointed the Administration Board for *Nuclearelectrica*.

The remaining branches of the former Nuclear Power Group; i.e. the Heavy Water Plant (ROMAG – Drobeta), the Institute for Nuclear Research (ICN – Pitesi) and the Centre for Nuclear

Projects Engineering (CITON – Bucharest) now form part of the newly-established "National Authority for Nuclear Activities".

Spain

Radiation Protection

Decree on the Operational Protection of Outside Workers (1997)

Decree No. 413 on the operational protection of workers employed by outside companies, and exposed to the risk of ionising radiation during their activities in controlled areas, was adopted on 21 March 1997 and published in the Official Bulletin of 16 April 1997. This Decree was established to implement, *inter alia*, Council Directive 90/641/Euratom of 4 December 1990 on the same subject (see *Nuclear Law Bulletin* No. 47). The Decree comprises the following Sections: 1) Purpose and Scope; 2) Definitions; 3) Modalities for the Notification of Activities to be carried out by Outside Undertakings; 4) Obligations of the Outside Undertaking; 5) Obligations of the Plant Operator; 6) Obligations of Outside Workers; 7) Individual Radiological Monitoring Document; and 8) Offences and Sanctions.

Switzerland

Radiation Protection

Ordinance on Radiological Installations for Medical Use (Ordinance on X-Rays) (1998)

This Ordinance, which was made pursuant to the Ordinance of 22 June 1994 on Radiation Protection (see *Nuclear Law Bulletin* Nos. 55 and 58; the text of this instrument is reproduced in the Supplement to *Bulletin* No. 57), repeals the Ordinance of 1 September 1980 on the same subject. It regulates the protection of patients, personnel and third parties against radiation emitted during the commissioning or use of medical radiological installations for diagnostic or therapeutic purposes in humans or animals, and is applicable to radiological installations in which the voltage of the tube does not exceed 300 kW and which artificially produces photons with an energy greater that 5kW. It comprises the following Chapters: 1) General Provisions; 2) Radiation Protection Linked to Construction; 3) Requirements Linked to the Use of Radiological Installations; 4) Quality Assurance; 5) Exceptions; and 6) Final Provisions. Fifteen technical Annexes are appended, including Definitions, Methods of Protection and Source Data for Calculating Shielding.

United States

General Legislation

NRC Statement of Policy on the Conduct of Adjudicatory Proceedings (1998)

The United States Nuclear Regulatory Commission (NRC) is making a substantial effort to improve the effectiveness of the agency's programs and procedures across the board. A critical reassessment of NRC practices and procedures for conducting adjudicatory proceedings within the framework of its existing rules (primarily Subpart G of 10 C.F.R. Part 2) led the Commission to issue a new Statement of Policy on the Conduct of Adjudicatory Proceedings, CLI-98-12, 47 NRC (July 28, 1998). The statement explains that the policy pronouncements arise from anticipation that the next few years could see the start of a number of proceedings to consider requests both to renew expiring nuclear power reactor licenses and license waste storage facilities, as well as to modernize rules and licensing in harmony with restructuring occurring in the electric utility industry. The Commission takes a big step toward readiness for that activity by providing assurance that agency adjudicators will conduct proceedings which are efficient and focused on issues germane to the proposed actions.

The Policy Statement emphasizes that the Commission is not departing from its established goals for providing a fair hearing process. Those goals remain: to conduct its reviews and hearings without needless delays and to produce an informed adjudicatory record, in the sense that the record is sufficient to permit informed decision-making concentrated on matters directly relating to NRC's responsibilities. Essentially, NRC's responsibilities are to protect public health and safety, the common defense and security and the environment.

The Statement highlights the Commission's expectation that its licensing boards will enforce adherence to NRC's regulations on hearing procedures as they have been interpreted by the Commission. In that setting, it also identifies specific approaches to be used if appropriate to the individual proceeding to reduce the time needed for conclusion. The Commission first encouraged the continued consideration and use of procedures for effective case management outlined in an earlier 1981 policy statement, including setting reasonable schedules, supervising discovery, issuing timely rulings, requiring trial briefs, pre-filed testimony and cross examination plans and issuing initial decisions as soon as practicable after parties file proposed findings of fact and conclusions of law.

The Commission went on to make very specific, strong suggestions under these headings. On hearing schedules, it discussed among many other means of expedition: requiring use of electronic filing unless it would deprive a party of an opportunity to participate; foregoing the use of motions for summary disposition unless the presiding officer made a written finding that such a motion would likely expedite the proceeding; and issuing decisions within 60 days after the parties file the last pleadings permitted by the board's established schedule. The Commission noted that it may itself set milestones in a particular proceeding and requirements for the licensing board if that board foresees that any single milestone could be missed by more than 30 days.

The Commission also stated its intent to exercise its inherent supervisory authority, including its power to assume part or all of the functions of the presiding officer in a given adjudication, as appropriate in the context of a particular proceeding. The Commission made clear its

intent to respond promptly to adjudicatory matters placed before it and that those matters should ordinarily take priority over other actions before the Commissioners.

The Commission enunciated its expectations with regard to parties, most particularly with regard to timeliness. The boards retain their ability to grant extensions of time, but they should do so only when warranted by unavoidable and extreme circumstances. Moreover, parties are obligated to assure that their arguments and assertions are supported by appropriate and accurate references. Violations may result in the unsupported material being stricken from the record or in extreme circumstances, in dismissal of the offending party.

On contentions, the Commission re-emphasized that the burden of coming forward with admissible contentions is on the proponent and that the licensing board is not to share in satisfying that burden. In addition, the statement speaks to the consequences of the scope of proceedings, for example that in a license renewal proceeding, the review is confined to matters relevant to the extended period of operation requested. The safety review is limited to systems, structures and components that will require an aging management review for the extended time.

As part of its more active role, the Commission will supervise directly any effort of the Board to introduce issues on its own initiative and must approve for them to be in the hearing. Boards are encouraged to certify novel legal or policy questions related to admitted issues to the Commission as early as possible, and the Commission may direct certification of particular issues on its own initiative.

Since publishing its Policy Statement and consistent with it, the Commission has reached down on its own motion to exercise supervisory power in at least three separate adjudicatory proceedings before NRC licensing boards. As a result of Commission monitoring of an informal materials licensing proceeding, the Board and parties were notified that one of the issues had been improperly admitted for consideration in the hearing. See *Hydro Resources, Inc,* CLI-98-16, 47 NRC (1998). In a formal reactor license-amendment hearing the Commission relegated to itself a decision on an issue that involved a first look at a policy matter likely to recur. See *North Atlantic Energy Service Corp.* (Seabrook Station), CLI-98-18, 47 NRC (September 17, 1998). In the first reactor-license-renewal case, the Commission commended the Board for strictly adhering to the Commission's scheduling guidance, but found Commission action to grant a brief extension to the intervener appropriate in the circumstances. See *Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant) CLI-98-14 (August 19, 1998), CLI-98-15 (August 26, 1998), CLI-98-19 (September 17, 1998).

Moreover, in hearing an appeal and affirming two rulings of a Licensing Board - one admitting a party to the proceeding, the other denying an intervention - the Commission gave policy direction on additional matters for the hearing. The Commission reminded that none of its financial qualification standards nor other licensing regulation require the Board to undertake a full-blown inquiry into an applicant's likely business success. The Commission counselled that "to the maximum extent practicable both the NRC staff, in its safety and environmental reviews, and the Board, in its adjudicatory role, should avoid second guessing private business judgments." Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-98-13, slip op. at 12 (July 29, 1998).

Consistent with its Policy Statement, the Commission is also taking steps in rulemaking. A newly proposed rule, now subject to public comment, would streamline the hearing process for NRC

approval of license transfers. In announcing the rulemaking the Commission indicated its awareness of the need for expedition and efficiency in the current economic setting where the number of applications for transfers is growing. The Commission is proposing to offer public participation and hearings in an informal mode more suited to economic issues than are formal hearings before technically qualified atomic safety and licensing boards. See 63 Fed. Reg 48644 (September 11, 1998).

INTERNATIONAL REGULATORY ACTIVITIES

OECD Nuclear Energy Agency

40th Anniversary of the Nuclear Energy Agency

This year the OECD Nuclear Energy Agency is celebrating the 40th Anniversary of its creation. To honour the occasion, one hundred and fifty government experts in the fields of energy, nuclear energy and the environment participated in a special anniversary session of the NEA Steering Committee held at OECD headquarters on 30 September 1998. The theme of this session, "The Contribution of Nuclear Energy Co-operation to a New Global Age", was chosen to reflect the extent to which nuclear energy will be relied upon for providing electricity in the future. Following the opening speech by Mr. Donald J. Johnston, Secretary-General of the OECD, presentations were made by Mr. Mohamed ElBaradei, Director General of the International Atomic Energy Agency; Mr. Christian Pierret, the French Secretary of State for Industry; Mr. Ernest J. Moniz, the US Under Secretary for Energy and Mr. Luis Echávarri, Directer General of the OECD/NEA. Specific areas addressed included world energy prospects, nuclear energy and sustainable development, nuclear energy in Asia and the role of international co-operation.

European Union

Amendment to Directive 93/75/EEC concerning minimum requirements for vessels bound for or leaving Community ports and carrying dangerous or polluting goods (1998)

On 17 July 1998, the Council adopted Directive 98/55/EC amending Directive 93/75/EEC (Official Journal L 215 of 1 August 1998, p. 65). One of the purposes of this revision is to clarify that the Directive covers those radioactive materials referred to in the INF Code.[1]

The aim of Directive 93/75/EEC is to ensure compliance with a number of minimum requirements so as to avoid accidents in the Community's coastal waters involving the carriage of dangerous substances or, where necessary, to lessen the effects of such an accident. Article 5 of the Directive sets out, in particular, a requirement for vessels to communicate to the authorities in the port of berthing or departure a list of the dangerous goods transported and their precise nature, the loading plan and details of the vessels. Similarly, under the terms of Article 6, incidents or circumstances arising at sea and which pose a threat must be notified promptly to the competent authorities. In such

1. The INF Code is the International Maritime Organisation (IMO) Code, adopted on 4 November 1993, for the safe carriage of irradiated nuclear fuel, plutonium and high-level radioactive wastes in flasks on board ships.

cases, Annex III of the Directive refers to appropriate measures available under international law to restrict the movement of vessels or to impose a certain route.

Annex I of the Directive, as revised in 1998, enables the competent authorities to obtain relevant information as to the nature of radioactive materials carried and their location on board ships. In addition, notification of the INF class of the ship, which refers to the total radioactive quantity which may be carried on board, provides more detailed information to the competent authorities, thereby contributing to improved response in the event of an accident or incident.

International Atomic Energy Agency

Resolutions Adopted by the IAEA General Conference (1998)

The 42nd Session of the IAEA General Conference was held in Vienna from 21 to 25 September 1998 with delegations from 105 Member States and representatives of various international organisations in attendance. Resolutions were adopted in the following areas:

Strengthening the IAEA's Safeguards System

This Resolution welcomed the fact that 32 States and other Parties to safeguards agreements have signed Additional Protocols aimed at strengthening the effectiveness and improving the efficiency of the safeguards system. It requests that all concerned States and other Parties to safeguards agreements sign Additional Protocols promptly.

Strengthening IAEA Technical Co-operation

This Resolution addresses the Agency's policy on the development of effective programmes aimed at improving the scientific, technological and regulatory capabilities of developing countries, and at continuing to encourage peaceful applications of atomic energy and nuclear techniques. It emphasised that these programmes should contribute to achieving sustainable development, particularly in the least developed countries.

Nuclear Inspections in Irak

The Conference condemned Irak's decision of 5 August 1998 to suspend co-operation with the IAEA, which it said constitutes a totally unacceptable contravention of Irak's obligations under the relevant Security Council Resolutions and the Memorandum of Understanding signed by the Deputy Prime Minister of Irak and the UN Secretary-General on 23 February 1998. The Conference demanded that Irak rescind its decision and resume dialogue and co-operation with the IAEA.

Safeguards in the Democratic People's Republic of Korea (DPRK)

This Resolution expressed the General Conference's concern over the DPRK's continuing non-compliance with its IAEA safeguards agreement. It calls upon the DPRK to fully comply with it,

and to take all steps the Agency may deem necessary to preserve information relevant to verifying the accuracy and completeness of the DPRK's initial report on the inventory of nuclear material subject to safeguards, until the DPRK is in full compliance with the agreement.

