OECD

Nuclear Legislation in Central and Eastern Europe and the NIS

2000 Overview

NUCLEAR • ENERGY • AGENCY

Legal Affairs

Overview of Nuclear Legislation in Central and Eastern Europe and the NIS

NUCLEAR ENERGY AGENCY
ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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

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

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 the Republic of 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 27 OECD Member countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its Member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

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

FOREWORD

Progress in Nuclear Law in Eastern Europe

This study presents the current state of legislation and regulations governing the peaceful uses of nuclear energy in the central and eastern European countries (CEEC) and the New Independent States (NIS). It also contains information on the national bodies responsible for the regulation and control of nuclear energy.

The nuclear energy sector has not escaped from the changes that have affected the political, economic and social climates during the past decade. Under the former socialist regime, activities in this field came within the sole remit of the State administration. In the legal area, it had not been deemed necessary in most of these countries to enact laws guaranteeing democratic control of electronuclear programmes and establishing a clear distinction between activities promoting this source of energy and regulatory control, while ensuring that safety imperatives take priority over all other considerations.

With the arrival of new political forces came the will to remedy this situation promptly by creating new regulatory structures and drafting legislative texts based on those used in western countries. This evolution was all the more necessary given that, at the same time, the new policy of accountability had revealed safety defects in numerous nuclear installations in these countries, thus rendering international assistance indispensable.

From the legal point of view, the outcome of these years of effort is remarkably positive: almost all countries of Eastern Europe pursuing electronuclear programmes have established institutions capable of exercising efficient control over nuclear power plants and other installations. Accession to the international conventions which form the backbone of nuclear law has become widespread. Modern legislation is henceforth in place in almost all of these states. In other words, the countries of Eastern Europe have become active members in the international nuclear community.

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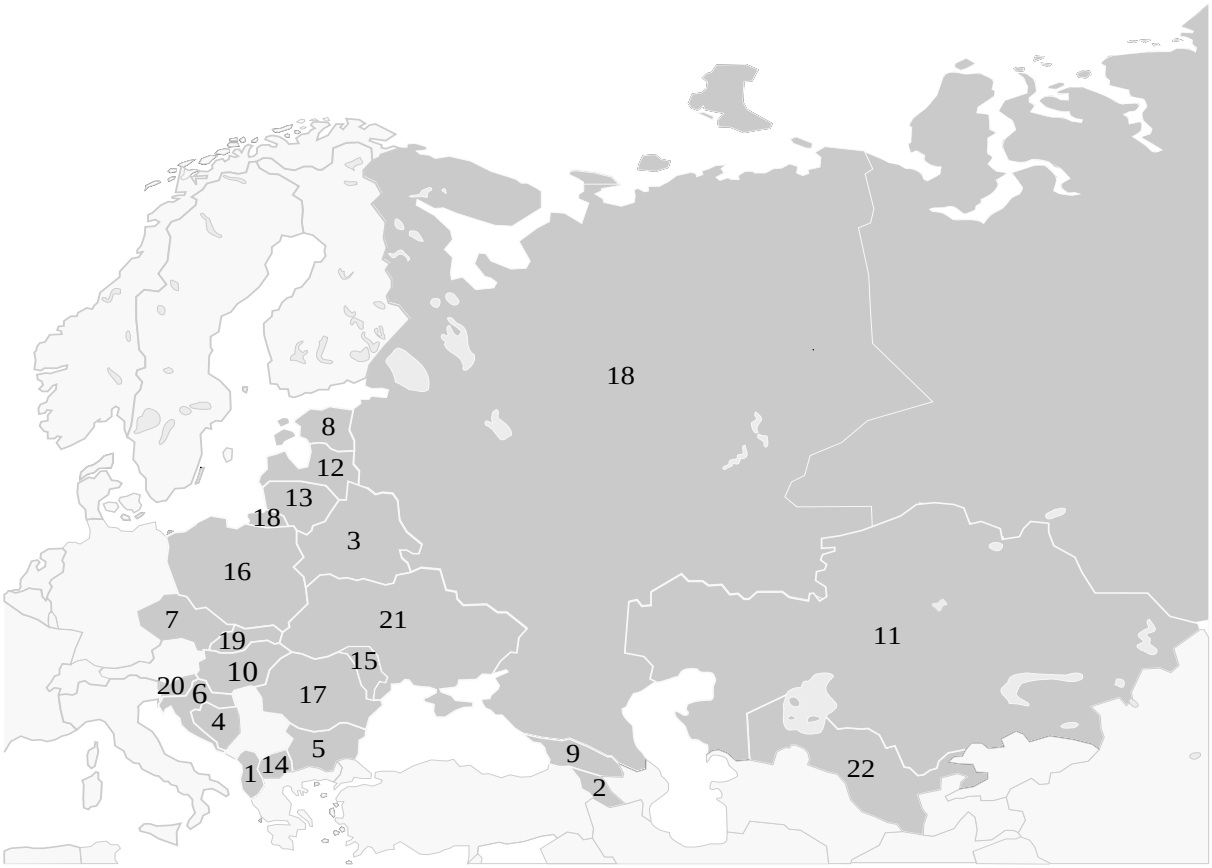
One of the principal objectives of the OECD Nuclear Energy Agency is to support the development and harmonisation of nuclear legislation in its Member countries – primarily in the field of liability for nuclear damage. For many years, it has carried out a regular programme of study and information on nuclear law which is demonstrated, in particular, by its publication of a specialised legal review (the *Nuclear Law Bulletin*) and studies devoted to various aspects of this discipline.

Faced with the proliferation of legislative and regulatory texts governing nuclear energy in Eastern Europe and in light of the interest generated by this phenomenon, the NEA published a first *Overview of Nuclear Legislation in Central and Eastern Europe and in the NIS* in 1997, describing both applicable legislation and regulations and the bodies responsible for their implementation.

In the meantime, numerous other texts have been promulgated, and new international conventions have entered into force in the CEEC and the NIS. It thus appeared timely to produce a fully revised edition of this Overview, while also enlarging its scope.

The Secretariat would like to take this opportunity to thank its correspondents in the countries covered by this study for their assistance in bringing this new publication to a successful conclusion.

The Secretariat would like to thank Marianne Lavergne and Fiona Wagstaff, consultants with the OECD Nuclear Energy Agency, for their contribution to the preparation of this study.



1. Albania; 2. Armenia; 3. Belarus; 4. Bosnia and Herzegovina; 5. Bulgaria; 6. Croatia; 7. Czech Republic; 8. Estonia; 9. Georgia; 10. Hungary; 11. Kazakhstan; 12. Latvia; 13. Lithuania; 14. Former Yugoslav Republic of Macedonia; 15. Republic of Moldova; 16. Poland; 17. Romania; 18. Russian Federation; 19. Slovak Republic; 20. Slovenia; 21. Ukraine; 22. Uzbekistan.

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ALBANIA

Introduction

There are no nuclear power plants or reactors in Albania at present. The use of sealed and unsealed radioactive sources and of ionising radiation generally is therefore limited to medical, industrial and research purposes.

However, Albania plans to commission a TRIGA research reactor at the Institute of Nuclear Physics at Tirana.

The construction of a radioactive waste facility for the management of spent sealed sources and hazardous materials is underway at the Institute of Nuclear Physics.

Competent Nuclear Authorities

Pursuant to the Law on Ionising Radiation Protection of 9 November 1995, the Radiation Protection Commission (RPC), under the aegis of the Ministry of Health and the Environment, is the national regulatory authority for radiation protection matters.

The RPC has extensive responsibilities including the following:

- issue of regulations, guides and codes of practice for radiation protection and nuclear safety, which are binding on all legal entities and physical persons;
- supervising the enforcement of this legislation;
- issue of licenses for all activities involving radiation sources or radioactive materials;
- co-ordination and supervision of all national and local authorities in respect of immediate enforcement of measures necessary to mitigate the effects of nuclear accidents;
- formulation of recommendations and proposals for the improvement of the radiation protection legislation in force;
- approval of the Basic Safety Standards for radiation protection;
- co-operation with national and international organisations on radiation protection issues;
- defining the structure of the Office of Radiation Protection, including requirements concerning the nomination and dismissal of its chairperson; and

- co-operation with the State Labour Inspectorate.

Under the authority of the RPC, the Office of Radiation Protection is responsible for implementing its decisions. The Office also inspects radiation installations and prepares reports for the RPC in relation to the issue, suspension and revocation of licences.

Although the roles of the Institute of Public Health and the Institute of Nuclear Physics are not specifically mentioned in the Law on Ionising Radiation Protection, in practice both of them are actively involved in its implementation. Their respective roles are to be defined in government decrees.

The Institute of Nuclear Physics, Tirana, is part of the Academy of Sciences of the Republic of Albania. It is composed of two scientific departments, namely the Department of Radiometry and the Department of Technology, as well as an Administrative Department. For more than 25 years, the main activity of the Institute has been based on the development and application of nuclear techniques.

Legislation in Force

Until November 1995, the legal regime applicable to nuclear activities in Albania was set out in a Governmental Decree first approved in 1971. In order to strengthen the legal framework governing radiation protection and to bring it into line with the relevant IAEA Basic Safety Standards, Law No. 8025 on Ionising Radiation Protection* was adopted by the Parliament on 9 November 1995. The Law is comprised of 3 Chapters divided into 12 Sections.

This legislation provides for protection against ionising radiation in respect of all activities involving radioactive materials and devices, thus providing for the protection of workers, the general public and the environment against the harmful effects of ionising radiation. It applies to any physical person or legal entity which (a) possesses, transfers, receives, uses, manufactures or installs a radiation source, (b) performs geological research, mining, milling, extraction, enrichment, sale, transfer, import-export, lending or storage of radioactive materials, (c) manages radioactive waste, foodstuffs or other products which are contaminated with radioactive materials. All persons performing activities involving radiation sources or radioactive materials must obtain a licence from the Radiation Protection Commission. All licence-holders must comply with the provisions of this Law and with its implementing decrees.

Breach of the licensing requirements, or any other breach by the licensee of the Law or its implementing decrees who is not subject to a criminal prosecution, is punishable as an administrative offence with penalties of 10 000 to 100 000 Albanian leks (ALL) [approximately 100 to 1 000 US dollars (USD)].

Draft Legislation et Regulations

Pursuant to the Law on Ionising Radiation Protection, the RPC is to approve regulations on:

- licensing procedures for all activities involving radiation sources or radioactive materials;

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* The text of this Law in English was reproduced in the Chapter "Texts" of *Nuclear Law Bulletin* No. 60 (December 1997).

- radiation safety for the public and the environment;
- protection of professionally-exposed persons to radiation;
- standards and practical rules governing activities which involve radiation sources;
- safe handling of radioactive materials, radiation devices and installations; and
- the activities of the Office of Radiation Protection.

The RPC has already prepared two draft governmental decrees on licensing, on the inspection of activities involving ionising radiation sources and on the safe handling of radioactive material and other ionising radiation sources.

The draft Decree on Licensing and Inspection of Activities involving Ionising Radiation Sources provides more detailed requirements pertaining to the issue of licences for activities involving radiation. The RPC is authorised to assess all licence applications for activities involving radiation and to issue such licences for a fixed time period. The RPC also nominates inspectors who are responsible for the control and enforcement of all licence provisions related to radiation protection.

The draft Decree on Safe Handling of Radioactive Material and other Ionising Radiation Sources sets out the duties of entities carrying out radiation activities vis-à-vis their professionally-exposed employees, in particular in relation to dose limitation, medical supervision, provision of protective devices and instruments, and specialised training.

International Conventions

Civil Liability for Nuclear Damage

Albania is not a Party to any of the international conventions on third party liability for nuclear damage.

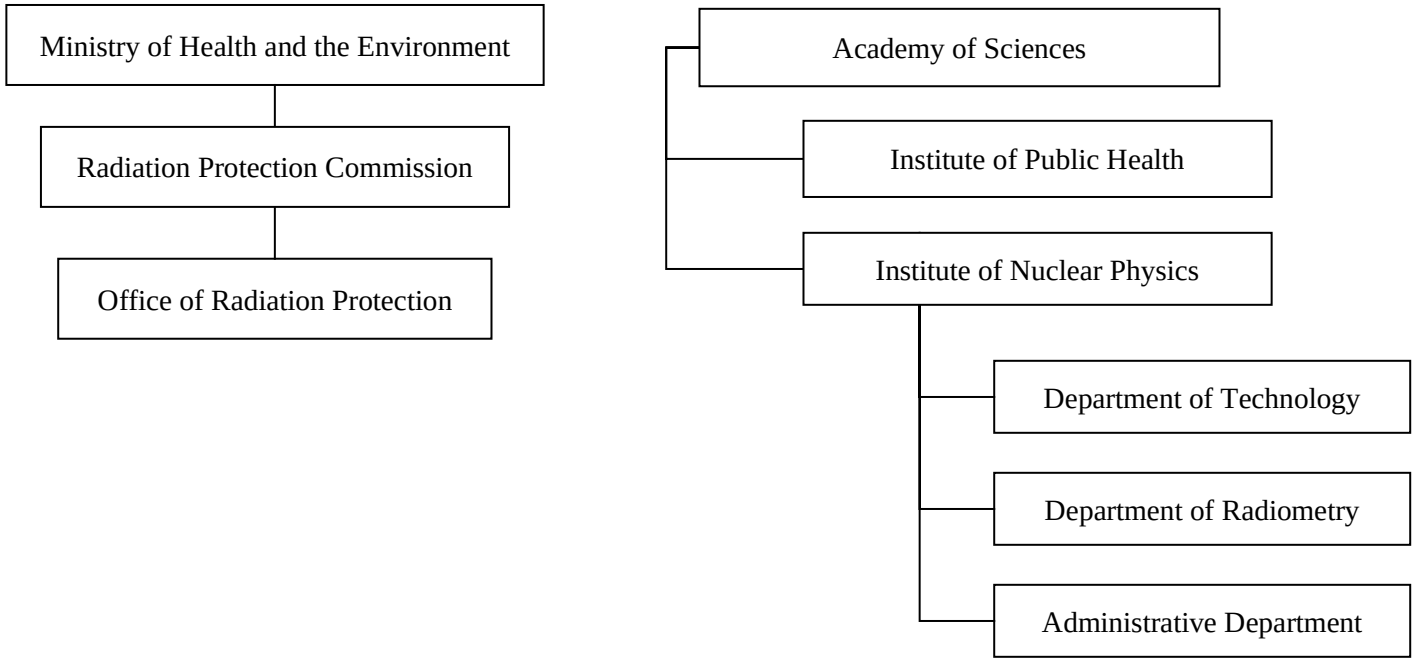
Other International Conventions

- Albania acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 12 September 1990.
- Albania signed the 1996 Comprehensive Nuclear Test Ban Treaty on 27 September 1996.

Membership in Nuclear Organisations

Albania is a member of the International Atomic Energy Agency (IAEA).

ALBANIA
Radiation Protection System



ARMENIA

Introduction

Armenia has one nuclear power station at Medzamor, which consists of two reactors, both VVER-440, model V270, and each with a capacity of 440 MWe. Only one reactor is currently in operation, Unit 2, having been returned to service on 26 October 1995 after a six-year shutdown following an earthquake in Armenia in December 1988. The Medzamor NPP generates some 30% of Armenia's electricity.

The Armenian Government indicated in its 1995 energy programme its intention to operate the Medzamor plant (Unit 2) until 2005 and to build a new 500 MWe nuclear plant between 2005 and 2010.

Furthermore, Armenia operates a spent fuel dry storage unit.

Competent Nuclear Authorities

In November 1993, the Armenian Nuclear Regulatory Authority (ANRA) was established by the government as a department to monitor nuclear and radiation safety. Its statute was confirmed by Decree No. 70 of 19 February 2000. This authority is responsible for regulating and supervising all uses of nuclear energy within Armenia. The utilisation of atomic energy must be done safely, so as to ensure the health of the public and of the personnel working at nuclear power stations and to protect the environment.

ANRA is comprised of experts who have worked in nuclear power stations and in the nuclear energy field in general. It is directly responsible to the Prime Minister and is independent of other governmental organisations and licensees. The obligations and responsibilities of ANRA and the tasks of its officials are stipulated by the government in its "Statement concerning the Regulatory Authority".

The Armenian Nuclear Power Station, operator of the Medzamor plant, is under the authority of the Minister of Energy who is responsible for its safe operation.

In respect of emergency planning and management, the Armenian Government has established the Emergency Management Administration, which has responsibility for co-ordinating internal and international co-operation and assistance in the event of a nuclear accident or radiological emergency. The responsibility for the early notification of nuclear accidents in the territory of Armenia is assigned to ANRA.

In 1997, a Nuclear Energy Safety Council was established by Presidential Decree as an advisory body to the Prime Minister. The Council, consisting of 14 members, provides information on the regulatory policy for nuclear matters, especially with regard to Medzamor NPP.

Legislation in Force

Law for the Safe Utilisation of Atomic Energy for Peaceful Purposes

On 1 February 1999, the Law for the Safe Utilisation of Atomic Energy for Peaceful Purposes,* which constitutes the major legislative instrument in the field of nuclear energy, was adopted by the National Assembly. It came into force on 1 March 1999 upon its signature by the President.

The Law provides the legal framework and principles for management and regulation of the peaceful use of atomic energy. It determines the respective duties of the government, national and regional state authorities and local authorities, together with the Operational Organisation which is held responsible for the safe operation of nuclear facilities and the safe treatment of nuclear and radioactive materials.

The basic principles for the regulation of the use of atomic energy are as follows:

- to ensure the protection of the population and the environment from the harmful effects of atomic energy;
- to ensure the predominance of safety requirements during the use of atomic energy;
- to facilitate availability of information concerning the use of atomic energy, with the exception of those matters governed by state secret;
- to ensure the participation of concerned legal and physical persons in the drafting of nuclear legislation; and
- to ensure compensation for nuclear damage.

The Law provides that nuclear facilities, nuclear and special materials, equipment and technologies defined in the Law are state-owned.

The regulatory function of the state is to be exercised by the Armenian Nuclear Regulatory Authority, the duties of which are listed comprehensively in the Law. One of its principal tasks is to issue licences in respect of all activities involving atomic energy, and for all the phases from site selection to decommissioning of nuclear facilities as well as for use, storage, transportation, reprocessing, disposal, import and export of nuclear, radioactive and special materials, and nuclear equipment and technologies.

The Law establishes a system of state registration, accounting and control of ionising radiation sources and radioactive waste. The responsibility for such registration is assigned to the licensees who manage such sources, or whose activity resulted in the generation of radioactive waste. The import of radioactive waste is prohibited unless such waste was generated by another state as a result of services rendered to Armenia. Measures involving storage and disposal of radioactive waste are determined by the government in co-operation with ANRA. Nuclear, radioactive and special materials, and nuclear equipment and technologies are also subject to state accounting and control.

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* The full text of this Law in English was reproduced in the Supplement to *Nuclear Law Bulletin* No. 65 (June 2000).

Licensees are similarly responsible for physical protection, which is to be provided during all stages of operation of nuclear installations.

A special legal regime may be established in the area of nuclear facilities where the rights of those persons involved in the operation of the nuclear installation, as well as the general public, are restricted.

The Law contains provisions concerning third-party liability for nuclear damage, which provide that licensees for nuclear activities are liable for nuclear damage up to those amounts determined by specific legislation which will be adopted by Armenia. However compensation available for any nuclear incident must not be less than the minimum amounts determined by the international agreements ratified by Armenia.

Law on Public Protection in Emergency Situations

The Law on Public Protection in Emergency Situations was adopted on 2 December 1998 and entered into force on 29 December 1998. This legislation establishes the principles governing measures or activities carried out in emergency situations with a view to ensuring protection of the public. It determines jurisdiction of the state and local authorities, and other organisations, and identifies the rights and responsibilities of citizens in this field. This Law also contains provisions on the actions of the emergency forces, the financing of public protection measures and liability for breaches of this legislation.

Other Relevant Legislation

There are provisions in other legal instruments which address issues of nuclear liability. Examples include:

- Article 6 of the Armenian Constitution which provides for the supremacy of international treaties ratified by the Armenian Republic over domestic laws; therefore, the 1963 Vienna Convention, approved by the Armenian Parliament on 24 August 1993, is a constituent part of the Armenian legal system;

- the Armenian Civil Code and the Code on Administrative Offences which contain provisions on nuclear liability: the Civil Code, in its Section 1072, indicates that the physical and legal persons, whose activities involve the use of source materials dangerous for the environment (e.g. the use of atomic energy), must compensate damage caused by such activities, unless they prove that the damage is the consequence of a deliberate action of a third party or natural disaster. In the field of atomic energy, liability for administrative violations is determined in accordance with Sections 97 and 97-1 to 97-6 of the Code on Administrative Offences, the Criminal Code and the Code of Criminal Procedure. Amendments to these Codes were adopted on 4 November 1996 and they entered into force on 30 November 1996.

Draft Legislation and Regulation

In the field of radioactive waste management, ANRA has initiated discussions on the development of a draft Law on Radioactive Waste and two legislative instruments on issues related to

the treatment of radioactive waste. The draft Law contains provisions on radioactive waste collection, storage and disposal, as well as on state registration of such waste. A draft Governmental Decree on Radioactive Waste Management is also under preparation.

Other legislation will be developed to define the responsibilities of competent bodies and the operator of a nuclear installation, and which will cover areas such as the safety of nuclear installations, the physical protection of nuclear materials, licensing procedures and the regime for nuclear third-party liability and compensation for nuclear damage. A draft Governmental Decree on Licensing Procedures is also currently under preparation.

International Agreements

Civil Liability for Nuclear Damage

Armenia acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 24 August 1993 pursuant to Parliament Decision No. 317 of 22 June 1993, and it entered into force on 24 November 1993.

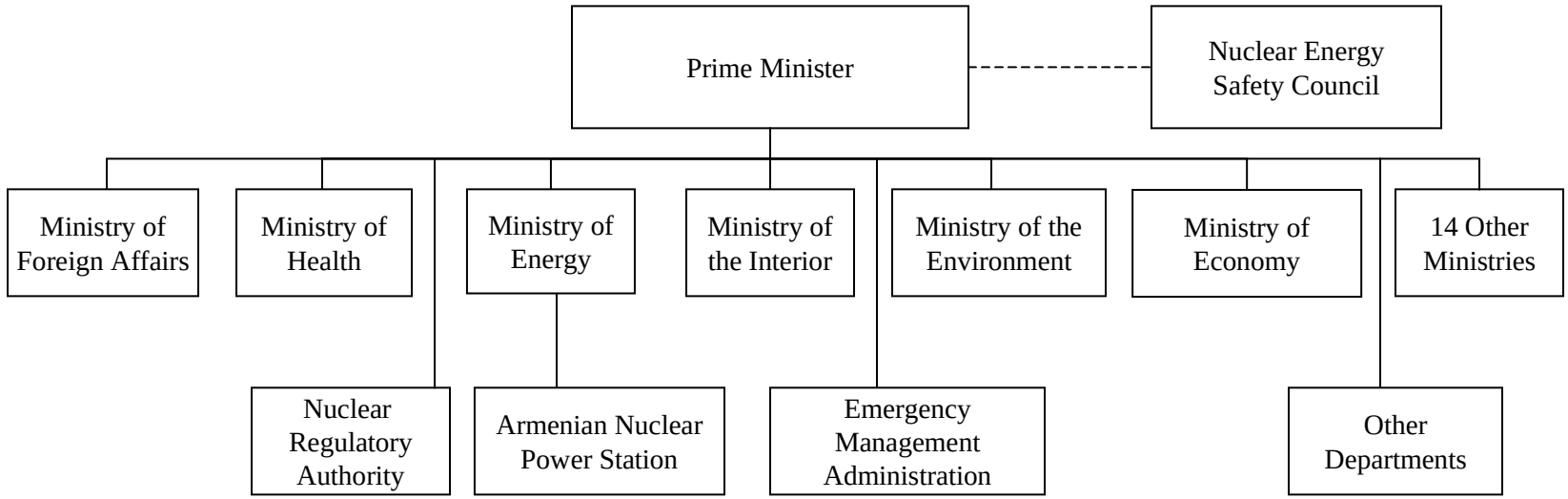
Other International Conventions

- Armenia ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 7 June 1994 and it entered into force on the same date.
- Armenia acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 15 July 1993 and it entered into force on the same date.
- Armenia acceded to the 1979 Convention on the Physical Protection of Nuclear Materials on 24 August 1993 and it entered into force on 23 September 1993.
- Armenia acceded to the 1986 Convention on the Early Notification of a Nuclear Accident on 24 August 1993 and it entered into force on 24 September 1993.
- Armenia acceded to the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency on 24 August 1993 and it entered into force on 24 September 1993.
- Armenia ratified the 1994 Convention on Nuclear Safety on 21 September 1998 and it entered into force on the same date.
- Armenia signed the 1996 Comprehensive Nuclear Test Ban Treaty on 1 October 1996.

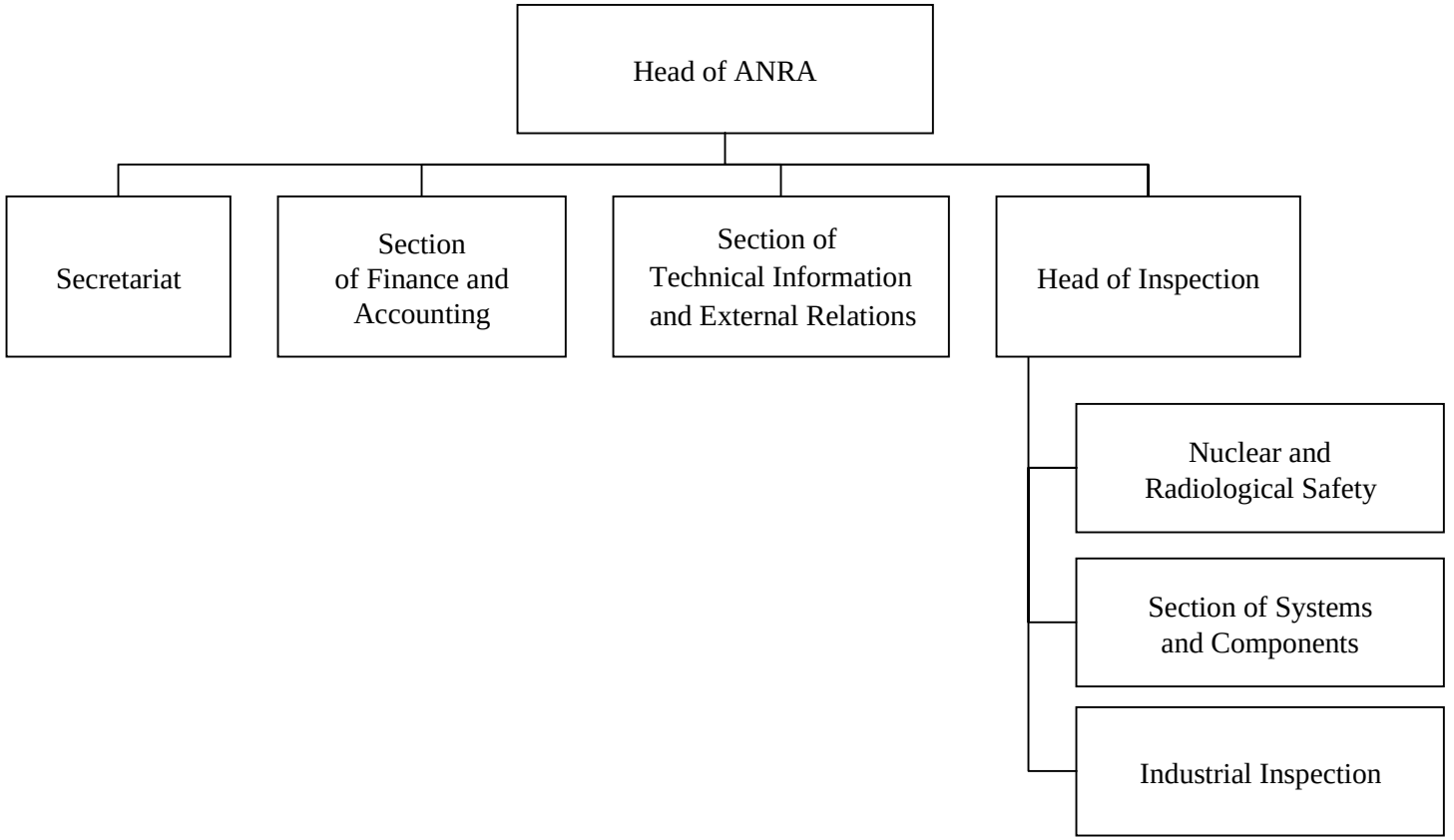
Membership in Nuclear Organisations

Armenia is a member of the International Atomic Energy Agency (IAEA) and the Armenian Nuclear Power Station is a member of the World Association of Nuclear Operators (WANO).

ARMENIA
Competent Authorities for Nuclear Energy



ARMENIA
Armenian Nuclear Regulatory Authority (ANRA)



BELARUS

Introduction

There are no nuclear power plants in Belarus at present. However, there are various facilities involved in the use of nuclear energy in the industrial, research and medical sectors. In addition, there is a radioactive waste disposal facility, Ekores, located near Minsk. Designed for radioactive waste generated by nuclear applications in the sectors mentioned above, it was commissioned in 1964.

A special commission, established in March 1998 pursuant to an Order of the Prime Minister, recommended not to construct any nuclear power plants in Belarus during the next ten years, but to continue work related to the development of nuclear energy in the future.

Competent Nuclear Authorities

General policy in the field of nuclear and radiological safety is decided by the Presidential Security Council and the Soviet of Ministers.

Under the authority of the Soviet of Ministers, five entities have jurisdiction in the nuclear field: the Ministry of Emergencies, the Ministry of Health, the State Committee for Hydrometeorology, the State Committee for Standardisation, Metrology and Certification and the Department of External Trade Regulation of the Ministry of Foreign Affairs.

The Ministry of Emergencies is responsible for implementing state policies associated with the protection of the general public, prevention of and intervention in cases of radiological emergencies.

Two committees within this Ministry have specific responsibilities: the Committee for Supervision of Industrial and Nuclear Safety (*Promatomnadzor*) and the Committee for the Consequences of the Chernobyl NPP Catastrophe.

Promatomnadzor is responsible for developing the legislative, regulatory and technical framework for the use of atomic energy. It is the authority responsible for the regulation of radiation safety and radioactive waste management. It acts as a regulatory body, carrying out the assessment and verification of safety, the issuance of licences, and the inspection of all activities involving ionising radiation sources and nuclear facilities. Inspections are carried out by personnel of the Committee's Nuclear and Radiation Safety Inspectorate.

The Committee for the Consequences of the Chernobyl NPP Catastrophe is responsible for dealing with the consequences of this disaster and for ensuring the protection of the public in this regard.

In addition, two state enterprises have been established: *Polesje* (Gomel region) and *Radon* (Mogilev region) which, under the auspices of the Committee for the Consequences of the Chernobyl NPP Catastrophe, have assumed all waste management activities in the Chernobyl-contaminated areas.

The Ministry of Health is responsible for ensuring radiation safety in medicine, industry and research. It is also responsible for radiation protection of the public, including selective radiation control of foodstuffs in contaminated areas.

The Committee for Hydrometeorology is responsible for monitoring radiation in the environment. It is also in charge of the production of maps of areas contaminated by radionuclides.

The State Committee for Standardisation, Metrology and Certification delivers certificates and accreditation for laboratories and radiation control posts, confirmation of measurement methods and testing and metrological attestations for measuring instruments.

Pursuant to Decree No. 27 of 1998, the Department of External Trade Regulation of the Ministry of Foreign Affairs is empowered to issue licences for export of specific goods and to co-ordinate the activities of all agencies and institutions involved in the field of export control.

The Academy of Sciences performs research in the nuclear energy field and provides consulting services to the government.

Finally, the National Commission on Radiation Protection is an expert advisory body which offers its opinion to senior governmental authorities on issues related to radiation safety.

Legislation in Force

Law on Social Protection of Citizens Affected by the Chernobyl NPP Accident and Law on Legal Treatment of Territories Contaminated as a Result of the Chernobyl NPP Catastrophe

The first legislative initiative of Belarus concentrated on the elimination of the consequences of the Chernobyl accident. Two special laws were adopted: in February 1991, the Law on Social Protection of Citizens Affected by the Chernobyl NPP Accident, and in November 1991, the Law on Legal Treatment of Territories Contaminated as a Result of the Chernobyl NPP Catastrophe. The first Law covers waste disposal procedures and the supervision of waste disposal sites and will apply until a comprehensive Law on radioactive waste management is adopted. The latter Law regulates the living conditions and economic and other related activities in the contaminated area.

On 26 April 1999, the Law on Legal Treatment of Territories Contaminated as a Result of the Chernobyl NPP Catastrophe was amended. The amendments, which entered into force on 12 May 1999, modify the Law as follows:

- the periodicity of defining zones within contaminated areas is changed: the zones will be re-classified every five years;

- the current practice in relation to carrying out of certain activities in zones with different levels of contamination is updated to take into account experience acquired;

- a more appropriate decision-making procedure for the use of arable land in the contaminated territories is established;

- more concrete requirements for the disposal of waste have been drawn up.

The revised Law prohibits acceptance of radioactive waste from abroad, with the exception of waste resulting from services rendered to Belarus by states under contractual obligations.

Law on Radiation Protection of the Public and its Implementing Decrees

The Law on Radiation Protection of the Public was adopted by the House of Representatives on 16 December 1997 and signed by the President on 5 January 1998. It came into force on that date.

This Law is designed to complement the draft Law on Uses of Nuclear Energy and Radiation Safety by setting out fundamental regulations for radiation protection of the public in respect of the use of ionising radiation sources, radioactive waste management and the mitigation of consequences of radiation accidents. It lays down conditions to safeguard human life and health and to protect the environment against the harmful effects of ionising radiation. This Law establishes the right of citizens to claim compensation for damage caused to their health and property as a result of exposure to ionising radiation or a radiation accident. It provides that full liability for personal injury and property damage of citizens lies with the user of ionising radiation sources, and that the user must compensate for that harm and damage in accordance with the procedure established under national legislation.

This Law refers to international agreements on the use of nuclear energy, to which Belarus is a Party, and stipulates that the provisions contained in such agreements shall take precedence over national legislation.

The Soviet of Ministers approved a Plan for the Implementation of the Law on Radiation Protection of the Public on 23 March 1998. This Plan includes the development of several state programmes to upgrade the infrastructure in the field of radiation safety, and also to prepare and review the following Regulations:

- on state management in the field of radiation protection of the public;

- on licensing of activities involving the use of ionising radiation sources;

- on establishing the state system for accounting and control of radiation sources.

Decree No. 929 establishing a Uniform State System of Record-keeping and Control of Personal Exposure Doses was adopted on 17 June 1999. It provides that controls are carried out on persons who are exposed either professionally or for medical purposes, or who live in territories where the effective dose resulting from natural exposure may be higher than 2 mSv or where the effective dose resulting from technically modified exposure may be higher than 1 mSv. The Ministry of Health is responsible for organising and maintaining the state dose register which is to be put into operation in 2001.

Decree No. 1537 of 4 October 1999 establishes a Uniform System of Accounting and Control of Radiation Sources. It provides that *Promatomnadzor* is responsible for establishing and maintaining this system. It also requires all users of radiation sources to submit technical information about the sources in their possession to *Promatomnadzor*. The Decree defines the criteria governing the

registration of radiation sources, the extent of information to be submitted and the responsibilities of *Promatomnadzor* with regard to the maintenance of this system.

Provisional Sanitary Rules for the Management of Decontamination Waste of Chernobyl Accident Origin

These Rules 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 it 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 covers measures to ensure the radiation protection of personnel.

Other Relevant Legislation

Law on Protection of the Public and the Territory against Emergency Situations of a Natural or a Technical Character

This Law, adopted on 16 April 1998, provides that citizens of Belarus have the right to address both individual and collective requests or inquiries concerning protection of the public and the territory against radiation emergency situations to the government bodies and local executive and administrative authorities. It also provides that they have a right to compensation for damage caused to their health and property as a result of emergency situations; to receive free medical services, compensation and privileges for residing and working in areas affected by emergency situations; to obtain free state social insurance and compensation for damage incurred to their health in fulfilment of their duties during emergencies.

Law on Export Control

The Law on Export Control was approved on 19 December 1997 and came into force on 6 January 1998. This Law defines the legal bases for activities 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.

The Law 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.

An implementing Decree No. 27 on the Improvement of the State Control over the Movements of Specific Goods (Works, Services) across the Customs Border of the Republic of Belarus was adopted on 10 January 1998. It brings into force two series of regulations which aim to implement the Law on Export Control: Regulations governing the Licensing of Export-Import of Specific Goods (Works, Services), and Regulations governing the Official Registration of Obligations for the Use Exported (Imported) Specific Goods (Works, Services) for Declared Purposes and Organisation of Control Over the Fulfilment of Such Obligations.

Civil Code of the Republic of Belarus

The Civil Code, adopted on 28 November 1998, establishes liability for damage caused by any activity which creates serious potential hazards for the neighbourhood. The production and use of nuclear energy is listed among such activities. Under Sections 934 and 948, a person carrying out activities which present a high potential hazard must compensate in full for personal injury or property damage incurred if he cannot prove that the damage was caused by *force majeure* or resulted from an intentional act of the aggrieved party.

Regulations of the former Soviet Union

A large number of regulations of the former Soviet Union are still in force in the territory of Belarus. Some of these regulations have been revised to take into account new Russian regulations and standards as well as certain IAEA standards. Examples are the Basic Sanitary Rules for the Handling of Radioactive Substances and Other Ionising Radiation Sources, the Basic Sanitary Rules for the Management of Radioactive Wastes and the Regulations for the Safe Transport of Radioactive Substances.

Draft Legislation and Regulations

Draft Law on Uses of Nuclear Energy and Radiation Safety

The draft Law on Uses of Nuclear Energy and Radiation Safety, which is under preparation, sets out the principles governing the peaceful uses of nuclear energy and provides for the adoption of implementing legislation, such as regulations and rules, in order to meet the objectives of the draft Law.

Belarus has modelled its legislation on internationally-agreed principles of nuclear law; the draft Law therefore has the following main goals:

- to guarantee the safe operation of nuclear installations and radiation sources and substances, and the handling of nuclear materials; to take all necessary measures to prevent nuclear accidents that may cause injury or damage to workers on the site of nuclear installations, members of the public and the environment;

- to guarantee adequate compensation for nuclear damage; and

- to satisfy international obligations in the atomic energy field; to this effect, the Bill contains basic provisions found in relevant international conventions (Non-Proliferation Treaty, Convention on Physical Protection, etc.).

The part governing nuclear safety for activities involving the use of nuclear energy are based on the following fundamental principles:

- any such activity requires prior authorisation (licensing);

- a licensed activity is subject to continuous control through inspections;

- the powers of the regulatory, licensing and inspection body are regulated by law; this body is required to establish all necessary regulatory measures and it is not permitted to exercise any management functions in respect of nuclear or radiation facilities; and

- there is a strict separation of safety regulation functions from safety implementation functions.

Furthermore, the draft Law establishes the legal status of entities which conduct nuclear activities and the procedures for construction of nuclear and waste storage facilities and for transportation of nuclear and radioactive materials. It imposes a strict requirement to ensure the physical protection of nuclear materials, installations, radioactive substances, storage facilities and radiation sources and obliges such entities to ensure that their use is only for peaceful purposes.

With regard to compensation, the draft Law contains provisions that closely follow the Vienna Convention on Civil Liability for Nuclear Damage. It defines “nuclear damage” as including personal injury and loss of or damage to property resulting from a nuclear accident. It reflects the principle of the “channelling” of liability and imposes strict liability upon the operator for nuclear damage resulting from an accident at its nuclear facility, storage site or during transport of nuclear materials. Intentional conduct by the victim causing damage will provide the operator with a right of redress against that victim. The maximum amount of liability and the mandatory insurance coverage are to be

set by the Supreme Soviet. The Soviet of Ministers will guarantee payment of compensation in the event of insufficient funds, insolvency or exoneration of the operator from liability.

Concerning the implementation of international obligations, the draft Law makes reference to international agreements to which Belarus is a Party and stipulates that the provisions contained in such agreements shall take precedence over national legislation.

Draft Law on the Carriage of Dangerous Goods

Promatomnadzor has prepared a draft Law on the Carriage of Dangerous Goods which covers, among other issues, the transportation of nuclear and radioactive materials classified under category 7 of dangerous goods according to the established standards. The Draft defines, *inter alia*:

- the legal status of legal entities and natural persons carrying out activities in the field of the carriage of dangerous goods;
- procedures for state regulation and management in the field of the carriage of dangerous goods;
- safety requirements for dangerous goods;
- investigations into accidents occurring during the transportation of dangerous goods and record-keeping in respect of such accidents.

The draft Law provides that insurance coverage must be obtained against the risk of damage being caused to the environment, transport companies or third parties as a result of incidents during the transportation of dangerous goods. Such insurance may be in the form of compulsory and/or voluntary insurance to be obtained in the manner established by the insurance legislation of Belarus.

International Conventions

Civil Liability for Nuclear Damage

- Belarus ratified the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 9 February 1998, and it entered into force on 9 May 1998.
- Belarus signed the 1997 Protocol to Amend the Vienna Convention on 14 September 1998.

Other International Conventions

- Belarus ratified the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 29 July 1969 and it entered into force on the same date.
- Belarus ratified the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water on 16 December 1963.

- Belarus acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 22 July 1993 and it entered into force on the same date.

- Belarus acceded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 14 September 1971 and it entered into force on 18 May 1972.

- Belarus succeeded to the 1979 Convention on the Physical Protection of Nuclear Material on 9 September 1993 with effect from 14 June 1993.

- Belarus ratified the 1986 Convention on Early Notification of a Nuclear Accident on 26 January 1987 and it entered into force on 26 February 1987.

- Belarus ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 26 January 1987 and it entered into force on 26 February 1987.

- Belarus acceded to the 1994 Convention on Nuclear Safety on 29 October 1998 and it entered into force on 27 January 1999.

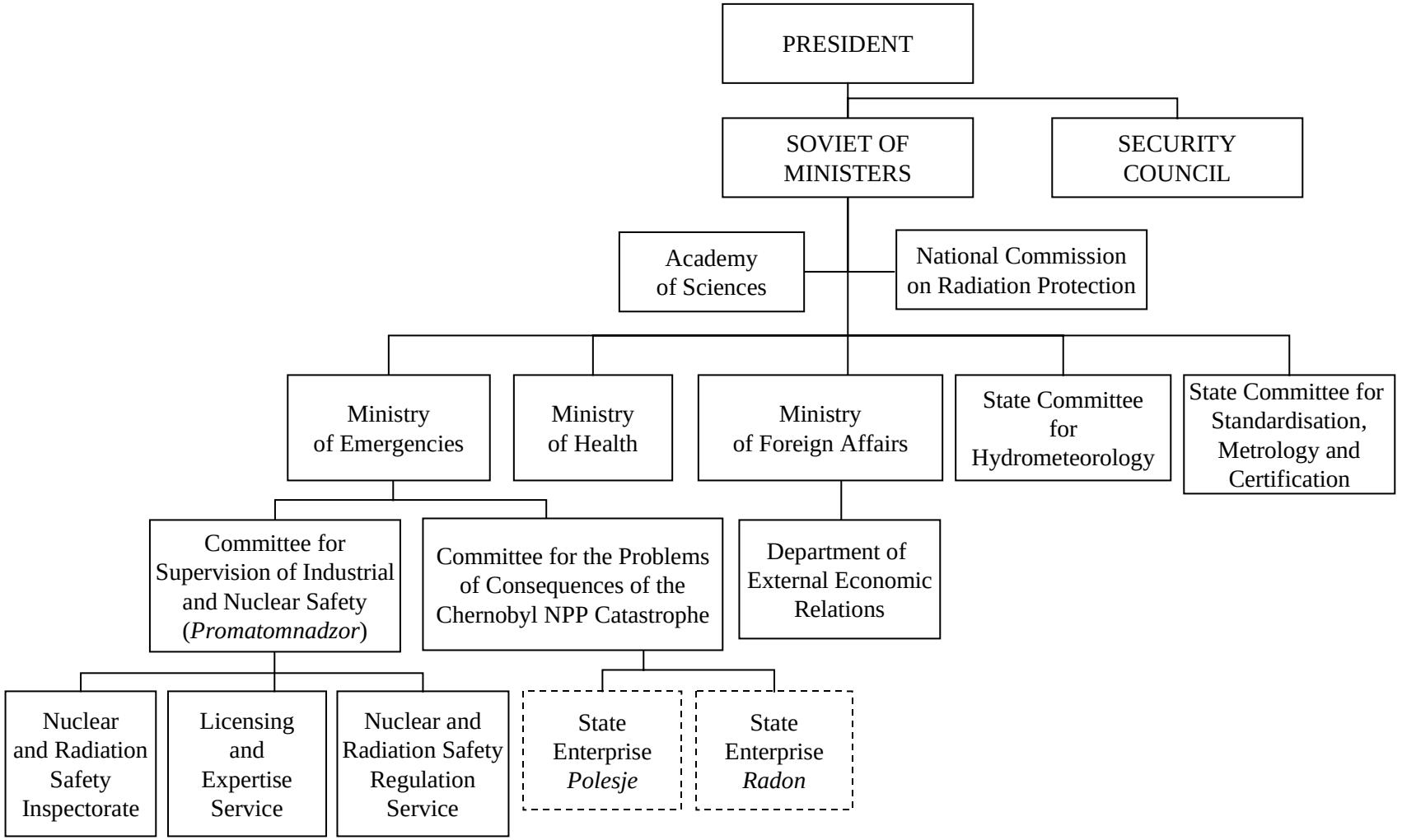
- Belarus signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1996.

- Belarus signed the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 13 October 1999.

Membership in Nuclear Organisations

Belarus is a member of the International Atomic Energy Agency (IAEA).

BELARUS
Competent Authorities for Nuclear Energy



BOSNIA AND HERZEGOVINA

Introduction

There are no nuclear power plants or reactors in Bosnia and Herzegovina at present. Consequently, the use of ionising radiation sources is essentially limited to medical, industrial and research uses.

Competent Nuclear Authorities

Pursuant to the Law on Radiation Protection and Radiation Safety of 24 January 1999, the Administration for Radiation Protection and Radiation Safety is the national regulatory body responsible for these fields. It is an integral part of the Ministry of Health. This Administration is responsible for the following activities:

- issuing regulations, technical documents, standards and instructions for radiation protection of professionally-exposed persons, the public and the environment from radiological hazards, and for physical protection, safeguards, transport, import, export and transit of radioactive materials;

- ensuring that appropriate records are kept and corrective actions are taken concerning, *inter alia*, matters such as radiation exposure of personnel, radioactive releases, incidents, etc.;

- issuing, amending and revoking licences, and making decisions in relation to radioactive waste;

- carrying out regulatory inspections;

- managing a registry on radiation sources and personnel who work with radiation sources; organising educational measures for such workers;

- carrying out statistical, scientific and other research in the field of radiation protection and safety;

- supervising and monitoring the radiation situation in Bosnia and Herzegovina.

The Administration is independent, co-operating with the Parliament and the government through the Minister of Health. Professional services may be established within the Administration as internal departments, in order to perform all professional and technical activities important for supervision in the field of radiation protection and radiation safety (expertise, analyses, research, etc.) and which require the use of scientific and professional methods beyond the scope of the

Administration and medical institutions. If necessary, the Administration may nominate professional scientific staff.

Supervision is performed by the Federal Inspectors for Radiation Protection and Radiation Safety. These Inspectors have the following duties:

- to ensure authorisation of activities involving radiation sources and to order the removal of identified irregularities and insufficiencies within a fixed period;
- to prohibit operations in institutions which no longer meet the conditions established in respect of premises, staff and technical and other equipment;
- to order additional specialist training for all workers who have been identified as lacking in such expertise, and if necessary, to re-examine their qualifications.

Inspectors are obliged to inform all state institutions concerned of any breaches of rules or regulations which come to their attention during inspections.

The Group of Atomic Energy of the Federation of Bosnia and Herzegovina was established in November 1997 as an advisory body to the Government of the Federation and to co-ordinate activities in the field of radiation protection and nuclear safety. The Group's main tasks are to formulate proposals and opinions for the government in respect of radiation protection and nuclear safety issues, to monitor the implementation of the proposed measures and to present a report on these activities. The Group is also responsible for evaluating the nuclear safety and radiation protection situation in Bosnia and Herzegovina, presenting a report to the government and proposing measures to improve the existing situation.

Legislation in Force

A new Law on Radiation Protection and Nuclear Safety, which repeals legislation on the same subject adopted by the former Yugoslav Parliament, was adopted on 24 January 1999 by the Parliament of Bosnia and Herzegovina. This Law, which is based on the IAEA Basic Safety Standards, provides framework legislation and establishes a national regulatory body for radiation protection and radiation safety, namely the Administration for Radiation Protection and Radiation Safety (described above).

The Law comprises 10 Chapters, divided into 55 Sections, governing general provisions, requirements for radiation practices, exposure, sources, radioactive waste, supervision and authorities, financing, penalties, authorisations to adopt implementing regulations, transitional and final provisions.

The Law is based on the principles of justification and optimisation, dose limitation, licensing, and the primary responsibility of the licensee. It establishes general and specific measures for protection against ionising radiation, and provides for systematic monitoring of radioactivity in foodstuffs and the environment. Measures for protection against radiation in specific cases, including methods of treatment and powers of state bodies are also covered.

The Law sets out the main principles for the protection of workers exposed to radiation: prior evaluation of risk and optimisation of protection, classification of workplaces and of workers,

monitoring of exposure to radiation and medical supervision. The Law also regulates the protection of students, pregnant women and nursing mothers in accordance with the Basic Safety Standards.

It sets out specific health protection rules in relation to medical exposure to ionising radiation. The main provisions concern the qualifications of medical staff, conditions governing the use of radiological equipment, written protocols for each type of radiological practice, and the role of medical physics experts.

The Head of the Administration for Radiation Protection and Radiation Safety shall adopt more detailed regulations to define medical conditions which should be met by persons who work with radiation sources, as well as the criteria, procedures, structure and terms of medical examinations which they must have.

The Law establishes requirements which must be met by legal entities performing activities involving the use of ionising radiation: installations shall apply technical, safety, health and other standards for radiation protection and radiation safety, shall be in possession of technical and protective equipment, as well as programmes and plans to ensure the quality of radiation sources; finally, measures for removal of radioactive waste and spent radiation sources shall be taken.

Physical persons and legal entities may only perform activities involving ionising radiation if they have been granted a preliminary permit by the Administration for Radiation Protection and Radiation Safety. Legal entities performing activities involving ionising radiation must nominate a person responsible for radiation protection who will perform the following activities:

- internal supervision of radiation sources, of personnel working with these sources and protective measures against ionising radiation;
- monitoring of the personal dosimeters and the medical examinations of personnel working with radiation sources;
- setting up and maintaining of a registry on radiation sources and on personnel working with such sources, etc.;
- organisation of protective measures in the event of an accident;
- participation in inspections and informing the competent institution or inspector of any breaches of the rules.

The Law furthermore establishes the legal regime which applies to radioactive waste management. The producer of waste bears responsibility for the management of its own radioactive waste, and is required to make financial and material arrangements for the collection, transport, treatment, conditioning and disposal of waste arising from its activities.

The Law also establishes the obligations of the Government of Bosnia and Herzegovina in the event of a nuclear accident. In such a case, the government is authorised to establish, upon preliminary proposal of the Administration for Radiation Protection and Radiation Safety, plans and programmes for the protection of the life and health of the public and of the environment.

The Government of Bosnia and Herzegovina is to make specific decisions on activities involving radioactive waste which is owned by the Federation but which is not situated on national territory.

Draft Legislation and Regulations

At the time of writing (May 2000), the Ministry of Health is in the process of drafting regulations to implement the Law on Radiation Protection and Radiation Safety. They should be adopted later this year.

International Conventions

Civil Liability for Nuclear Damage

Bosnia and Herzegovina succeeded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 30 June 1998, with effect from 1 March 1992.

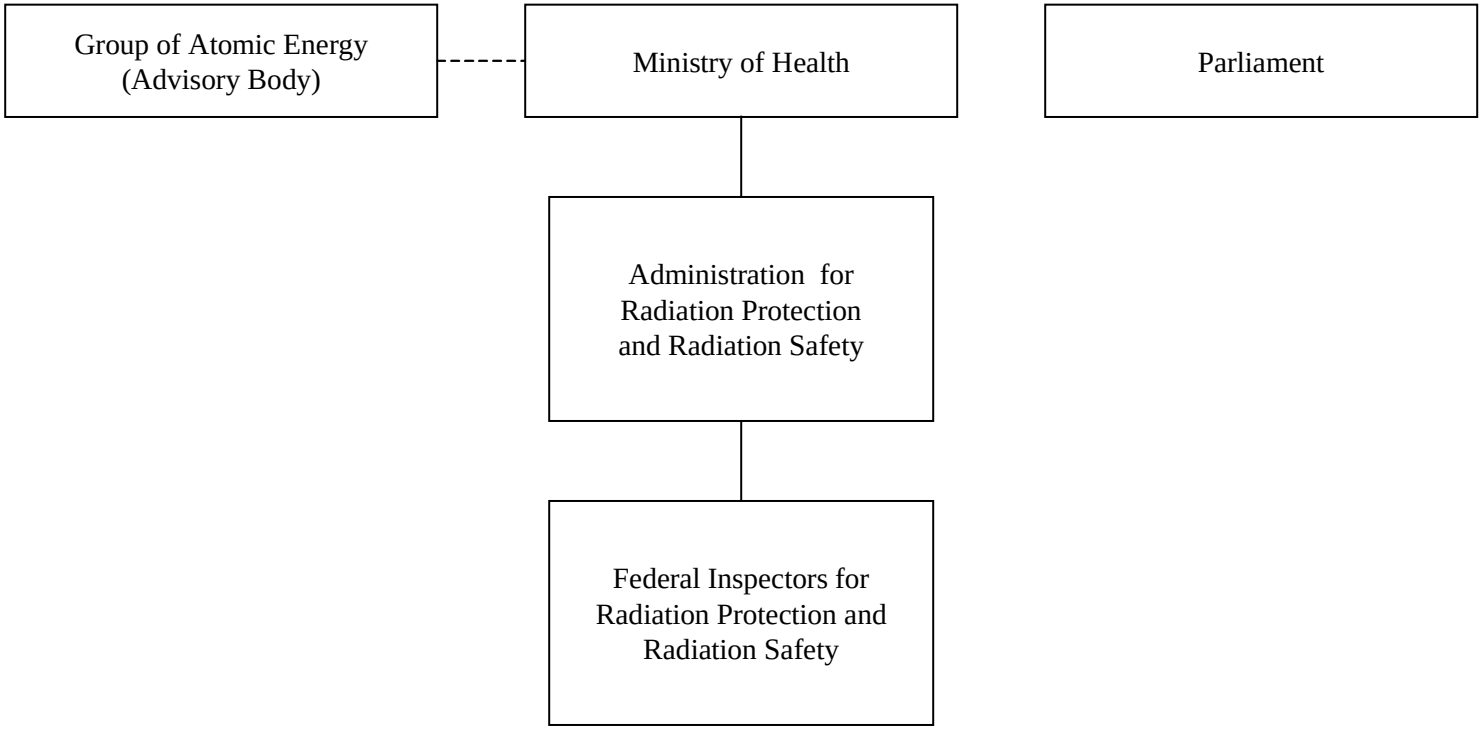
Other International Conventions

- Bosnia and Herzegovina acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 15 August 1994.
- Bosnia and Herzegovina succeeded to the 1979 Convention on the Physical Protection of Nuclear Materials on 30 June 1998, with effect from 1 March 1992.
- Bosnia and Herzegovina succeeded to the 1986 Convention on the Early Notification of a Nuclear Accident on 30 June 1998, with effect from 1 March 1991.
- Bosnia and Herzegovina succeeded to the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency on 30 June 1998, with effect from 1 March 1992.
- Bosnia and Herzegovina signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1996.

Membership in Nuclear Organisations

Bosnia and Herzegovina is a member of the International Atomic Energy Agency (IAEA).

BOSNIA AND HERZEGOVINA
Competent Nuclear Authorities



BULGARIA

Introduction

In Bulgaria, there are at present six operational units at the Kozloduy nuclear power station with a total capacity of 3 420 MWe. Four reactors are VVER-440s, model V230, and two are VVER-1000. Units 1 and 2 of the Kozloduy NPP are to be shut down by 2002. The Kozloduy NPP generates more than 40% of the country's annual electricity production.

The Belene project on the Danube river originally included the construction of four 1 000 MWe Units. Construction started in 1986 but stopped in 1990. Feasibility studies for completion of the first unit of the Belene plant, of which 65% has already been constructed, were initiated after the approval of the National Energy Strategy Plan of December 1995. A decision to recommence construction of this unit has not yet been taken. Pursuant to the afore-mentioned Plan, a new 600 MWe nuclear power installation should be in operation in the period 2008-2010.

An Interim Spent Nuclear Fuel Storage Unit was commissioned in 1991 on the Kozloduy NPP site.

A research reactor (IPT-2000), built in the Sofia region and operated by the Institute for Nuclear Research and Nuclear Energy, was shut down in 1989. The government is to decide whether the reactor should be reconstructed or decommissioned.

The construction of installations for the treatment and storage of low and intermediate level waste produced by the Kozloduy NPP has been delayed for financial reasons. The existing repository for storage of radioactive waste from industry and medicine, located in the Sofia region, needs reconstruction.

The National Electric Company is the owner and operator of all electrical energy-producing units in Bulgaria, and the network for its transmission and distribution.

Competent Nuclear Authorities

The State Committee on the Use of Atomic Energy for Peaceful Purposes (CUAEPP), established by the Atomic Energy Act of 1985, is the nuclear regulatory authority with jurisdiction over nuclear matters, including the implementation of national policy.

The CUAEPP is made up of ministerial representatives, together with those from other administrations involved in the safe use of nuclear energy, and is under the control of the Council of Ministers. Since January 2000, it reports to the Ministry of Construction and Architecture. It is led by a chairperson and comprises two deputy-chairpersons, an executive secretary who is head of the administrative services responsible for external relations, Advisory Councils and an Inspectorate for the Safe Use of Atomic Energy (ISUAE) which is headed by one of the two deputy-chairpersons.

The Advisory Councils were set up to provide assistance and scientific advice, either upon the request of the Chairperson of the CUAEPP, or upon their own initiative. Pursuant to the Act of 1995 which amends the above-mentioned 1985 Act, two advisory bodies were established under the CUAEPP: the Council on the Safety of Nuclear Facilities, responsible for licensing and safety issues at nuclear facilities, and the Council on Radiation Protection, responsible for protection of the public and workers from the dangerous effects of ionising radiation. The composition of these Councils is determined jointly by the Chairperson of the CUAEPP, the Minister for the Environment and the Minister for Public Health, and is then approved by the Council of Ministers.

The deputy-chairperson, head of the ISUAE, manages three departments (Nuclear Safety Control, Nuclear Safety Assessment and Radiation Protection) and an Emergency Response Centre. The other deputy-chairperson manages the Division on External Relations, the Division on European Integration and Quality Assurance, the Division on Co-ordination of Scientific and Technical Development and the INIS Centre.

The ISUAE is responsible for state control over the safe use of atomic energy during transportation, storage and accounting of nuclear materials. It is comprised of:

- the Department of Nuclear Safety Control, which itself includes the Section on Safe Operation of Nuclear Facilities, the Section on Special Nuclear Material, Safeguards and Physical Protection and the Division for On-site Control of NPP Kozloduy. The latter Division ensures that nuclear safety requirements are met and places its inspectors on secondment at nuclear sites (six inspectors at Kozloduy).

- the Department of Nuclear Safety Assessment which itself comprises the Section for Systems Analysis and Component Integrity, the Section for Accident Analysis and the Division for Licensing of NPP Personnel.

- the Department of Radiation Protection, which regroups the Section for Registration and Control of Sealed Sources, the Section for Registration and Control of Unsealed Sources and Natural Radioactive Materials, the Section for Radiation Protection of Nuclear and Natural Radioactive Materials, and the Laboratory for Radiation Measurements.

The ISUAE is the state regulatory authority in the field of nuclear and radiation safety. It ensures that terms and conditions for the safe use of atomic energy are respected and that decisions and technical regulations are applied. In this manner, the Inspectorate is in a position to take all immediate measures necessary to ensure nuclear safety. It also maintains a record of all ionising radiation sources and all licences for the use, storage, transport and disposal of nuclear materials and for the commissioning and decommissioning of nuclear power plants.

Pursuant to the State Administration Act, the Council of Ministers approved a series of measures to reorganise the CUAEPP. The CUAEPP and its administration are to be transformed into a State Agency on Atomic Energy under the authority of the Council of Ministers. This change aims to increase CUAEPP's regulatory functions within the national nuclear programme, rather than promoting the use of nuclear power. The tasks of the CUAEPP will probably be limited to regulation and supervision of nuclear safety and radiation protection, and co-ordination of the international co-operation in these areas.

The Ministry of Health, the Ministry of Environment and Water, the Ministry of Internal Affairs, the Ministry of Agriculture and other state bodies exercise control over ionising radiation sources within their respective powers. In the event of a radiological emergency, the Minister of

Health establishes additional health measures with a view to public protection. The Minister of Health also determines the obligatory health standards in all fields of radiation protection.

The National Centre on Radiobiology and Radiation Protection, established by Regulation of 18 June 1993 (Off. Gaz. No. 52 of 1993) operates as a specialised body under the Ministry of Health, and has jurisdiction over radiobiological issues, radiation protection and medical emergencies. The Centre supervises the activities of the Health and Epidemiology Centre with regard to regular monitoring of radiation doses and medical controls of exposed workers. The Centre also deals with preventive measures, diagnostics, and scientific and technical activities in these fields.

The 1991 Law on the Protection of the Environment, as amended on 27 July 1999 (Off. Gaz. No. 67 of 27 July 1999), empowers the Ministry of the Environment and Water to control the state of the environment.

Regulation No. 8 of the CUAEPP and the Ministry of Internal Affairs on Nuclear Facilities and Nuclear Material Physical Protection determines the tasks of this Ministry in the field of the safe uses of atomic energy. It is principally responsible for physical protection and fire protection of nuclear power plants. Under Regulation No. 8, the Security Services of the Ministry of Internal Affairs are responsible for the following issues:

- illegal actions or inaction related to the safety and physical protection of nuclear facilities and materials;
- breaches of technological procedures and instructions; acts or omissions causing nuclear accidents or radiological emergencies; preliminary inspection of accidents for which deliberate action is suspected;
- distribution of information;
- control over the protection of state secrets and information related to physical protection.

The Civil Protection Department of the Ministry of Defence acts as the operational headquarters of the Permanent Commission on Public Protection in the Event of Calamities and Emergencies. The Civil Protection Department is responsible for the development of the National Emergency Plan on Radiological Emergencies in Nuclear Power Plants and for approval of the Kozloduy NPP Emergency Plan.

The Committee of Energy, under the supervisory of the Council of Ministers, is responsible for development, implementation and control of state policy in the energy field. The Committee regulates and co-ordinates the interaction between producers, distributors and consumers of energy. It is in the process of being transformed into a State Agency on Energy and Energy Resources.

On the initiative of the CUAEPP, a VVER Regulators Association was established in December 1993 with a view to improving the safety of this type of reactor through co-operation on the development of regulatory policy and safety requirements.

The Institute for Nuclear Research and Nuclear Energy of the Bulgarian Academy of Science, established by Resolution No. 106 of the Council of Ministers, is the official Institute responsible for research into nuclear energy in Bulgaria. This Resolution further provides that the Institute is the operator of the research reactor IPT-2000.