Safeguards in the Middle East

The purpose of this Resolution was to request the Agency to continue consultations with the States of the Middle East in order to facilitate the early application of full-scope IAEA safeguards to all nuclear activities in the region as relevant to the preparation of model agreements and as a necessary step towards the establishment of a nuclear-weapon-free zone (NWFZ) in the region.

Illicit trafficking in nuclear materials

The Conference welcomed in this Resolution the IAEA's activities in the fields of prevention, response, training and information exchange in support of efforts against illegal trafficking, and supported continuing work in this area.

Nuclear Testing

In this Resolution the Conference urged all States that have not yet done so to become Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), to place all their nuclear material under safeguards and to become Parties to the Comprehensive Nuclear Test Ban Treaty. It urged all States to support the negotiations for a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices with a view to completing these negotiations as quickly as possible.

Nuclear, Radiation and Waste Safety

The Conference adopted a number of Resolutions to strengthen international co-operation in these fields. One Resolution, "Safety of Radiation Sources and Security of Radioactive Materials", requested the preparation of a report on how national safety systems in these areas can be operated at a high level of effectiveness and whether international undertakings concerned with the effective operation of such systems and attracting broad adherence could be formulated. A second Resolution, "Safety of Transport of Radioactive Materials", requested the Director General to keep the Transport Regulations under review in co-operation with the competent organs of the UN and with specialised organisations. This Resolution contains further provisions on shipping. A third Resolution, "On the Study of the Radiological Situation at the Atolls of Mururoa and Fangataufa", welcomed the Study's conclusions and emphasised that they should not be used in justifying the development and testing of nuclear weapons. A fourth Resolution, "Convention on Nuclear Safety", expressed satisfaction that a first review meeting of Parties will be held in April 1999, and a fifth Resolution deals with Measures to Address the Year 2000 Issue. The latter Resolution urges Members States to share information with the IAEA Secretariat regarding diagnostic and corrective actions being planned or implemented by operating and regulatory organisations at nuclear power plants, fuel cycle facilities and medical facilities which use radioactive materials, to make those facilities ready for Year 2000.

BILATERAL AGREEMENTS

Argentina – Republic of Korea

Agreement for Co-operation in the Peaceful Uses of Nuclear Energy (1996)

The Agreement for Co-operation in the Peaceful Uses of Nuclear Energy, signed on 9 September 1996, entered into force on 19 September 1997. It will remain in force for a period of ten years and will be automatically renewed for further five year periods unless terminated by either Party. The agreement covers the following areas:

- basic and applied research related to the peaceful uses of nuclear energy;
- technology on the nuclear fuel cycle;
- production of components, equipment and materials to be used for nuclear reactors and nuclear fuel cycle installations;
- nuclear medicine, production and application of radioisotopes;
- radiological protection, nuclear safety and regulations, the assessment of the radiological impact of nuclear energy;
- technology on nuclear safeguards and physical protection;
- rendering of services in the above-mentioned areas; and
- other technological aspects of the peaceful uses of nuclear energy which the Parties may deem as a matter of mutual interest.

Co-operation in these areas can be attained through training activities, exchange of personnel, consultation on scientific and technological problems, joint working groups, transfer of materials, equipment and services and exchange of information and documentation. The co-operation within the framework of this Agreement shall be carried out between the Agencies designated by the Parties. These Agencies are empowered to conclude separate arrangements in order to specify the terms and conditions of such co-operation. A Joint Co-ordinating Committee is also established to facilitate implementation of this Agreement.

The Parties agree to facilitate the transfer of nuclear material, equipment, technology and services, provided that they shall only be used for peaceful and non-explosive purposes. Such nuclear

material shall be subject to the application of safeguards by the IAEA. Any nuclear material, equipment or technology transferred under this Agreement may only be transferred to a third party where this is agreed upon between the Parties in writing prior to the transfer.

Finally, the Parties also undertake to ensure the physical protection of nuclear material transferred under this Agreement.

Brazil – Canada

Agreement for Co-operation concerning the Peaceful Uses of Nuclear Energy (1996)

The Agreement for Co-operation concerning the Peaceful Uses of Nuclear Energy was signed on 22 May 1996 and entered into force on 22 April 1997. It will remain in force for a thirty-year period and will be automatically extended for additional periods of ten years, unless terminated by either Party. The co-operation referred to under this Agreement may include:

- exchange of information on the research and development of nuclear energy, health, nuclear safety, emergency planning and environmental protection;
- transfer of patents and other intellectual property rights related to the above information;
- supply and use of nuclear materials and equipment;
- implementation of projects on research and development of nuclear energy;
- application of nuclear energy in agriculture, industry, medicine and electricity generation;
- industrial co-operation;
- technical training, assistance and services, including interchange of experts; and
- uranium prospecting.

Nuclear material, equipment or technology subject to this Agreement shall not be used to produce or to obtain nuclear weapons or any other nuclear explosive device. The peaceful uses of nuclear material shall be verified, in Brazil, in accordance with the Safeguards Agreement between Brazil, Argentina, the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) and the IAEA in connection with the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlatelolco Treaty), and, in Canada, in accordance with the Safeguards Agreement between Canada and the IAEA, in connection with the Non-Proliferation Treaty (NPT).

Bulgaria – Ukraine

Agreement for Co-operation in the Field of State Regulation and Safety Control of the Use of Atomic Energy for Peaceful Purposes (1998)

This Agreement was signed by the Committee on the Use of Atomic Energy for Peaceful Purposes of the Republic of Bulgaria and the Ministry of Environmental Protection and Nuclear Safety of Ukraine on 24 March 1998 and entered into force on the same date. The scope of co-operation includes:

- organisation of the activities of bodies which carry out state control and regulation of the safe use of atomic energy for peaceful purposes;
- organisation and carrying out of analyses on safety reports for nuclear facilities and transportation of nuclear material;
- practices in relation to enforcement measures and sanctions;
- development, application and periodical review of regulations and standards for nuclear and radiation safety as well as licensing procedures and certification;
- emergency planning and assistance in the event of a nuclear accident;
- physical protection of nuclear material and facilities;
- controls on the handling of sources of ionising radiation;
- management and final disposal of radioactive waste and spent nuclear fuel; and
- quality assurance of equipment important for the safe operation of nuclear facilities.

People's Republic of China – France

Co-operation Agreement on the Development of the Peaceful Uses of Nuclear Energy (1997)

This Co-operation Agreement between the People's Republic of China and France was signed in Beijing on 15 May 1997, and was published by Decree No. 98-296 on 15 April 1998. It will remain in force for a period of five years, and may be renewed by tacit agreement between the Parties for further five-year periods.

The Agreement provides for co-operation between these two countries in the following fields:

- basic and applied research in the field of the peaceful uses of nuclear energy;
- research, design, construction, operation and maintenance of nuclear reactors;

- the use of nuclear energy for electricity production; research on important equipment and structures of nuclear power plants, research on simulation techniques and trials;
- research into nuclear safety and the corresponding regulations;
- technical developments and industrial applications in the field of the nuclear fuel cycle;
- radiation and environmental protection;
- uses of nuclear technology in the fields of agriculture, medicine and industry, or any other field of co-operation which could be mutually designated by the Parties.

This co-operation may take place through exchanges and training of personnel, exchanges of information, reciprocal participation in research and development activities, joint research projects and experiments, the organisation of seminars and conferences and the provision of materials, equipment, technology or services.

People's Republic of China – United States

Agreement on Co-operation Concerning Peaceful Uses of Nuclear Technologies (1998)

The Agreement between the Department of Energy of the United States and the State Development Planning Commission of the People's Republic of China on Co-operation Concerning Peaceful Uses of Nuclear Technologies was signed and entered into force on 29 June 1998. It will remain in force for a period of five years and will be automatically renewed for further five-year periods unless terminated by either Party. The Agreement covers the following areas :

- current and advanced light-water nuclear power reactor technologies;
- prevention and treatment of radiation occupational disease, and the application of radiation technology and radioactive isotopes to medicine;
- radiation protection;
- environmental remediation, radioactive and chemical waste management, and spent fuel management;
- export control of nuclear and nuclear related materials, equipment and technologies; nuclear materials protection, control and accounting; physical security of nuclear materials, equipment and technologies; and technological development of enhancement of international nuclear safeguards; and
- other areas which may be determined by the Parties.

Co-operation under this Agreement can be attained through information exchange, organisation of, and participation in, seminars, workshops, and other meetings, exchange of specialists, transfer of nuclear materials or equipment, short-term visits of facilities by specialist

teams or individuals, use of other Party's facilities, and joint projects. A Joint Co-ordinating Committee shall be established to supervise and co-ordinate the implementation of this Agreement.

The Agreement provides that, pending the entry into force of the related international convention on compensation for nuclear damage, the Party in whose territory the nuclear incident occurs shall be solely responsible for and deal with the compensation for legal liability for nuclear damage to third parties.

Annex I governs the protection and distribution of intellectual property rights and other rights of a "business-confidential" nature which arise under this Agreement and relevant implement arrangements.

Germany – Russian Federation

Agreement on Nuclear Liability in respect of Supplies Delivered from Germany to Nuclear Installations in the Russian Federation (1998)

This Agreement on nuclear liability in respect of German supplies sent to the Russian Federation was signed on 8 June 1998 and entered into force on the same date. It was concluded for an unlimited period of time, and will no longer apply once legislation has entered into force in the Russian Federation which is in accordance with the provisions of the Vienna Convention and the Joint Protocol on the Application of the Vienna and Paris Conventions, or with the provisions of another relevant international legal instrument to which Germany is a Party. However, either of the Parties may denounce the Agreement by giving one year's notice, on the understanding, of course, that this denunciation does not have a retroactive effect with regard to damages resulting from an incident which took place while the Agreement was in force.

According to Article 1, the Agreement promotes economic, industrial and scientific co-operation between these two countries in the field of the peaceful uses of nuclear energy. It also sets out the rules of liability applicable to a nuclear incident in the Russian Federation involving German supplies. In such a case, the Russian Federation agrees not to institute liability proceedings against Germany or against any German supplier, and to ensure that they will receive sufficient legal protection and will not be held liable in respect of claims made by third parties. This exoneration does not apply in the event of an intentional act, nor where the German party does not respect its obligation to keep the Russian party informed of proceedings which have been taken out against it. The Agreement provides that it is only applicable where there has been a written notification of the supplies between the parties. The competent authorities for the application of this Agreement are, in the Russian Federation, the Ministry for Atomic Energy and, in Germany, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

Republic of Korea – Republic of Vietnam

Agreement for Co-operation in Research into the Peaceful Uses of Nuclear Energy (1996)

This Agreement for Co-operation in the Peaceful Uses of Nuclear Energy was signed on 20 November 1996 and entered into force on 6 January 1997. It will remain in force for a period of five years and will be automatically renewed for further five year periods unless terminated by either Party. The Agreement covers the following areas:

- basic and applied research and development with respect to the peaceful uses of nuclear energy;
- research, development, design, construction, operation and maintenance of research reactors and nuclear power plants;
- research, manufacture and supply of nuclear fuel elements to be used in research reactors and nuclear power plants;
- radioactive waste management;
- production and application of radioactive isotopes in industry, agriculture and medicine;
- nuclear safety, radiological protection and environmental protection;
- nuclear safeguards and physical protection;
- nuclear policy and training of personnel; and
- other co-operation areas as may be agreed upon by Parties.

Co-operation in these areas can be attained through exchange of personnel, information exchange, training activities, transfer of material, equipment and technology, provision of services and joint projects. The Parties agree to encourage the conclusion of implementing arrangements in respect of this Agreement.

Nuclear material, equipment, facilities and technology transferred pursuant to this Agreement and special fissionable material recovered or produced as a by-product shall not be used for the development or the manufacture of any explosive device, or for any military purpose, and shall not be transferred to a third party without the prior written consent of the supplying party. Nuclear material shall be subject to safeguards and physical protection requirements. The written consent of both Parties is required in certain cases of enrichment of nuclear material or in the case of reprocessing.

Norway – Russian Federation

Agreement on Environmental Co-operation in connection with the Dismantling of Russian Nuclear Powered Submarines (1998)

The Agreement on Environmental Co-operation in connection with the Dismantling of Russian Nuclear Powered Submarines withdrawn from the Navy's Service in the Northern Region, and the Enhancement of Nuclear and Radiation Safety, was signed and entered into force on 26 May 1998. It shall remain in force for a period of five years and shall be extended for additional five-year periods on written agreement between the Parties.