Legislation in Force

Act on the Use of Atomic Energy for Peaceful Purposes

The Act of 7 October 1985 (amended in 1995 and 1998) on the Use of Atomic Energy for Peaceful Purposes (hereinafter referred to as "the Atomic Energy Act")* governs all nuclear activities in Bulgaria. The Act was implemented by the Regulation on the Enforcement of the Atomic Energy Act adopted by the Council of Ministers in 1986 and by several other regulations.

The Atomic Energy Act contains five chapters: the first addresses the main principles governing the peaceful uses of atomic energy; the second deals with the management of the uses of atomic energy; the third establishes state controls; the fourth addresses the question of nuclear third party liability; and finally, the fifth chapter is devoted to administrative provisions and penalties.

Under this Act, the tasks of the Committee on the Use of Atomic Energy for Peaceful Purposes are to:

- establish programmes for the long-term use of nuclear energy, nuclear safety rules, accounting systems, and requirements for the storage and transport of nuclear materials;
- implement Bulgaria's economic, scientific and technical co-operation with international organisations in the nuclear field;
- determine criteria for the training, qualification and certification of personnel; and
- determine and implement remedial measures for areas of the environment adversely affected by radiation sources.

All nuclear activities require a licence. The requirements and procedures for licences are set out in the Atomic Energy Act and its implementing regulations. These regulations cover the following aspects:

- procedures for notifying the Committee of any modifications, occurrences or accidents during operation which have a bearing on nuclear and radiation safety (1987 Regulation);
- safety of nuclear power plants during design, construction and operation (1987 Regulation);
- accounting, storage, and transport of radioactive waste (1988 Regulation);
- authorisations for the use of nuclear energy (1988 Regulation);
- criteria and requirements governing the training and qualifications of personnel in order to maintain and improve their level of knowledge and experience (1989 Regulation);
- collection, treatment and final disposal of radioactive waste (1992 Regulation); and

* The full text in English of the Atomic Energy Act was reproduced in the Supplement to *Nuclear Law Bulletin* No. 58 (December 1996).

- physical protection of nuclear installations and materials (1993 Regulation).

The provisions of the Act on nuclear third party liability apply to nuclear incidents and damage occurring on Bulgarian territory. The Act states that civil liability for nuclear damage is determined in accordance with the provisions of the Vienna Convention.

Regulations implementing the Atomic Energy Act

Regulation No. 2 of 24 November 1987 of the CUAEPP lays down the procedural requirements for reporting on nuclear safety and radiation protection in respect of operational changes, events and accidents.

Regulation No. 3 of 24 November 1987 of the CUAEPP provides for safety during the design, construction and operation of nuclear installations. It sets out the main principles and safety criteria applicable to ionising radiation sources during the design, construction, operation and maintenance of nuclear installations, and for operating personnel and emergency preparedness plans. This Regulation is being amended in order to meet the more stringent international safety requirements for nuclear power plants, whether existing, being designed or under construction, and to include additional requirements concerning the decommissioning of nuclear power plants.

Regulation No. 4 of 9 March 1988 of the CUAEPP, amended in 1993, concerns procedures for storage and transport of nuclear material and provisions for physical protection of nuclear material during its use, storage and transportation. It also defines the concepts used and the responsibilities of the relevant bodies. This Regulation is undergoing revision.

Regulation No. 5 of 30 November 1988 of the CUAEPP, amended in 1993, on the Issue of Licences to Use Atomic Energy, determines the necessary documentation, conditions, procedures and terms for the issue of licences for the use of atomic energy. These licences are granted by the Inspectorate for the Safe Use of Atomic Energy. This Regulation also contains provisions on decommissioning licences for nuclear installations and other facilities using ionising radiation sources, including documents to be submitted for such licence applications.

Regulation No. 6 of 25 May 1989 of the CUAEPP, amended in 1991, lays down criteria and requirements for the training, qualification and certification of persons involved in the utilisation of nuclear energy and sets out guidelines for the recruitment of qualified personnel and to allow them to maintain and improve their qualifications. This Regulation is undergoing revision.

Regulation No. 7 of 7 January 1992 of the CUAEPP establishes the requirements for the collection, treatment, transport and disposal of radioactive waste in Bulgaria. Also included are provisions on radiation protection and control. However, the Regulation does not apply to spent nuclear fuel or to the waste resulting from its treatment. It prohibits the import and transport on Bulgarian territory of radioactive waste produced abroad. It also prohibits discharge of all types of radioactive waste into industrial and municipal sewage systems, bodies of water and the soil. This Regulation is undergoing revision.

Regulation No. 8 of the CUAEPP and the Ministry of Internal Affairs on the Physical Protection of Nuclear Installations and Materials was adopted on 6 August 1993. It lays down both institutional and technical requirements for the physical protection of nuclear materials during their use, transport and storage. It takes into account the IAEA Recommendations on the Physical Protection of Nuclear Materials and the Convention on the Physical Protection of Nuclear Material.

Finally, Decree No. 252 of 1992 of the Council of Ministers on the Basic Radiation Protection Standards sets out requirements for protection against risks associated with exposure to ionising radiation, based on IAEA Safety Series No. 115-I.

Act Amending the Atomic Energy Act

The 1985 Atomic Energy Act was revised by an Amending Act of 27 July 1995 (Off. Gaz. No. 69 of 4 August 1995). The main provisions of the Amending Act are as follows:

- third party liability for nuclear damage: the Act's provisions are brought into line with those of the 1963 Vienna Convention;
- establishment of two funds, one to finance the decommissioning of nuclear facilities and the other to finance the safe storage of radioactive waste; these funds, financed by operators of nuclear facilities and by persons generating radioactive waste respectively, were set up in January 1999;
- requirement to establish special status zones around nuclear facilities and national radioactive waste storage sites;
- establishment of a clear distinction between the functions of the national regulatory body and those of operators of nuclear installations; and
- creation of two advisory bodies within the Committee on the Use of Atomic Energy for Peaceful Purposes: the Council on the Safety of Nuclear Facilities and the Council on Radiation Protection.

Furthermore, by the Act of 27 July 1994 (Off. Gaz. No. 64 of 1994), Parliament authorised the accession of Bulgaria to the 1963 Vienna Convention on Civil Liability for Nuclear Damage and to the 1988 Joint Protocol relating to the application of the Vienna Convention and the Paris Convention.

According to this Act, the third party liability of an operator of a nuclear installation in Bulgaria is limited to the equivalent of 15 million Special Drawing Rights (SDR) and, for other types of nuclear activities, is limited to SDR 5 million (as also specified in the Amending Act). The 1994 Act states that the Vienna Convention will be applicable to Bulgaria from the date of deposit of its instrument of accession, *i.e.* 24 November 1994.

The Council of Ministers of Bulgaria has also issued a Regulation excluding certain types of facilities which contain only small quantities of nuclear material from the scope of the Vienna Convention. The type, conditions and terms of financial security to cover the operator's liability are, however, not defined and, as a result, in practice the state will ensure the payment of compensation claims for nuclear damage.

State Administration Act

The State Administration Act was adopted on 21 October 1998 (Off. Gaz. No. 130 of 5 November 1998) and entered into force on 6 December 1998. It aims to establish state control overradiation safety in compliance with the EU regime. The Act makes amendments and additions to

the Atomic Energy Act and provides for the transformation of the CUAEPP into another type of state body – a State Agency on Atomic Energy.

Regulation on Planning and Preparedness for Action in the case of a Radiation Accident

This Regulation, which was adopted on 26 March 1999 and entered into force on 9 April 1999, determines the respective duties of state bodies and local administration in this field, as well as the obligations of the operator of a nuclear power plant. It also identifies actions which should be taken in the case of an emergency, and defines updated criteria for the adoption of various protective measures for the population in the event of a radiation accident.

Regulation on Work with Radioactive Substances and Other Sources of Ionising Radiation

Regulation No. 0-35 (Government Bulletin No. 60 of 2 August 1974) entered into force on 2 August 1974, is based on the Public Health Act and determines the basic requirements for radiation safety. It includes *inter alia* protective measures in relation to dose limitation for different categories of persons.

Regulation on Transport of Radioactive Substances

Regulation No. 46 (Off. Gaz. No. 53 of 2 July 1976), which entered into force on 2 July 1976, regulates transport of radioactive substances by air, road and inland waterway. Its purpose is to prevent or reduce the irradiation and radioactive contamination of the public and the environment during transportation of such substances.

Other Relevant Legislation

According to Article 5 of the Constitution of the Republic of Bulgaria, international agreements ratified and promulgated by the Republic of Bulgaria, and which have entered into force, are part of the internal legislation and prevail over domestic legislative or regulatory instruments in the case of conflict.

The Act on the Use of Atomic Energy for Peaceful Purposes added a new section to the Criminal Code of the Republic of Bulgaria: “Offences related to the Utilisation of Atomic Energy for Peaceful Purposes”.

Draft Legislation and Regulations

In order to harmonise Bulgarian legislation with European Union regulations, Bulgarian experts are currently analysing EU directives in the field of atomic energy use and are drafting a series of relevant Acts.

Draft Amendment of the Act on the Use of Atomic Energy for Peaceful Purposes

The Atomic Energy Act is under review at the time of writing (May 2000). The new Act on the Safe Use of Atomic Energy will take into account the provisions of the new State Administration Act. It will include the following amendments and additions:

- harmonisation of the Act with the Convention on Nuclear Safety, the Convention on the Physical Protection of Nuclear Material and the Vienna Convention on Civil Liability for Nuclear Damage, as well as with the EU legislation;
- more precise definition of the functions of the regulatory body on state control over nuclear safety and radiation protection;
- changes resulting from the transformation of the CUAEPP into a State Agency on Atomic Energy;
- establishment of a sound legislative framework to govern the funding of the State Agency on Atomic Energy.

Draft Amendments to Nuclear Safety Regulations

A Programme to upgrade Nuclear Safety Regulations is currently being implemented. Several regulations dealing with atomic energy and especially radiation protection are being drafted in the following fields:

- nuclear safety and radiation protection in nuclear power plants;
- transport of nuclear material;
- main safety rules for the treatment and storage of ionising radiation sources;
- radiation monitoring in normal and emergency situations;
- quality assurance during operation of NPPs;
- operational data reporting to CUAEPP;
- registration of ionising radiation sources;
- NPP systems and equipment periodical testing;
- NPP emergency planning;
- safety during decommissioning of nuclear facilities; etc.

Draft Decree on Terms and Time Limits of the Operator's Financial Guarantee for a Nuclear Damage

The Academy of Science, in co-operation with the Ministry of Finance, the CUAEPP, the State Insurance Institute and other interested authorities, is expected to develop a draft Decree on Terms and Time Limits of the Operator's Financial Guarantee for a Nuclear Damage.

Draft Legislation and Regulations in the Field of Spent Fuel and Radioactive Waste

In November 1999, the Council of Ministers approved a programme for developing and updating the national legislation in the field of spent fuel and radioactive waste. It includes two new acts, a new regulation and the update of two existing regulations. One of the new acts aims to ratify the Joint Convention on the Safety of the Spent Fuel and Radioactive Waste and on the Safety of the Radioactive Waste Management. Under this Act, the CUAEPP will be the regulatory body pursuant to the requirements of the Joint Convention.

International Conventions

Nuclear Third Party Liability

- Bulgaria acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 24 August 1994, and it entered into force on 24 November 1994.

- Bulgaria acceded to the 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention on 24 August 1994, and it entered into force on 24 November 1994.

Other International Conventions

- Bulgaria ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 13 November 1963 and it entered into force on the same date.

- Bulgaria ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 5 September 1969 and it entered into force on 5 March 1970.

- Bulgaria ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 16 April 1971 and it entered into force on 18 May 1972.

- Bulgaria ratified the 1979 Convention on the Physical Protection of Nuclear Material on 10 April 1984 and it entered into force on 8 February 1987.

- Bulgaria ratified the 1986 Convention on Early Notification of a Nuclear Accident on 24 February 1988 and it entered into force on 26 March 1988.

- Bulgaria ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 24 February 1988 and it entered into force on 26 March 1988.

- Bulgaria ratified the 1994 Convention on Nuclear Safety on 8 November 1995 and it entered into force on 24 October 1996.

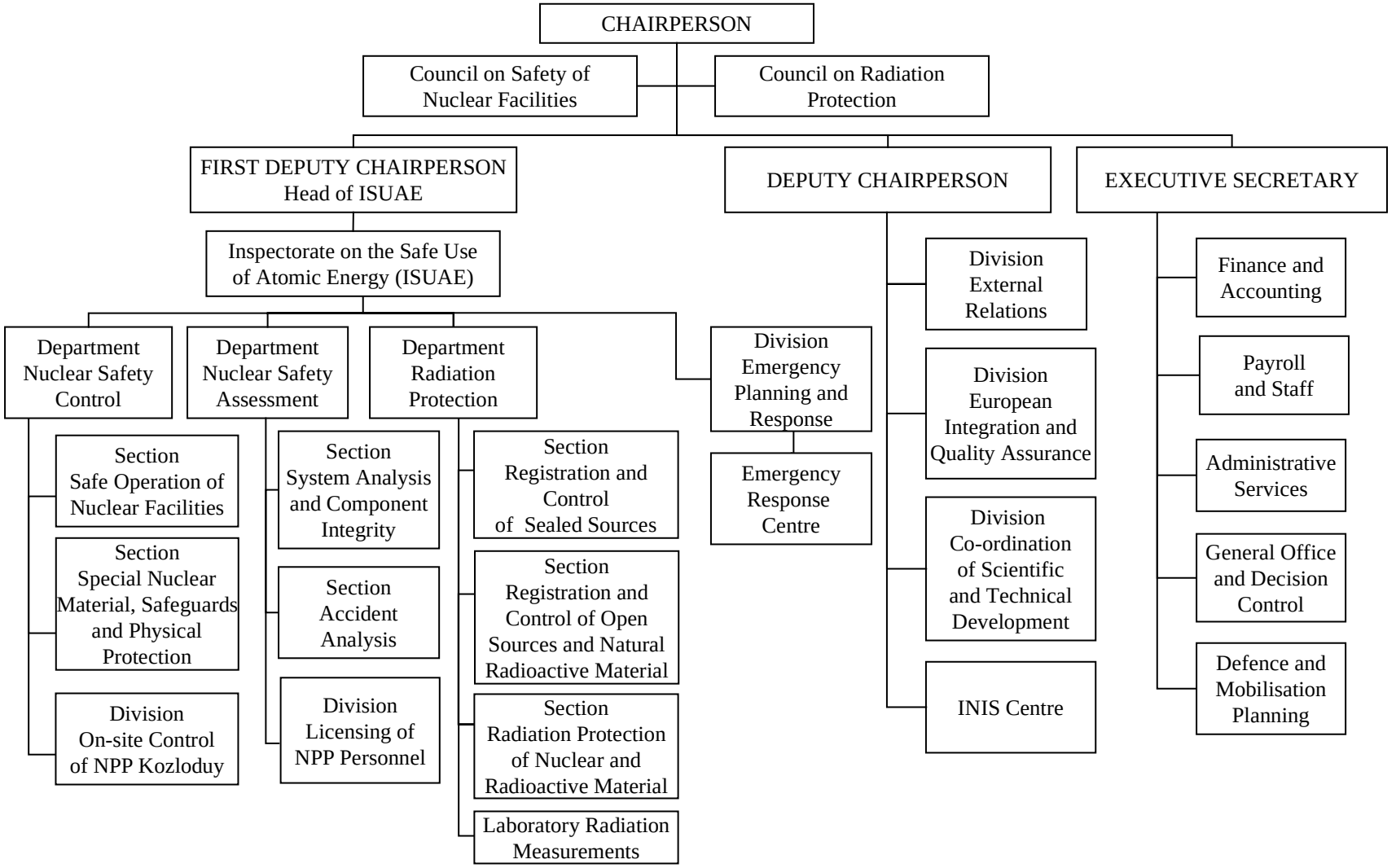
- Bulgaria ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 29 September 1999.

- Bulgaria ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 21 June 2000.

Membership in Nuclear Organisations

Bulgaria is a member of the International Atomic Energy Agency (IAEA), and the Bulgarian National Electric Company is a member of the World Association of Nuclear Operators (WANO). Bulgaria is also a member of the Nuclear Suppliers Group and the Zangger Committee.

BULGARIA
Committee on the Use of Atomic Energy for Peaceful Purposes



CROATIA

Introduction

Croatia has no nuclear installations or nuclear fuel cycle facilities on its territory at present. However, the national electricity company (HEP) of Croatia is a co-owner of the nuclear power plant situated at Krško in Slovenia. HEP receives and distributes 50% of the electricity produced by that plant but has no direct responsibility for its operation.

With respect to radioactive waste management, there exist two storage facilities for used radiation sources and low level waste produced in various applications of radiation sources.

Competent Nuclear Authorities

There is currently no independent nuclear regulatory body in the field of nuclear energy in Croatia. The Ministry of Economic Affairs is the authority with jurisdiction over nuclear safety, and it has a special department responsible for nuclear safety. This Ministry is responsible for the dissemination to the public of information on environmental monitoring data related to radioactive releases from Krško NPP in Slovenia and for all activities related to nuclear materials.

Radiation protection falls within the jurisdiction of the Ministry of Health. This Ministry and its Health Inspectorate are responsible for the licensing and inspection of activities involving ionising radiation, the issue of transport permits for radioactive materials and equipment generating ionising radiation, personnel dosimetry and occupational radiation protection. The Inspectorate also maintains, through authorised institutions, personnel dose records, and is responsible for planning, preparedness and response management for radiological emergencies. Concerning radioactive waste, the Minister of Health is entrusted with the regulation of the treatment and disposal of radioactive waste produced by the activities of licensees.

A Croatian Agency for Radiation Protection was established by the 1999 Act on Radiation Protection as the competent body to perform expert activities with regard to radiation protection The Agency reports annually to the Minister of Health on the implementation of radiation protection measures, and is vested with the power to formulate standards and methods of monitoring ionising radiation protection, to support the scientific, statistic and other research activities in the field of radiation protection, to define the framework for educational programmes and to provide expert opinion in relation to the licensing of radiation sources.

A Commission for Radiation Protection was also set up by the above-mentioned 1999 Act. Comprising nine members nominated by the government, it is responsible for providing the government with proposals and opinions concerning radiation protection, both under normal circumstances and in the event of an emergency situation.

Pursuant to the Act on Ionising Radiation Protection and Nuclear Plants and Facilities Safety Measures of 1981, the Ministry of Internal Affairs is responsible for the adoption and control of protective and security measures in connection with the risk of handling of nuclear material and illicit trafficking. In addition, this Ministry makes decisions on special protective measures with regard to the carriage of radioactive material subject to the Act on the Transport of Dangerous Substances of 1993.

The Hazardous Waste Management Agency was originally set up in 1991. It is a national agency established to organise and perform activities related to the management of the disposal and storage of hazardous waste, including radioactive waste. The Agency also assists governmental bodies in the implementation of the environmental protection policy. One of its basic goals is to define the technical prerequisites for the construction of low and intermediate level radioactive waste disposal facilities. It furthermore disseminates information to the public on the safe handling of hazardous and radioactive waste.

The *Rudjer Boskovic* Institute in Zagreb and the Institute for Medical Research and Occupational Health are authorised by the Minister of Health to implement radiation protection measures, such as personnel dosimetry and environmental monitoring. The *Rudjer Boskovic* Institute has a computer centre for monitoring radioactivity in the environment and the Institute for Medical Research and Occupational Health possesses a mobile radiological laboratory. Finally, the University Clinical Centre *Rebro* in Zagreb has created hospital facilities for medical treatment of irradiated and contaminated persons.

Legislation in Force

Nuclear Safety and Radiation Protection

Croatia has legislation on nuclear safety which it inherited from the former Yugoslavia, namely the Act on Ionising Radiation Protection and Nuclear Plants and Facilities Safety Measures of 1981 (Off. Gaz. No. 18/81) and the Act on Radiation Protection and the Safe Use of Nuclear Energy of 21 November 1984* (Off. Gaz. Nos. 62/84, 53/91, 26/93 and 29/94). Only the provisions of these Acts in relation to nuclear safety are applicable.

As the Croatian authorities considered that the 1984 Act was out of date, its provisions governing ionising radiation were replaced by a new Act on Ionising Radiation Protection. This Act was adopted by the Parliament on 5 March 1999** (Off. Gaz. No. 27/99) and entered into force on 28 March 1999.

It establishes the principles governing ionising radiation protection, the course of conduct to be taken in emergency situations, the treatment of radioactive waste and supervision of the implementation of ionising radiation protection measures, with a view to reducing the risk to the life and health of the public as well as to the environment.

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* The full text in English of this Act was reproduced in the Supplement to Nuclear Law Bulletin No. 36 (December 1985).

** The full text in English of this Act was reproduced in the Supplement to Nuclear Law Bulletin No. 65 (June 2000).

The Act sets out the three basic principles applicable in this field: justification, optimisation and limitation of exposure to radiation. Moreover, it provides that the safety measures to be taken in order to ensure radiation protection must include, *inter alia*:

- systematic examination and detection of the presence, type and extent of ionising radiation and radioactive sources in the environment;

- establishment of external and internal limits of the exposure of the public to ionising radiation; provision of equipment and devices for radiation protection;

- establishment of conditions governing siting, construction and operation of facilities where ionising radiation sources are used, activities involving such ionising radiation, and implementation of emergency response;

- measures aiming at storage, treatment, management and final disposal of radioactive waste;

- education and advanced training of personnel in the field of radiation protection, and examination and permanent control of the health of radiation workers;

- record-keeping in relation to accounting for ionising radiation sources and exposure of radiation workers, patients and other members of the public.

The Act sets out an effective dose limit for occupational exposure, which is set at 100 mSv during a five year period, or approximately 20 mSv per year, on condition that radiation exposure does not exceed 50 mSv during any one given year. The dose limit for persons not engaged in activities involving ionising radiation sources is set at 1 mSv annually. The limitation of exposure to the ionising radiation does not apply to radiation exposure of patients for medical purposes.

Persons working with ionising radiation sources are required to have special education in the field. The Act also lays down requirements with regard to the health conditions of radiation workers.

Activities involving radiation sources are subject to the delivery of a licence from the Minister of Health. The Act sets out the applicable requirements to obtain such a licence. The licensee must designate a person responsible for ionising radiation protection, and the qualifications required for this person are established in this legislation.

The Act also governs emergency situations, and the establishment of a national plan and programme of measures for ionising radiation protection in the event of a radiological emergency.

The Minister of Health is entrusted with the regulation of the treatment and disposal of radioactive waste produced by the activities of licensees. The Act explicitly prohibits any import, treatment, storage or final disposal of radioactive waste originating from outside Croatia.

The Act establishes the Croatian Agency for Radiation Protection as the competent body to perform expert activities with regard to radiation protection, as well as a Commission for Radiation Protection (see *supra*).

The Minister of Health is responsible for the administrative surveillance of the implementation of the provisions of this Act and of its implementing legislation.

Pursuant to the Act on Protection against Ionising Radiation, the Minister of Health enacted an Ordinance on the conditions governing the licensing of expert activities on ionising radiation protection, which entered into force on 29 October 1999. The Ordinance sets out requirements concerning the qualifications of at least two employees of the licence applicant and the working conditions of facilities and equipment used for expert activities. The licence for expert activities is valid for five years from its date of issue. The Croatian Agency for Radiation Protection is responsible for keeping the register of all legal entities licensed to perform ionising radiation protection activities.

Basic principles and requirements for the system of accounting and control of all nuclear materials are found in the Regulation on Material Balance Areas and the Mode of Keeping Records Accounting for Nuclear Raw Materials and Nuclear Materials as well as the Submission of Data Contained in Such Records (Off. Gaz. No. 9/88).

Nuclear Third Party Liability

On 9 October 1998, the Croatian Parliament adopted an Act on Liability for Nuclear Damage*** (Off. Gaz. No. 143/98), which amended the previous Act of 1978. The 1978 Act referred to public authorities which in the Croatian legal system no longer exist, and contained provisions which did not reflect in a sufficiently precise manner the provisions of the 1963 Vienna Convention.

The 1998 Act governs liability for nuclear damage which results from peaceful uses of nuclear energy, as well as insurance and other financial security covering such liability. The definitions of nuclear material and nuclear installation to which the provisions of the 1998 Act refer, as well as the definition of nuclear damage, are the same as those contained in the 1963 Vienna Convention.

Liability for nuclear damage lies exclusively with the operator of a nuclear installation, irrespective of his fault. Exceptionally, a carrier of nuclear material may take the place of the operator. The operator is liable for nuclear damage caused by a nuclear incident if the incident occurred in his nuclear installation or during the transport of nuclear material to or from his installation.

The 1998 Act modified to a certain extent the provisions of the 1963 Vienna Convention in respect of liability for damage occurring during the transport of nuclear material. In addition, nuclear material may be imported into or transported through the territory of Croatia only if the carrier has a certificate issued by or on behalf of the insurer or other financial guarantor providing the security required, which covers liability for nuclear damage up to an amount not less than 320 million Croatian kunas (HRK).

The operator is obliged to provide and maintain insurance or other financial security covering his liability for nuclear damage of an amount which shall not be lower than HRK 320 million. If the liability of the operator for nuclear damage which may occur during transport of nuclear material is not covered by such insurance or other financial security, such liability shall be covered by a separate insurance policy or financial security.

The 1998 Act introduced elements of state intervention in respect of compensation for nuclear damage, in certain strictly enumerated situations. More precisely, the Act has recognised the obligation of Croatia to establish measures of supervision to verify the existence and content of insurance or financial security contracts. The state shall provide compensation for nuclear damage up

*** The full text in English of this Act was reproduced in the Supplement to Nuclear Law Bulletin No. 63 (June 1999).

to HRK 320 million where the operator fails to provide and maintain insurance, where the damage is not compensated under the terms of the insurance policy or if the insurer is insolvent. The state has a right of recourse in this respect against the insurer.

The 1998 Act states that all other matters which are not specifically regulated by its provisions shall be governed by the provisions of the 1963 Vienna Convention.

As regards insurance of nuclear liability, the Croatian insurers have established a Nuclear Insurance Pool, the "Croatian Nuclear Pool", consisting of specialised insurance and reinsurance companies. It is based on fundamental principles common to all nuclear pools. It was originally established in 1977 as one common federal Pool, but was split into a Croatian and a Slovenian Pool in 1994. Both Pools share the coverage for third party liability at the Krško NPP, and act as co-insurers in respect of property damage insurance.

Draft Legislation and Regulations

The emergency planning and preparedness programme is undergoing revision. It will be amended to extend its coverage to radiation exposure and/or contamination from all installations where radioactive materials are handled, instead of restricting its scope to neighbouring nuclear power plants (Krško NPP in Slovenia and Paks NPP in Hungary). In addition, it will provide for a compulsory emergency-monitoring programme. This programme has been approved by the competent ministries.

International Conventions

Nuclear Third Party Liability

- Croatia succeeded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 29 September 1992 with effect from 8 October 1991.

- Croatia acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 10 May 1994 and it entered into force on 10 August 1994.

Other International Conventions

- Croatia succeeded to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water on 29 September 1992 with effect from 8 October 1991.

- Croatia succeeded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 29 June 1992 and it entered into force on the same date.

- Croatia succeeded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 8 October 1991 and it entered into force on the same date.

- Croatia succeeded to the 1979 Convention on the Physical Protection of Nuclear Materials on 29 September 1992 with effect from 8 October 1991.

- Croatia succeeded to the 1986 Convention on Early Notification of a Nuclear Accident on 29 September 1992 with effect from 8 October 1991.

- Croatia succeeded to the 1986 Convention on Assistance in case of a Nuclear Accident or Radiological Emergency on 29 September 1992 with effect from 8 October 1991.

- Croatia approved the 1994 Convention on Nuclear Safety on 18 April 1996 and it entered into force on 24 October 1996.

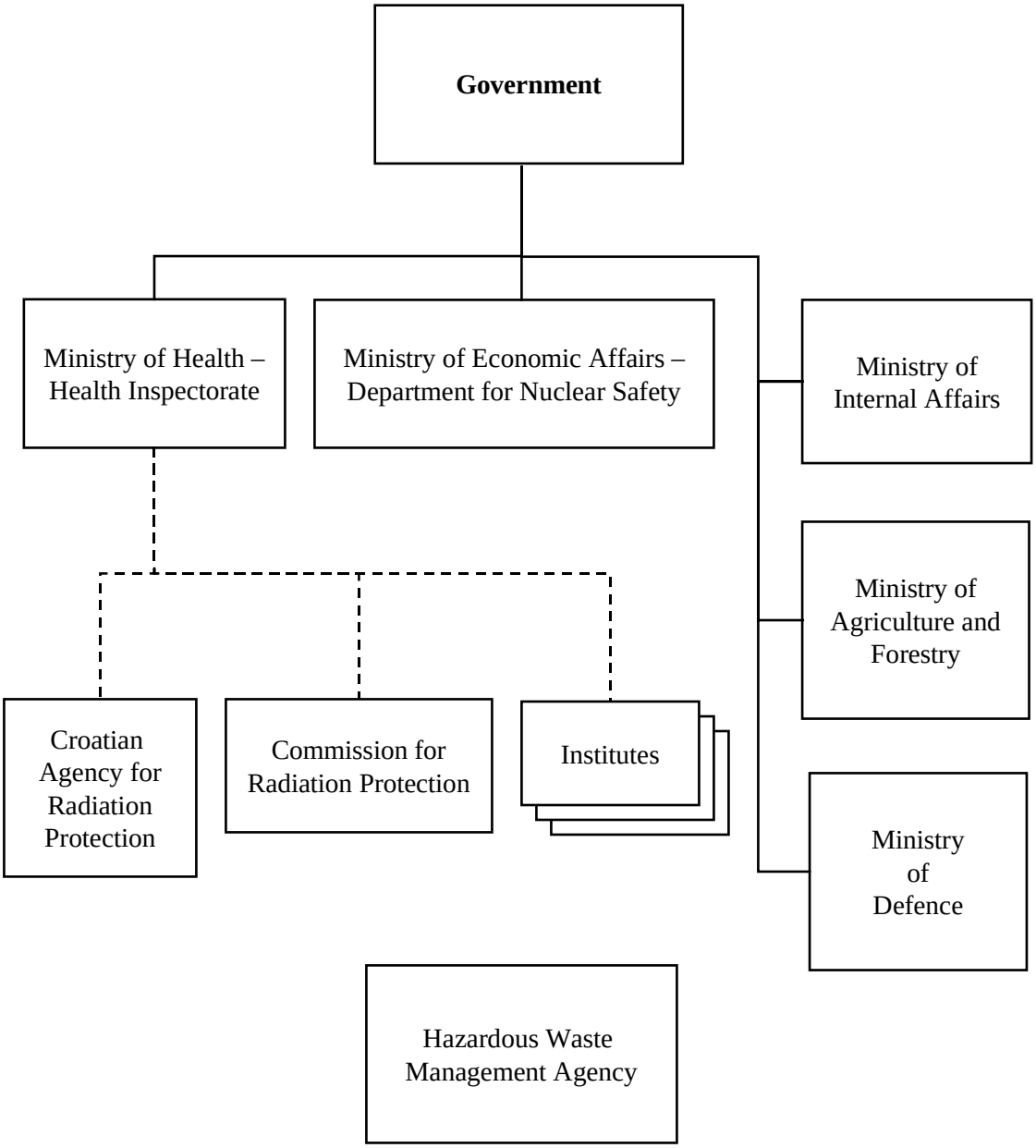
- Croatia signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1996.

- Croatia approved the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 10 May 1999.

Membership in Nuclear Organisations

Croatia is a member of the International Atomic Energy Agency (IAEA).

CROATIA
Competent Authorities for Nuclear Energy



CZECH REPUBLIC

Introduction

The Czech Republic operates one nuclear power station at Dukovany in South Moravia. This plant has four operational units (VVER-440/213) with a total installed capacity of 1 760 MWe and each of which has a thermal power of 1 375 MWt. Two additional units (VVER-1000) with a total installed capacity of 1 962 MWe, each of which has a thermal power of 3 000 MWt, are under construction at Temelin NPP. The Dukovany NPP generates more than 20% of the total electricity production in the Czech Republic.

In addition, the Czech Republic has three research reactors (LVR-15 and LR-0 at the Nuclear Research Institute of Rez and VR-1P at the Czech Technical University of Prague), several radioactive waste storage facilities (such as the repositories Richard for institutional research and medical waste at Litomerice and Bratstvi in Jachymov), a spent fuel interim storage facility and a low-level radioactive waste repository operated at Dukovany.

The utility CEZ (C*eské Energeticke Zavody, a.s.)* is principally responsible for electricity generation and high-voltage transmission throughout the Czech Republic, whereas eight separate companies are responsible for regional electricity distribution. The utility is responsible for the operation of nuclear installations. CEZ, which is a joint stock company with a majority participation of the state, reports to the Ministry of Industry and Trade.

Finally, Diamo (formerly *Ceskoslovensky Uranovy Prumysl* – CSUP) is a state-owned company which acts as operator of all the uranium production facilities. It is responsible for the extraction and processing of uranium ore and has a national monopoly position.

Competent Nuclear Authorities

- In the Czech Republic, responsibility for the construction and operation of nuclear power plants and nuclear installations in general, as well as waste management and the decommissioning of nuclear installations, lies with the Ministry of Industry and Trade. The Ministry has the authority to:

- co-ordinate activities in the nuclear field in relation to the government’s energetic policy;

- develop government policy in the nuclear area, including the management of radioactive waste and spent nuclear fuel;

- monitor the operation of the Dukovany NPP and the construction of the Temelin NPP;

- propose strategic reserves of nuclear materials;

- prepare intergovernmental treaties in the nuclear field and participate in the development of domestic legislation.

The State Office for Nuclear Safety (*Státní úrad pro jadernou bezpecnos*t – SÚJB) was set up by Act No. 21/1992 of 12 December 1992. Following the dissolution of Czechoslovakia, the Czech Republic transferred the responsibilities of the former Czechoslovak Atomic Energy Commission to SÚJB (Act No. 4/1993). SÚJB now constitutes the main state supervisory and regulatory body, holding almost all regulatory responsibility for the safe use of nuclear energy and ionising radiation for peaceful purposes.

The powers of SÚJB were originally set out in Act No. 287 on the Competence of the State Office for Nuclear Safety of 11 November 1993 and by Act No. 85/1995, both of which, however, were repealed by the 1997 Atomic Act. This Act establishes SÚJB as the body that exercises administrative and supervisory authority over the uses of nuclear energy and ionising radiation, state supervision over nuclear safety and nuclear materials, including accounting and control, physical protection, radiation protection and emergency preparedness, as well as the management of radioactive waste and spent fuels. Furthermore, it is authorised to issue licences and to approve the transport and storage of nuclear materials and radionuclide sources. It is also responsible for the dissemination of information on radioactive waste management to municipalities and District Councils.

In addition, SÚJB co-ordinates the activities of the National Radiation Monitoring Network and ensures the functioning of the Emergency Response Centre, while providing for the exchange of international data on the radiation situation. Control of radiation protection was previously vested in the Ministry of Health, but was transferred by the Czech Parliament to SÚJB on 19 April 1995 (Act No. 85/1995). Finally, SÚJB is also responsible for co-operation with the IAEA.

The chairperson of SÚJB is appointed by the government. SÚJB comprises two technical branches headed by deputy chairpersons, one of which is responsible for nuclear safety and the other for radiation protection. These sections are divided into departments and divisions.

The Nuclear Safety Section is comprised of the Department of Nuclear Safety Assessment, the Department of Components and Systems and the Department of Nuclear Materials, including two local site inspectorates at Dukovany and Temelin.

The Radiation Protection Section contains three departments: the Department of Radiation Sources and Nuclear Power, the Department of Regulation of Exposures and the Department of Environmental and Waste Management, in addition to one independent Division for Licensing of Radiation Sources. To this Section also belong seven regional centres which report via the various departments to the Deputy Chairperson of the Radiation Protection Section.

In addition, there exists the Department for Emergency Preparedness, which is directly subordinated to the SÚJB chairperson.

SÚJB furthermore has a Management and Technical Support Section, headed by the deputy chairperson and containing three different departments: the Department of International Co-operation, the Department of Financial Management and Administration (Budget & Finance) and the Office Bureau, which includes a legal division. Finally, SÚJB supervises the functioning of the National Radiation Protection Institute and the National Institute for Nuclear, Chemical and Biological Protection.

The National Radiation Protection Institute operates the national Radiation Monitoring Network. This Network is responsible for carrying out radiation assessments and collecting data on radiation exposure in the event of radiation accidents, in order to provide the background information necessary for SÚJB to make decisions aimed at reducing or avoiding exposure.

The Czech Office for Safety at Work, which concluded a co-operation agreement with SÚJB, supervises the conventional safety of technological equipment (pressure vessels, electrical systems, etc.).

The Ministry of the Interior is responsible for laying down the details of the district emergency plans and off-site emergency plans, prepared by the various District Councils pursuant to the 1997 Atomic Act.

The Ministry of the Environment is responsible for regulating activities in the field of nuclear energy so that they comply with environmental laws. It ensures that the procedures on environmental impact assessment, which are a prerequisite for the licensing of various types of nuclear activities, are applied (Act No. 244/1992 on Environmental Impact Assessment).

The Ministry of Defence, within its competence, establishes and controls emergency preparedness measures. It also manages a monitoring system, a notification and warning system, various means of public protection, and measures to mitigate the consequences of a radiation accident.

The Czech Republic Governmental Commission for Radiation Accidents advises and issues recommendations in the field of radiation protection to the government in the case of radiation accidents and emergency preparedness issues, in co-operation with the SÚJB Emergency Headquarters.

Pursuant to the 1997 Atomic Act, a Radioactive Waste Repository Agency – RAWRA *(Sprava ulozist radioaktivnich odpadu)* was established by the Ministry of Industry and Trade. It functions as a state organisation responsible for ensuring the safe disposal of radioactive waste and the monitoring and control of repositories after their closure. The Agency will be funded through levies imposed on the producers of radioactive waste. It is charged with organising the disposal of all radioactive waste and of irradiated fuel, if it has been declared as waste.

Finally, there are two research institutes in the field of nuclear energy. These are the Nuclear Research Institute, which also operates two research reactors, and the Nuclear Physics Institute at Rez, which belongs to the Czech Academy of Science.

Legislation in Force

Act on the Peaceful Uses of Nuclear Energy and Ionising Radiation and on Alteration and Amendments of Related Legislation

The Act on the Peaceful Uses of Nuclear Energy and Ionising Radiation and on Alteration and Amendments of Related Legislation (the Atomic Act) (Collection of the Czech Laws, No. 18/1997, February 1997),* which governs all nuclear activities, was adopted on 24 January 1997 and entered into

* The full text in English of this Act was reproduced in the Supplement to Nuclear Law Bulletin No. 61 (June 1998).

force on 1 July 1997, with the exception of certain provisions. The Atomic Act repeals, among others, Act No. 28/1984 of 22 March 1984 on State Supervision of Nuclear Safety and of Nuclear Installations of the former Czechoslovakia.

It has as its main purpose the regulation and control of all activities related to the utilisation of nuclear energy and ionising radiation in the Czech Republic and the protection of the public and the environment against the harmful effects of ionising radiation. Furthermore, the Act aims to ensure that nuclear energy and ionising radiation are used exclusively for peaceful purposes and that the benefits of its use are balanced against potentially harmful effects.

The Act contains 5 Parts divided into 50 Sections. Part I forms the main body of the Act and lays down the general conditions governing activities related to the use of nuclear energy and ionising radiation, and rules related to radioactive waste management and to civil liability for nuclear damage. Parts II-IV are devoted entirely to amendments of related legislation, while Part V contains some general transitional and final provisions. The Atomic Act also has an Annex which lists the documentation required for particular licensed activities.

The provisions of the Atomic Act apply to the following activities:

- design, siting, construction, commissioning, operation, reconstruction and decommissioning of nuclear installations;
- design, manufacture, repair and verification of nuclear installation systems or their components, including materials used for their production;
- design, production, repair and verification of packaging assemblies for transportation, storage or disposal of nuclear materials and radionuclide sources defined in implementing regulations;
- management of nuclear materials and of selected items and, in the case of their use in the nuclear field, also of dual use items;
- research and development of activities mentioned above;
- professional training of persons specialised in nuclear safety;
- transport of nuclear materials; and
- all other practices resulting in exposure to ionising radiation.

Finally, the Atomic Act also amends certain related acts, such as Act No. 425/1990 on District Councils, Act No. 283/1991 on the Police of the Czech Republic and Act No. 586/1992 on Income Taxes (Parts II, III and IV of the Atomic Act respectively).

The Atomic Act appoints SÚJB as the competent body for the licensing and inspection of nuclear facilities and workplaces using ionising radiation. A licence is required for a number of activities involving the use of nuclear energy, such as the siting, construction, operation and decommissioning of workplaces using significant ionising radiation sources and of nuclear installations.

Inspections of nuclear installations are carried out by nuclear safety and radiation protection inspectors employed by SÚJB. The inspectors are appointed by the chairperson of SÚJB to ensure compliance with technical specifications for nuclear safety, operational instructions and conditions, and radiation and physical protection measures. In addition, inspectors check emergency preparedness and the qualifications of the facility's personnel.

The management of radioactive waste is also governed by the Atomic Act which sets out general duties and provides a definition of radioactive waste. It also names the Radioactive Waste Repository Agency as responsible for storage and disposal of radioactive waste or of irradiated fuel, if it has been declared waste by the generator or by SÚJB.

The Act provides that the provisions of international agreements to which the Czech Republic is a Party are applicable for the purposes of civil liability for nuclear damage. In this case, the relevant agreements are the 1963 Vienna Convention and the 1988 Joint Protocol relating to the Application of the Vienna and Paris Conventions. The Act also provides that the provisions of general legislation which deal with liability for nuclear damage are applicable to the extent that this Act or international agreements do not expressly exclude their application.

In accordance with the above-mentioned international agreements, the licence-holder for a nuclear installation or for the transport of nuclear materials is considered as the operator liable for nuclear damage.

Procedural aspects dealing with compensation for nuclear damage are governed by general legislation of the Czech Republic applicable on the matter, including Act No. 40/1964 (Civil Code), Act No. 425/1990 on District Councils and Act No. 254/1994.

The Act does not provide a specific definition of nuclear damage; however it does specify that this damage includes the cost of preventive measures or measures to restore the original state of the environment if these measures are justified.

The third-party liability of the operator is fixed at a maximum amount of 6 billion Czech crowns (CZK) [approximately 130 million Special Drawing Rights (SDR)] per nuclear installation used for the production of electricity and per nuclear accident. This limit also applies to storage facilities and repositories for radioactive waste and spent nuclear fuel, as well as nuclear materials generated by the processing of fuel. However, liability is limited to CZK 1.5 billion (approximately SDR 33 million) for lesser risk nuclear installations and for transport operations.

Licence-holders are obliged to take out an insurance policy, with an insurer approved pursuant to Act No. 185/1991, to cover third-party liability for nuclear damage. Detailed conditions concerning insurance policies and other types of financial security are established by the Ministry of Finance in conjunction with SÚJB and the Ministry of Industry and Trade. In any case, the Act specifies that the activities for which the ceiling for liability is set at CZK 6 billion (this category includes nuclear installations generating electric power and all storage facilities of these installations for spent fuel and/or nuclear material originating from spent fuel) must be covered by an insurance policy for at least CZK 1.5 billion; activities for which the ceiling is set at CZK 1.5 billion (this category includes all other nuclear installations and transportation of nuclear material) must be covered by insurance for at least CZK 200 million.

In order to adequately cover the liability claims, a nuclear insurance pool was established in the Czech Republic in July 1995. The Pool is called "*Kancelar Ceskeho Jaderneho Poolu*" and consists of

specialised insurance and reinsurance companies. The Pool is based on fundamental principles common to all nuclear pools.

Finally, the Atomic Act provides for state guarantees to ensure compensation up to the established limits of liability if requests for compensation exceed the amount of mandatory insurance of the operator. The state guarantees will cover amounts up to CZK 6 billion with respect to facilities with mandatory insurance of CZK 1.5 billion and CZK 1.5 billion for facilities with mandatory insurance of CZK 200 million (low risk facilities and transport). However, the state's right of recourse against the operator will not be affected. The time limit for bringing claims for compensation will be ten years from the occurrence of the nuclear incident with a time limit of three years from the moment the victim has discovered the damage.

Regulations implementing the Atomic Act

As a result of the adoption of the new Atomic Act, 14 legislative instruments dealing with nuclear energy (2 laws, 7 decrees and 5 directives) were repealed,** and 17 new regulations implementing the provisions of the Atomic Act have been adopted or are under preparation (two by the Ministry of Industry and Trade, one by the Ministry of the Interior and fourteen by SÚJB). These regulations are mostly based on documents and guidelines issued by the IAEA.

The SÚJB regulations currently in force are the following:

- Decree No. 142/97 on Design Approval of the Packaging for Transport, Storage or Disposal of Radionuclide Sources and Nuclear Materials, of Radiation Protective Devices and Associated Equipment;

- Decree No. 143/97 of 19 June 1997 on Transportation and Shipment of Specified Nuclear Materials and Specified Radionuclide Sources;

- Decree No. 144/97 of 19 June 1997 on Physical Protection of Nuclear Materials and Nuclear Facilities;

- Decree No. 145/97 on the National Safeguards System for Nuclear Materials and on their Detailed Categorisation;

** According to Section 49, the Atomic Act abolishes Act No. 287/1993 on Competence of the State Office for Nuclear Safety; Act No. 28/1984 on State Supervision of Nuclear Safety of Nuclear Installations; Decree No. 59/1972 on Protection of Health from Ionising Radiation; Decree No. 28/1977 on Accountancy and Control of Nuclear Materials; Decree No. 67/1987 on Nuclear Safety Assurance in the Process of Radioactive Waste Management; Decree No. 100/1989 on Security Protection of Nuclear Installations and Nuclear Materials; Decree No. 191/1989 laying down Methods, Terms and Conditions for Verification of Special Professional Qualification of Selected Workers in Nuclear Installations; Decree No. 436/1990 on Quality Assurance of Classified Facilities With Regards to Nuclear Safety of Nuclear Installations; Decree No. 76/1991 on a Reduction of Exposure From Radon and Other Natural Radionuclides; Directive No. 2/1978 on Nuclear Safety Assurance within the Process of Designing, Licensing and Realisation of Constructions Including Nuclear Energy Installation; Directive No. 4/1979 on General Criteria of Nuclear Safety Assurance within the Siting of Constructions including Nuclear Energy Installation; Directive No. 6/1980 on Nuclear Safety Assurance within the Process of Nuclear Power Installation Commissioning and Operation; Directive No. 8/1981 on Testing of Equipment for Transportation and Storage of Radioactive Materials; and Directive No. 9/1985 on Nuclear Safety Assurance of Nuclear Research Installations.

- Decree No. 146/97 establishing Measures having a Direct Impact on Nuclear Safety and Radiation Protection, Requirements on Special Professional Qualifications, Verification of such Qualifications and Licensing of Selected Personnel;

- Decree No. 147/97 establishing a List of Selected Items and Dual Use Items in the Nuclear Sector;

- Decree No. 184/97 on Radiation Protection Requirements;

- Decree No. 214/1997 on Quality Assurance During Activities Connected with the Utilisation of Nuclear Energy and Practices Leading to Exposure, and establishing Criteria for Categorisation of Selected Equipment into Safety Classes;

- Decree No. 215/1997 on Criteria for Siting Nuclear Facilities and Very Significant Radiation Sources;

- Decree No. 219/1997 on Details of Emergency Preparedness of Nuclear Facilities and Workplaces Using Radiation Sources and on Requirements Governing the Content of On-Site Emergency Plans and Transport Emergency Rules;

- Decree No. 106/1998 on Nuclear Safety and Radiation Protection Assurance during Commissioning and Operation of Nuclear Facilities.

- Decree No. 195/1999 on Basic Safety Criteria for Nuclear Installations with Respect to Nuclear Safety, Radiation Protection and Emergency Preparedness;

- Decree No. 196/1999 on Decommissioning of Nuclear Installations or Workplaces with Significant or Very Significant Ionising Radiation Sources;

- Decree No. 324/1999 on Limits of Concentration and Amount of Nuclear Materials to Which the Nuclear Liability Requirements Do Not Apply.

In addition to decrees issued by SÚJB, two ordinances were issued by the Ministry of Industry and Trade:

- Governmental Ordinance No. 224/1997 on Contributions Due by Radioactive Waste Generators to The Nuclear Fund and for Its Management;

- Governmental Ordinance No. 11/1998 on Emergency Preparedness Zones.

Other Relevant Legislation

- The construction of nuclear installations is also governed by Act No. 50/1976 on Civil Construction (the Construction Code). Act No. 50/1976 establishes the powers of the Civil Construction Office which is the responsible body at district level for making decisions in regard to the siting, construction and permanent operation of any civil construction, including nuclear facilities. Pursuant to this Act and the Atomic Act, an applicant is required to collect the respective approval of SÚJB and of all other bodies concerned, and to submit all the relevant documentation to the Construction Office. This Office will then

take the final decision concerning the licence sought, whether for site approval, construction or operation.

- Prior to its construction, each nuclear installation must also follow the procedure set out in Act No. 244/1992 on Environmental Impact Assessment.

- Government Decision No. 290/1995 sets out a list of occupational diseases, which includes afflictions resulting from occupational exposure to ionising radiation such as health disorders induced by ionising radiation, lung cancer caused by radioactive substances and skin diseases induced by physical, chemical or biological factors.

Draft Legislation and Regulations

The Ministry of the Interior is preparing a Decree providing details concerning the elaboration of district emergency plans and off-site emergency plans.

A Draft Mining Act is under preparation. It will introduce a new administrative procedure to better regulate mining of minerals by enterprises.

International Conventions

Nuclear Third Party Liability

- The Czech Republic acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 24 March 1994 and it entered into force on 24 June 1994. The Czech Republic signed the 1997 Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage on 18 June 1998.

- The Czech Republic acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 24 March 1994 and it entered into force on 24 June 1994.

- The Czech Republic signed the 1997 Convention on Supplementary Compensation for Nuclear Damage on 18 June 1998.

Other International Conventions

- The Czech Republic succeeded to the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 1 January 1992 and it entered into force on 1 January 1993.

- The Czech Republic succeeded to the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 1 January 1993 and it entered into force on the same date.

- The Czech Republic succeeded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 1 January 1993 and it entered into force on the same date.

- The Czech Republic succeeded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 2 December 1992 and it entered into force on 1 January 1993.

- The Czech Republic succeeded to the 1979 Convention on the Physical Protection of Nuclear Material on 24 March 1993 with effect from 1 January 1993.

- The Czech Republic succeeded to the 1986 Convention on Early Notification of a Nuclear Accident on 24 March 1993 with effect from 1 January 1993.

- The Czech Republic succeeded to the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency on 24 March 1993 with effect from 1 January 1993.

- The Czech Republic approved the 1994 Convention on Nuclear Safety on 18 September 1995 and it entered into force on 24 October 1996.

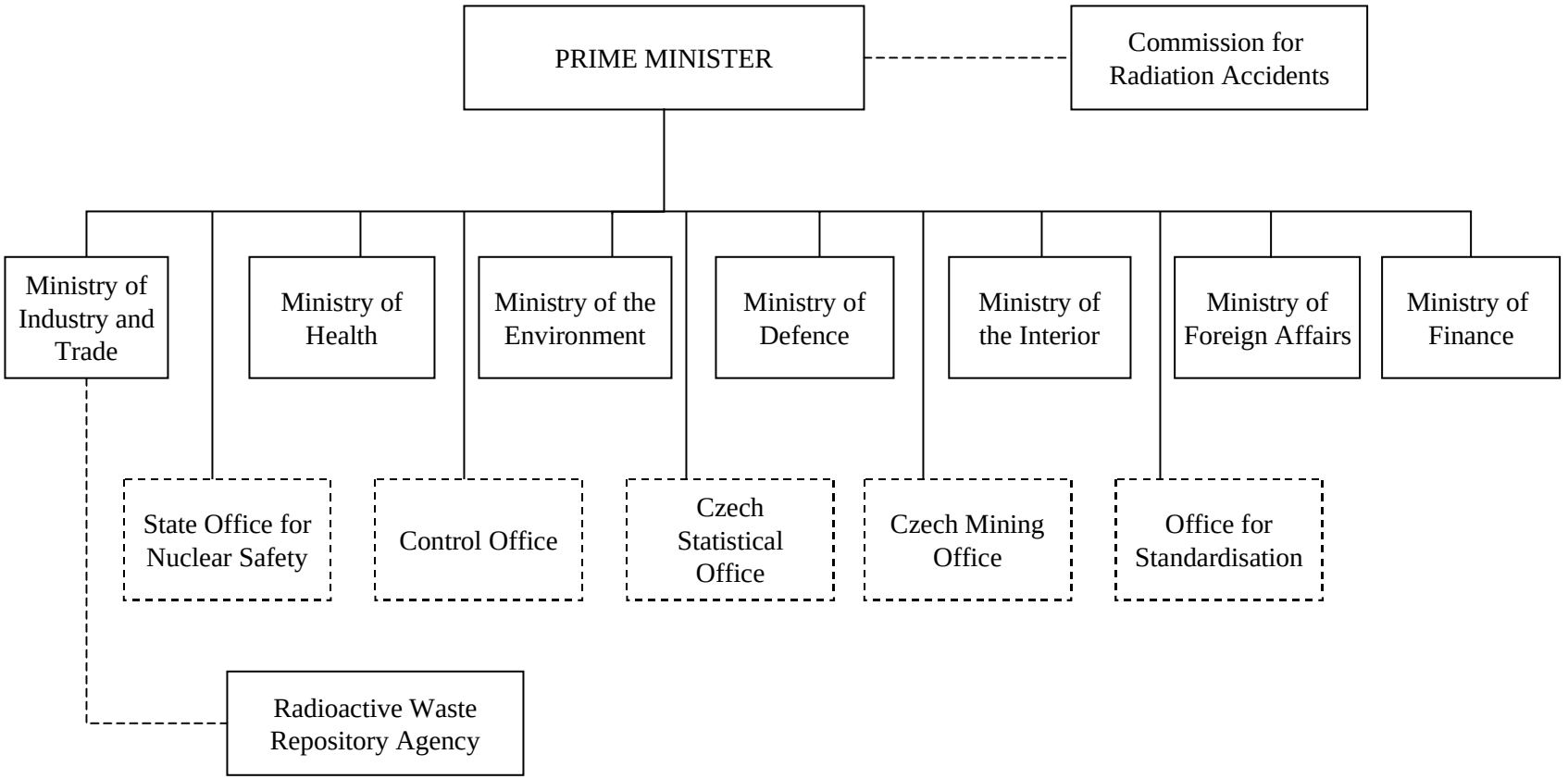
- The Czech Republic ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 11 September 1997.

- The Czech Republic ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 25 March 1999.

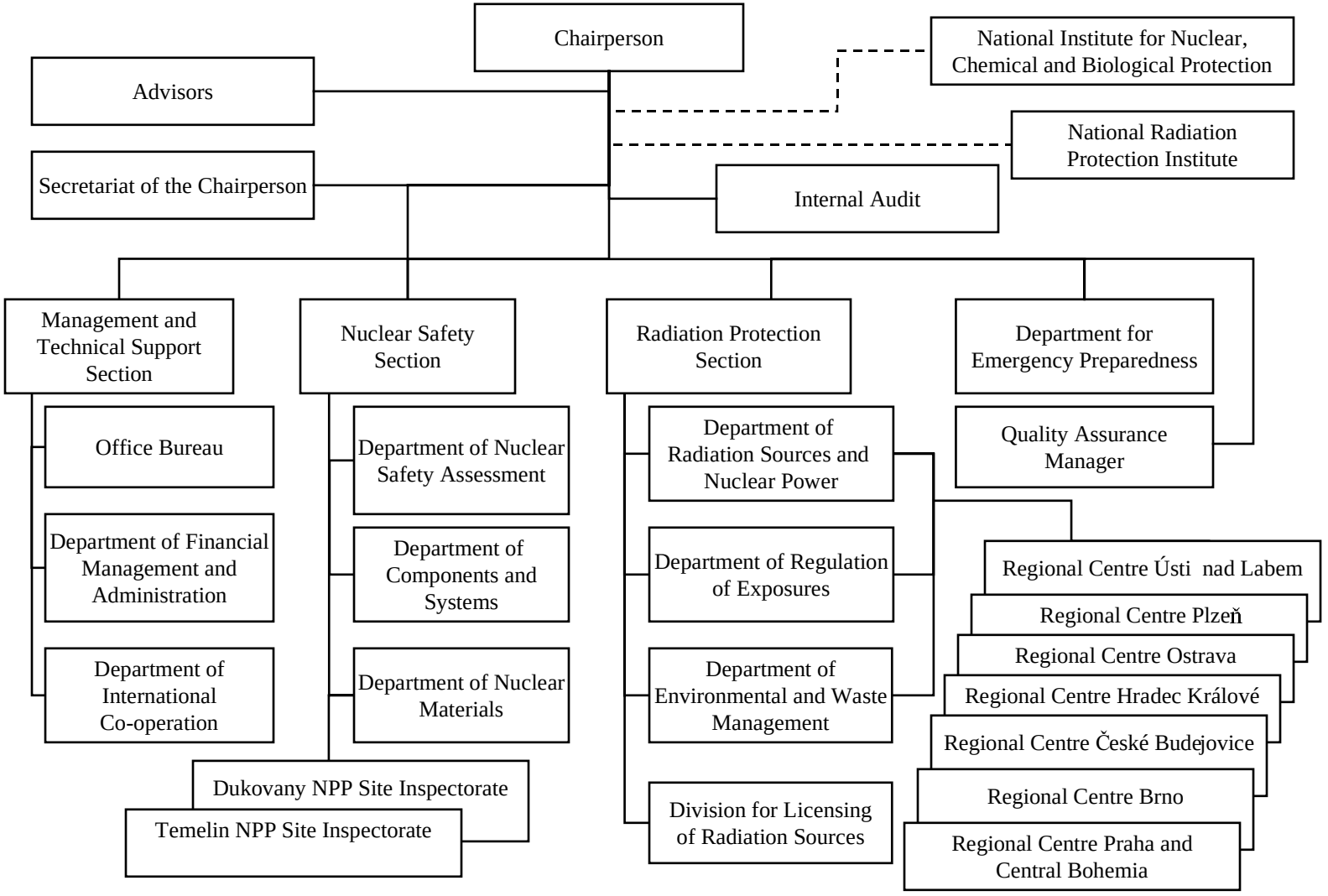
Membership in Nuclear Organisations

The Czech Republic is a member of the International Atomic Energy Agency (IAEA) and it joined the OECD Nuclear Energy Agency in 1996. CEZ is a member of the World Association of Nuclear Operators (WANO). The Czech Republic is a member of the Nuclear Suppliers Group and the Zangger Committee.

CZECH REPUBLIC
Governmental Bodies Involved with Nuclear Energy



CZECH REPUBLIC
State Office for Nuclear Safety (SÚJB)



ESTONIA

Introduction

At present, Estonia does not pursue a national nuclear energy programme and there are no nuclear power plants or other installations on its territory.

There are, however, two partly decommissioned nuclear reactors and nuclear waste depositories in Paldiski (the former Soviet Naval training centre). These installations remained under Russian ownership and control until 26 September 1995, at which time the ownership of, the responsibility for, and Russia's remaining obligations to the centre, were transferred to Estonia. In Sillamäe (northeast Estonia) there is a depository of uranium mining and milling waste, which belonged to a former Soviet nuclear fuel cycle factory. It is one of the largest depositories of this kind in Central and Eastern Europe. At present the non-decommissioned depository is used by SILMET a.s. for storage of its waste.

Competent Nuclear Authorities

The government has granted jurisdiction over nuclear energy activities to competent ministries while retaining jurisdiction over defence matters. It has also established conditions and rules for the licensing of activities related to ionising radiation (safety, radiation levels, etc.).

The Ministry of the Environment and the Ministry of Social Affairs are the two bodies with primary responsibility over nuclear and radiological issues. However, the governmental body with primary responsibility for radiation protection, and which has inspection and control rights, is the Estonian Radiation Protection Centre (ERPC). The Centre, founded in January 1996, reports to the Ministry of the Environment. It monitors compliance with official documents issued by the government and supervises all radiological activities including, *inter alia*:

- issue of licences;
- regulation of surrounding radiation levels and assessment of exposure;
- maintenance of the dose registry and radiation source registry;
- implementation of the obligations contained in international conventions and agreements;
- maintaining the system for early warning and notification of radiological emergencies;
- state supervision and inspection of radiation practices, including decommissioning practices.

The ERPC is also responsible for drafting legislation in the field of radiation protection and informing population on radiation safety issues.

The Ministry of Social Affairs is responsible for supervising the health of radiation workers and persons exposed for medical purposes.

By Order of 10 May 1995, the government formed a state-owned company, ALARA Ltd., which was set up in July 1995. This company, which reports to the Ministry of Economic Affairs, is the new operator of the Paldiski facilities. It is responsible for the general management of the site, development and implementation of projects related to radioactive waste management including installation decommissioning and waste storage and disposal, and general radioactive waste management at national level. In addition, it also subcontracts maintenance and construction work which does not involve radiation at the Paldiski site. Its operational, investment and administrative costs are funded on an annual basis from the state budget.

Legislation in Force

Radiation Act and Implementing Regulations

On 8 May 1997 the President of Estonia promulgated the Radiation Act,* which had been passed by the Parliament on 23 April 1997 (Official Gazette No. 37/38, 16 May 1997). This Act is the principal legal instrument in the field of radiation protection of workers, the public and the environment.

The Radiation Act is based on concepts, principles and dose limits stipulated in the International Basic Safety Standards (IAEA Safety Series No. 115-1) and the EU Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation. Accordingly, the basic principles incorporated in the Act are as follows:

- justification of practices;
- optimisation of protection and safety;
- limitation of individual doses;
- adoption of justified and optimised interventions;
- primary responsibility of the legal person (licensee); and
- authorisation of practices.

The Radiation Act defines the institutional framework for, and establishes the rules applicable to, the use of ionising radiation sources, the possession of radiation sources, the transport of radioactive materials, radioactive waste disposal and other activities which cause or may cause harm to health or to the environment. It also contains general provisions on radioactive waste management,

* The full text of this Act in English was reproduced in the Supplement to *Nuclear Law Bulletin* No. 61 (June 1998).

import and export of such waste and the prohibition against importing radioactive waste for final disposal purposes.

Although its prime concern is radiation protection, the Radiation Act also regulates certain nuclear safety issues, such as the use, management and transport of radioactive substances and radioactive waste. In this way the Act constitutes a legal basis for the implementation of safeguards and other activities for enforcing the provisions of international conventions on nuclear safety. The Act authorises the Parliament to make decisions concerning the commissioning of nuclear facilities. All other nuclear activities are to be covered by a specific law.

The Act provides for a system of licensing covering all activities using ionising radiation. The conditions which must be satisfied by the applicant in order to obtain a licence, such as safety requirements and levels of radiation emitted, are expressly set out in the Act. It authorises the Estonian Radiation Protection Centre to issue licences under the control of the Ministry of the Environment. The Act defines the owner of the licence for the activity involving ionising radiation or the user of a radiation source within the scope of his work as the party liable. Such person must guarantee radiation safety and must be able to repair any damage caused.

The Centre is also empowered under the Act to inspect activities and sources of radiation exposure and to maintain dose and source data registries. It is responsible for enforcing the provisions of the Act. Medical radiation exposure of patients is, on the other hand, regulated and supervised by the Ministry of Social Affairs.