Under this Agreement, Norway agrees to render free technical assistance to the Russian Federation in order to contribute to an early, environmentally safe and cost-effective dismantling of Russian nuclear powered submarines withdrawn from the Navy's service in the northern region and to enhance nuclear and radiation safety at nuclear power plants and other nuclear facilities. Such assistance may take the form of delivery of equipment, technology transfer and provision of financial means in accordance with the provisions of each project agreement or contract.

The Parties agree to co-operate in the implementation of a number of projects related to waste management and the enhancement of nuclear and radiation safety. The Agreement includes a list of projects, which may later be expanded.

The Agreement establishes a joint commission to oversee the co-operation. Further provisions provide for tax exemption for technical assistance, training of personnel, technical standards and verification procedures, protection of intellectual property and confidentiality.

It also contains detailed provisions on nuclear liability. With the exception of claims against individuals from their premeditated actions, the Russian Federation shall bring no claims or legal proceedings against Norway and its personnel, or contractors, subcontractors, consultants or suppliers of equipment or services at any tier, for damage to property owned by the Russian Federation and for damage which results from a nuclear incident occurring within the territory of the Russian Federation.

Russian Federation – Sweden

Agreement concerning Co-operation in the Regulation of Nuclear Safety and Radiation Protection (1997)

The Agreement concerning Co-operation in the Regulation of Nuclear Safety and Radiation Protection was signed and entered into force on 2 December 1997. This Agreement will remain in force for a period of five years, and it can be renewed by a written agreement between the Parties.

The Agreement provides for co-operation between these two countries in the following fields:

- improvement of legislative, regulatory and technical instruments to increase their effectiveness;
- development of a process for improving existing requirements at nuclear plants as well as for other activities related to the peaceful uses of nuclear energy; and
- development of controls for nuclear plants as well as of the methods used for the analysis of nuclear safety and radiation protection these plants.

Co-operation may be undertaken pursuant to a separate protocol agreed to by the Parties, which stipulates specific forms of co-operation.

Russian Federation – United States

Agreement on the Nuclear Cities Initiative (1998)

The Agreement on the Nuclear Cities Initiative was signed and entered into force on 22 September 1998. It will remain in force for five years and may be extended for further five year periods with the written notice of both Parties after joint review before the end of each five-year period.

The purpose of the Agreement is to create a framework for co-operation to facilitate civilian production which is intended to provide new jobs for nuclear workers displaced from enterprises in "nuclear cities", that is, administrative, territorial units, as defined under the Law of the Russian Federation on Closed Administrative Territorial Units, that have local, municipal self-government and within which nuclear enterprises are located.

The principal areas for co-operative activities may include:

- to share experiences in "diversification of production", which means the development, in "nuclear cities", of commercially viable enterprises for civilian production at which displaced nuclear employees can be employed;
- to facilitate the selection of promising projects for production diversification and to create the conditions that will enable them to be implemented;
- to develop entrepreneurial skills in employees and to train them;
- to facilitate investment in "nuclear cities"; and
- to identify mechanisms for funding projects under the Agreement.

The Parties shall establish a US-Russian Joint Steering Committee which shall co-ordinate work undertaken under this Agreement.

The Agreement contains provisions which deal with information exchange, intellectual property rights and other rights of a "business-confidential" nature which may arise under it and relevant implementing arrangements.

It also contains detailed provisions on nuclear liability. With the exception of claims against individuals arising from premeditated damage or injury, the Russian Federation shall bring no claims or legal proceedings against the United States and its personnel, or contractors, subcontractors, consultants, suppliers or sub-suppliers of equipment or services at any tier and their personnel for damage to property owned by the Russian Federation and, in connection with third-party claims, for any injury or damage arising from activities undertaken pursuant to this Agreement.

South Africa – Sweden

Arrangement for the Exchange of Technical Information and Co-operation in the Regulation of Nuclear Safety (1997)

The Arrangement between the Swedish Nuclear Power Inspectorate and the Council for Nuclear Safety of South Africa for the exchange of technical information and co-operation in the regulation of nuclear safety was signed and entered into force on 22 May 1997. It will remain in force for a period of five years and will be extended for a further period of time by written agreement of the Parties. The Parties agree to exchange technical information relating to the safety of nuclear facilities and other activities which may be designated by mutual consent, to the extent that such exchanges are authorised under national legislation and regulations.

Ukraine – United States

Agreement Concerning Peaceful Uses of Nuclear Energy (1998)

This Agreement was signed on 6 May 1998. It will enter into force on the date upon which the Parties exchange diplomatic notes informing each other that they have completed all applicable requirements, and will remain in force for a period of thirty years. This term may be extended for such additional periods as is agreed between the Parties. The Agreement may be terminated at any time by either Party on one year's written notice.

The Parties agree to co-operate in the uses of nuclear energy for peaceful purposes in accordance with the provisions of this Agreement, applicable treaties, national laws, regulations and license requirements. Transfer of information, material, equipment and components may be undertaken directly between the Parties or through authorised persons. Restricted data, sensitive nuclear technology, sensitive nuclear facilities and major critical components thereof shall not be transferred under this Agreement. Apart from small quantities, the only special nuclear material which will be transferred to Ukraine under this Agreement shall be low enriched uranium. Material transferred pursuant to this Agreement and material used in or produced through the use of material or equipment so transferred shall not be reprocessed or enriched, unless the Parties agree.

The Parties also agree to maintain adequate physical protection measures for all equipment and material subject to the Agreement. They shall also ensure that no material, equipment and components transferred under the Agreement are used for any nuclear explosive device, for research on or development of any nuclear explosive device, or for any military purpose. IAEA safeguards will also apply to nuclear material under this Agreement.

Agreement Concerning the International Radioecology Laboratory of the International Chernobyl Centre on Nuclear Safety, Radioactive Waste and Radioecology (1998)

The Agreement Concerning the International Radioecology Laboratory of the International Chernobyl Centre on Nuclear Safety, Radioactive Waste and Radioecology was signed on 22 July 1998. It shall remain in force for five years and may be renewed for additional five-year terms by written agreement. It will be carried out within the framework of the 1992 Agreement Regarding Humanitarian and Technical Economic Co-operation between the Ukraine and the United States. The objective of the 1998 Agreement is to establish co-operation in the conduct of field-oriented research and state-of-the-art analysis in the areas of dosimetry, radionuclide concentrations and the biological effects of radioactive contamination, on a year-round basis, at the International Radioecology Laboratory in the Chernobyl Exclusion Zone.

MULTILATERAL AGREEMENTS

Convention for the Protection of the Marine Environment of the North-East Atlantic: First OSPAR Commission Meeting (1998)

The Convention for the Protection of the Marine Environment of the North-East Atlantic, which was adopted on 22 September 1992, entered into force on 25 March 1998 (see *Nuclear Law Bulletin* Nos. 50 and 61). The first meeting of the governing body of that Convention, the OSPAR Commission was held at Sintra, Portugal, on 20-24 July 1998.

The OSPAR Commission adopted an Annex V to the above 1992 Convention in addition to the four existing Annexes concerning the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area.

One of the decisions of the Commission provided that the exception to the prohibition on the dumping of low and intermediate level radioactive substances, including wastes, which had been granted to the United Kingdom and France, shall no longer be applied.

A "Sintra Statement" was adopted at ministerial level during the meeting. This contains a specific provision on radioactive substances. In this Statement they agree to ensure that discharges, emissions and losses of radioactive substances are reduced by the year 2020 to levels where the additional concentrations in the marine environment above historic levels, resulting from these activities in the past, are close to zero.

To this end, the Commission will:

- develop environmental quality criteria for the protection of the marine environment from adverse effects of radioactive substances and report on progress by the year 2003;

- continue to reduce radioactive discharges from nuclear installations to the marine environment by applying best available techniques;

- review activities which are potentially dangerous in this respect, and assess them to identify and prioritise fields where action is required and develop the necessary measures.

Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998)

This International Convention on citizens' environmental rights was adopted at the Fourth "Environment for Europe" Ministerial Conference of the Economic Commission for Europe (UN Economic and Social Council), which took place at Aarhus, Denmark, from 23 to 25 June 1998. On 25 June 1998, 35 countries and the European Commission signed this Convention.

"Environmental information" is defined in a very broad manner to include the state of elements in the environment (air, soil, water, landscape etc.); factors such as substances, energy, noise

and radiation; activities or measures such as administrative measures, environmental agreements or legislation; as well as the state of human health or safety and the conditions of human life.

The Convention provides as a general rule that such information must be made available to the public without an interest having to be stated, and in the form requested, unless it is reasonable for the public authority to make it available in another form or if it is already publicly available in another form. This Convention provides also for the collection and dissemination of environmental information, and aims to ensure its transparency.

The provisions governing public participation in decisions on specific activities apply to all those activities which are listed in Annex I. The latter refers specifically, in the energy sector, to "Nuclear power stations and other nuclear reactors including the dismantling or decommissioning of such power stations or reactors[1] (except research installations for the production and conversion of fissionable and fertile materials whose maximum power does not exceed 1 kW continuous thermal load". Also included are the following installations:

- for the reprocessing of irradiated nuclear fuel;
- for the production or enrichment of nuclear fuel;
- for the processing of irradiated nuclear fuel or high-level radioactive waste;
- for the final disposal of irradiated nuclear fuel;
- solely for the final disposal of radioactive waste;
- solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site other that the production site.

These provisions on public participation in decision-making provide for early information of the public concerned on the proposed activity, the nature of possible decisions and the public authority responsible and the envisaged procedure, including the opportunities for the public to participate. Such public participation procedures must be organised at an early stage and must include reasonable time-frames for the different phases. The competent authorities agree to provide the public concerned with any information relevant to the decision-making procedure, and the grounds upon which the final decision itself is based must be provided. Public participation is provided for also during the preparation of executive regulations or generally applicable legally binding normative instruments. Further provisions guarantee access to administrative and judicial appeal authorities in the event that a request for information has not been dealt with satisfactorily, or that a citizen has been denied the right to participate in an environmental decision.

1. The Convention explicitly states that nuclear power stations and other nuclear reactors cease to be such an installation when all nuclear fuel and other radioactively contaminated elements have been removed permanently from the installation site.

Status of Nuclear Conventions

Vienna Convention on Civil Liability for Nuclear Damage and the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage

Belarus, Bosnia and Herzegovina and the Republic of Moldova have become Contracting Parties to the Convention since the last update in *Nuclear Law Bulletin* No. 60. Therefore, as of 30 June 1998, the number of Parties is 31.

Belarus, the Czech Republic and Peru have signed the 1997 amending Protocol since *Nuclear Law Bulletin* No. 61. Therefore, as of 13 October 1998, the number of Signatories is 14.

Convention on Supplementary Compensation for Nuclear Damage

The Czech Republic and Peru have signed this Convention since the last update in *Nuclear Law Bulletin* No. 61. Therefore, as of 13 October 1998, the number of Signatories is 13.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

12 States, namely Argentina, Austria, Belgium, Bulgaria, Canada, Croat, Denmark, Greece, Italy, Peru, Philippines and Spain, have signed this Convention since the last update in *Nuclear Law Bulletin* No. 60. Therefore, as of 13 October 1998, the number of Signatories is 36.

Canada, Germany, Hungary, Norway and the Slovak Republic have ratified this Convention.

Convention on Nuclear Safety

Twelve States, namely Argentina, Armenia, Austria, Greece, Italy, Luxembourg, Pakistan, Peru, Portugal, the Republic of Moldova, Singapore and Ukraine, have become Contracting Parties since the last update in *Nuclear Law Bulletin* No. 59. Therefore, as of 21 September 1998, the number of Parties is 47.

BIBLIOGRAPHY AND NEWS BRIEFS

BIBLIOGRAPHIE

OECD Nuclear Energy Agency

Future Nuclear Regulatory Challenges, OECD Paris, 1998, 47 pages

Major nuclear regulatory challenges will arise from government policies to liberalise energy sectors. One of the most important is that nuclear regulatory bodies will have to ensure that economic pressures do not erode nuclear safety. Other challenges will stem from the need to maintain nuclear safety culture and regulatory effectiveness.

In this Report, which is the outcome of the study of a Working Group on Future Regulatory Challenges established within the Committee on Nuclear Regulatory Activities (CNRA) of the OECD Nuclear Energy Agency, issues which present a challenge to nuclear regulatory bodies over the next ten years have been considered. It addresses these challenges under four categories, namely, technical issues; socio-economic and political issues; organisational, management and human issues; and international issues.