The Radiation Act specifies the accepted dose limits for occupational exposure of employees working with radiation, for apprentices, for students and for pregnant women. These limits, as well as the dose limits of radiation exposure for the public, are directly based on those of the IAEA Basic Safety Standards.

Finally, the Act empowers the government and ministers to enact implementing regulations on exemption levels, dose limits, safety requirements for sources and facilities, maximum permissible levels, etc. Those implementing Decrees which have already been adopted are as follows:

- Decree No. 58 of the Minister of Environment on the Issue of Licences for Radiation Practices, adopted on 6 August 1997, establishes the duties of applicants and the ERPC in relation to the issue of licences for activities involving radiation. The ERPC is authorised to assess all such licence applications and to issue licences which will remain valid for up to five years. Model application forms and standard licence forms are annexed to this Decree.

- The Decree on the Registration of Radiation Sources, adopted by the Minister of the Environment on 6 November 1997, regulates the ERPC's procedure for registering radiation sources, establishes a national radiation source register and introduces detailed requirements for licensees upon their registration. The register is maintained by the ERPC.

- The Government Decree on Exemption Levels for Radiation Sources, adopted on 30 January 1998, establishes the maximum limits for amounts of radioactive substances and their specific activity below which activities involving such substances are exempted from the licensing requirements which normally apply to activities involving radiation. The Decree also provides for clearance levels for radioactive sources, materials and waste.

- The Decrees on Radiation Safety Factors, adopted by the Minister of the Environment on 25 March 1998, 8 September 1998 and 13 May 1999, enforce radiation values and tissue weighting factors, as set out by the International Commission on Radiological Protection, the Order on the verification of dose limits applicable to radiation workers and to the public, dose levels, maximum limits and guidelines for intervention in emergency exposure situations, and maximum limits for naturally occurring radionuclides in chronic exposure situations. All the basic principles, terms and levels established in the relevant IAEA Basic Safety Standards and EU Directives on transport are incorporated.

- The Government Decree on Safe Transport of Radioactive Materials, adopted on 4 August 1998, enacts rules for the safe transport of radioactive materials, including radioactive waste. Its dispositions harmonise existing local transport legislation with the requirements of IAEA technical regulations and EU Directives. The Decree contains general provisions on radiation safety and emergency response; activity and fissile material limits; requirements for packaging, marking, labelling, transport and storage in transit; administrative requirements; and documentation.

- The Decree establishing the Procedure for Management, Registration and Transfer of Radioactive Waste, adopted by the Minister of the Environment on 8 September 1998, imposes detailed requirements for radioactive waste management, governing, *inter alia*, storage and disposal of radioactive waste and radioactive waste management facilities. The Decree incorporates the requirements of the IAEA RADWASS Safety Standards to the extent appropriate for activities involving radioactive waste. It also sets out safety criteria for the siting, design and operation of waste management facilities.

- The Government Decree establishing a National Dose Register for Radiation Workers and laying down the Procedure for Accreditation of Radiation Workers and for the Issue of Certificates, adopted on 4 February 1999, determines the data necessary for the assessment of radiation doses resulting from occupational exposure. The procedure for accrediting radiation workers and for issuing certificates governs the control over the knowledge and professional qualifications of radiation workers with regard to the conditions and nature of the radiation activities concerned.

- The Decree establishing the Requirements concerning the Safe Use of Premises and Buildings Housing a Radiation Source and their Structure and the Requirements for the Safe Operation of the Radiation Source, adopted on 3 September 1999, establishes requirements for controlled and supervised areas and for the safe operation of radiation sources.

Act on Export, Import and Transit of Strategic Goods

This Act, adopted on 16 June 1999, states that the export, import and transit of strategic goods are subject to a licence. "Strategic goods" include, *inter alia*, nuclear technology, related materials and facilities, nuclear waste and uranium ores. Licences for carrying out these activities are issued by an Interdepartmental Commission set up for this purpose.

Other Relevant Legislation

In addition, there are certain provisions in other legal instruments which address, indirectly, issues of nuclear safety or radiation protection. Examples include:

- Article 123 of the Constitution of Estonia, which provides that international treaties ratified by the Parliament will supersede domestic legislation or other texts which conflict with such treaties;

- Article 53 of the Constitution, which stipulates the obligation to protect the public and the natural environment, and provides for the possibility of receiving compensation in the case of damage;

- Sections 26, 41 and 42 of the Act on the General Principles of the Civil Code, which entitle all persons to claim compensation for moral or material injury resulting from the violation of their rights. The person responsible for this violation is exclusively liable for such compensation; and

- Sections 48 and 52 of the Act on the Protection of Nature deal with the same rights and obligations as regards compensation in the context of environmental damage.

Draft Legislation and Regulations

In order both to harmonise Estonian domestic legislation with EU legislative requirements in the field of radiation protection and nuclear safety and to address the lacunae and existing insufficiencies in the Radiation Act, a revision of this text is under preparation. The amendments or additions aim to:

- establish more clearly the competence of the government, districts, municipalities, ministries and the ERPC in the field of radiation protection;

- establish more specifically the rights and responsibilities of the ERPC and operators in the field of radiation protection;

- set up a categorisation system for exposed workers;

- establish the duties, in respect of the protection of exposed workers, of registered medical practitioners, certified occupational health services and qualified experts, and to set up means of recognising their capacity.

Furthermore, the Ministry of Social Affairs is currently preparing a Decree establishing the Radiation Safety Requirements concerning Use of Non-ionising Radiation and Specification of Radiation Sources.

International Conventions

Nuclear Third Party Liability

- Estonia acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 9 May 1994 with the reservation that Estonia would not be liable for damage resulting from nuclear installations or nuclear material located on its territory if the operator is of foreign nationality. The Convention entered into force on 9 August 1994.

- Estonia acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 9 May 1994, and it entered into force on 9 August 1994.

Other International Conventions

- Estonia acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 7 January 1992 and it entered into force on 31 January 1992.

- Estonia acceded to the 1979 Convention on the Physical Protection of Nuclear Material on 9 May 1994 and it entered into force on 9 June 1994.

- Estonia acceded to the 1986 Convention on Early Notification of a Nuclear Accident on 9 May 1994 and it entered into force on 9 June 1994.

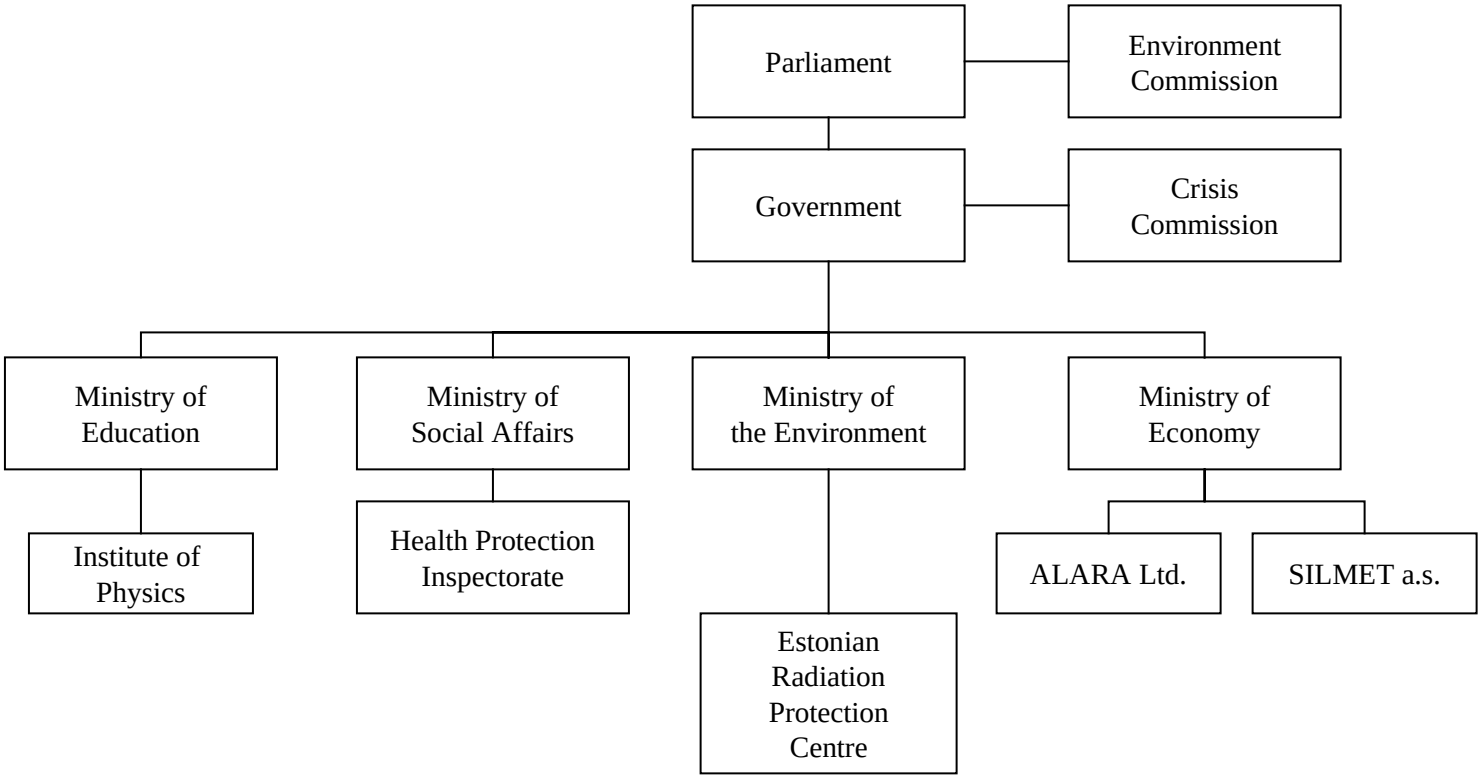
- Estonia acceded to the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 9 May 1994 and it entered into force on 9 June 1994.

- Estonia ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 13 August 1999.

Membership in Nuclear Organisations

Estonia is a member of the International Atomic Energy Agency (IAEA).

ESTONIA
Institutions in the Field of Nuclear Safety and Radiology



GEORGIA

Introduction

There are no nuclear power plants or reactors in Georgia at present. However, there is a pool-type (IRT-2000) nuclear research reactor (8 MWt) at the Institute of Physics of the Academy of Sciences in Mtskheta, which was commissioned in 1959 and shut down in 1988.

Competent Nuclear Authorities

Pursuant to the National Security Council's Recommendation, the President of Georgia issued, in December 1996, a Decree establishing an Interagency Working Group empowered to make the necessary proposals for the preparation of a legislative and regulatory framework to control advanced technology, radioactive materials, raw materials and specific products. The Interagency Working Group is comprised of representatives from various ministries and regularly meets to discuss developments in this field.

According to the Law on Export Control of Armaments, Military Equipment and Dual-Use Products of 28 April 1998, the executive bodies of Georgia in the field of export control are responsible for:

- ensuring direct implementation of state policy on export control;
- co-operating with the Standing Interagency Commission on Military-Technical Issues of the National Security Council, in defining lists of products subject to export control and submitting them to the President of Georgia for confirmation;
- controlling the import, export and transit of products subject to control through authorised bodies;
- providing expert review of applications for export;
- preventing illegal transfer of products subject to export control through customs.

Legislation in Force

There is no one fully comprehensive law on nuclear energy in force in Georgia at present. However, there are instruments governing specific activities connected to nuclear energy.

On 8 February 1995, the Parliament adopted Law No. 504 Prohibiting the Transit and Import of Toxic and Radioactive Waste.

The Law on Export Control of Armaments, Military Equipment and Dual-Use Products was adopted on 28 April 1998 and entered into force on 1 September 1998. This Law expressly states that one of the main principles governing export regulation in Georgia is compliance with international

obligations regarding the non-proliferation of weapons of mass destruction. The following categories of items are subject to export control: 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, including 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 procedure to obtain an export licence, and provides that nuclear materials can only be exported if the importing country offers special guarantees. Provision is made for the adoption of further legislative acts to implement this Law.

Finally, pursuant to Article 6 of the Constitution of Georgia, international treaties or agreements concluded with and by Georgia, if they do not contradict the Constitution of Georgia, take precedence over domestic legislation.

Draft Legislation and Regulations

The Law on Export Control of Armaments, Military Equipment and Dual-Use Products provides for the adoption of a series of legislative instruments:

- a Law on Amendments of the Criminal Code of Georgia;
- a Law on Amendments of the Criminal Code of Procedure of Georgia;
- a Law on Amendments of the Code of Administrative Offences of Georgia; and
- a Presidential Decree on the List of Products subject to Export Control.

International Conventions

Civil Liability for Nuclear Damage

Georgia is not a Party to any of the international conventions governing civil liability for nuclear damage.

Other International Conventions

- Georgia acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 7 March 1994;
- Georgia signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1996.

Membership in Nuclear Organisations

Georgia is a member of the International Atomic Energy Agency (IAEA).

HUNGARY

Introduction

At present, there is one nuclear power station in Hungary. It is located at Paks on the Danube and has four units with a total capacity of 1 840 MWe. It generates approximately 40% of the electricity in Hungary.

The *Püspökszilagy* waste management and disposal centre is the only facility in Hungary which provides final disposal for low and intermediate level waste produced by industry, medicine, research etc. The repository was opened by the Hungarian Atomic Energy Commission (HAEC) in 1976 and is now operated by the Public Agency for Radioactive Waste Management. With storage space in its spent fuel pools running low, the Paks plant awarded a contract for the construction of a dry storage system. The HAEC issued a licence in February 1997 for the commissioning of this facility. In 1993, a national project was launched to select a site for the disposal of low and intermediate level waste from the nuclear power plant.

The Hungarian Power Companies Ltd. (*Magyar Villamos Müvek Reszvenytarsàg – MVM Rt.*) is the Hungarian national utility, and is owner of the Paks nuclear power plant.

Competent Nuclear Authorities

Under the 1996 Act on Atomic Energy, the authority to implement state responsibilities in the field of the safe use of nuclear energy is vested in the Hungarian Atomic Energy Commission (*Országos Atamenergia Bizottság*) (HAEC) and the Hungarian Atomic Energy Authority (*Országos Atomenergia Hivatal*) (HAEA), as well as in the ministers concerned. The HAEC addresses the development of policy as well as overall co-ordination and monitoring of activities in the nuclear field. The President of the HAEC is appointed by the Prime Minister, and is a member of the government. The members of the HAEC are senior officials of the ministries and central public administration bodies performing regulatory tasks pursuant to the Act. Thus, they are appointed by the Ministers of the Interior, Agriculture and Regional Development, Defence, Economic Affairs, Environmental Protection, Transportation, Communication and Water Management, Foreign Affairs, Education, Health, Finance and the Minister directing the National Security Agencies, the President of the Hungarian Mining Authority and the President of the Hungarian Academy of Sciences, in agreement with HAEC's President and the Director-General of the HAEA. The President of the HAEC presents an annual report to the National Assembly on the safety of the use of nuclear energy.

The HAEA plays a central role in the regulation of the use of atomic energy in Hungary. Under the Act, it regulates certain activities, such as the licensing of nuclear facilities, and co-ordinates the regulation of other activities through ministries and administrative bodies as specified under the Act and regulations. Radiation safety, however, is under the responsibility of the Minister of Health, in keeping with the traditional system of separation of responsibilities in the field.

The principal responsibility of the HAEA is to fulfil regulatory duties in connection with the peaceful uses of atomic energy, with special emphasis on the safety of nuclear materials and facilities, and to co-ordinate and provide information related to such matters. The Director-General and the Deputies of the HAEA are appointed by the Prime Minister. The government exercises supervision over the HAEA through the President of the HAEC. The HAEA contains two directorates: the Nuclear Safety Directorate and the General Nuclear Directorate.

The responsibilities of the HAEA and the HAEC have been specified in Government Decree No. 87/1997 on the Duties and Scope of Authority of the HAEC and on the Scope of Duty and Authority, and Jurisdiction of Imposing Penalties of the HAEA. It implements the provisions of the Atomic Energy Act, defining the statutes of the HAEC and the HAEA, and provides them with regulatory independence.

To ensure proper scientific support for the HAEA and the HAEC, a scientific board, consisting of up to 12 qualified experts, gives advice on the most recent technical developments related to nuclear safety, radiation protection and nuclear emergency preparedness.

The Nuclear Safety Directorate of the HAEA is the nuclear safety regulatory body which makes decisions on licensing, inspection and enforcement matters. The Director-General of the HAEA is the final decision maker in the event of an appeal against a resolution of this Directorate in accordance with Government Decree No. 108/1997 on the Procedures of the HAEA in Nuclear Safety Regulatory Matters, which defines the responsibilities of the Directorate. A permit from the Nuclear Safety Directorate is required for siting, construction and enlargement, commissioning, operation, modification, permanent shutdown and decommissioning of nuclear facilities. Apart from issuing standard and regulatory permits, the Directorate is also responsible for technical radiation protection of nuclear equipment and is entitled to conduct quality assurance inspections at licensees' and suppliers' premises.

The Nuclear Safety Directorate is composed of several departments, each one being responsible for a specific domain; for example, the Department for Technical Support established in 1995 is designed to improve assessment work by the use of detailed technical analysis.

The General Nuclear Directorate of the HAEA, through its Department of Nuclear and Radioactive Materials, runs both the State System of Accountancy and Control of nuclear materials as well as the Central Registry of radioactive materials, which keeps track of these materials on an ongoing basis, from their production to their disposal as radioactive waste. In addition to this Department, the General Nuclear Directorate comprises a Department of External Relations responsible for international organisations and international co-operation, and two divisions responsible for research and development and governmental relations, respectively.

The following Ministers have particular responsibilities in the nuclear energy field under the Atomic Energy Act.

The Minister of Health is responsible for licensing and control of ownership, use, production, storage, and distribution of radioactive materials, the licensing and control of ownership and use of equipment generating ionising radiation. Of particular importance is the Minister's power to licence and monitor radioactive waste disposal facilities and to supervise the radiation protection service and matters related to radiation hygiene.

The Minister of the Interior, through the offices of the National Police Force and the Fire Protection and Civil Defence Service, is responsible for elements associated with public order and

national security, fire protection, physical protection, security, civil defence and nuclear emergency management.

The Minister of Agriculture and Regional Development, through the offices of the Animal Health and Food Control Stations, is responsible for uses of atomic energy relating to food, plant and animal hygiene, as well as soil protection.

The Minister of Economic Affairs, through the Hungarian Geological Survey, deals with licences relating to geology and is generally responsible for the inspection of radioactivity of raw materials used or imported for the production of building materials.

The Minister of Transportation, Communication and Water Management is responsible for matters associated with water utilisation, water base protection and mitigation of water pollution, as well as aspects related to traffic and transport.

The Minister of Environmental Protection is competent in the fields of environmental protection, nature conservation and water quality protection.

The Minister of Defence is responsible for the control of handling of radioactive materials in defence matters and for the construction, operation and closing down of military facilities and equipment which fall within the scope of the Act. The Minister is also responsible for special training of personnel and of the armed forces for nuclear emergency preparedness.

The Minister of Education is responsible for integrating into the National Master Curriculum the requirement to provide education on the scientific, technical and radiation protection aspects of the application of atomic energy. The Minister also regulates higher and postgraduate education in the field of atomic energy in co-operation with the relevant professional institutions and ministers.

The Atomic Energy Act requires that the safe application of atomic energy be promoted by the co-ordination of research activities. The HAEA has the task of evaluating and co-ordinating these activities. The Nuclear Safety Directorate of the HAEA maintains close contact with organisations which provide technical support, such as the Atomic Energy Research Institute and the Institute for Electric Power Research Co. In the field of radiation safety, the activities of the State Public Health and Medical Officers Service is supported by the F.-J. Curie National Research Institute for Radiobiology and Radiohygiene.

Pursuant to Government Decree No. 2414/1997, the Director-General of the HAEA established the Public Agency for Radioactive Waste Management (PURAM) which is responsible for the collection, treatment, transport, storage and disposal of radioactive waste, both originating from small-scale producers in the fields of medicine, industry and research, and originating from Paks NPP.

Legislation in Force

Atomic Energy Act

On 10 December 1996, the Hungarian Parliament adopted the Atomic Energy Act No. CXVI,* which replaced the Atomic Energy Act of 1980. The 1996 Act, while preserving the essential elements

* The English translation of the complete text of this Act was reproduced in the Supplement to *Nuclear Law Bulletin* No. 60 (December 1997).

of the 1980 Act, aims to conform to recent international rules and recommendations as issued by the IAEA and the OECD/Nuclear Energy Agency.

The legal regime applicable to nuclear activities in Hungary is established in the Atomic Energy Act. This legislation entered into force on 1 June 1997, with the exception of Sections 62-64 (concerning the Central Nuclear Financial Fund), which entered into force on 1 January 1998. As with the 1980 Act, different ministries and authorities are entrusted with the implementation of the Act in their respective fields of jurisdiction by means of separate regulations. Until new regulations are brought into effect, the existing regulations continue to apply.

The Atomic Energy Act applies to the peaceful uses of atomic energy and its associated rights and obligations, including the protection of humans and the living and non-living environment against the harmful effects of ionising radiation of natural and artificial origin. It does not apply to activities related to radioactive materials, neither does it apply to equipment which, due to the character and extent of the ionising radiation released, do not qualify as hazardous to human life or health or to the environment.

As regards nuclear third party liability, Hungary was the first Eastern European State to accede to the Vienna Convention on Civil Liability for Nuclear Damage and the Joint Protocol on the Application of the Vienna Convention and the Paris Convention. The Atomic Energy Act implements these international obligations at domestic level. Thus, there is strict liability, channelled to the licensee (operator) of the nuclear facility, for all nuclear damage, except as provided for by the Act. In the case of international carriage, the moment when liability is transferred between operators is required to be stated in the contract for shipment. The exemptions are limited to external causes (armed conflict, hostilities, civil war, insurrection, or a grave natural disaster of an exceptional character) or to damage suffered by an injured party which was caused by the injured party's gross negligence, or resulted from wilful conduct of the injured party.

The liability of the licensee is limited to 100 million Special Drawing Rights (SDR) for each nuclear accident arising at a facility, and SDR 5 million for nuclear accidents arising during the transport or storage of nuclear fuel. Nuclear damage in excess of this will be compensated by the State, provided the total amount does not exceed SDR 300 million. Payment of compensation will be effected in Hungarian currency, based on the official exchange rate with the SDR.

The licensee is obliged to provide for insurance or other financial security up to the liability ceiling specified in the Atomic Energy Act. This ceiling does not include interest and legal costs associated with the nuclear damage. If the amount available for compensation is insufficient to satisfy the sums to which the injured parties are entitled, then the amount due to each of them will be reduced proportionately. The Municipal Court of Budapest has exclusive jurisdiction to judge compensation claims under the Act.

As regards insurance of nuclear liability, the 11 Hungarian insurers representing the vast majority of the Hungarian insurance market's non-life capacity established at the end of 1996 a Nuclear Insurance Pool, the so-called "Hungarian Atomic Pool". The Pool is based on the fundamental principles common to all nuclear pools and organised and managed by the Hungarian Insurance Co., the largest in its field. The Pool provides third party liability cover for the Paks NPP in accordance with the Atomic Energy Act. Property and transport insurance are also provided by the Pool.

As required by the Act on Atomic Energy, a Central Nuclear Financial Fund has been established (since 1 January 1998) to finance radioactive waste management. The Fund is managed by the HAEA as a separate state fund (pursuant to Act No. XXXVIII of 1992 on Public Finance)

exclusively destined to finance the construction and operation of facilities for the final disposal of radioactive waste, the interim storage and final disposal of spent fuel, and the decommissioning of nuclear facilities. Payments into the Fund by licensees of nuclear facilities is determined in such a way that the Fund fully covers all the costs arising from waste management, both from the operation of the facility and its decommissioning. In the case of a nuclear power plant, payments made by the licensees to the Fund are taken into account when pricing electricity.

Regulations implementing the Act on Atomic Energy

Forty-five regulations have been, or are in the process of being, adopted to give effect to the requirements of the Act on Atomic Energy. The following regulations in particular were issued:

- Government Decree No. 87/1997 concerns the duties and scope of authority of the HAEC and the scope of duty and authority, and jurisdiction for imposing penalties of the HAEA and took effect as of 1 June 1997. It implements the provisions of the Atomic Energy Act related to the definition of the statutes of the HAEC and the HAEA and provides them with regulatory independence.

- Government Decree No. 108/1997 on the Procedures of the HAEA in Nuclear Safety Regulatory Matters, which entered into force on 25 June 1997, defines the responsibilities of the HAEA Nuclear Safety Directorate and describes the procedure applying to the safety analysis report. As regards the licensing procedure, the Decree provides that, for the establishment of a new NPP or new units within an existing plant, as well as to acquire ownership of an operating NPP or any transfer of the right of operation, Parliament's consent is required. The Preliminary Safety Analysis Report serves as the basis of the application for a construction licence and the Final Safety Analysis Report is necessary for an operating licence. The Decree provides that the Final Safety Analysis Report shall be updated annually, so that it can serve as an authentic and continuous basis for the assessment of the safety of the installation throughout its entire lifetime. The HAEA performs a nuclear safety assessment within ten years of the first day of validity of the first operating licence issued and repeats this assessment one year before the deadline set for the Authority's assessment. The Periodic Safety Report containing the results of this assessment must be submitted to the Authority. In the Periodic Safety Report, the licensee presents the factors determining the operating risk of the installation compared to that contained in the Final Safety Analysis Report, to serve as a basis for the operating licence. If necessary, the licensee carries out safety improvements to eliminate or moderate risk factors. The licensee also proposes a programme of safety improvement measures which are subject to fixed deadlines, and submits this to the Authority as part of the report. The Authority issues a resolution, based on its own safety assessment and the Periodic Safety Report of the Licensee, in which it lays down the conditions for future operation.

- Government Decree No. 121/1997 requires the prior approval of the HAEA in the general licensing procedure for internationally controlled goods and technologies carried out by the Export Control Office of the Ministry of Economic Affairs. This is to ensure compliance with Hungary's international obligations as a Party to the Treaty on the Non-Proliferation of Nuclear Weapons.

- Government Decision No. 2414/1997 authorises the Director-General of the HAEA to establish the Public Agency for Radioactive Waste Management (PURAM). The tasks

associated with the interim storage and final disposal of radwaste and spent fuel are performed by PURAM through selected contractors under the supervision of the HAEA.

- Ordinance No. 25/1997 of the Minister of Industry, Trade and Tourism provides that the HAEA is made responsible for the Central Registry of radioactive material. Similarly, under Ordinance No. 39/1997 of that Minister, the HAEA is responsible for the State System of Accountancy and Control of nuclear material.

- Ordinance No. 13/1997 of 3 September 1997 of the Minister of Transportation, Communication and Water Management contains the rules for the safe transport by rail of spent nuclear fuel, and Ordinance No. 14/1997 of the same date and of the same Minister specifies the conditions applicable to all modes of transport of radioactive substances.

- Ordinance No. 47/1997 of 26 August 1997 of the Minister of Internal Affairs sets out the tasks of the Police Force in connection with the application of atomic energy.

Until the new regulations enter into force, regulations issued under the 1980 Atomic Energy Act continue to apply, such as Ordinance No. 7/1988 of 20 July 1988 of the Minister of Health, containing the health requirements and radiation protection rules applicable to all activities involving the use of nuclear energy in order to protect workers and the general public against the harmful effects of ionising radiation. In the near future, this Ordinance will be replaced by a new regulation implementing the latest recommendations of the International Commission for Radiation Protection and the basic standards recommended by competent intergovernmental organisations.

Draft Legislation and Regulations

Further implementing regulations under the 1996 Atomic Energy Act are under preparation in the fields of, *inter alia*, nuclear emergency preparedness, physical protection and environmental protection.

International Conventions

Nuclear Third Party Liability

- Hungary acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 28 July 1989 and it entered into force on 28 October 1989. Hungary also signed the Protocol to Amend the Vienna Convention on 29 September 1997.

- Hungary acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 26 March 1990 and it entered into force on 27 April 1992.

Other International Conventions

- Hungary ratified the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 8 June 1969 and it entered into force on the same date.

- Hungary ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 21 October 1963.

- Hungary ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 27 May 1969 and it entered into force on 5 March 1970.

- Hungary ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 13 August 1971 and it entered into force on 18 May 1972.

- Hungary ratified the 1979 Convention on the Physical Protection of Nuclear Material on 4 May 1984 and it entered into force on 8 February 1987.

- Hungary ratified the 1986 Convention on Early Notification of a Nuclear Accident on 10 March 1987 and it entered into force on 10 April 1987.

- Hungary ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 10 March 1987 and it entered into force on 10 April 1987.

- Hungary ratified the 1994 Convention on Nuclear Safety on 18 March 1996 and it entered into force on 24 October 1996.

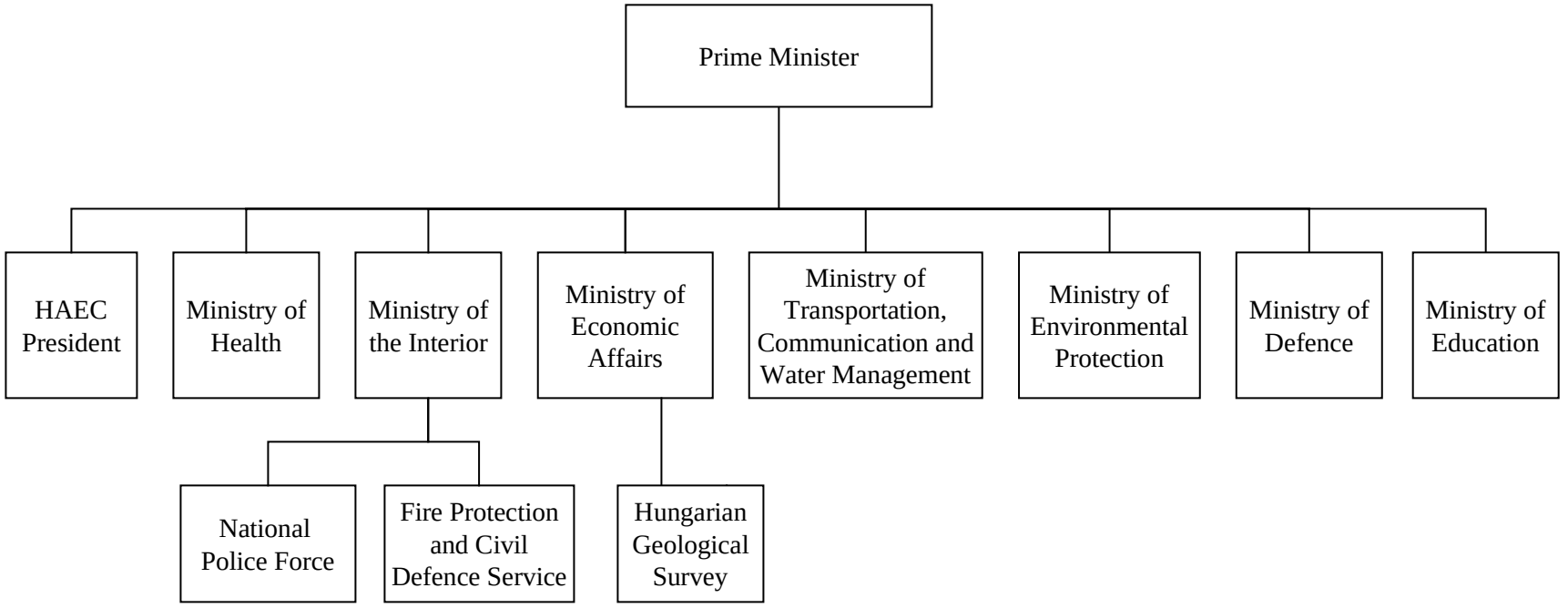
- Hungary ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 13 July 1999.

- Hungary ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 2 June 1998.