International Nuclear Law Association

Nuclear Inter Jura 97, "Nuclear Law from the 20th to 21st Century", Paris, 1998, 583 pages

The International Nuclear Law Association (INLA) held its 13th Congress in Tours, France from 15 to 19 September 1997. This compendium, entitled "Nuclear Law from the 20th to 21st Century", which was recently published by the Association, contains all the papers presented at the Congress by experts from more than 20 countries. It covers five working sessions on the following subjects: licensing and decommissioning; radiological protection; international nuclear trade; radioisotopes; liability and compensation and radioactive waste management.

Finland

Compilation of Finnish Nuclear Energy Legislation, published by Finnish Ministry of Trade and Industry, Helsinki, 1998, 71 pages

This Compilation of Finnish Nuclear Energy Legislation – translated into English – was published in 1998 by the Ministry of Trade and Industry. It contains consolidated versions of most of Finland's nuclear legislation, namely, the 1987 Nuclear Energy Act, as amended, the 1988 Nuclear Energy Decree, as amended, the 1988 Decision of the Council of State concerning the Providing for Nuclear Waste Management Costs, as amended and the 1972 Nuclear Liability Act, as amended.

Japan

Japanese Version of the "Overview of Nuclear Legislation in Central and Eastern Europe and the NIS", published by the Japanese Atomic Industry Forum, Tokyo, 1998, 133 pages

A Japanese translation of the "Overview of Nuclear Legislation in Central and Eastern Europe and the NIS" was published by the Japan Atomic Industry Forum (JAIF) in September 1998, with the permission of OECD. It aims at providing the persons involved in the nuclear field with a better understanding on the current nuclear legislation and the institutional framework as well as the draft legislation under preparation in Central and Eastern Europe and the New Independent States.

Turkey

Nuclear Energy and Insurance, 1997, 256 pages

This book entitled "Nuclear Energy and Insurance" is published by the Generali Sigorta group. It examines the technical, scientific and legal issues relating to the peaceful use of atomic energy in Turkey. The section on legal issues deals essentially with nuclear insurance. This publication, made up of 42 chapters is only available in the Turkish language. The first fifteen chapters give a general overview of the atom and radioactivity; the chapters which follow this section are more technical and deal with the causes of nuclear accidents in reactors. Furthermore, a number of chapters cover legal issues, for example the conditions and procedures involved in the insurance market and the risks linked to operation of a nuclear power plant. The following subjects are examined in relation to nuclear insurance: risks during construction; fire during operation of the plants and other causes of accidents; risks due to the transport of radioactive materials and waste etc. The final chapters reproduce the principle legislative texts in force in Turkey in the field of nuclear energy, and also certain regulations which establish competent regulatory bodies.

OECD Nuclear Energy Agency

Sixth Advanced Training Seminar on Nuclear Law (1998)

The Sixth Advanced Training Seminar on Nuclear Law, co-organised by the OECD/NEA, the IAEA and the EC, took place in Tallinn, Estonia, on 24-28 August 1998. This Seminar took place within the framework of the continuing legal programme of co-operation with and assistance to countries from Central and Eastern Europe and the New Independent States. The Advanced Training Seminars on Nuclear Law have been held on an annual basis since 1993. The theme of this year's Seminar was "The Rules governing International Transfers of Nuclear and Nuclear-Related Material, Equipment and Technology, and the Transport of Radioactive Materials". Subjects discussed under this general theme covered, inter alia, the non-proliferation regime, physical protection of nuclear materials, bilateral and international agreements in this field, transport of nuclear materials, international movement of spent fuel and radioactive waste, measures governing trade in nuclear materials, equipment and technology, and liability and insurance aspects of the transport of nuclear materials.

More than 50 participants from 18 countries of Central and Eastern Europe and the New Independent States attended this Seminar, with a view to improving the nuclear legislative and regulatory framework in their countries, in order to bring it into line with the standards of its Western counterparts. Lecturers from Canada, France, Finland, Germany, the United Kingdom, the United States and the competent international organisations contributed to this Seminar by sharing their experience acquired in governmental, regulatory, industrial and academic circles. A Compendium containing the papers submitted by lecturers and participants during this Seminar is now available from the NEA Secretariat.

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SLOVAK REPUBLIC

Act* on the peaceful use of nuclear energy and on alterations and additions to Act No. 174/1968 Zb. on State supervision of work safety as amended by Act of the National Council of the Slovak Republic No. 256/1994 Z.z. *****

adopted on 1 April 1998

The National Council of the Slovak Republic has passed this Act as follows:

Part I

Chapter One

BASIC PROVISIONS

Section 1

Subject of Act

This Act regulates:

a) the conditions for use of nuclear energy for peaceful purposes;

b) the obligations and rights of legal persons and natural persons in the use of nuclear energy;

c) the classification of nuclear materials, the conditions for their production, processing, procurement, storage, transportation, use, accounting and control;

d) conditions for management of radioactive waste from nuclear installations and of spent nuclear fuel and conditions for disposal of institutional radioactive waste;

e) nuclear safety conditions;

f) compensation for nuclear damage;

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* This is an unofficial translation established by the OECD. Only the Slovak text has the force of law.

** Zb. (*Zbierka*), meaning from the collection of laws of the former Czechoslovakia.

*** Z.z. (*Zbierka zakonov*), meaning from the collection of laws of the Slovak Republic, commencing 1 January 1993.

g) state supervision of nuclear safety at nuclear installations, procurement and use of nuclear materials, management of radioactive waste and management of spent nuclear fuel;

h) sanctions imposed for violation of the obligations arising out of this Act.

Section 2

Definition of certain terms

In this Act, terms are understood as follows:

a) *peaceful use of nuclear energy* shall mean the siting, construction, commissioning, operation, maintenance and reconstruction of nuclear installations and their decommissioning, the designing, manufacturing and testing of systems and components of nuclear installations, including the materials used to make them, the management of nuclear materials, special materials and equipment, the management of radioactive waste from nuclear installations and of spent nuclear fuel, research and development work on the above activities, and the special training of nuclear installation employees at specialised institutions;

b) *storage of radioactive waste or spent nuclear fuel* shall mean the temporary emplacement of radioactive waste or spent nuclear fuel in sites, facilities or equipment that enables the radioactive waste or spent nuclear fuel to be isolated and monitored and the environment to be protected;

c) *disposal of radioactive waste or spent nuclear fuel* shall mean their permanent emplacement in a radioactive waste or spent nuclear fuel repository;

d) a *radioactive waste or spent nuclear fuel repository* shall mean a site, facility or equipment on the surface or underground used for disposal of radioactive waste or spent nuclear fuel and which enables this radioactive waste or spent nuclear fuel to be isolated and monitored and the environment to be protected;

e) *institutional radioactive waste* shall mean radioactive waste arising during the handling of ionising radiation sources with the exception of spent nuclear fuel and radioactive waste from the operation of nuclear installations;

f) *commencement of commissioning of a nuclear installation* shall mean loading of nuclear fuel into nuclear installations which have a nuclear reactor as one of their components, and also placing of nuclear materials or radioactive waste in other nuclear installations;

g) *selected employees* shall mean employees carrying out activities which have a direct impact on nuclear safety and whose particular special qualifications have been verified by the Nuclear Regulatory Authority [*Úrad Jadrového Dozoru – ÚJD*] of the Slovak Republic through the passing of examinations;

h) *selected equipment* shall mean equipment and devices and their parts and materials, buildings and structures, automated process control systems, including computer programmes and support systems, which are important in terms of nuclear safety.

Section 3

Principles of peaceful use of nuclear energy

(1) Nuclear energy and nuclear materials may only be used for peaceful purposes in accordance with international agreements by which the Slovak Republic is bound.[1]

(2) The peaceful use of nuclear energy shall be justified by a benefit which shall compensate for the possible risks of such activities, especially through comparison with other methods by which the same benefit could be achieved.

(3) During the peaceful use of nuclear energy, a level of nuclear safety, safety at work, protection of health against ionising radiation, physical protection and emergency preparedness shall be achieved, such that the hazard to life, health, the working environment and the environment is below the set limits[2] and, in the light of available knowledge, as low as reasonably achievable. When new significant information concerning the risk and consequences of use of nuclear energy appears, the level set shall be re-evaluated and the necessary measures shall be taken to meet the conditions established by this Act.

Section 4

Conditions for use of nuclear energy

(1) The use of nuclear energy or carrying out of activities in the sphere of the use of nuclear energy shall only be permissible on the basis of an authorisation issued by the Nuclear Regulatory Authority of the Slovak Republic (hereinafter referred to as "the Authority") to a legal person or a natural person who complies with the conditions set out by the general regulations on these activities[3] and by this Act (hereinafter referred to as "the holder of an authorisation"), unless individual regulations establish otherwise.[4]

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1. Decree of the Minister of Foreign Affairs No. 61/1974 Zb. on the Nuclear Weapons Non-Proliferation Agreement.

   Decree of the Minister of Foreign Affairs No. 62/1974 Zb. on the Agreement prohibiting the location of nuclear weapons and other weapons of mass destruction on or beneath the sea or ocean bed.

2. Act of the National Council of the Slovak Republic No. 272/1994 Z.z. on protection of human health as amended by the latest regulations.

   Decree of the Ministry of Health of the Slovak Socialist Republic No. 65/1972 Zb. on protection of health against ionising radiation.

3. Commercial Code as amended by the latest regulations.

   Act No. 455/1991 Zb. on commercial and artisan enterprises (the Trade and Artisans Act) as amended by the latest regulations.

4. For example Section 3 to 8 of Act No. 70/1998 Z.z. on power generation and on amendment to Act No. 455/1991 Zb. on trading ventures (the Trade Act) as amended by the latest regulations; Section 15 a) of the Act of the National Council of the Slovak Republic No. 272/1994 Z.z. as amended by the latest regulations.

(2) The Authority shall issue authorisations for:

a) the siting, design, construction, importation, commissioning, operation and reconstruction of nuclear installations [Section 13] and their decommissioning;

b) the planning, design, construction, manufacture, importation, assembly, testing, maintenance, repair and reconstruction of selected equipment;

c) the procurement and use of nuclear materials apart from their transportation;

d) the management of radioactive waste and spent nuclear fuel;

e) the professional training of nuclear installation employees [Section 2(g) and Section 21 (3)] at specialised institutions.

(3) The permission of the Authority shall be required for the issue of a licence or other permit to use nuclear energy in accordance with specific regulations.[4] Sections 5 to 8 relate accordingly to the issue of permission. In this case an authorisation as in (2) above is not required.

(4) An authorisation shall not be issued to foreign commercial entities as suppliers of nuclear installations, selected equipment or services. In such a case it is the receiver of such equipment and services within the territory of the Slovak Republic who shall be the holder of an authorisation to act as in (2) above or the holder of a licence or permission issued in accordance with specific regulations.[4]

(5) Legal persons and natural persons to whom a licence or other permission has been issued in accordance with specific regulations[4] [see paragraph (3) above] shall be considered as holders of an authorisation under the terms of this Act.

Section 5

Conditions for issue of authorisation

(1) The conditions for the issue of an authorisation [Section 4(2)] to a legal person are:

a) registered head office within the Slovak Republic;

b) capacity to take legal actions, no blemish on reputation and reliability of statutory body or its members and special qualification of statutory body or of at least one member of the statutory body;

c) demonstration of special qualification of employees carrying out activities under the terms of this Act.

(2) The conditions for the issue of an authorisation [Section 4(2)] to a natural person are:

a) permanent residence or long-term residence within the Slovak Republic;

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4. See footnote No. 4

b) professional competence;

c) capacity to take legal actions;

d) unblemished reputation and reliability;

e) physical fitness.

(3) A condition for the issue of an authorisation to a legal person or a natural person is demonstration of the financial, technical, material and organisational preconditions including quality systems for the proper performance of activities in relevant areas.

(4) A person of unblemished reputation under the terms of this Act shall be a person who has never been legally convicted of a criminal act involving negligence where the facts of the case were associated with the subject of the authorisation, or of a criminal act committed intentionally.

(5) A reliable person under the terms of this Act shall not be a person who:

a) demonstrably indulges in excessive consumption of alcoholic drinks;[5]

b) uses addictive substances, use of which may cause persons to become dependent upon them.[5]

(6) Professional competence as in 1(b) and 2(b) above shall mean a completed course of university education in an appropriate area and three years practice in that area.

Section 6

Application for the issue of an authorisation

(1) A written application for the issue of an authorisation [Section 4(2)] should state:

a) for a legal person, the name, registered office and identification number;

b) for a natural person, the full name, citizen's card-index number and place of permanent or long-term residence,

c) for a legal person and a natural person:

1. the subject, type, scope and site of the business or other activity;

2. the period for which the applicant wishes to carry out the commercial activity.

5. Act of the National Council of the Slovak Republic No. 219/1996 Z.z. on protection against abuse of alcoholic drinks and on the organisation and operation of anti-alcohol remand premises.

(2) To an application as in paragraph (1) above should be attached:

a) for a legal person:

1. extract from the Commercial Register, if the legal person is a commercial entity;

2. the statutes of the company or the charter in the case of a newly-founded commercial entity;

3. extract from the criminal records in respect of the statutory body or its members;

4. proof of special qualifications of the statutory body or at least one member of the statutory body;

5. proof of special qualifications of employees.

b) for a natural person:

1. affidavit of permanent or long-term residence within the Slovak Republic;

2. extract from the criminal records;

3. proof of special qualifications;

4. medical judgement of capable health.

c) for a legal person or a natural person, evidence of the financial, technical, material and organisational preconditions including quality systems for the proper performance of the activities for which the person is applying for an authorisation.

Section 7

Issue of authorisation

(1) The Authority shall make a decision concerning the issue of an authorisation [Section 4 (2)] within 60 days of receipt of a written application, provided the application meets the conditions set by this Act.

(2) In the decision concerning the issue of an authorisation, the following shall be given:

a) for a legal person, the person's name, registered head office, site of the commercial activity or other activity and identification number;

b) for a natural person, the person's full name, citizen's card-index number, place of permanent or long-term residence and the site of the commercial activity or other activity;

c) for a legal person and a natural person, the subject, type and scope of the commercial activity or other activity, the date of commencement of the commercial activity or other activity, and the period for which the authorisation is issued.

(3) Only the person specified in the authorisation can perform the activities specified in it.

Section 8

Termination and limitation of authorisation

(1) An authorisation shall be terminated on expiry of the period for which the authorisation was issued, by a decision of the Authority to withdraw the authorisation, or by the holder of the authorisation being struck off the commercial register, or, in the case of a natural person, by the death of that person or by that person being declared dead.

(2) An authorisation may be withdrawn or restricted by the Authority if:

a) the holder of the authorisation ceases to meet the conditions required under the Act and pursuant to which the authorisation was issued;

b) the holder of the authorisation, while carrying out activities, in some significant way threatens the life or health of persons[6] or causes damage to the environment;[7]

c) the Authority ascertains that the authorisation was issued on the basis of incorrect or incomplete information.

Chapter Two

NUCLEAR MATERIALS

Section 9

Nuclear materials, special materials and equipment

(1) Nuclear materials are:

a) source materials: natural uranium, depleted uranium, thorium and any of these materials in the form of metal, alloy, chemical compounds or concentrates and materials containing one or more of the aforementioned substances in a minimum quantity of 0.005 kg;

b) special fissionable materials: plutonium-239, 241, uranium-233, uranium enriched in 235 or 233 isotopes and materials containing one or more of the aforementioned isotopes in a minimum quantity of 0.005 g.

(2) Uranium and thorium during mining and the processing of uranium and thorium ore shall not be considered as nuclear materials under the terms of this Act.

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6. Act of the National Council of the Slovak Republic No. 272/1994 Z.z. as amended by the latest regulations.

7. Act No. 17/1992 Zb. on the natural environment as amended by the latest regulations.

(3) Special materials and equipment are:

a) materials and equipment specially developed or manufactured for use in the production and processing of nuclear materials;

b) materials and equipment for general use which may be used in the production and processing of nuclear materials, nuclear weapons or nuclear explosive devices;

c) information and technological know-how[8] required to produce and use materials and equipment as specified in subsections (a) and (b) above.

(4) A list of special materials and equipment shall be established in a generally-binding legal regulation to be issued by the Authority.

(5) In the event of doubts as to whether a particular substance is a nuclear material or as to whether a certain material or piece of equipment is a special material or special equipment, a decision shall be taken by the Authority.

Section 10

Procurement and use of nuclear materials

(1) Nuclear materials may only be procured and used on the basis of a permit issued by the Authority.

(2) The Authority may issue a permit for any period of time, but not to exceed a maximum period of ten years.

(3) Use of a nuclear material in a way such that it is consumed or diluted so that it cannot be restored or in a way that causes its form or state to change fundamentally, apart from use of nuclear fuel in a reactor, is only permissible with a prior permit from the Authority.

(4) A permit from the Authority is required for the import or export of nuclear materials or special materials or equipment under specific regulations.[9]

(5) If a person who has procured or is using nuclear materials does not adhere to his obligations arising out of the permit issued and does not eliminate any breach within a period as stipulated by the Authority, the Authority may take measures to ensure that these nuclear materials be transferred, at the expense of the person concerned, to another person who has an authorisation.

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8. Section 2 of Act No. 547/1990 Zb. on the handling of certain types of goods and processes and their control.

9. Act No. 547/1990 Zb.

Decree of the Federal Ministry of Foreign Trade No. 50/1992 Zb., which implements Act No. 547/1990 Zb. on the handling of certain types of goods and processes and their control as amended by the latest regulations.

Decree of the Economics Ministry of the Slovak Republic No. 15/1998 Z.z on conditions for the issue of an official permit for the import and export of goods and services.

(6) In the case of nuclear materials where the owner is not known or which were procured in violation of this Act, the Authority shall make a decision specifying the holder of an authorisation to take the essential steps. Reimbursement of the consequent expenses to the holder of the authorisation shall be made appropriately in accordance with Section 17(10).

Section 11

Transportation of nuclear materials

(1) Nuclear materials may only be transported on the basis of a transportation permit issued by the Authority to the consignor or carrier.

(2) Transportation of nuclear material may only be carried out in transport equipment of types approved by the Authority.

(3) A permit to transport nuclear material shall be issued for each transportation. For transportation of nuclear material of the same type by the same carrier, a permit may be issued for transportation of nuclear material for a longer period of time, but not for a period longer than one year.

(4) Details of how nuclear materials should be transported shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 12

Accounting and control of nuclear materials

(1) Legal persons and natural persons who produce, process, store or procure and use nuclear materials are obliged to:

a) keep accounting and operational records of these materials and submit to the Authority reports of accounting records;

b) appoint an employee with a special qualification and his deputy to keep accounting and operational records of control of nuclear materials and notify the Authority of their names;

c) notify the relevant Police body, the Ministry of Health of the Slovak Republic and the Authority without delay of any loss or misappropriation of nuclear materials;

d) inform the Authority of any breach of its own measures of surveillance and control, or of those of an international organisation which has signed an agreement with the Slovak Republic on safeguards for nuclear materials subject to which nuclear materials are controlled, and of any accident which led to or could have led to violation of the integrity of nuclear material, as soon as such a fact has been ascertained;

e) enable access, in the presence of inspectors from the Authority, for inspectors from the international organisations, and to provide the necessary support during the performance of control activities by inspectors of international organisations who have signed an agreement on nuclear materials safeguards with the Slovak Republic.

(2) Details of how accounting and operational records should be kept, of how control activities should be performed, on the drafting and submission of reports on accounting records and on the method of notification and communication of incidents relating to nuclear materials shall be established by a generally-binding legal regulation to be issued by the Authority.

Chapter Three

NUCLEAR INSTALLATIONS, MANAGEMENT OF RADIOACTIVE WASTE

AND SPENT NUCLEAR FUEL

Section 13

Nuclear installation

(1) Nuclear installation shall mean:

a) installations and facilities incorporating a nuclear reactor utilising a controlled fission chain reaction;

b) installations and facilities for the production, treatment and storage of nuclear materials;

c) installations and facilities for the disposal of spent nuclear fuel;

d) installations and facilities for the processing, conditioning, storage and disposal of radioactive waste.

(2) Not included in the category of nuclear installations are containers and coverings in which nuclear material is used as protective material for radioactive sources, nor spaces in which such containers or coverings are kept, nor institutional radioactive waste stores which are part of a workplace with ionising radiation sources as permitted under specific regulations.[2] Where doubts arise as to whether a particular installation is a nuclear installation, the Authority shall make a decision.

Section 14

Construction of nuclear installations

(1) The construction of nuclear installations falls under specific regulations[10] unless otherwise stipulated in the present Act.

(2) The construction of a nuclear installation may only be carried out by a holder of an authorisation [Section 4] (hereinafter referred to as "the builder") on the basis of a permission granted by the Authority.

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2. *See footnote No. 2.*

10. Act No. 50/1976 Zb. on territorial planning and construction procedures (Construction Act) as amended by the latest regulations.

(3) The Authority shall decide on the issue of a permission to build a nuclear installation, on the basis of a written application from the builder supplemented by the following safety documentation:

a) safety analysis report;

b) design specifications;

c) provisional plan for the management of radioactive waste and, if appropriate, of spent nuclear fuel;

d) conceptual plan for decommissioning of the nuclear installation;

e) classification of selected equipment by safety classes;

f) preliminary physical protection plan;

g) quality assurance programme for construction;

h) preliminary on-site emergency plan;

i) proposal of limits and conditions for safe operation;

j) preliminary programme for pre-operational inspection of the nuclear installation;

k) preliminary radiation monitoring programme of the environment in the vicinity of the nuclear installation.

(4) A permission under paragraph (2) above is at the same time also a permission as required by the specific regulations.[11]

(5) The Authority may make the permission for construction of the nuclear installation subject to the fulfilment of conditions relating to nuclear safety. These conditions may be altered by the Authority if the nuclear-safety-related circumstances for which the permission was issued change, or at the request of the builder.

(6) Concerning the environmental impact of a nuclear installation, under a specific regulation,[12] the Authority shall issue a statement of its intent based on an application from the builder supplemented by the documentation stipulated in paragraph (3) (a)-(d) above.

11. Section 126(3) of Act No. 50/1975 Zb. as amended by Act No. 229/1997 Z.z.

12. Act of the National Council of the Slovak Republic No. 127/1994 Z.z. on environmental impact assessment.

(7) For the establishment of nuclear installations with particular impact with respect to the Earth's crust (for example, underground repositories for radioactive waste or spent nuclear fuel repositories), specific regulations[13] shall apply unless this Act stipulates otherwise, and the builder shall submit to the local mines inspectorate the documentation required by the specific regulations and also the permission issued by the Authority under (2) above.

(8) The scope and method of preparation of documentation [paragraph (3) above] shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 15

Commissioning and operation of nuclear installations

(1) A holder of an authorisation [Section 4] may commission and operate a nuclear installation on the basis of the permission issued by the Authority (hereinafter referred to as "the operator").

(2) A permission to commission a nuclear installation shall be issued by the Authority on submission of an application by the operator supplemented by safety documentation as follows:

a) for approval:

1. limits and conditions of safe operation;

2. nuclear installation commissioning programme, split into stages;

3. quality assurance programme;

4. on-site emergency plan;

b) for review:

1. pre-operational safety analysis report;

2. plan of physical protection;

3. radioactive waste and spent nuclear fuel management system;

4. conceptual plan for decommissioning of nuclear installation;

5. programme of in-service inspection of equipment (components and systems);

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13. Section 34(1)(b) of Act No. 44/1988 Zb. on protection and utilisation of mineral resources (the Mining Act) as amended by Act of the Slovak National Council No. 498/1991 Zb.

Section 11 of Act of the Slovak National Council No. 51/1988 Zb. on mining activities, explosives and the competent authorities governing mining activities as amended by the latest regulations.

Section 5(c), Section 6(1) and (2)(e) and Annexes Nos. 9 and 10 to Decree of the Slovak Mines Authority [*Slovensky bansky urad*] No. 89/1988 Zb. on rational utilisation of exclusive deposits, on permits for and registration of mining activities and registration of activities carried out with mining as amended by Decree of the Slovak Mines Authority No. 16/1992 Zb.

6. selected operating procedures;

7. test programmes for equipment and systems important to nuclear safety;

8. evidence of special qualification of employees;

9. evidence of readiness of nuclear installation for start-up;

10. evidence of insurance or other financial cover [Section 30];

11. programme for radiation monitoring of the environment in the vicinity of the nuclear installation.

(3) A permission to operate the nuclear installation shall be issued by the Authority on submission of an application by the operator supplemented by a report evaluating the successful fulfilment of commissioning stages of the nuclear installation.

(4) The Authority may make the permission for the commissioning or operation of a nuclear installation subject to the fulfilment of conditions relating to nuclear safety. These conditions may be altered by the Authority if the circumstances relating to nuclear safety, physical protection or emergency planning for which the permission was issued change, or at the request of the operator.