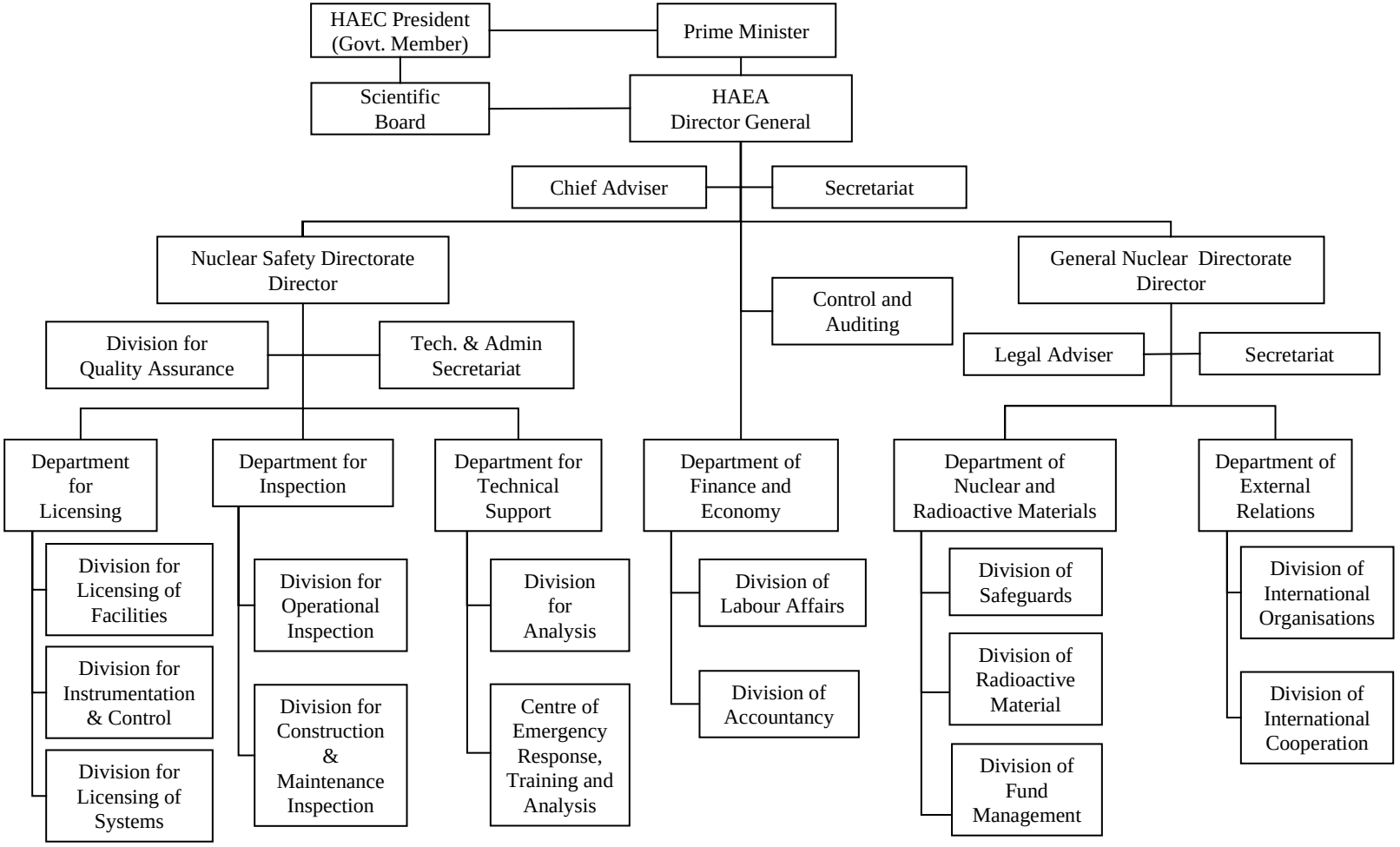
Membership in Nuclear Organisations

Hungary is a member of the International Atomic Energy Agency (IAEA) and it joined the OECD Nuclear Energy Agency in 1996. The Paks Nuclear Power Plant Ltd. is a member of the World Association of Nuclear Operators (WANO). Hungary is a member of the Nuclear Suppliers Group and the Zangger Committee.

HUNGARY
Governmental Authorities Competent in the Nuclear Energy Field



HUNGARY
Atomic Energy Commission (HAEC) and Atomic Energy Authority (HAEA)



KAZAKHSTAN

Introduction

Kazakhstan has a uranium ore extraction and ore milling industry, including Tselinny mine, Ulba metallurgical factory, Irtysh chemical-metallurgical factory, two facilities for the production of uranium oxide located in Aktau and Stepnogorsk, and one facility for the production of fuel pellets in Ust-Kamenogorsk.

A fast breeder reactor, 135 MWe BN-350, at Aktau was used as a water desalination plant, as well as for the production of electricity, for over 25 years. Its operations have now ceased and the decommissioning procedure of the reactor has started pursuant to Governmental Decree No. 456 of 22 April 1990.

In addition, Kazakhstan operates four research reactors (three in Kurchatov and one in Almaty) for nuclear safety tests. Research is also conducted at the site of the nuclear research centre at Semipalatinsk, previously a Soviet Union site for nuclear tests. One of this country's main concerns is the decontamination and rehabilitation of sites polluted by previous military and civilian nuclear activities.

The government adopted a resolution in October 1995 to further develop nuclear energy in Kazakhstan and to build a nuclear power plant.

Competent Nuclear Authorities

The Kazakhstan Atomic Energy Committee (KAEC) shares responsibility with several ministries for activities in the field of nuclear energy. The KAEC, formerly called the Kazakhstan Atomic Energy Agency (KAEA), was set up by Presidential Decree in 1992 as a separate legal entity with responsibility for implementing national policy and regulating all activities in the nuclear field. Between 1996 and 1999, it was established as a separate department under the authority of the Ministry of Science; since October 1999, when its change in name became effective, it operates as a separate department under the aegis of the Ministry of Energy, Trade and Industry.

The government has empowered the KAEC to carry out the following tasks:

- license activities involving the use of atomic energy and ensure compliance with licence conditions;
- establish rules and guidelines, such as approving the list of documents necessary for engaging in an activity involving the use of atomic energy;
- analyse documentation relating to the safety of nuclear installations;

- determine the qualifications necessary for personnel involved in the use of atomic energy and ensure their compliance;

- carry out the accounting, control and physical protection of nuclear materials during their storage, transport and use, and tasks related to the regime for the non-proliferation of nuclear weapons, in conjunction with the IAEA and other international organisations involved in the peaceful use of nuclear energy;

- control the export and import of nuclear materials and technology;

- ensure that emergency preparedness procedures are established and followed in the case of nuclear accidents and that notification is given to international organisations and supervisory bodies in other countries in the case of a nuclear accident;

- carry out scientific research relevant to its regulatory and supervisory activities and participate in activities involving international co-operation in this area;

- prepare legislative proposals on the safe use of atomic energy and the non-proliferation of nuclear weapons;

- inspect nuclear installations and impose penalties for violations of operating licence conditions;

- ensure the safe management of nuclear materials and radioactive waste (including their collection, reprocessing, transport and storage); and

- determine the conditions for implementing quality assurance programmes and ensuring their application during the construction and operation of installations.

The Ministry of Natural Resources and Environmental Protection is responsible for the protection of the environment against radioactive contamination. It co-ordinates the network which monitors the level of radiation in Kazakhstan and carries out environmental impact assessments of various projects.

The Health Agency, within the Ministry of Education, Culture and Health provides medical services necessary for the protection of the public and employees at risk. It is responsible for regulating and inspecting the manufacture, use, storage, disposal and transport of nuclear materials and radioactive sources and has the authority to prohibit unauthorised use thereof.

The Ministry of Science is responsible for the co-ordination of all scientific activities in the field of nuclear energy. It also verifies the scientific soundness of technical projects.

The Ministry of Internal Affairs verifies the fire safety and physical protection standards of all facilities which use nuclear energy or in which radioactive waste is managed, and ensures compliance with the rules governing the transportation of nuclear materials and radioactive substances.

The control of radiation doses and levels of radionuclides in soil, water, food and other products is carried out by laboratories attached to the Ministry of Energy, Trade and Industry, the Ministry of Agriculture, and other research institutes.

Finally, the Agency on Emergency Situations is responsible for monitoring compliance with measures on the prevention of emergency situations and sets out measures to protect the public against radiation exposure in the event of such situations. The Department of Safety of Industry and Mines, within this Agency on Emergency Situations, is responsible for regulating the use of industrial equipment.

Legislation in Force

Law on the Peaceful Use of Atomic Energy

On 14 April 1997, the Law on the Peaceful Use of Atomic Energy (Atomic Energy Law) was adopted and entered into force. This framework Act defines nuclear energy concepts, sets out the legal framework governing the peaceful uses of nuclear energy, the protection of public health and the environment, the non-proliferation of nuclear weapons and nuclear and radiation safety.

The Law authorises the government to designate those state bodies which are to implement and ensure compliance with the national regulation of nuclear and radiation safety and the licensing of various types of nuclear activities. These bodies are responsible for:

- initiating legislative proposals on the development or amendment of nuclear legislation;
- developing and enforcing rules made pursuant to the Atomic Energy Law;
- the issue of licenses for nuclear activities and compliance with licence conditions;
- conducting inspections and exercising radiation protection control;
- accounting and control of nuclear materials and ionising radiation sources;
- obtaining nuclear energy related information from all businesses, organisations or persons involved in nuclear activities;
- informing the competent authorities of violations of nuclear legislation; and
- co-operating with foreign regulatory and supervisory bodies and international organisations on issues of nuclear safety, non-proliferation of nuclear weapons and physical protection of nuclear materials.

The activities covered by the Atomic Energy Act include the siting, design, construction, commissioning, operation and decommissioning of nuclear installations, safety upgrades, uranium mining and processing, use of radioactive substances and ionising radiation sources including the transport, storage and disposal of such sources, accounting and control of nuclear materials, export and import of nuclear materials, technology and equipment, and expert training. These activities are subject to licensing and radiation protection requirements destined to protect the public and the environment.

The Atomic Energy Act refers also to radioactive waste management, physical protection of nuclear materials and installations and accounting and control of ionising radiation sources. The

provisions on the transportation, export and import of nuclear materials, technology and equipment are widely defined, with specific regulations to provide further guidance in these areas.

The rules on third party liability for nuclear damage are included within the Act, which provides that the operator is obliged to have sufficient financial resources to ensure compliance with safety standards and sufficient means to compensate personal injury, property damage and environmental damage. However, neither a provision on mandatory insurance nor strict and exclusive liability of the nuclear operator are included. The Act provides for a right of compensation for the risk assumed by citizens, public associations and organisations as a result of a nuclear accident, or for radiation exposures beyond accepted limits. This concept of "compensation for risk" is also mentioned in the Law on Radiation Safety of the Population: it is not compensation *per se*, but rather a premium for incurring a certain risk.

Law on Radiation Safety of the Population

The Law on Radiation Safety of the Public, adopted by the Parliament and signed by the President on 23 April 1998, reflects the main aspects of national policy regarding radiation safety of the public. This Law aims to protect the public and the environment from the harmful effects of ionising radiation, and, in particular, to protect the interests of present and future generations. It regulates radiation safety though legal, administrative, engineering, technical and health measures, implementing the principles of justification, optimisation and limitation of exposure doses. The Law sets out the rights of individuals in the field of radiation safety, the duties of users of ionising radiation sources and the responsibilities of the competent state authorities; it provides details on annual dose limits for radiation workers and for the public and contains provisions governing emergency situations, quality assurance, accountability of nuclear materials and information.

Law on Export Control of Armaments

The Law on Export Control of Armaments, Military Equipment and Dual-Use Products of 16 June 1996 is intended to regulate the export of nuclear materials of a sensitive nature. The regulations aim to satisfy IAEA requirements with respect to nuclear non-proliferation and international security. The system set up by the Law for licensing, approval, notification and control ensures that exported nuclear-related items are not diverted to non-peaceful purposes.

Regulations in the field of nuclear energy

Regulations of the former Atomic Energy Agency and the Atomic Energy Committee

The former Atomic Energy Agency, now called the Atomic Energy Committee, prepared several regulations providing guidance on the use of nuclear energy.

The first Regulation, adopted in 1994, establishes conditions for the physical protection of nuclear materials on the site of nuclear installations and during transport, and assigns responsibilities to different public bodies and to operators in the field of physical protection.

All government agencies with responsibilities for nuclear installations must submit plans for implementing physical protection measures, in accordance with the provisions of the Regulation. In addition, operators must submit their internal physical protection plans for approval by the Committee.

The second Regulation, on the Use of Atomic Energy, Radioactive Waste and Spent Nuclear Fuel Management, was adopted by the government on 11 April 1994 (Resolution No. 364). It sets out the responsibilities of public authorities with jurisdiction in the nuclear field, as well as conditions for licensing, radiation protection, and accounting and control of nuclear materials.

The Atomic Energy Agency also adopted a Regulation on the Safe Transport of Radioactive Materials on 1 March 1999. This Regulation takes into account IAEA Standards in this field.

Lastly, on 12 October 1999, a Regulation on the Organisation of Measures to Eliminate the Consequences of Emergency Situations during Transport of Radioactive Materials by Railway was adopted.

Other Decrees in the field of nuclear energy

The government adopted Decree No. 100 on Licensing of Activities connected with the Use of Atomic Energy on 12 February 1998.

Decree No. 183 on Export and Import of Nuclear Materials, Technologies, Equipment, Installations, Special Non-nuclear Materials, Equipment, Materials and Technologies of Double Use, Sources of Radioactive and Isotope Products was adopted on 9 March 1993.

Draft Legislation and Regulations

The draft Law on Radioactive Waste Management aims to provide a legislative framework for the safe management of radioactive waste and to provide protection for the public against the harmful effects of exposure to radioactive waste. It defines radioactive waste management as all types of activities connected with the collection, processing, re-processing, transport, storage and disposal of radioactive waste. It lays down rules on licensing, safety and physical protection during radioactive waste management, including provisions on the financing thereof, and the responsibilities of the government and local executive bodies. The management of radioactive waste is to be carried out by the state body on Radioactive Waste Management.

International Conventions

Nuclear Third Party Liability

Kazakhstan is not a Party to any of the international conventions governing third party liability for nuclear damage.

Other International Conventions

- Kazakhstan acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 14 February 1994 and it entered into force on the same date.

- Kazakhstan signed the 1994 Convention on Nuclear Safety on 20 September 1996.

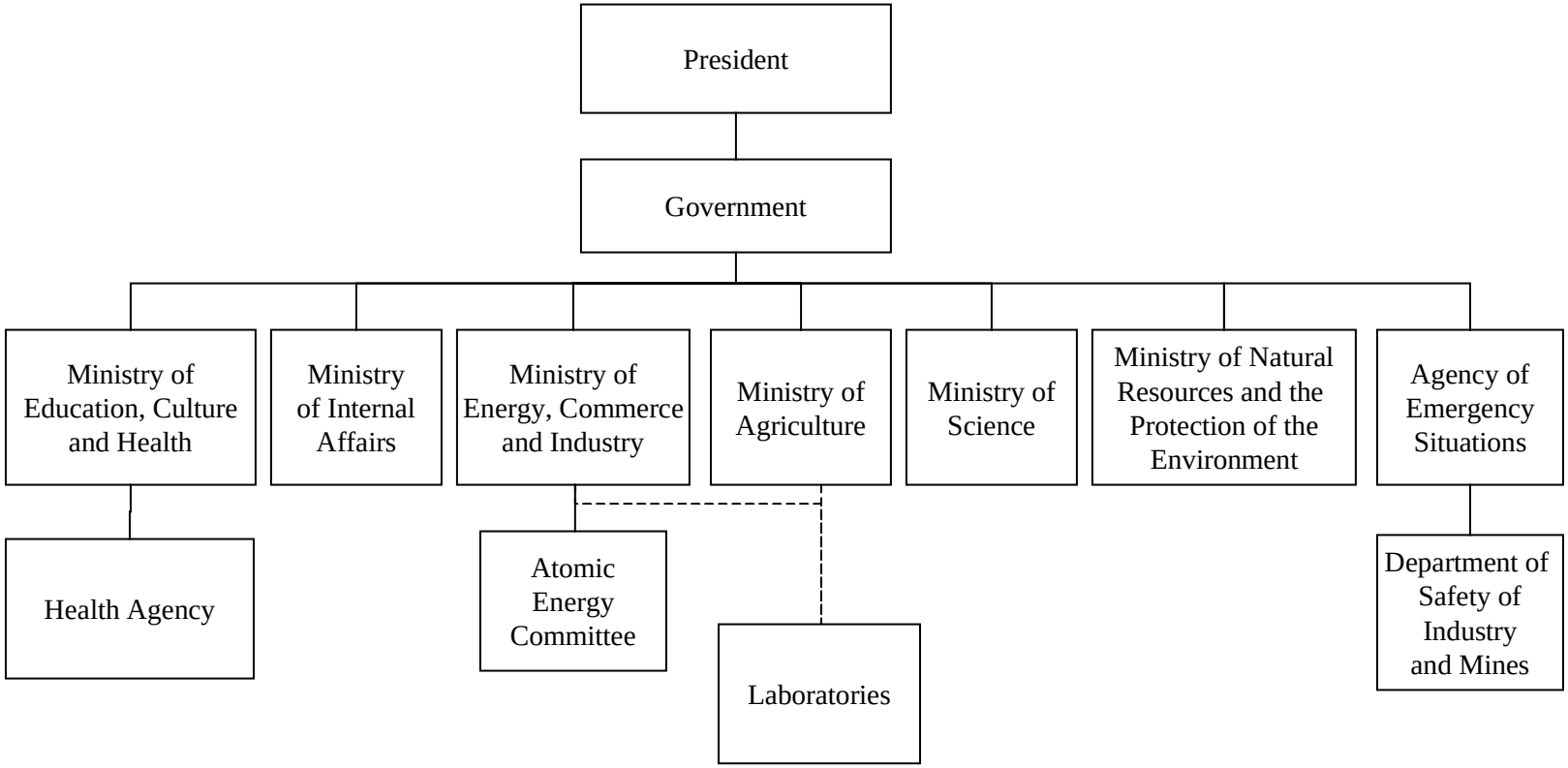
- Kazakhstan signed the 1996 Comprehensive Nuclear Test Ban Treaty on 30 September 1996.

- Kazakhstan signed the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 29 September 1997.

Membership in Nuclear Organisations

Kazakhstan is a member of the International Atomic Energy Agency (IAEA). The Mangyshlak Atomic Energy Complex is a member of the World Association of Nuclear Operators (WANO).

KAZAKHSTAN
Competent Nuclear Authorities



LATVIA

Introduction

There are no nuclear power plants or nuclear fuel cycle facilities in Latvia. There is, however, a 5 MWt IRT-type research reactor at Salaspils in the Riga region, which was shut down in June 1998.

Competent Nuclear Authorities

The Ministry of Environmental Protection and Regional Development (MEPRD) and the Ministry of Welfare are the two regulatory bodies with jurisdiction in the nuclear field.

The MEPRD is responsible for the regulation and supervision of all uses of ionising radiation sources (with the exception of applications in the medical field) and for international co-operation in the nuclear field.

The mandate of the Radiation and Nuclear Safety Inspectorate, within the Environmental State Inspectorate which is, in turn, part of the above Ministry, is as follows:

- to license activities involving the use of ionising radiation;
- to monitor compliance with nuclear safety regulations and standards;
- to authorise the transport of nuclear and radioactive materials;
- to establish a state system of accounting and control of nuclear materials; and
- to organise and update the state database for radioactive materials and ionising radiation sources.

The Environmental Data Centre, which is also under the aegis of the MEPRD, is responsible for the early warning system in the event of a nuclear accident and for laboratory measurements and data processing. The Centre consists of a Data Processing Department, which is responsible for setting up the Unified Environmental Data Information System, and a Laboratory Department, which is in charge of establishing the Latvian Environmental Quality Testing Laboratory System in conformity with EU requirements.

Latvia has also created a radioactive waste management organisation, the state enterprise *Radons*, which is entirely state-owned and reports to the MEPRD. *Radons* is responsible for collecting all radioactive waste from its site of origin, processing it and ensuring its safe disposal. It also carries out dosimetric measurements and radiological investigations at its workplaces and controlled areas.

Radons is fully financed by the state and receives supplementary funding from the import tax for radioactive substances.

The Environmental Protection Fund of the MEPRD is responsible for collecting import duty on radioactive substances. Its main task is to manage the financial resources made available to it for environmental purposes. It has its own management, but policy decisions are made by the Board, which is headed by the MEPRD and has representatives from the Ministry and certain nominated institutions.

With respect to the strategic plan of the Cabinet of Ministers, "Commencement of dismantling of the Salaspils Nuclear Research Reactor in 2000 and establishment of a single radiation safety centre", the MEPRD, together with the Ministry of Welfare has prepared a project for a Radiation Safety Centre, which should be established in 2000.

The Ministry of Welfare is responsible for radiation protection in the medical field (diagnostics, radiation applications, accelerators, etc.). The Environmental Health Centre and the Radiology Centre are under the authority of this Ministry. The Radiology Centre is responsible, *inter alia*, for the licensing of X-ray applications in medicine and for dosimetry in general. The Latvian Development Agency (*Latvijas Athistibas Agentura*) is responsible for licensing export, import and transit of strategic materials.

The Ministry of the Interior and the Ministry of Economy are responsible for the border control system. The Ministry of the Interior is also responsible for the assessment of physical protection and for the management of the emergency preparedness system.

Legislation in Force

Radiation Protection and Nuclear Safety Act

The Act on Radiation Protection and Nuclear Safety,* which was adopted on 1 December 1994 and entered into force on 1 January 1995, governs all activities involving radioactive or nuclear materials and all sources of ionising radiation.

The Act establishes the basic principles of radiation protection and nuclear safety (justification, optimisation and limitation) and also contains provisions on nuclear third party liability. It establishes a two-pronged system of licensing, differentiating between licences for commercial operations and permits for non-commercial operations.

Operators of nuclear installations must provide all necessary information to the Radiation and Nuclear Safety Inspectorate showing that safety measures are, in fact, being applied. The Inspectorate may then issue licences or permits. It furthermore may at any time withdraw or revoke licences or permits if radiation protection or nuclear safety requirements are not met.

The provisions of the Act on Radiation Protection and Nuclear Safety concerning nuclear third party liability are consistent with the Vienna Convention regime:

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* The full text in English of the Radiation Protection Act was reproduced in the Supplement to Nuclear Law Bulletin No. 55 (June 1995).

- the maximum amount of liability for nuclear damage is set at the minimum amount provided by the Vienna Convention [5 million US dollars (USD), 1963 value];

- the operator is exclusively liable for nuclear damage originating in his installation (strict liability); and

- the major portion of compensation will be provided by the state, while the Nuclear Research Centre (operator of the Salaspils research reactor) and the state enterprise *Radons* (operator of the radioactive waste repository) will cover liability up to 1 million Latvian lats (LVL) [1 Special Drawing Right (SDR) is the equivalent of LVL 0.7986] through an insurance system.

The Act on Radiation Protection and Nuclear Safety was amended in 1998. These amendments include the introduction of a new term in Section 1, entitled "Undeclared Sources of Ionising Radiation" and changes to Section 12 on Metrology and Methodology concerning the responsibilities of the MEPRD and the Radiation and Nuclear Safety Inspectorate.

Lastly, several regulations, described below, have been adopted pursuant to the Act on Radiation and Protection and Nuclear Safety.

Radiation Protection Regulations Concerning Licences and Permits for Activities Dealing with Radioactive Substances and Other Ionising Radiation Sources

On 20 June 1996, the Cabinet of Ministers adopted these Regulations, which entered into force on 1 September 1996. They set out the requirements for licence applicants, liability limits for different types of facilities (X-ray equipment, research laboratories, etc.) and aim to establish strict control over all such activities. The following bodies are authorised to issue licences:

- the Environmental Health Centre, under the authority of the Ministry of Welfare, for medical applications, with the exception of X-ray equipment;

- the Radiology Centre, under the authority of the Ministry of Welfare, for X-ray equipment;

- the Radiation and Nuclear Safety Inspectorate of the Ministry of Environmental Protection and Regional Development, for all other activities which fall within the scope of the Act on Radiation Protection and Nuclear Safety; and

- the Department of Export and Import Control of the Latvian Development Agency, for export, import and transport licences for nuclear materials.

In order to obtain a licence, the applicant must complete a special declaration form which, along with a number of other documents, is reviewed by the relevant agency. Once delivered, a licence is valid for a period of three years. However, any licence may be revoked should a breach of safety standards be detected during inspection. Upon expiration, the licence is not automatically renewed, and a new application must be made.

The Regulations also introduce several other obligations for licence applicants, including the requirement to hold a public hearing for a licence for a research reactor or a radioactive waste repository. They furthermore introduce several specific requirements. For instance, they establish detailed exemption levels, based on the values used in the IAEA and European Union Basic Safety

Standards. Secondly, they establish a new mechanism for supplementary funding of radioactive waste management by imposing an import duty on all radioactive materials. This import duty will be used partly by local municipalities, partly for investments in infrastructures used for radioactive waste management, and finally for decommissioning funds.

In March 1998, the Cabinet adopted amendments to these Regulations, whose main aim is to replace the Guaranty Fund for the state enterprise *Radons* with the Latvian Environmental Protection Fund for the collection of duties on the import of radioactive substances.

Regulations for Protection Against Ionising Radiation

On 12 August 1997, the Cabinet of Ministers adopted the Regulations for Protection Against Ionising Radiation. These Regulations, which are based on the IAEA and European Union Basic Safety Standards, also take into account Directives 84/466/Euratom, 87/600/Euratom, 89/618/Euratom and 90/641/Euratom, as well as several IAEA Recommendations.

The first part of the Regulations sets out definitions. The second part defines the scope of the Regulations and establishes several rules in relation to prohibited applications of ionising radiation and the nuclear safety culture. The third part deals mainly with the division of responsibilities between the various bodies and persons involved, such as the differing responsibilities of owners of ionising radiation sources and regulatory bodies.

The Regulations are broad in scope and cover numerous activities: manufacture, import, export, transport, trade and use of all radioactive substances and sources of ionising radiation in excess of 5 keV. They aim to protect the public, employees and the environment against the harmful effects of ionising radiation emitted from any source and to ensure the safe use of radiation sources.

The competent bodies, namely the Radiation and Nuclear Safety Inspectorate, the Environmental Health Centre and the Radiology Centre, ensure compliance with these Regulations by the issue of licences, *a priori* control and by inspection procedures, *a posteriori* control.

The Regulations deal with the early notification of nuclear accidents, in accordance with the two 1986 IAEA Conventions on Early Notification and Assistance in the Case of a Nuclear Accident as well as with European Union regulations and Latvia's international obligations.

Minor amendments were made to these Regulations in 1998.

Regulations on Medical Contraindications

The Regulations on Medical Contraindications for Radiation Personnel, adopted on 17 March 1998, establish a series of medical requirements which must be fulfilled by workers exposed to radiation.

Regulations on Radiation Control at the Border

The Regulations on Radiation Control at the Border, adopted on 10 September 1996 and amended on 13 May 1997, based on a general plan to establish a form of border police with responsibility for customs control and immigration, establish a dosimetric control at the national

borders. In the Regulations as they were initially adopted, the customs authorities were responsible for this control, but the 1997 amendment empowers border guards, under the authority of the Ministry of Internal Affairs, to extend their activities to the dosimetric control of goods crossing the border. The Regulations also introduce requirements for measurement equipment and training of the relevant personnel.

Regulations on the Control of Strategic Goods and Import of Radioactive Substances

These Regulations, adopted on 16 December 1997, replace both the 1995 Regulations on the Export, Import and Transit of Strategic Goods and the Regulations on the Committee for Export and Import Control of Strategic Goods. They establish a new body: the Committee for Control of Strategic Goods. The 1997 Regulations cover all aspects of the Nuclear Suppliers Group regime. In practice, they make only minor changes to the previous Regulations and the change of the Committee's name reflects internal restructuring within the Latvian Development Agency.

Regulations on the State System of Accounting and Control of Nuclear Materials

These Regulations, adopted on 14 April 1998, are based on Euratom Regulations in this field. They include provisions on their objectives, information and notification requirements regarding the design of nuclear installations and nuclear materials, a control programme (obligations of the operator in relation to inventory), implementation of these Regulations (the responsibility of operator, nomination of a responsible person, exchange of information with the Radiation and Nuclear Safety Inspectorate), the system of nuclear accounting, accounting reports and export-import of nuclear materials (notification, requirements for export-import, including prohibition of export to non-NPT countries).

Regulations on Control of Radioactive Contamination in Food Products and in Animal Feeding Products

These Regulations, adopted on 26 May 1998 and on 9 March 1999 respectively, replace the relevant chapters of the national Basic Safety Standards, and fully implement the relevant Euratom Directives in these fields. The principal change brought about by the adoption of these Regulations 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.

Regulations on the Safe Transport of Radioactive Materials

These Regulations, adopted on 28 July 1998, are based on the IAEA new Safety Standards ST-1 and EU Council Directive 94/55/EC of 21 November 1994 on the approximation of the laws of the Member States with regard to the transport of dangerous goods by road. 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 than through references to other internal documents.

Regulations on Radioactive Waste Management

These Regulations, adopted on 3 August 1999, set out basic principles for radioactive waste management: limitation of individual and collective doses, justification of practices, minimisation of waste and protection of future generations. The Regulations establish clearance procedures for release into the environment and set out criteria for reuse, recycling and dispersion of waste, as well as waste acceptance criteria. They also prescribe the responsibilities of waste producers, radiation safety officers at facilities, *Radons*, and state authorities. The Regulations furthermore introduce long-term safety and environmental impact assessments, and classify waste into four groups for accounting purposes. Furthermore, they lay down requirements for handling and packaging (including standardisation of waste packs) and for transboundary movement of radioactive waste, and rules for marking of radioactive waste disposal sites after final closure. They introduce the obligation to return spent sealed sources to producers and set out procedures governing international shipments of radioactive waste. They also establish rules for site selection, including public hearings for new disposal facilities or safety-relevant modifications at existing sites.

Draft Legislation and Regulations

In light of the strategic plan of the Cabinet of Ministers, which aims to establish a Radiation Safety Centre, the Law on Radiation Protection and Nuclear Safety will require amendment. Amendments should include:

- the establishment of the Radiation Safety Centre, its duties, responsibilities and powers;
- the introduction of a Radiation Safety Board as an advisory and co-ordinating body made up of representatives from all relevant ministries and expert organisations;
- the establishment of an Authorisation Commission composed of persons from the Radiation Safety Centre and representatives from certain Ministries.

In view of the possible amendments to the Law on Radiation Protection and Nuclear Safety, the MEPRD drafted amendments to the Code of Administrative Offences, in order to modify the penalties in the event of breach of radiation safety requirements.

Once the Law is amended, existing Regulations will require modification in order to harmonise them with the amended Law.

In respect of physical protection regulations, the MEPRD has prepared an initial draft governing the security regime for nuclear and radiation materials and facilities. The Regulations will implement the IAEA recommendations set out in INFCIRC/225/Rev.4 and the classification system for ionising radiation sources, in order to harmonise approaches to nuclear and radioactive materials and other radiation sources.

International Conventions

Nuclear Third Party Liability

- Latvia acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 15 March 1995, and it entered into force on 15 June 1995.

- Latvia acceded to the 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention on 15 March 1995, and it entered into force on 15 June 1995.

Other International Conventions

- Latvia ratified the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 8 March 1994 and it entered into force on the same date.

- Latvia acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 31 January 1992 and it entered into force on the same date.

- Latvia acceded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 18 August 1992 and it entered into force on the same date.

- Latvia acceded to the 1986 Convention on Early Notification of a Nuclear Accident on 28 December 1992 and it entered into force on 28 January 1993.

- Latvia acceded to the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency on 28 December 1992 and it entered into force on 28 January 1993.