(5) Before the commencement of and during commissioning of a nuclear installation and during its operation, the operator shall adhere to the assessed or approved documentation [paragraph (2) above]. In the event that it becomes necessary to deviate from this documentation, this may only be done with a prior permission from the Authority.

(6) The scope and method of preparation of the safety documentation [paragraph (2) above] and the report [paragraph (3) above] shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 16

Extension of operational lifetime of nuclear installation

(1) The Authority may extend the validity of a permission issued for the operation of a nuclear installation on the basis of assessment of the current state of the installation and on the basis of supplementary safety documentation.[2]

(2) Supplementary safety documentation shall supplement the safety documentation [Section 15 (2)] with an application to extend the period of operation.

(3) Details of supplementary safety documentation to be submitted for extension of the operational lifetime of a nuclear installation shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 17

2. *See footnote No. 2.*

Radioactive waste management

(1) Radioactive waste are non-useable materials in gaseous, liquid or solid form which may not be released into the environment because of the content of radionuclides in them or because of contamination by radionuclides.

(2) Radioactive waste management shall mean the collection, segregation, storage, treatment, conditioning, handling, transportation and disposal of radioactive waste from nuclear installations and conditioning for disposal, transportation and disposal of institutional radioactive waste.

(3) The specific regulation on waste[14] does not apply to radioactive waste management.

(4) Non-useable materials from nuclear installations containing radionuclides, which are not radioactive waste and to which the specific regulation does not apply, may only be released into the environment on the basis of a permit from the Authority.

(5) Conditioning of radioactive waste means actions leading to the creation of a form suitable for safe handling of the waste during storage and disposal.

(6) The generator of radioactive waste shall be responsible for the safe management of this waste from its generation until it is transferred to a radioactive waste repository, unless otherwise specified by the Authority.

(7) A holder of an authorisation [Section 4] may engage in radioactive waste management, but only on the basis of a permit from the Authority.

(8) Costs associated with radioactive waste management from generation to disposal, including monitoring of radioactive waste repositories after they have been sealed and the relevant research and development work, shall be reimbursed by the generator of the waste.

(9) In the case of radioactive waste where the generator is not known, or where the generator is not capable of managing radioactive waste, the Authority shall appoint a legal person or a natural person who has a radioactive waste management authorisation. In its decision the Authority shall define the scope of management of this radioactive waste and the method of reimbursement of costs.

(10) Costs of management of radioactive waste where the generator is not known shall be reimbursed by the State Fund for Decommissioning of Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste.[15] In the event that the generator of the radioactive waste is subsequently identified, he shall reimburse the costs arising from management of the radioactive waste to this Fund.

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14. Act No. 238/1991 Zb. on waste as amended by Act of the National Council of the Slovak Republic No. 255/1993 Z.z.

15. Act of the National Council of the Slovak Republic No. 254/1994 Z.z. on the State Fund for Decommissioning Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste.

(11) All actions during radioactive waste management shall be directed towards safe disposal of this waste.

(12) Safe disposal of radioactive waste shall be the responsibility of a legal person appointed or entrusted for this purpose by the Ministry of Economy of the Slovak Republic on the terms established in this Act and by the specific regulations.[15] A radioactive waste repository may only be sited on land owned by the State.

(13) The generation of radioactive waste shall be so managed by its generator, using technical and organisational measures, that its quantity and activity are kept to the lowest reasonably achievable level.

(14) Importation of radioactive waste into the territory of the Slovak Republic is prohibited, except for the return of radioactive waste which arose during reprocessing and conditioning of radioactive materials exported for this purpose, provided the re-importation of this waste has received a permission in advance from the Authority.

(15) The stipulations of Section 23 shall apply mutatis mutandis to the physical protection of radioactive waste during its management.

(16) The stipulations of Section 11 shall apply mutatis mutandis to the transportation of radioactive waste.

(17) Details of radioactive waste management, including classification into classes and storage conditions, shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 18

Management of spent nuclear fuel

(1) *Spent nuclear fuel* shall mean irradiated nuclear fuel withdrawn from a nuclear reactor.

(2) *Management of spent nuclear fuel* shall mean storage, reprocessing, handling, transportation and disposal of spent nuclear fuel in a spent nuclear fuel repository.

(3) The legal person or natural person who produced the spent nuclear fuel shall be responsible for management of this fuel until its transfer to a spent nuclear fuel repository.

(4) The stipulations of Section 17 shall apply mutatis mutandis to the management of spent nuclear fuel.

(5) Details of spent nuclear fuel management, especially its storage and disposal, shall be established by a generally-binding legal regulation to be issued by the Authority.

15. *See footnote No. 15.*

Section 19

Decommissioning of nuclear installations

(1) Decommissioning of nuclear installations shall mean activities following its final shut-down with the aim of releasing the site of the nuclear installation after dismantling or to use the installation for other purposes.

(2) The operator shall be responsible for decommissioning of a nuclear installation. The operator shall ensure that means for this purpose are available to reimburse the costs associated with decommissioning of the nuclear installation.

(3) The operator shall submit for review an updated conceptual plan for decommissioning together with an environmental impact assessment, prior to final shut-down, as a basis for the issue of a statement by the Authority in accordance with the specific regulations.[12]

(4) Decommissioning of a nuclear installation may only commence on the basis of a permit from the Authority. A permit shall be issued on the basis of an application from the operator supplemented by documentation on nuclear safety during decommissioning. In the case of the nuclear installation being decommissioned in several steps, a permit from the Authority shall be required for each step, and the Authority may make the permit subject to the fulfilment of conditions.

(5) On the basis of consideration of the final documentation on decommissioning submitted by the operator, the Authority shall issue a decision on exemption of the nuclear installation from the effect of this Act or a permit for a change of purpose through reclassification as a nuclear installation for a different purpose.

(6) Paragraphs (1) to (5) above do not relate to radioactive waste or spent nuclear fuel repositories.

(7) Details of documentation as specified in (3), (4) and (5) above shall be established by a generally-binding legal regulation to be issued by the Authority.

Chapter Four

NUCLEAR SAFETY AND QUALITY ASSURANCE

Section 20

Nuclear safety

(1) Under the terms of this Act, *nuclear safety* shall mean the status and ability of a nuclear installation and its staff to prevent the uncontrolled development of a fission chain reaction or the inadmissible release of radioactive substances or ionising radiation into the workplace

12. *See footnote No. 12.*

environment or the natural environment and to limit the consequences of accidents and emergency situations.

(2) The operator shall be responsible for nuclear safety. The operator shall ensure that there are adequate financial and human resources to ensure nuclear safety including essential engineering and technical support activities in all areas relating to the safety of the nuclear installation.

(3) The operator shall determine and organise the responsibility and authority of individual bodies so as to achieve effective management and safe operation of nuclear installations in accordance with safety requirements.

(4) The operator shall ensure that the mental and physiological capacity of people is taken into account in the performance of nuclear-safety-related work activities.

(5) Any changes occurring during the construction, operation or decommissioning of a nuclear installation which impact on nuclear safety shall be submitted by the builder or the operator to the Authority for approval.

(6) During the construction and commissioning of a nuclear installation and throughout its period of operation, including provisions for decommissioning it, the builder and operator shall perform comprehensive and systematic evaluation of nuclear safety and take steps to eliminate any deficiencies identified. During operation, the evaluation is performed at intervals and with a scope established by generally-binding legal regulations issued by the Authority.

(7) The operator shall ensure that exposure of employees and other persons to ionising radiation caused by the operation of a nuclear installation is kept below the set limits during all operational states and activities, and at the lowest reasonably achievable level.[2]

(8) An operator shall make public information on nuclear safety that is not a subject of State secrecy, official secrecy or commercial secrecy.

(9) The operator shall issue procedures concerning the performance of operational activities, especially for the operation, maintenance, surveillance and testing of selected equipment. These procedures shall be in line with the approved limits and conditions for safe operation, and with the approved quality assurance programmes. In case of need, the operator shall update and complete these procedures. The operator shall draw up a work programme for the performance of safety-related activities which are not covered by procedural rules. The procedure for approval of a work programme shall be submitted by the operator for review by the Authority.

(10) Nuclear safety requirements for nuclear installations shall be established by a generally-binding legal regulation to be issued by the Authority.

2. *See footnote No. 2.*

Section 21

Professional qualification

(1) Professional qualification is the sum of professional knowledge, practical experience and knowledge of generally-binding legal regulations and procedures issued by an operational organisation which are needed by an employee for performance of his activities.

(2) The particular professional qualification of a selected employee is the sum of professional knowledge, practical experience, knowledge of regulations [paragraph (1)] and abilities which, from the nuclear safety point of view, provide a basis for ensuring safe operation of the nuclear installation, averting the uncontrolled development of fission chain reactions or unauthorised release of radioactive substances or ionising radiation into the workplace environment or the environment and limiting the consequences of incidents and accidents.

(3) The only persons who may carry out work activities at nuclear installations which have an impact on nuclear safety are employees with a professional qualification whose professional qualification has been tested by a commission set up by a legal person or a natural person who is authorised to perform professional training of employees of nuclear installations at specialised institutions (hereinafter referred to as "the specialised institution") [Section 4(2)e)] and has issued to the employees a certificate of professional qualification.

(4) The only persons who may carry out work activities which have a direct impact on nuclear safety during the operation of a nuclear installation are selected employees whose particular professional qualification has been verified by the Authority [Section 2 g)] and who have been issued a certificate of particular professional qualification by the Authority.

(5) On the basis of a proposal by a specialised institution, the Authority approves the educational programmes and the method of training of nuclear installation employees including the technical equipment to be used in this training.

(6) Employees at a specialised institution who carry out professional theoretical and practical training of selected employees may only perform this function on the basis of an authorisation issued by the Authority.

(7) Details of verification of professional qualifications of employees at nuclear installations, the activities which only selected employees may perform, details of verification of particular professional qualification and the issue of certificates of particular professional qualification to selected employees and the issue of authorisations to specialised institutions shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 22

Quality assurance

(1) To ensure quality of nuclear installations and activities at all stages during the life of a nuclear installation, from siting through to decommissioning of the nuclear installation, the holder of an authorisation [Section 4] shall set up an appropriate organisational structure, procedures and sources to define and adhere to quality requirements for nuclear installations and activities (hereinafter referred to as "quality systems").

(2) During the stage of design and construction of a nuclear installation, the builder shall be responsible for defining and adhering to quality requirements for nuclear installations and activities, including provision of equipment and services, while the operator shall be responsible during the stages of operation and decommissioning of the installation.

(3) Quality requirements shall be appropriate to the importance of the installation and to the importance of the activity in terms of nuclear safety.

(4) Quality systems and quality requirements for nuclear installations and activities as in paragraph (1) above shall be subject to approval and inspection by the Authority.

(5) Requirements of quality systems of holders of an authorisation [Section 4], the procedure and scope of their approval, and also the categorisation of selected equipment important to nuclear safety, shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 23

Physical protection of nuclear installations and nuclear materials

(1) *Physical protection of nuclear installations or nuclear materials* shall mean a system of technical and organisational measures, the aim of which is to prevent unauthorised activities with nuclear installations or nuclear materials, especially their misuse or intentional damage.

(2) The operator of a nuclear installation shall be responsible for its physical protection.

(3) Natural persons who are present at a nuclear installation with the permission of the operator, or legal persons who perform activities relating to the operation of a nuclear installation, shall observe the requirements of physical protection of nuclear installations as set out by the operator.

(4) A consignor or a carrier when nuclear materials are being transported, and legal or natural persons who use nuclear materials, shall be responsible for the provision of physical protection of the nuclear materials during these activities.

(5) Legal persons and natural persons who take part in the transportation or utilisation of nuclear materials shall observe physical protection requirements set by the consignor or user of the nuclear materials.

(6) In cases of unauthorised access to a nuclear installation or unauthorised handling of nuclear materials, assistance shall be rendered within the limits of their competence by the Police and the Railway Police of the Slovak Republic at the request of the builder, operator, carrier or consignor or user of the nuclear materials.

(7) When unauthorised actions have been perpetrated with nuclear installations or nuclear materials, or there is a threat of such actions, the operator, consignor or user of the nuclear materials shall take the necessary measures and notify the relevant department of the Police and the Authority without delay.