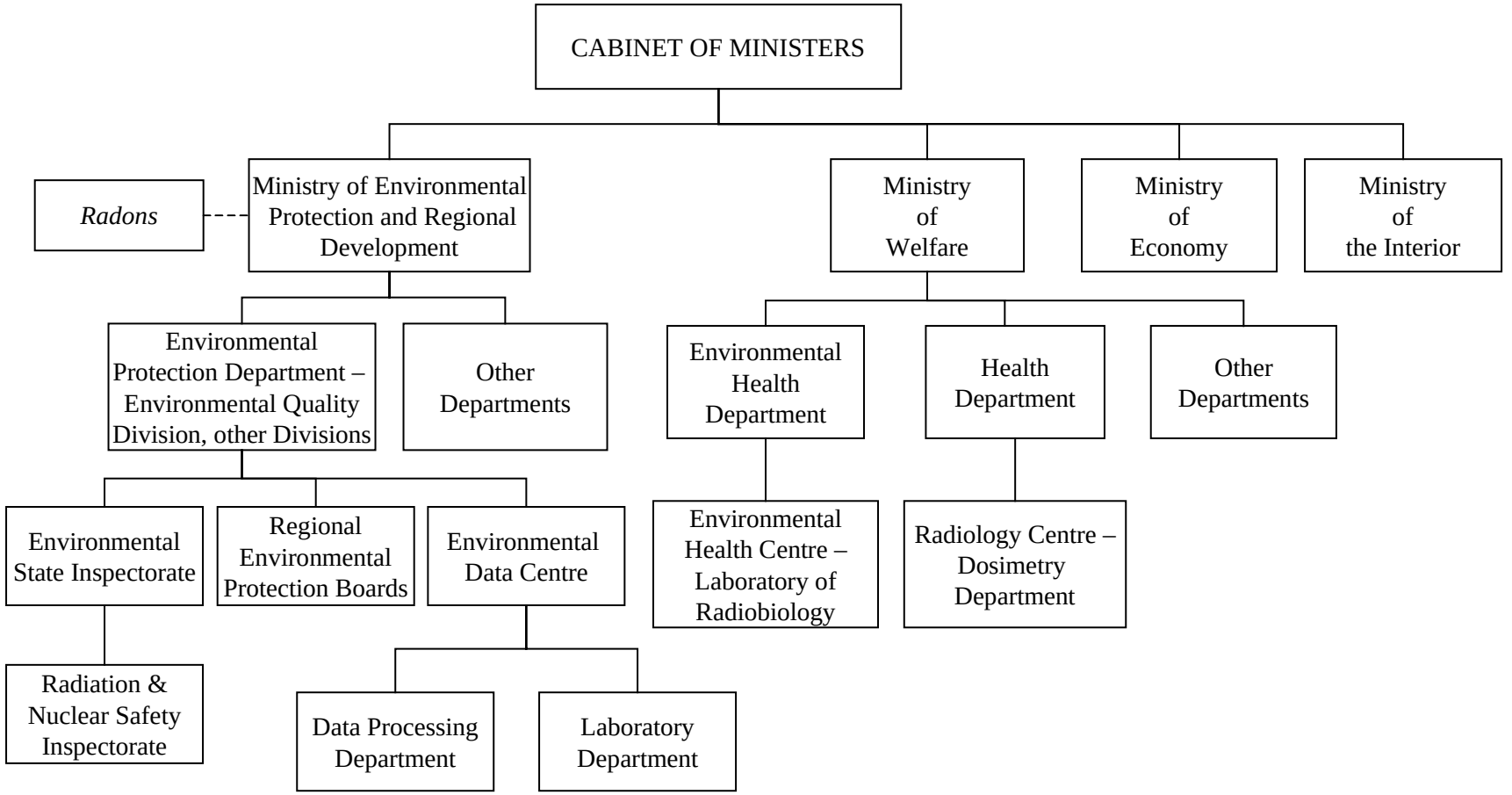
- Latvia acceded to the 1994 Convention on Nuclear Safety on 25 October 1996 and it entered into force on 23 January 1997.

- Latvia signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1996.

Membership in Nuclear Organisations

Latvia is a member of the International Atomic Energy Agency (IAEA) and the Nuclear Suppliers Group.

LATVIA
Competent Authorities for Nuclear Energy



LITHUANIA

Introduction

Lithuania possesses only one nuclear power plant, the Ignalina NPP, situated in northeast Lithuania near the borders of Latvia and Belarus. The Ignalina NPP operates two units of RMBK-1500 model reactors, Unit 1 and Unit 2, each with a capacity of 1500 MWe, which were commissioned in December 1983 and August 1987 respectively. They provide approximately 80% of the electricity produced in Lithuania. Unit 1 is to be closed down by 2005.

Lithuania has a repository for low and intermediate level radioactive waste at Maisiogala, located near Vilnius. The repository was shut down in 1989. An interim dry storage facility for spent fuel was built and commissioned in 1999 on the Ignalina NPP site. There are plans to build another interim storage facility.

The Joint Stock Company, *Lietuvos Energija*, (formerly the Lithuanian State Power System – LSPS) is the national utility responsible for the distribution of electricity.

Competent Nuclear Authorities

In 1993, the Ministry of Energy created a subsidiary agency called the Energy Agency. Financed by the government and reporting directly to the Ministry of Energy, the Agency's mission was to regulate the energy sector. It was responsible for the application of legislation in the field of energy and for the setting up of a national energy programme. It was divided into several departments, one of which was devoted solely to nuclear energy.

As of March 1997 the Ministry of Energy has ceased to exist and the newly established Ministry of Economy has assumed all responsibilities and duties for nuclear energy management. The Nuclear Energy Division was established to supervise the nuclear energy sector and comprises most of the staff from the former Nuclear Energy Division of the Energy Agency. It is responsible for the preparation of regulatory acts governing nuclear energy and nuclear safety and for co-ordination of assistance for nuclear safety improvements. The Export Control Division is responsible for the issue of licences for the export, import and transit of nuclear, radioactive and other materials used in nuclear technology, nuclear equipment and dual-use items.

Pursuant to the Law on Radioactive Waste Management of 1999, the Ministry of Economy is to establish a Radioactive Waste Management Agency, which will be a state enterprise. The Agency will be responsible for the safe management of radioactive waste transferred to it by waste generators, and will be the operator of radioactive waste management facilities.

The Radiation Protection Centre, under the authority of the Ministry of Health, is responsible for the regulation of radiation protection measures in research applications, medicine and other uses of nuclear power. It also regulates radioactive waste produced by research, medicine and industry. Under

the 1998 Regulations on Licensing of Nuclear Activities, the Ministry of Health issues permits for the use of radioactive materials and other sources of ionising radiation. The Law on Radioactive Waste Management also entrusts the Radiation Protection Centre with the issue of licences for the transport of radioactive waste.

The Ministry of the Environment is responsible for conducting environmental impact assessments, establishing the limits of radioactive emissions into the environment, and issuing licences for the acquisition, possession and transportation of radioactive materials. Together with the Nuclear Power Safety Inspectorate (see *infra*) and the Ministry of Health, it is responsible for establishing procedures for the import, export, transit, transportation and disposal of radioactive materials and waste. It is also responsible with the Ministry of Health for establishing radiation protection standards and monitoring their compliance.

After the re-establishment of its independence, Lithuania set up its own Nuclear Power Safety Inspectorate (*Valstybiné Atominés Energetikos Saugos Inspekgija* – VATESI) by Government Decision of 1 November 1991. The Statute of VATESI was approved by Governmental Decree on 21 October 1992. Pursuant to Government Decree No. 1257 of 14 November 1997, VATESI is directed by a board of management which is comprised of a chairperson, two members of Parliament, two representatives of ministries, one representative of the technical support group (Nuclear Installation Safety Laboratory) and the Head of VATESI. According to its Statute, VATESI is responsible for all matters related to safety (including radiation safety) at the Ignalina NPP and in the 30 kilometre zone surrounding the plant. The duties of VATESI in its capacity as nuclear regulatory authority in Lithuania, include:

- drafting and, under the authority of the government, approving safety standards and rules for the design, construction and operation of nuclear facilities, for storage of nuclear and radioactive materials and for waste disposal;

- ensuring adherence to the requirements set out in licences and safety rules through assessment of the safety of nuclear facilities;

- establishing the system of accounting for and control of nuclear materials; and

- issuing licences for the design, construction, modification, operation and maintenance of nuclear facilities and of their components, the acquisition, possession and transportation of nuclear materials and the storage and disposal of radioactive waste.

Finally, to assist VATESI in its work, the government set up the Nuclear and Radiation Safety Advisory Committee (NRSAC) by Decree in May 1993. In July 1997, this Committee was reorganised as the Nuclear Safety Advisory Committee. The Committee's members include environmental and nuclear safety experts from Lithuania as well as advisors from Germany, Finland, France, Japan, the Russian Federation, Sweden, Ukraine and the United Kingdom, who assist the government in resolving problems in the field of nuclear energy. The Committee works with the state enterprise *Ignalinos Atomine Elektrine* (Ignalina Nuclear Power Plant – INPP) management, VATESI and the Ministry of Economy and provides advice on upgrading nuclear safety and on the development of an efficient regulatory infrastructure. It may also advise the government on the price of electricity or on other specific questions. The Committee receives no funding from the government; its expenditure is covered by its members and by the Lithuanian Energy Institute.

The Lithuanian Energy Institute, through its Nuclear Installation Safety Laboratory and other technical support organisations with wide experience in the field of nuclear safety, is responsible for conducting safety analyses for the Ignalina Power Plant.

The Ministry of Social Security and Labour has responsibilities with respect to verifying compliance with requirements for the safety of personnel at work.

The Ministry of Transport participates in the drafting of legislation and regulates training in the field of transport of nuclear and radioactive materials.

The Department of Civil Defence of the Ministry of Defence is the co-ordinating institution in respect of the preparation of emergency plans and their implementation in the event of an accident in the Ignalina NPP.

Lastly, pursuant to Decree No. 1403 of 2 November 1995, a Decommissioning Fund was set up (see *infra*). It is managed by a Council appointed by the government.

Legislation in Force

Law on Nuclear Energy

Law No. I-1613 on Nuclear Energy,* adopted on 14 November 1996, establishes the rules applicable to the use of nuclear energy, provides a legal framework for nuclear activities and guarantees the peaceful use of nuclear materials and technology.

The Law aims to provide a legal basis for activities of legal entities and natural persons in the field of nuclear energy and to ensure nuclear safety in the peaceful uses of nuclear energy by laying down the principles of state regulation of nuclear safety and radiation protection, conditions for the operation and licensing of nuclear facilities and for the export, import and transportation of nuclear materials, radioactive waste management and for control and physical protection of nuclear materials.

The Law contains a very general definition of nuclear activities and sets out the obligation to obtain a licence from the competent authority in order to engage in such activities. Activities subject to licensing include: the construction and operation of nuclear installations, activities which could affect safety during the operation of such installations, the decommissioning of nuclear installations, the storage of radioactive waste and other radioactive material, the acquisition, possession or transport of radioactive material, and the import and export of all material belonging to the nuclear energy sector. It further lays down the principles for the creation and management of the decommissioning fund (established by Decree No. 1403 of 1995).

As regards nuclear third party liability, the Law adopts the principles contained in the 1963 Vienna Convention on Civil Liability for Nuclear Damage. The provisions in this Law replace Act No. I-134 of 30 November 1993 implementing the 1963 Vienna Convention and the 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention in Lithuania, which stipulated that the provisions of this Convention and the Protocol would be directly applicable in Lithuania. Under the Law on Nuclear Energy, the operator is liable for personal injury or property

* The full text of the Act in English was reproduced in the Supplement to *Nuclear Law Bulletin* No. 60 (December 1997).

damage. Environmental damage is also taken into account. The operator must acquire and maintain insurance to cover his liability, which is set at the minimum amount under the Vienna Convention. The government will intervene in the event that the funds of the operator are insufficient to cover all damages. The prescription period for filing a claim for compensation is ten years, from the date on which the damage was suffered.

Finally, the Law also contains a chapter specifically devoted to labour relations in the sphere of nuclear energy, providing for additional labour legislation and disciplinary statutes to be applicable to nuclear facilities.

Law on Radiation Protection

The Law on Radiation Protection was adopted by the Lithuanian Parliament on 12 January 1999 and came into force on 1 April 1999. This legislation is divided into 10 Chapters governing, *inter alia*, licensing, radioactive waste and spent ionising radiation sources, control of foodstuffs, limitation of doses, requirements concerning medical radiation procedures and liability.

The Law regulates the situation of entities involved in the acquisition, transfer, use, production, storage, import, export, or processing of ionising radiation sources or in radioactive waste management and other activities as defined by the regulatory authority. It provides a legal basis for protection against risks associated with exposure to ionising radiation. The Law provides that in the event of discrepancy with provisions of international agreements, the latter will prevail.

The Law establishes the respective responsibilities of the government, the municipal executive bodies and the Radiation Protection Centre. The Radiation Protection Centre is the competent body for state supervision and control of radiation protection, including the monitoring of public exposure. It is responsible for issuing licences for activities involving the production of or exposure to radiation sources; the design, production, use and transformation of technological and radiation protection equipment for radiation sources; the use and transportation of ionising radiation sources and the management of radioactive waste.

Implementing legislation which remains to be adopted includes regulations on the licensing of activities involving ionising radiation sources and the Statute governing the Register of ionising radiation sources.

Law on the Management of Radioactive Waste

The Law No. VIII-1190 on the Management of Radioactive Waste was adopted on 20 May 1999. This instrument establishes the rights, duties and functions of the state executive and supervisory authorities and of persons and legal entities involved in radioactive waste management, including its export and transit. The Law is divided into ten Chapters governing, *inter alia*, licensing, responsibilities of waste generators, creation of the Radioactive Waste Management Agency and the Radioactive Waste Management Fund, and requirements concerning radioactive waste management facilities, including their siting, design, construction, commissioning, operation, decommissioning and control after closure.

VATESI has the primary role in regulating the safety of radioactive waste management. This includes the responsibility for issuing licences for activities related to radioactive waste management, including the design, construction, operation, decommissioning or permanent closure of radioactive

waste management facilities. Together with VATESI, the Radiation Protection Centre of the Ministry of Health and the Ministry of the Environment are also responsible for setting out procedures applying to import, export, transit, transport and disposal of radioactive waste. Furthermore, the Radiation Protection Centre is responsible for issuing licences for radioactive waste transport.

The burden of all expenses related to radioactive waste management lies with the waste generator until the radioactive waste is transferred to the Radioactive Waste Management Agency or is exported from Lithuania.

The Law provides for the creation of a storage facility or repository as well as a Radioactive Waste Management Agency. The aim of the Agency will be to manage radioactive waste transferred to it by the waste generators, ensuring nuclear and radiation safety.

A Radioactive Waste Management Fund is also to be established.

Law Regulating the Import, Export and Transport of Strategic Goods and Technology

On 5 July 1995, the Lithuanian Parliament approved Law No. I-1002, regulating the import, export and transport of strategic goods and technology. The aim of this Law is to regulate activities which could contribute to the proliferation of nuclear weapons and to ensure the implementation of international agreements prohibiting such proliferation. The Law establishes lists of goods subject to control as well as lists of countries with which all import or export of goods subject to control is prohibited.

Licences are necessary for all goods subject to control, and are issued by the Ministry of Economy. The Ministries of the Environment, Defence, Finance (Customs) and various other state entities whose activities involve goods subject to control, must consult the Ministry of Economy in the event of a decision concerning goods subject to control.

Regulations on the Licensing of Nuclear Activities

The Regulations on the Licensing of Nuclear Activities, prepared by VATESI, were approved by Government Decree No. 103 of 27 January 1998. The procedure for licensing nuclear activities is not strictly centralised in Lithuania. Under these Regulations, VATESI is responsible for issuing licences for the design, construction, modification, operation and maintenance of nuclear facilities, the acquisition, possession and transportation of nuclear materials and the storage and disposal of radioactive waste. The Ministry of the Environment is responsible for issuing licences for the acquisition, possession and transportation of radioactive materials. The Ministry of Economy issues licences for the export, import and transit of nuclear, radioactive and other materials used in nuclear technologies, nuclear equipment and dual-use goods. The Ministry of Health issues permits for the use of radioactive materials and other sources of ionising radiation.

Decree establishing a Decommissioning Fund

On 2 November 1995 the government passed Decree No. 1403 establishing a Decommissioning Fund, pursuant to the Law on Nuclear Energy. This Decree, which sets out the statute of the Fund, prescribes that INPP must include its decommissioning expenses in its production costs. The Fund aims to finance preliminary investigations and to plan decommissioning activities. It is financed by income from the sale of electricity.

Draft Legislation and Regulations

Among the many regulations that are under preparation in Lithuania, mention should be made of the Regulations concerning the commissioning and operation of spent fuel dry storage facilities.

Furthermore, a Draft Law on the Management of INPP is also being prepared. The management of the plant is currently governed by the Law of State and Municipal Enterprises. The new Law will introduce three levels of responsibility which will be divided between the owner (the state) and the founder (the Ministry), the Board of Governors and the General Director and INPP Management.

International Conventions

Nuclear Third Party Liability

- Lithuania acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 15 September 1992 and it entered into force on 15 December 1992. Lithuania also signed the 1997 Protocol to Amend the Vienna Convention on 30 September 1997.

- Lithuania acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 20 September 1993 and it entered into force on 20 December 1993.

- Lithuania signed the 1997 Convention on Supplementary Compensation for Nuclear Damage on 30 September 1997.

Other International Conventions

- Lithuania acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 23 September 1991 and it entered into force on the same date.

- Lithuania acceded to the 1979 Convention on the Physical Protection of Nuclear Material on 7 December 1993 and it entered into force on 6 January 1994.

- Lithuania acceded to the 1986 Convention on Early Notification of a Nuclear Accident on 16 November 1994 and it entered into force on 17 December 1994.

- Lithuania ratified the 1994 Convention on Nuclear Safety on 12 June 1996 and it entered into force on 24 October 1996.

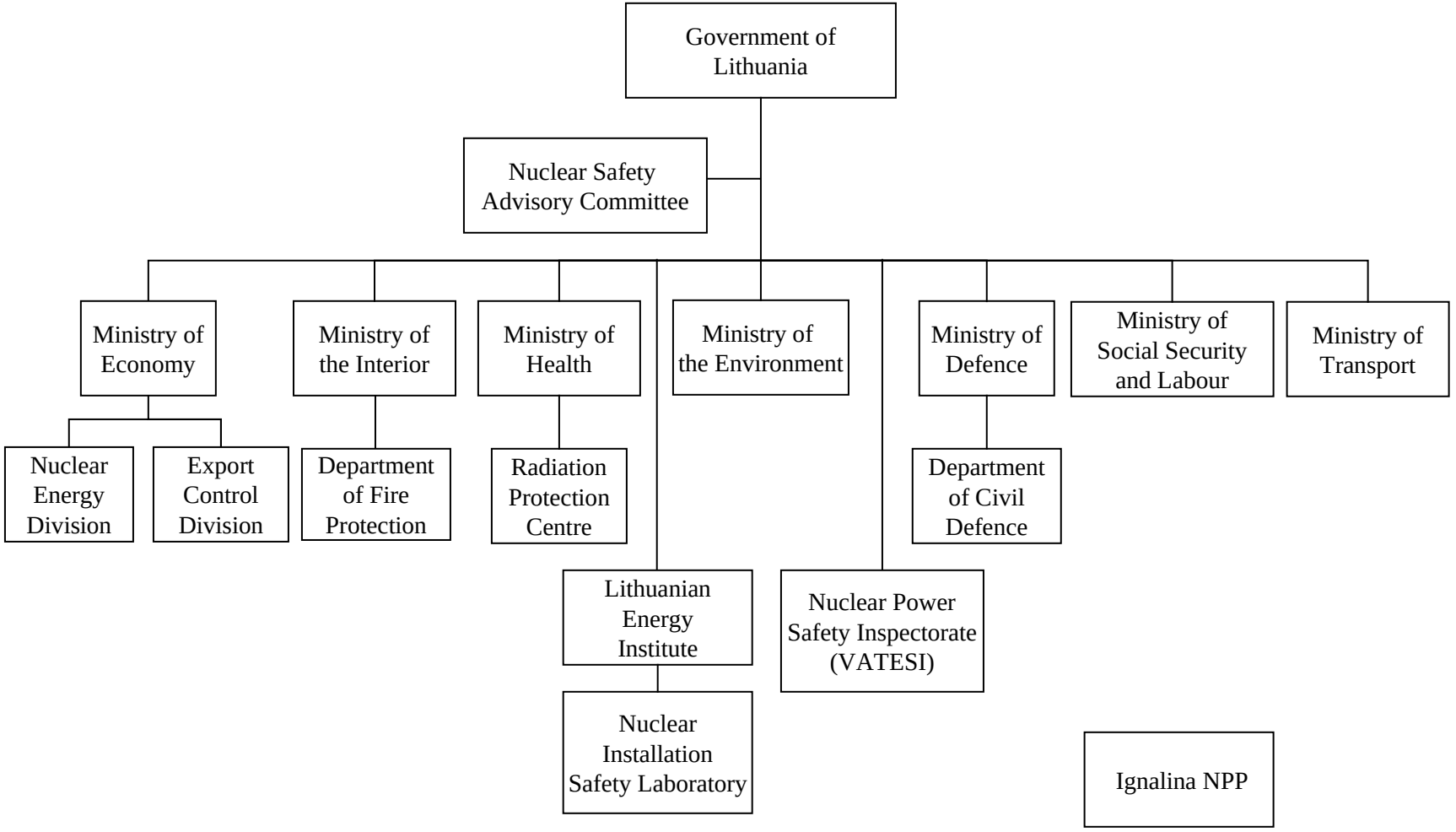
- Lithuania ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 7 February 2000.

- Lithuania signed the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 30 September 1997.

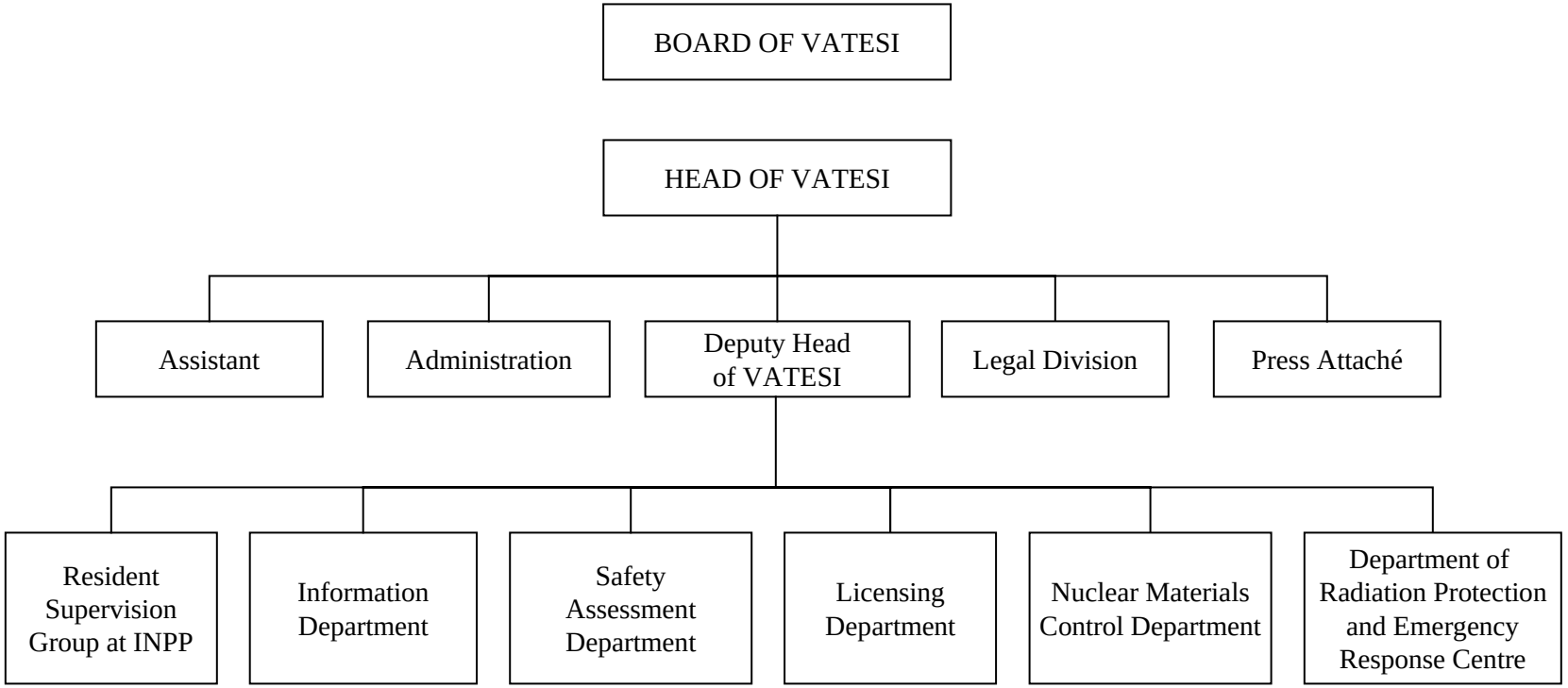
Membership in Nuclear Organisations

Lithuania is a member of the International Atomic Energy Agency (IAEA) and the Ignalina NPP operator is a member of the World Association of Nuclear Operators (WANO).

LITHUANIA
Competent Governmental Bodies in the field of Nuclear Energy



LITHUANIA
Organisational chart of VATESI



FORMER YUGOSLAV REPUBLIC OF MACEDONIA

Introduction

There are no nuclear power plants or reactors in the former Yugoslav Republic of Macedonia at present.

Competent Nuclear Authorities

The Ministry of Health is responsible for radiation protection. It carries out, *inter alia*, the following tasks:

- proposes amendments to legislative and regulatory instruments in the field of nuclear energy;
- is responsible for declaring emergency situations in the former Yugoslav Republic of Macedonia and for proposing measures to contain the consequences resulting from such situations.

Under the aegis of the Minister of Health, the Sanitary and Health Inspectorate issues and revokes licences, and carries out inspections on sites and in relation to radioactive sources.

The Institute for Health Protection, under the authority of the Ministry of Health, is comprised of three departments responsible respectively for:

- monitoring the levels of radioactive contamination in the environment and in workplaces;
- assessment of occupational exposure to ionising radiation;
- medical supervision of occupationally-exposed workers.

These three Departments report annually to the Ministry of Health on the situation recorded and formulate recommendations in this respect.

In 1993, a Commission for Radiation Protection was established within the Ministry of Health but it has not been operational to date.

Together with the Ministry of Health, the Ministry of the Interior issues licences for transportation of radioactive materials.

Legislation in Force

Law on Radiation Protection and the Safe Use of Nuclear Energy

The Law on Radiation Protection and the Safe Use of Nuclear Energy, which was adopted by the Parliament of the former Yugoslavia on 21 November 1984 (Official Gazette No. 62/84) and entered into force on 1 December 1984, is still in force in the former Yugoslav Republic of Macedonia. This Law aims to protect the public and the environment against the harmful effects of ionising radiation, and establishes safety measures which apply to the production and utilisation of nuclear energy and radioactive materials, as well as the operation of devices producing ionising radiation.

The Law sets out general and specific measures for protection against ionising radiation. It provides for systematic monitoring of radiation in the air, the ground, waterways, drinking water, and foodstuffs. This control is conducted by certified bodies.

The nuclear safety measures relate, *inter alia*, to siting, trade in, control of and physical protection of nuclear materials and radioactive waste materials.

Law on Transport of Dangerous Goods

This Law, adopted on 25 May 1990 (Official Gazette No. 27/90) and amended on 3 March 1993 (Official Gazette No. 12/93), regulates the transport of radioactive materials, in particular the conditions governing their packaging, modes of transport, loading, unloading and handling. The Law provides that the Ministry of Health and the Ministry of Interior issue licences for the transport of radioactive material.

Other Relevant Legislation

The Constitution provides for the primacy of international agreements ratified by the former Yugoslav Republic of Macedonia over domestic laws. Therefore, the 1963 Vienna Convention, to which the former Yugoslav Republic of Macedonia succeeded on 8 April 1994, is a constituent part of the Macedonian legal system.

Draft Legislation and Regulations

A new Law on Radiation Protection and Safety, under preparation, aims to regulate the system of control over all radiation sources and measures of radiation protection. The Law establishes for this purpose the institutional framework for radiation protection and safety. A Radiation Safety Directorate will be responsible for notification, registration, licensing and inspection of all activities involving radiation sources. The Directorate will establish the Radiation Safety Commission, comprised of ministerial representatives and representatives of scientific and technical institutions, as an advisory body on these matters. Finally, the Macedonian Institute for Health Protection is to establish a Radiation Protection Centre.

The Draft Law lays down the regulatory procedures governing the licensing of nuclear activities. It also sets out the radiation safety requirements, including these applying to licensees or

related to occupational, public or medical exposure, safety requirements related to radioactive waste, quality assurance, etc.

The international Basic Safety Standards on protection against ionising radiation and safety of radiation sources have been taken into account in the preparation of this draft.

International Agreements

Nuclear Third Party Liability

The former Yugoslav Republic of Macedonia succeeded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 8 April 1994, with effect from 8 September 1991.

Other International Conventions

- The former Yugoslav Republic of Macedonia acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 30 March 1995.

- The former Yugoslav Republic of Macedonia succeeded to the 1979 Convention on the Physical Protection of Nuclear Materials on 20 September 1996, with effect from 17 November 1991.

- The former Yugoslav Republic of Macedonia succeeded to the 1986 Convention on Early Notification of Nuclear Accident on 20 September 1996, with effect from 17 November 1991.

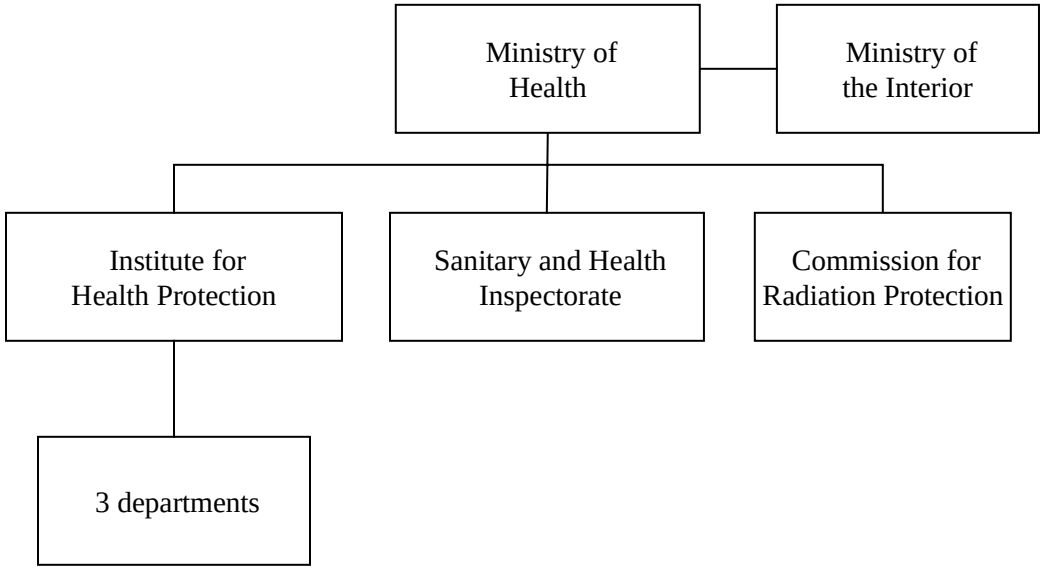
- The former Yugoslav Republic of Macedonia succeeded to the 1986 Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency on 20 September 1996, with effect from 17 November 1991.

- The former Yugoslav Republic of Macedonia ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 14 March 2000.

Membership in Nuclear Organisations

The former Yugoslav Republic of Macedonia is a member of the International Atomic Energy Agency (IAEA).

EX-YUGOSLAV REPUBLIC OF MACEDONIA
Competent Nuclear Authorities



REPUBLIC OF MOLDOVA

Introduction

There are no reactors or nuclear power plants in the Republic of Moldova at present. However, there is a radioactive waste disposal facility.