(8) Details of how physical protection is to be provided, including classification of nuclear installations or nuclear materials into categories for the provision of physical protection, shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 24

Events at nuclear installations and accidents during transportation of nuclear materials

(1) Under the terms of this Act, an event at a nuclear installation shall mean an event in which there is a risk to or an infringement of nuclear safety at the nuclear installation during its commissioning, operation or decommissioning.

(2) Events at nuclear installations are divided into:

a) a malfunction causing an infringement of nuclear safety requirements for the nuclear installation, or identification of deficiencies during operation, maintenance or inspection of the nuclear installation which could have led to the occurrence of an accident or emergency situation;

b) an acccident which caused minor damage to a nuclear installation or harm to the health of employees, but which led to the automatic shutdown of the nuclear installation, enforced shutdown of the nuclear installation for maintenance, infringement of limits and conditions, release of radioactive materials on the premises and on the site of the nuclear installation or contamination or irradiation of employees;

c) an emergency situation in which the nuclear installation was seriously damaged or there was or might have been serious harm to health due to the impact of ionising radiation or a release of radioactive materials into the environment.

(3) A transport accident shall be understood as an emergency situation during transport if, during transportation of a nuclear material, radioactive waste or spent nuclear fuel, an exceptional event occurred which caused harm to health or gave rise to a threat to the health of persons due to impact of ionising radiation or there was damage to property as a result of a release of radioactive materials into the environment.

(4) An operator shall:

a) take preventive and corrective measures in a timely manner and eliminate without delay all situations which could pose a threat to nuclear safety or to human life or health;

b) give notification of events at nuclear installations to the Authority, and, in the case of accidents or emergency situations, also to the Ministry of the Interior of the Slovak Republic, identify the causes of such events and take corrective action;

c) based on the identified causes of occurrence of nuclear events, take steps in the operation of the nuclear installation to prevent their recurrence;

d) inform the public of the occurrence of accidents and emergency situations.

(5) Notification of an accident during transportation [paragraph (3) above] shall be made by the consignor to the Authority, and also to the Ministry of the Interior of the Slovak Republic and the Ministry of Transport, Post and Telecommunications of the Slovak Republic, and he shall inform the public.

(6) The Authority shall identify the causes and circumstances of incidents, accidents and emergency situations. This does not preclude the adoption of specific regulations on investigation of exceptional incidents.[16]

(7) More detailed arrangements to categorise events and for methods of their notification and investigation of their causes and methods of informing the public of accidents or emergency situations and transportation accidents shall be established by a generally-binding legal regulation to be issued by the Authority.

Section 25

Emergency planning

(1) Emergency planning shall mean a set of measures to identify and bring under control accidents or emergency situations at nuclear installations and to identify and bring under control releases of radioactive substances into the environment during the use and transportation of nuclear materials or radioactive waste.

(2) An emergency plan shall mean documentation, the content of which is a set of technical and organisational measures required to bring events under control as in paragraph (1) above or to mitigate their consequences.

(3) Emergency plans are divided as follows:

a) emergency plan for nuclear installation (hereinafter referred to as an "on-site emergency plan"), which contains planned measures to be taken on the site of the nuclear installation, linked to a plan for protection of the public;[17]

b) a plan for protection of the public, which contains measures to protect the public, health, property and the environment in the hazard area[18] in the event of a risk of a release of radioactive substances or their release into the vicinity of a nuclear installation, and also a tie-in to the on-site emergency plan;

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16. Sections 24 and 28 of the Act of the Slovak National Council No. 126/1985 Zb. on fire protection as amended by the latest regulations.

Decree of the Slovak Work Safety Authority and the Slovak Mines Authority No. 111/1975 Zb. on recording and keeping accounts of injuries at work and on notification of accidents at work and breakdowns of technical equipment, as amended by the Decree of the Slovak Work Safety Authority and the Slovak Mines Authority No. 483/1990 Zb.

17. Section 13(1)(j), Section 14(1)(b) and Section 15(1)(a) of the Act of the National Council of the Slovak Republic No. 42/1994 Z.z. on civil defence for the public as amended by the latest regulations.

18. Section 3(3) and (4) of Decree of the Ministry of the Interior of the Slovak Republic No. 300/1996 Z.z on provision of protection for the public during the production, transportation, storage and handling of harmful and dangerous substances.

c) emergency transport procedure, which contains measures to cover a risk of a release of radioactive substances or their release into the vicinity in relation to the transportation of nuclear materials or radioactive waste.

(4) An operator shall take such measures and steps as will create preconditions for the prevention, overcoming or mitigation of the consequences of accidents. The operator shall inform the public of such steps and measures.

(5) The operator shall be responsible for preparation of an on-site emergency plan and for the obligatory principles for the preparation of an off-site emergency plan.

(6) The local authorities shall be responsible for the preparation of a plan for protection of the public within regions, districts, and communities.[17] The Ministry of the Interior of the Slovak Republic shall be responsible for co-ordination.[19]

(7) Emergency transport procedures shall be drawn up by the carrier on the basis of obligatory principles from the consignor.

(8) State authorities, communities, legal persons and natural persons involved in emergency planning shall work together in drawing up emergency plans within the limits of their competence.

(9) An on-site emergency plan shall be submitted by an operator six months prior to planned commencement of commissioning of a nuclear installation for approval by the Authority and for review by the Ministry of the Interior of the Slovak Republic.

(10) Off-site emergency plans of districts in an area with a hazard[18] arising out of the activities of a nuclear installation shall be submitted by the district authorities six months prior to planned commencement of commissioning of the nuclear installation for consideration by the State authorities affected.

(11) Emergency transport procedures shall be submitted by the carrier for consideration by the Authority and the State authorities affected two months prior to the transportation taking place.

(12) Emergency plans and emergency transport procedures shall be approved as follows:

a) on-site emergency plans shall be approved by the Authority;

b) plans for the protection of the public shall be approved by the Ministry of the Interior of the Slovak Republic;

c) emergency transport procedures shall be approved by the Ministry of Transport, Post and Telecommunications of the Slovak Republic.

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17. *See footnote No. 17.*

19. Section 12(1)(d) of the Act of the National Council of the Slovak Republic No. 42/1994 Z.z.

18. *See footnote No. 18.*

(13) Approved emergency plans shall be binding on all legal and natural persons participating in emergency planning.

(14) A nuclear installation may not be commissioned without approved emergency plans and nuclear materials or radioactive waste may not be transported without an approved emergency transport procedure. Prior to commissioning of a nuclear installation, emergency plans shall be practised, and during the operation of nuclear installations certain parts of emergency plans shall be practised and evaluated at set intervals.

(15) An operator shall familiarise employees of a nuclear installation with emergency plans and train employees assigned to perform given activities under the emergency plan. Other persons present at a nuclear installation shall be taught by the operator what their duties are in the case of occurrence of an accident.

(16) Concerned bodies of public administration, communities and also legal and natural persons shall take part to the extent and in the manner stipulated by the off-site emergency plan in practising and implementing protective measures and eliminating the consequences of an accident.

(17) The Authority shall create the ncessary technical means to evaluate the course and consequences of incidents and accidents at nuclear installations which are significant from the aspect of their possible impact on the surroundings, to prepare and implement protective steps.

(18) Operators and State authorities shall make available to the Authority data required to evaluate accidents and emergency situations and to forecast their development (technological data from the nuclear installation, radiation monitoring data, meteorological data and other data as requested by the Authority).

(19) The scope, criteria and procedure for the preparation of emergency plans, measures and procedures [paragraph (4)], the method of informing the public, and determination of the hazard area[18] around a nuclear installation, including the frequency of emergency exercises, shall be established by generally-binding legal regulations to be issued by the Authority.

18. *See footnote No. 18.*

Chapter Five

NUCLEAR DAMAGE AND COMPENSATION FOR SUCH DAMAGE

Section 26

Nuclear damage

(1) Nuclear damage is detriment to property, loss of life or harm to health caused by an accident [Section 24(2)(c)] or by a accident during transportation [Section 24(3)].

(2) Compensation for damage shall be covered by general regulations on liability for damage,[20] except as otherwise stipulated in this Act or an international agreement by which the Slovak Republic is bound.

(3) Nuclear damage shall also be damage that has arisen through the expenditure of costs on measures necessary to avert or reduce irradiation or to restore the natural environment to its previous or an equivalent state, should such measures have been instigated as a result of a nuclear incident and should the nature of the circumstances permit them.

(4) If the damage was caused simultaneously by a nuclear incident and another event not dependent on the nuclear incident, the nuclear damage shall be that part of the damage which was not demonstrably caused by the other event. The scope of the damage which cannot be categorised as nuclear damage shall be demonstrated by the operator.

Section 27

Liability for nuclear damage

(1) The person liable for nuclear damage caused by a nuclear incident shall be the operator.

(2) The person liable for nuclear damage caused during the transportation of nuclear materials or radioactive waste shall be the carrier who applied for recognition as operator of a nuclear installation and, with the consent of the operator concerned, was recognised by the Authority as the operator.

(3) If an operator operates a number of installations located on a territory for which a common on-site emergency plan has been approved, they shall be taken as a single nuclear installation for the purposes of liability for nuclear damage. More than one nuclear installation on one site, where the operators are different holders of authorisations [Section 4], may not, however, be taken as a single installation, even if these installations are technically linked together.

20. For example Sections 415 to 450 of the Civil Code as amended by the latest regulations.

Section 28

Limitation of liability

(1) An operator shall be liable for nuclear damage up to a total of two billion Slovak crowns.

(2) Limitation of liability as in paragraph (1) above shall not include interest or costs acknowledged by a court in proceedings related to compensation for nuclear damage.

Section 29

Meeting of claims for compensation for nuclear damage

In meeting claims for compensation for nuclear damage, an operator shall proceed as follows:

Group I:

Justified claims made within 12 months of the occurrence of a nuclear incident shall be met within 60 days of the date the claim was made. Seventy percent of the sum specified in Section 28, paragraph 1 may be used to meet claims for compensation for damage. If the damage compensation claims exceed the sum that may be utilised for this group, compensation claims for damage to health and compensation for cases of death shall be met in full and other claims proportionately.

Group II:

Other claims made between 12 and 36 months after the occurrence of a nuclear incident shall be met within 60 days of the claim, and include claims which were met proportionately in Group I.

Group III:

When a period of 36 months has elapsed since the occurrence of a nuclear incident, individual claims for compensation for nuclear damage shall be met within 90 days of the claim, but only until the sum specified in Section 28, paragraph (1) is exhausted. These include claims which were met proportionately in Groups I and II.

Section 30

Financial cover for nuclear damage liability

(1) An operator shall ensure that his liability for nuclear damage is covered by insurance or some other form of financial cover to the sum specified in Section 28, paragraph (1).

(2) The cover for the liability of an operator for nuclear damage as in paragraph (1) above shall be in place for the duration of operation of the nuclear installation and at least ten years after a nuclear incident.

(3) An exemption from nuclear damage liability cover is made for nuclear incidents caused by small amounts of nuclear materials which are assumed not to be capable of giving rise to

nuclear damage.[21] Details of the maximum limits for such amounts shall be established by a generally-binding legal regulation to be issued by the Authority.

Chapter Six

NUCLEAR REGULATORY AUTHORITY OF THE SLOVAK REPUBLIC

Section 31

Competence of the Authority

The Authority shall carry out the following tasks in the sphere of utilisation of nuclear energy:

a) grant and withdraw authorisations to legal persons and natural persons;

b) issue and withdraw permits for each of the following:

1. receiving nuclear materials and their utilisation;
2. management of radioactive waste and of spent nuclear fuel;
3. import or export of nuclear materials, special materials and equipment;
4. transportation of nuclear materials;
5. decommissioning of nuclear installations;
6. change of purpose of nuclear installation through reclassification as a nuclear installation with a different purpose;
7. re-import of radioactive waste.

c) issue permission for:

1. construction of nuclear installations;
2. design changes during construction, operation or decommissioning of a nuclear installation which impact on nuclear safety;
3. commencement of individual stages of commissioning of a nuclear installation;
4. operation of a nuclear installation;
5. extension of period of operation of a nuclear installation.

21. Article 1 paragraph 2 of the Vienna Convention on Civil Liability for Nuclear Damage (publication of the Ministry of Foreign Affairs of the Slovak Republic No. 70/1996 Z.z.).

d) approve:

1. types of transportation equipment for the transportation of nuclear material or radioactive waste;

2. limits and conditions for the safe operation of nuclear installations;

3. programmes for commissioning of nuclear installations split into stages;

4. study principles, including the technical equipment used, at specialised institutions for the training of employees in respect of whom a professional qualification or a particular professional qualification is required;

5. quality systems and quality requirements for nuclear installations and activities;

6. on-site emergency plans.

e) order:

1. transfer of nuclear materials [Section 10(5)];

2. management of radioactive waste where the originator is not known [Section 17(9)];

3. reduction in the output or shutdown of a nuclear installation or its construction, discontinuation of use of a nuclear material or of radioactive waste management [Section 35].

f) verify the particular professional qualifications of selected employees [Section 21(4)];

g) support, within its competence, international co-operation in the sphere of use of nuclear energy including commitments arising out of international agreements and conventions; and co-ordinate co-operation, between the central bodies of public administration and the International Atomic Energy Agency;

h) ensure that the public is informed of:

1. serious accidents and emergency situations;

2. accidents outside the borders of the Slovak Republic;

3. serious deficiencies identified during inspections and the enforced corrective measures.

Section 32

(1) The Authority performs the State supervision of:

a) nuclear safety at nuclear installations;

b) management of radioactive waste and spent nuclear fuel;

c) nuclear materials, special materials and equipment;

d) physical protection of nuclear installations, nuclear materials and radioactive waste from nuclear installations;

e) emergency planning.

(2) In carrying out State supervision, the Authority shall:

a) conduct inspections of workplaces, operations and facilities at nuclear installations, and inspect how duties arising out of this Act, regulations issued on the basis of it and operational regulations are being fulfilled, whether operating limits and conditions and quality assurance systems, and also duties arising out of decisions, arrangements and orders issued on the basis of this Act, are being adhered to;

b) inspect fulfilment of obligations arising out of international agreements by which the Slovak Republic is bound, in areas relating to the requirements for nuclear safety and management of nuclear materials and radioactive waste from nuclear installations and arrangements for disposal and disposal of institutional radioactive waste, and management of spent nuclear fuel, including accounting and control;

c) identify the state, causes and consequences of accidents, incidents and selected malfunctions at their place of occurrence, or, in the case of an incident or accident investigation carried out by another body, participate as a mandatory body in this investigation;

d) check the performance of obligatory reviews, surveys, operational checks and tests on selected equipment at nuclear installations;

e) order corrective actions for deficiencies affecting nuclear safety;

f) assess the nuclear safety of nuclear installations independently of their operator;

g) inspect the content and practising of emergency plans.

Section 33

(1) Holders of an authorisation, users of nuclear materials, consignors or carriers of nuclear materials shall, for the purposes of State supervision, submit the required materials, documentation and expert analyses and give the required information. They shall also co-operate as required with the Authority and create conditions for it to carry out unimpeded State supervision, and apply the results of its findings in their activities.

(2) The holder of an authorisation shall allow inspectors from the Authority and persons assigned by the Authority access to facilities and areas in nuclear installations and give the required co-operation during the performance of an official inspection.

(3) The Authority shall make reports on its activities, issue experts statements and notify serious deficiencies identified during the State supervision and those measures which have been

prescribed to deal with such deficiencies, to the Government and to the relevant central State offices.

Section 34

Nuclear safety inspectors

(1) Tasks in the sphere of the State supervision shall be performed by the Authority using its nuclear safety inspectors (hereinafter referred to as "inspector").

(2) An inspector shall meet qualification requirements and demonstrate that they have been met by taking an inspector's examination.

(3) During performance of an official inspection, an inspector shall produce his inspector's identification card issued by the Authority.

(4) An inspector is authorised:

a) to have access at any time to facilities and areas in nuclear installations and to areas in which nuclear materials, special materials and equipment are located, or radioactive waste management is going on; to carry out reviews and control activities pursued; to require the submission of relevant evidence and documentation, information and explanations; ensure that employees with professional qualifications, including selected employees, have knowledge of the procedures, to control the implementation of conditions for the performance of work; to identify the status, causes and consequences of operating events, and to check the status of emergency planning;

b) following discussion of identified deficiencies with the statutory body of a legal person or with a natural person, to give binding orders for the elimination of such deficiencies and order that the necessary steps be taken;

c) to confiscate the certificate of a particular professional qualification [Section 21(4)] if a selected employee has flagrantly or repeatedly violated operating procedures or is unsuitable as regards the particular professional qualification.

(5) A confiscated certificate of particular professional qualification shall be passed on by the inspector for further action by the Authority. In this action the Authority shall decide within one month of confiscation of the certificate whether it is to be withheld or returned.

(6) A certificate of particular professional qualification may be withheld for a set time, but not for longer than three years, or permanently. A certificate is withheld for a set period if there are grounds for assuming that the reasons for which it was withdrawn may be remedied. In the case of permanent loss of physical or mental qualifications in a holder of a certificate of particular professional qualification, the certificate shall be permanently withdrawn. Return of a withdrawn certificate is conditional on examination of the particular professional qualification of the employee.

Section 35

Discontinuation of the operation of a nuclear installation or its construction

In the event of a hazard arising out of a delay, or if serious circumstances arise which are of significance for nuclear safety, physical protection or emergency preparedness, the Authority is authorised to order the holder of an authorisation to take the necessary steps, including a reduction in output or shutdown of a nuclear installation or cessation of its construction, to cease using nuclear material or to cease radioactive waste management.

Section 36

Penalties

(1) The Authority may impose a penalty of up to 50 000 000 Slovak crowns on a person who violates the prohibition on use of nuclear energy or nuclear materials for any purposes other than peaceful [Section 3 (1)].

(2) The Authority may impose a penalty of up to 30 000 000 Slovak crowns on a legal or natural person who carries out actions in the sphere of use of nuclear energy, including transportation of nuclear materials or radioactive waste or spent nuclear fuel, without an authorisation, permit, permission or approval from the Authority [Section 4(1) and (2), Section 10(1), (3) and (4), Section 11(1), Section 14(2), Section 15(1), Section 16(1), Section 17(4), (7) and (14), Section 18(1) to (4) and Section 19(4)].

(3) The Authority may impose a penalty of up to 10 000 000 Slovak crowns on a holder of an authorisation, or on a consignor or carrier of nuclear materials, radioactive waste or spent nuclear fuel, for threatening or violating nuclear safety through failure to observe the obligations incumbent upon him that arise out of Section 11(2), Section 12(1), Section 15(5), Section 17(11) and (13), Section 19(2), Section 20(2), (3) and (5) to (9), Section 22(1) to (4), Section 23(7), Section 24(4) and (5) and Section 25(4), (14), (15) and (18), or for failure to take steps within a given time as ordered by a decision of the Authority or a binding order from an inspector.

(4) The Authority may impose a penalty of up to 500 000 Slovak crowns on the statutory body of a legal person or on a natural person for concealing information that is significant for the performance of an official inspection, or for failure to notify facts that are of significance for nuclear safety, or for assigning an employee to carry out activities for which he has not met the professional qualification or particular professional qualification condition.

(5) The Authority may impose a penalty of up to 30 000 Slovak crowns on an employee of a holder of an authorisation or a consignor or a carrier of nuclear materials or radioactive waste for concealing facts that are significant for the performance of an official inspection, or for refusing to co-operate with an inspector during the performance of an inspection.

(6) A further penalty of up to double the amount of the initial penalty may be imposed on a person who has not remedied the deficiencies for which the initial penalty was imposed within the given period.

(7) A penalty may be imposed within one year of the day when the Authority identified the breach of duty, but no later than three years from the day when the breach of duty took place.

(8) In setting the amount of a penalty under paragraphs (1) to (5) above, particular attention shall be given to the significance, method, duration and possible consequences of the breach of duty.

(9) The imposition of a penalty on a holder of an authorisation, a consignor or a carrier does not impinge upon the criminal responsibility of his employees.

(10) Penalties shall be paid into the State Fund for Decommissioning of Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste.

Chapter Seven

GENERAL, TEMPORARY AND FINAL PROVISIONS

Section 37

Relation to administrative procedure

(1) The general regulations on administrative proceedings[22] do not apply to proceedings of the Authority under Section 4(3), Section 9(5), Section 11(1) to (3), Section 13(2), Section 15(1), (4) and (5), Section 16(1), Section 17(6), Section 19(4) and Section 22(4).

(2) The lodging of a protest against decisions taken under Section 8(2) b) and Section 35 shall not have a suspensive effect.

Section 38

Temporary provisions

(1) Decisions taken under earlier regulations shall be considered as decisions taken under this Act.

(2) Proceedings commenced prior to this Act coming into effect shall be completed under the earlier regulations.

(3) Legal persons and natural persons who carry out activities governed by this Act on the basis of an authorisation issued under different regulations, and who intend to continue with these activities, shall request the Authority to issue an appropriate authorisation under the terms of this Act no later than six months from the day when this Act comes into effect. This obligation does not apply to legal persons or natural persons who use nuclear energy on the basis of a licence or permission issued under a particular regulation.[4]

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22. Act No. 71/1967 Zb. on administrative proceedings (administrative procedure).

4. *See footnote No. 4.*

(4) In the event that the performance of certain activities in the sphere of use of nuclear energy is not in accordance with the conditions established by this Act, the legal person or natural person shall without delay confer with the Authority on measures to be taken to bring these activities into line with this Act. Such measures shall be taken no later than six months from the day when this Act comes into effect, unless otherwise stipulated by the Authority.

Section 39

Repeal provision

Act No. 28/1984 Zb. on official inspection of nuclear safety at nuclear installations in the wording of the Act of the National Council of the Slovak Republic No. 254/1994 Z.z. on the State Fund for Decommissioning of Nuclear Power Plants and Management of Spent Nuclear Fuel and Radioactive Waste is repealed.

Section 40

Unless they contradict this Act, the following executive regulations shall *remain* in force until the issue of new executive regulations on the basis of this Act:

a) Decree of the Czechoslovakian Atomic Energy Commission [*Ceskoslovenska Komisia pre atómoú energiu*] No. 28/1977 Zb. on accountancy and control of nuclear materials,

b) Decree of the Czechoslovakian Atomic Energy Commission No. 67/1987 Zb. on ensuring nuclear safety during the handling of radioactive waste,

c) Decree of the Czechoslovakian Atomic Energy Commission No. 100/1989 Zb. on physical protection of nuclear installations and nuclear materials,

d) Decree of the Czechoslovakian Atomic Energy Commission No. 191/1989 Zb., which establishes the method, periods and conditions for examination of particular specialist qualifications of selected employees at nuclear installations,

e) Decree of the Czechoslovakian Atomic Energy Commission No. 436/1990 Zb. on quality assurance for selected equipment from the aspect of nuclear safety at nuclear installations,

f) Regulation of the Czechoslovakian Atomic Energy Commission No. 2/1978 of 27 October 1978 on nuclear safety in the design, licensing and creation of buildings with nuclear power generation equipment (registered in Section 28/1978 Zb.),

g) Regulation of the Czechoslovakian Atomic Energy Commission No. 4/1979 of 31 March 1979 on general criteria for nuclear safety in the siting of buildings with nuclear power generation equipment (registered in Section 9/1979 Zb.),

h) Regulation of the Czechoslovakian Atomic Energy Commission No. 6/1980 of 23 January 1980 on nuclear safety in the start-up and operation of nuclear power generation equipment (registered in Section 13/1980 Zb.),

i) Regulation of the Czechoslovakian Atomic Energy Commission No. 9/1985 of 16 May 1985 on nuclear safety in research nuclear power generation equipment (registered in Section 11/1985 Zb.).

Part II

Act No. 174/1968 Zb. on official specialist inspection of work safety in the wording of Act of the National Council of the Slovak Republic No. 256/1994 Z.z. has been amended and supplemented as follows:

1. In Section 2, sub-paragraph (e) reads:

"e) shall perform official specialist inspection of work safety, the safety of technical equipment, apart from selected equipment at nuclear installations, and of the established conditions of work in nuclear power generation."

The footnote bearing the number 1a reads:

"1a) Act No. .../1998 Z.z. on the peaceful use of nuclear energy and on alterations and amendments to Act No. 174/1968 Zb. on State supervision of work safety as amended by Act of the National Council of the Slovak Republic No. 256/1994 Z.z.

Regulation of the Czechoslovakian Atomic Energy Commission No. 436/1990 Zb. on quality assurance for selected items from the aspect of nuclear safety at nuclear installations."

2. Section 3(2) shall be supplemented by a sub-paragraph (d), which reads:

"d) nuclear installations which, under the terms of specific regulations, are subject to official inspection by the Nuclear Regulatory Authority of the Slovak Republic."

Part III

This Act shall enter into effect on 1 July 1998.