Competent Nuclear Authorities

The State Department of Civil Protection and Emergency Situations is the state regulatory body in the field of transport of dangerous goods. In this respect, it is responsible for licensing the transport of radioactive material, as well as drafting regulations on the transportation of dangerous goods by rail, road and air, together with the Ministry of Transport and the State Civil Aviation Administration. The Department is also competent as regards nuclear emergency preparedness, state supervision in the field of radiation protection and co-ordination of the activities of the national environmental monitoring network.

The State Department of Standards, Metrology and Technical Supervision is responsible for technical supervision of the use and disposal of radiation sources and radioactive waste, and issues safety certificates for the use, maintenance and repair of equipment using radiation sources.

The Ministry of Health is responsible for health standardisation of radiation sources, hygiene quality assessments and certification of foodstuffs, drinking water, construction materials and other items for dosimetric control of the medical staff and patients. Furthermore, the State Health Inspectorate, as a subdivision of the National Centre for Scientific and Applied Hygiene and Epidemiology within the Ministry of Health, is responsible for licensing and controlling radioactive waste management activities.

Legislation in Force

Law on Radiation Protection and Safety

On 24 December 1997, Law No. 1440-XIII on Radiation Protection and Safety was adopted by the Parliament and it came into force on 19 March 1998. The Law contains provisions on, *inter alia*:

- regulatory bodies in the field of radiation protection and safety and their areas of competence;
- rights and obligations of the competent bodies and of citizens in the field of radiation protection and safety;

- responsibilities of competent bodies in charge of facilities using ionising radiation sources.

Law on Licensing of Certain Activities

Law No. 332-XIV on Licensing of Certain Activities, adopted by the Parliament on 26 March 1999, repeals legislative instruments adopted by the former USSR. The objective of this legislation is to establish a licensing regime and procedures. In this respect, it sets out a list of activities which are subject to licensing. In particular, it states that the use, import, storage and transport of ionising radiation sources and radioactive materials require such a licence.

The Law also describes the characteristics of a licence, such as its form and content, its scope and validity, and determines the authorities competent to issue licences. The Ministry of the Environment is the licensing body for use, import and storage of ionising radiation sources and radioactive materials, following prior approval from the Ministry of Health. The Department of Civil Protection and Emergency Situations is responsible for issuing licences for the transport of nuclear materials. It sets out a standard licence application in Annex 1.

Decree on the Transportation of Dangerous Goods on the Territory of Republic of Moldova

Governmental Decree No. 45 on the Transportation of Dangerous Goods on the Territory of the Republic of Moldova, adopted on 24 January 1994, sets out rules governing the transport of dangerous goods as well as measures to address the consequences of a possible accident. It nominates the Department of Civil Protection and Emergency Situations as the state regulatory body in the field of transport of dangerous goods. It furthermore provides that the Ministry of Transport and the State Civil Aviation Administration, together with the Department of Civil Protection and Emergency Situations, are responsible for drafting regulations on transport of dangerous goods by rail, road and air.

In this respect, on 9 June 1994, the Ministry of Transport and the Department of Civil Protection and Emergency Situations issued the Regulations on the Transport of Dangerous Goods by Road on the Territory of the Republic of Moldova, which are based on IAEA Safety Series No. 6.

Draft Legislation and Regulations

A Regulation on Safe Management of Radioactive Waste is being drafted. The draft covers, *inter alia*: the design of radioactive waste storage and disposal installations; management of radioactive waste; reception of radioactive waste in installations; transportation of radioactive waste; licensing; processing and final disposal; premises deactivation; emergency planing and protection measures; and radiation monitoring.

International Agreements

Nuclear Third Party Liability

The Republic of Moldova acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 7 May 1998 and it entered into force on 7 August 1998.

Other International Conventions

- The Republic of Moldova acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 11 October 1994 and it entered into force on 10 November 1994.

- The Republic of Moldova acceded to the 1979 Convention on the Physical Protection of Nuclear Material on 7 May 1998 and it entered into force on 6 June 1998.

- The Republic of Moldova acceded to the 1986 Convention on Early Notification of a Nuclear Accident on 7 May 1998 and it entered into force on 7 June 1998.

- The Republic of Moldova acceded to the 1986 Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency on 7 May 1998 and it entered into force on 6 June 1998.

- The Republic of Moldova acceded to the 1994 Convention on Nuclear Safety on 7 May 1998 and it entered into force on 5 August 1998.

- The Republic of Moldova signed the 1996 Comprehensive Nuclear Test Ban Treaty on 24 September 1997.

Membership in Nuclear Organisations

The Republic of Moldova is a member of the International Atomic Energy Agency (IAEA).

POLAND

Introduction

There are no nuclear power plants in Poland at present and, pursuant to the Parliamentary Resolution of 9 November 1990 on the Principles of Energy Policy in Poland up to the year 2000, construction of such a plant is not planned in the near future. There are, however, two research reactors, the Ewa and Maria reactors, located in the Institute of Atomic Energy at Swierk. The decommissioning of the Ewa reactor commenced on 24 February 1995.

Construction of a Russian designed VVER 440 model 213 nuclear power plant at Zarnowiec began in 1982, but was discontinued following a Parliamentary Resolution adopted in September 1990 on energy policy up to the year 2010. In addition, Poland has a spent fuel storage facility at Swierk and a radioactive waste repository at Rozan.

Competent Nuclear Authorities

The National Atomic Energy Agency (*Panstwowa Agencja Atomistyki* – NAEA) is the main regulatory body in the nuclear field. The NAEA, which was set up by the Atomic Energy Act of 10 April 1986, is a government body directly responsible to the Prime Minister, who appoints its President. It has extensive responsibilities including the following:

- regulating nuclear safety and radiation protection;
- licensing the production, treatment, storage, transport, use and trade of nuclear materials as well as of radioactive sources and waste;
- licensing the siting, construction, commissioning, operation and decommissioning of nuclear installations, following assessment of all safety-related risks;
- licensing the construction and operation of radioactive waste repositories;
- research on nuclear energy and its applications;
- supervising the manufacture of nuclear equipment and radiation sources;
- supervising radioactive waste management;
- accounting, control and physical protection of nuclear materials;
- informing the public of nuclear activities;

- co-operating with other countries on the peaceful uses of nuclear energy.

In carrying out its tasks, the Agency may:

- co-operate with other government bodies with specific jurisdiction in fields such as technical safety, control of public health or environmental protection;

- obtain relevant safety-related information from governmental or non-governmental organisations;

- initiate contacts with international organisations.

In the exercise of its tasks, the NAEA is responsible, *inter alia,* for review and assessment, inspections and preparing draft rules and regulatory decisions for approval by its President. Since 1 January 1997, such activities have been performed mainly by two NAEA Departments: the Department for Radiation and Nuclear Safety and the Department for Regulatory Control of Radiation Applications. These Departments were established as a result of the incorporation into the NAEA of the Nuclear Inspectorate of Radiation and Nuclear Safety which was previously a separate body, reporting directly to the President of the NAEA. The legal basis for this incorporation is Ordinance No. 3 of the President of the NAEA of 4 July 1996, which came into force on 1 January 1997.

The NAEA's main licensing and supervision activities are related to the operation of the Maria research reactor, the Radio-isotope Production Centre and the spent fuel storage facility, all of which are located at Swierk, the radioactive waste repository at Rozan, the transport of radiation sources, the decommissioning of the Ewa reactor, and to the three thousand users of both open and sealed radiation sources in industry, medicine, research and agriculture (in accelerators and facilities using highly radioactive isotopes, etc.).

The Maria nuclear research reactor and other nuclear and radiation facilities are operated by the Institute of Atomic Energy, the Radioisotope Production Centre and the Institute of Nuclear Problems, which are independent institutions. These are three of the seven research institutes that exist in Poland, whose activities in relation to the strengthening of nuclear and radiation safety are co-ordinated and financially supported by the President of the NAEA.

The Council for Atomic Energy Matters is an advisory body which is invited to express opinions on matters falling within the scope of the Agency's mandate. It was established by a Decree of the Prime Minister of 8 February 1993. The Council consists of a chairperson, up to three vice-chairpersons, a scientific secretary and up to forty members. Their term of office is four years. The Prime Minister, on the recommendation of the President of the NAEA, appoints the chairperson of the Council. Scientists, atomic energy specialists and representatives of public administration and social organisations may take part in the Council's work.

The Council initiates all activities aimed at furthering the development of atomic energy, improving radiation protection and nuclear safety and providing information on matters related to the application of nuclear and radiation techniques. It issues resolutions, opinions and experts reports. Its expenses are covered by the Agency's budget.

The National Atomic Agency Board is the consultative body of the NAEA and is composed of a chairperson, who is also President of the NAEA, a vice-president who is Chief Inspector for Nuclear Safety and Radiation Protection, along with representatives from the Ministries of Economy, National Education, Defence, Internal Affairs and Administration, Foreign Affairs, Health and Welfare and

Environmental Protection, Natural Resources and Forests. The aim of the Board is to resolve problems encountered in the Agency's various activities, by preparing programmes of action and studying the Agency's annual activity reports.

The Minister for Health and Welfare is responsible for making regulations on safe applications of ionising radiation for medical purposes, including requirements applying in X-ray centres, and for making rules governing occupational requirements for the use of X-ray equipment. The President of the NAEA, in agreement with the Minister, establishes the dose limits for ionising radiation, including limits for emissions of ionising radiation from everyday use of radiation-emitting products.

The President of the NAEA, in conjunction with the Ministers for Transportation and Maritime Administration, Economy, Internal Affairs and Administration, and Foreign Affairs, establishes rules governing the accounting, surveillance and physical protection of nuclear materials and lays down conditions for the import into, export out of and transit through Poland of nuclear materials, radioactive sources and devices incorporating such sources.

Legislation in Force

Atomic Energy Act

Atomic Energy Act No. 70 of 10 April 1986* (Official Gazette No. 12, Item 70) is a framework Act governing all nuclear activities in Poland. It sets out the responsibilities and tasks of the authorities and bodies engaged in such activities. The Act reflects the nuclear programme which was in existence at the time of its adoption, which included plans for the construction of a nuclear installation at Zarnowiec; those plans were postponed in 1989. The Act has been amended several times since 1986.

The Act sets out the principle that the primary consideration in the use of nuclear energy should be the protection of life, health, property and the environment. It establishes a licensing system for the following:

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

Licences are issued by the President of the NAEA who may, at any time, revoke or amend a licence if nuclear safety or radiation protection requirements are not met. Operators are required to maintain records of licensed nuclear materials and radioactive sources and waste, and to take measures to ensure their physical protection.

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* The full text of this Act in English was reproduced in the Supplement to *Nuclear Law Bulletin* No. 43 (June 1989).

Establishments using nuclear materials must prepare training programmes for their personnel; these programmes must be approved by the President of the NAEA.

The President of the NAEA and its inspectors are responsible for state control of all aspects of nuclear safety and radiation protection.

The Act also contains provisions on third party liability and compensation for nuclear damage. The operator of a nuclear installation has absolute and exclusive liability for all nuclear damage resulting from the operation of the installation, except in the event of damage resulting from an act of war or exclusively from an intentional fault of the victim. As regards damage occurring during transport of nuclear materials, the consignor operator is liable for any such damage until the materials reach their destination. Nuclear damage is defined as personal injury, property damage and damage to the environment.

There is no prescription period for personal injury claims arising from a nuclear incident. However, for claims in respect of loss of or damage to property or damage to the environment, the prescription period is ten years from the date on which the incident occurred. The Minister of Finance is to establish the amount of insurance or other financial security necessary to cover the third party liability of operators of nuclear installations. When nuclear damage suffered by any person exceeds the operator's financial security, the victim may request compensation from the Treasury Department. With respect to damage to property and the environment, the Council of Ministers is to determine the method of compensation for losses greater than the funds available.

The 1986 Atomic Energy Act was amended on 24 June 1994 (Official Gazette No. 90, Item 418) to provide for the possibility of state financing of measures designed to ensure the safe use of nuclear energy. On 6 December 1994, the Council of Ministers issued a Decree specifying the type of activities which could benefit from such financial assistance (Official Gazette No. 131). The amendment also specifies that the President of the NAEA will determine the siting of the National Radioactive Waste Repository for the final storage of radioactive waste. This was determined in the Regulation of 2 September 1994 of the President of the NAEA (Official Gazette No. 49).

Finally, the Atomic Energy Act was amended by Parliament in July 1995, in order to provide for harsher penalties for failure to comply with the rules established in the field of nuclear safety and radiation protection. In addition, the amendment stipulates that it is the responsibility of the President of the NAEA to adopt an order in order to define clearly the activities involving the use of ionising radiation sources which are subject to prior licensing.

During 1996, the Atomic Energy Act was revised twice. On 2 February 1996 (Official Gazette No. 24, Item 110) a provision in the Act was modified to prohibit exposure of high radiation doses to personnel voluntarily assisting in the case of a radiological incident, and also to guarantee the right of workers in nuclear facilities to refuse to participate in operations to address the consequences of a radiological incident. On 8 August 1996 (Official Gazette No. 106, Item 496) a provision was added in order to authorise the Ministry of Defence, Ministry of Internal Affairs and Administration and the Office for National Security, in co-ordination with the President of the NAEA, to determine the principles and rules for applying this Act to enterprises and institutes under their control involved in the use of atomic energy.

Regulations supplementing the Atomic Energy Act

The Atomic Energy Act is supplemented by several regulations described below.

Licensing

The Regulation on the Conditions for Issuing Licences for Activities involving the Use of Atomic Energy as Set Out in the Atomic Energy Act, adopted by the Council of Ministers on 21 November 1995 (Official Gazette No. 3, Item 16), sets out the licensing procedure and duties of the licensee, including compliance with nuclear safety and radiation protection requirements as established in the Atomic Energy Act and in Polish standards for nuclear industry.

The Regulation exempting certain activities from licensing was adopted by the NAEA President on 28 August 1997 (Official Gazette No. 59, Item 569), in accordance with the 1995 amendment to the Atomic Energy Act which gave the President of the NAEA the power to exempt certain activities utilising radiation sources from the licensing requirements. The Regulation exempts activities where the radiation source is of very low activity or concentration, or where low level sources are contained in equipment conforming to specified construction requirements, thereby assuring a satisfactory level of radiation protection. Although exempt from licensing, these activities must nevertheless be registered to permit some level of control by the NAEA.

Nuclear Safety and Radiation Protection

A Decree of the Council of Ministers of 11 January 1988 sets out rules for nuclear safety and radiation protection, which are monitored by the President of the NAEA, the Chief Inspector for Nuclear Safety and Radiation Protection and other inspectors (Official Gazette No. 4). Inspectors are required to examine the documentation relating to nuclear safety and radiation protection submitted by applicants in licensing proceedings, provide opinions on the siting of nuclear plants and radioactive waste disposal facilities, review training programmes for employees in nuclear installations and give periodic reports on the nuclear safety and radiation protection situation in the country.

A Regulation of 25 January 1988 of the President of the NAEA lays down the standards for dosimetric recordings and monitoring in the workplace (Official Gazette No. 6). It specifies that data on the level of exposure of individuals must be kept for at least 30 years after cessation of the work involving exposure to ionising radiation.

A Regulation of 31 March 1988 of the President of the NAEA lays down dose limits for ionising radiation as well as derived release limits. It defines dose limits for occupationally exposed persons, for persons in the vicinity of nuclear power plants and for persons exposed to radiation through everyday use of radiation-emitting products (Official Gazette No. 14). The Regulation was amended on 7 July 1995 by the President of the NAEA to provide for radon dose limits in residences and workplaces. From now on, the values of radon must conform to those required by European standards in the field. Furthermore, no person under the age of 16 may work in an environment where radiation is present (Official Gazette No. 35).

The Regulation on the Designation of Professional Posts in order to Ensure Nuclear Safety, Radiation Protection and Working Conditions for Staff, adopted by the NAEA on 19 September 1997 (Official Gazette No. 73, Item 698), generally defines the types of professional posts which are essential to ensure nuclear safety and radiation protection in facilities where nuclear material or

radiation sources are being used, where radioactive waste is being processed or disposed of, and in nuclear reactors. It also sets forth the requirements and procedures for issuing licences to the employees appointed to these positions to work with nuclear materials, radiation sources or radioactive waste. Finally, it describes methods used to verify the qualifications and capabilities of employees working with such substances. Modifications introduced by this Regulation concern:

- the procedure for obtaining licences and the fields within which they are valid;
- designation of agencies authorised to organise training in the field of nuclear safety and radiation protection;
- rules for appointing radiation protection inspectors and the definition of their duties;
- an update of the list of professional positions and appropriate qualifying requirements.

The Regulation is consistent with EU regulations, in particular Council Directive 96/29/Euratom.

Control of Nuclear Materials

A Regulation of 28 July 1987 of the President of the NAEA governs the accounting and control of radioactive sources and of devices incorporating radioactive sources emitting ionising radiation (Official Gazette No. 27). The Regulation expressly states that these principles do not apply to such sources while they are in transit through the territory.

A Regulation of 20 October 1987 of the President of the NAEA governs the accounting and control of nuclear materials (Official Gazette No. 33). These rules set out principles for record-keeping and control of nuclear materials which are being manufactured, processed, utilised, transferred or stored within the territory of the country. Excluded from the application of the rules are nuclear materials passing in transit through the territory. It also specifies the type of documentation which must be kept and details of inspections to be conducted.

The Regulation on the Registration and Monitoring of Ionising Radiation Sources, adopted by the NAEA President on 28 August 1997 (Official Gazette No. 59, Item 570), amends an earlier Regulation on the Principles of Accountancy and Control for Ionising Radiation Sources (Official Gazette No. 27, Item 214). The amendment provides that the earlier Regulation shall not apply to those sources for which a license is not required under the Atomic Energy Act of 1986.

Import, Export and Transit of Nuclear Materials

A Regulation of 25 February 1988 of the President of the NAEA lays down conditions governing the import, export and transit through Poland of nuclear materials, radioactive sources and articles emitting ionising radiation (Official Gazette No. 9).

The Regulation setting conditions for the import, export and transit of nuclear materials, radiation sources and equipment containing such sources, adopted by the NAEA President on 28 August 1997 (Official Gazette No. 63, Item 614 and No. 78, Item 749), maintains the requirement that for the import, export and transit through Poland of nuclear materials, radiation sources or equipment containing such sources, a permit or licence for the specified practice related to the use of those items must be obtained. However, it introduces an exception to this requirement to accord with

the provisions of the above-mentioned Regulations of 28 August 1997 above which exempt certain activities from the licensing obligation. Consistent with the basis for those exemptions, the above-mentioned Regulation allows such imports, exports or transit after registration, on the basis of the total activity or concentration of radioisotopes, including fission isotopes, or, in the case of equipment containing radioactive sources, on the basis of the radiation dose rate. One of the conditions under which imports, exports or transit of nuclear materials may proceed is the attachment to the shipment of the consignee's declaration of readiness to collect the shipment. The declaration is in the form of a standard document which is consistent with Council Regulation (Euratom) No. 1493/93 of 8 June 1993 on shipments of radioactive substances between Member States.

Physical Protection of Nuclear Materials

A Regulation of 6 June 1988 (Official Gazette No. 20) lays down the principles for the physical protection of nuclear materials. It provides for measures to protect nuclear materials against theft, sabotage or illegal uses, according to the category in which such nuclear materials are classified under the Convention on the Physical Protection of Nuclear Material, to which Poland is a Party.

Radioactive Waste Management

A Regulation of 19 May 1989 of the President of the NAEA sets out the rules governing the classification, registration, and conditions for treatment and storage of radioactive waste (Official Gazette No. 18).

Nuclear Third Party Liability

A Regulation of 26 August 1986 of the Minister of Finance states that the third party liability of the operator of a nuclear installation is to be insured by the State Insurance Corporation (PZU). The Chairperson of the PZU set out the general conditions governing this insurance in a Regulation of 19 December 1987 issued pursuant to the Act on Personal and Property Insurance. The main provisions concerning the insurance of third party liability for nuclear damage are as follows: the PZU concludes insurance contracts covering civil liability for nuclear damage with persons liable for such damage on the territory of the Republic of Poland; persons liable for nuclear damage (*i.e.* operators of nuclear facilities) as well as the extent of their liability are defined by the Atomic Energy Act. Through conclusion of an insurance contract on civil liability for nuclear damage, both the PZU and the operator concerned determine a guarantee amount constituting a ceiling of the PZU's insurance cover for nuclear damage. Compensation for nuclear damage covers personal injury or damage to health, damage to property, as well as loss of profits which could have been achieved if damage had not been caused to the victim and expenditures which have been or shall be borne in order to prevent people and the environment from exposure to ionising radiation. The liability of the PZU commences the day after submission of an application for insurance unless in the application, an alternative date of insurance is given. An insurance contract concluded for a period of one year is automatically extended for the next year unless one of the parties expressly denounces it two months before its expiration.

Other Relevant Legislation

The New Polish Criminal Code entered into force on 1 September 1998. Two new provisions dealing with nuclear energy and ionising radiation were introduced into Chapter XX of this Code.

Article 163(1)(4) provides that a person responsible for an event which causes a threat to the life or health of a significant number of persons or considerable damage to property, through release of nuclear energy or ionising radiation, is liable to imprisonment for a period of one to ten years. The second of these provisions, Article 170(1) provides that whoever, without a licence or in breach of conditions attached to the licence, possesses, uses, produces, reprocesses, collects or otherwise deals with explosion devices or substances, radioactive materials, ionising radiation sources or other objects dangerous to the life or health of a significant number of persons or likely to cause considerable damage to property, is liable to imprisonment for a period of six months to eight years.

Draft Legislation and Regulations

A Bill to revise the Atomic Energy Act of 1986 is currently being prepared. The proposed amendments concern, *inter alia*, the competent authorities empowered to regulate nuclear and radiation safety matters and procedures to be followed in the event of a nuclear or radiological accident. The Bill also regulates matters not covered by existing laws such as off-site emergency preparedness, risk from natural radiation sources, public information, radiation protection of outside workers, protection of patients exposed for medical purposes, etc.

International Conventions

Nuclear Third Party Liability

- Poland acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 23 January 1990 and it entered into force on 23 April 1990. Poland also signed the 1997 Protocol to Amend the Vienna Convention on 3 October 1997.

- Poland acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 23 January 1990 and it entered into force on 27 April 1992.

Other International Conventions

- Poland ratified the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 23 December 1964 and it entered into force on 23 December 1965.

- Poland ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 14 October 1963 and it entered into force on the same date.

- Poland ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 12 June 1969 and it entered into force on 5 March 1970.

- Poland ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 15 November 1971 and it entered into force on 18 May 1972.

- Poland ratified the 1979 Convention on the Physical Protection of Nuclear Material on 5 October 1983 and it entered into force on 8 February 1987.

- Poland ratified the 1986 Convention on Early Notification of a Nuclear Accident on 24 March 1988 and it entered into force on 24 April 1988.

- Poland ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 24 March 1988 and it entered into force on 24 April 1988.

- Poland ratified the 1994 Convention on Nuclear Safety on 14 June 1995 and it entered into force on 24 October 1996.

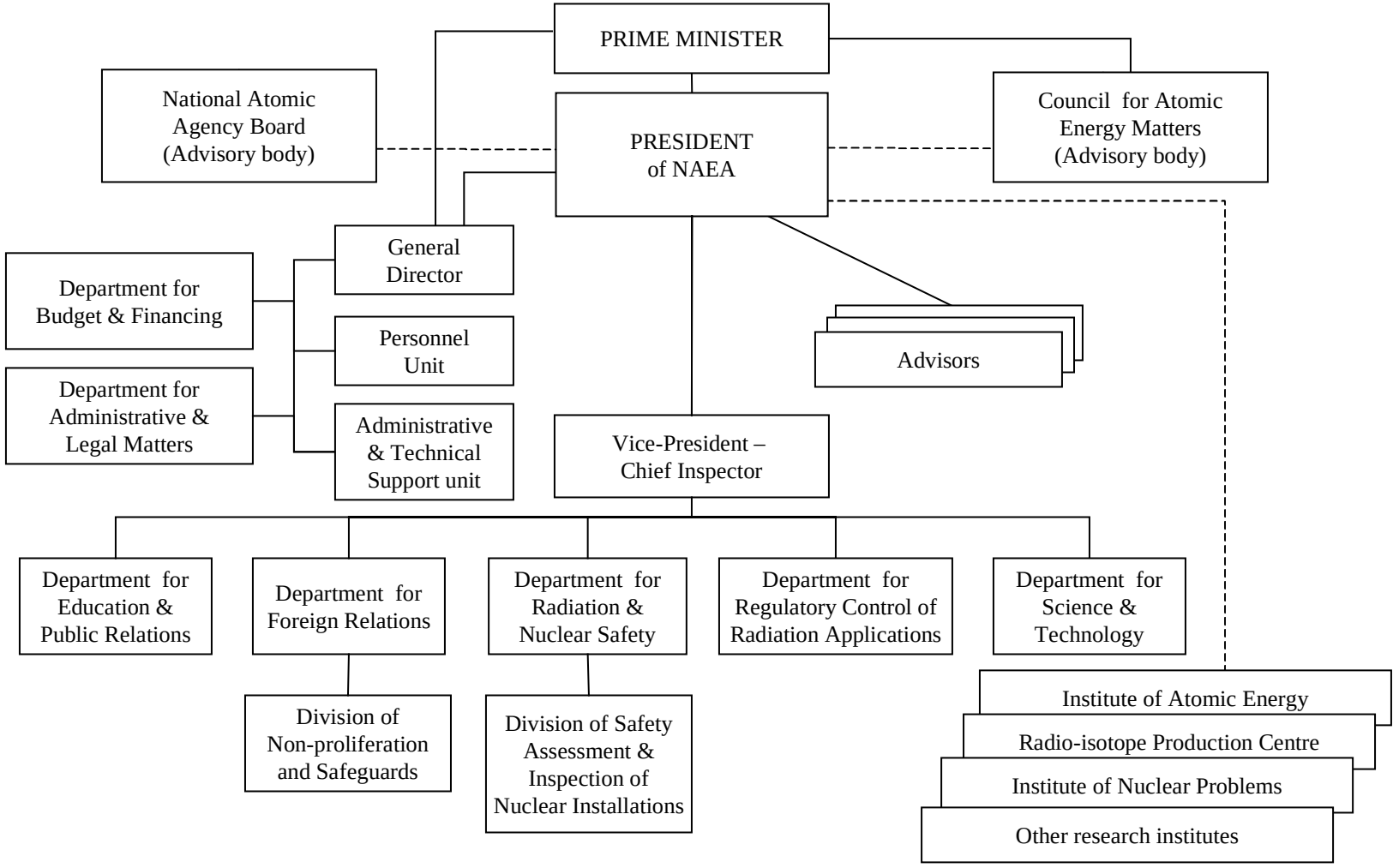
- Poland ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 25 May 1999.

- Poland ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 5 May 2000.

Membership in Nuclear Organisations

Poland is a member of the International Atomic Energy Agency (IAEA), the Nuclear Suppliers Group and the Zangger Committee. The Polish Power Grid Company is a member of the World Association for Nuclear Operators (WANO).

POLAND
National Atomic Energy Agency (NAEA)



ROMANIA

Introduction

Romania has one nuclear power station at Cernavoda, on the Danube, made up of one unit in operation and another one under construction. The construction of Units 3-5 is currently suspended. Unit 1, a CANDU-type reactor with a 706 MWe capacity, was connected to the grid in 1996. It is now operated by the National Nuclear Power Company (*Societatea Nationala Nuclearelectrica S.A.* – hereinafter referred to as *Nuclearelectrica*), successor to the former Romanian Electricity Authority (*Regia Autonoma Nationala de Electricitate* – RENEL). *Nuclearelectrica* has three subsidiaries: for nuclear power production (CEN-PROD – Cernavoda Unit 1); nuclear power development (CNE-INVEST – Cernavoda Units 2-5); and nuclear fuel manufacture (FCN – Pitesi Nuclear Fuel Plant). *Nuclearelectrica* reports to the Ministry of Industry and Trade and is fully state-owned. Cernavoda provides approximately 10% of Romania's electricity. The National Power Company (*Compania Nationala de Electricitate S.A.* – Conel), a state enterprise created after the restructuring of RENEL, and which is also under the control of the Ministry of Industry and Trade, has the monopoly of the transportation and distribution of electricity in Romania.

Romania possesses two research reactors: one in operation, the 14 MWe TRIGA-type Material Testing Reactor of the Pitesi Branch for Nuclear Research and one which is shut down, the 2 MWe VVR-S type research reactor of the Bucharest-Magurele Institute for Physics and Nuclear Engineering (INPE).

Romania also has several radioactive waste repositories and storage facilities. The storage facilities at the Cernavoda site include a defective fuel storage bay and a spent fuel storage bay. Final disposal of low-level radioactive waste is done at the National Repository for Low and Medium Level Radioactive Waste at Baita Bihor, operated under the responsibility of the INPE. Romania also possesses a radioactive waste treatment plant which is operated under the responsibility of the INPE Waste Treatment Department.

The Rare Metals Autonomous Administration, under the authority of the Ministry of Industry and Trade, is involved in the prospecting and mining of uranium ore. It is responsible for the management of radioactive waste resulting from its activities.

Competent Nuclear Authorities

The National Commission for the Control of Nuclear Activities (*Comisia Nationala pentru Controlul Activitatilor Nucleare* – CNCAN) is a governmental organisation which acts as a regulatory body responsible for the safety of all nuclear activities in Romania. The Commission is led by a president who holds the rank of state secretary, reporting directly to the government. Law No. 16 of 8 January 1998 increased the independence of the Commission and made it directly responsible to the government. The president is assisted by an Advisory Committee and the CNCAN Board.

The Commission was established by Decree No. 29 of 8 January 1990, and its powers were set out in Decree No. 221 of 11 May 1990 and extended, pursuant to Law No. 16, by Decision No. 287 of 27 May 1998 (*Monitorul Oficial* No. 199/28 May 1998). It is responsible for all issues of nuclear safety in the siting, construction and operation of nuclear installations in Romania, as well as for quality assurance, radiation safety, safeguards, radioactive waste management, import and export of nuclear installations and nuclear materials, physical protection, on-site emergency preparedness and early notification of the IAEA and of potentially affected states in the event of a nuclear accident or radiological emergency. In the discharge of its duties, the Commission:

- proposes draft legislation, regulations, technical documents, standards and instructions for the safe operation of nuclear installations and power plants; for protection of workers, the public and the environment from radiation and for physical protection, safeguards, transport, import, export and transit of radioactive materials;

- approves draft legislative instruments with implications in nuclear field;

- organises, and is responsible for, state control concerning the application of the appropriate legal provisions to nuclear installations, during all phases of operation and in relation to all the components of the quality system in this field; pronounces and applies sanctions established by law in the event of breach of such norms and orders, if necessary, the termination of operations;

- reviews and assesses safety information submitted by licence applicants;

- issues, amends and revokes licences and approves emergency preparedness plans;

- verifies compliance with regulations and procedures during the design, construction, commissioning and operation of nuclear installations;

- organises and establishes procedures for the continual monitoring of environmental radioactivity on the national territory.

The Commission is also responsible for developing international co-operation in the nuclear field with bodies engaged in similar activities in other countries and with international organisations.

In June 1998, the government approved the new organisational structure of the CNCAN, which clearly demonstrates the separation of responsibilities for major nuclear installations from those for radioactive source applications. Consequently, the Commission now has two main Divisions: the Nuclear Power Plants and Fuel Cycle General Division and the Radio-isotope Applications General Division. Both report directly to the President of the CNCAN.

Each Division is made up of two sections. The Nuclear Power Plants and Fuel Cycle General Division comprises the Reactor Safety and Licensing Section and the Quality Assurance, Safeguards and Fuel Cycle Section. The Radio-isotope Applications General Division comprises the Evaluations and Regulation Section and the Radioactive Sources Applications Section.

An additional General Division is responsible for the surveillance of the radioactivity on Romanian territory while a fourth General Division is responsible for the logistics of the CNCAN.

Furthermore, in 1999 the CNCAN set up the Emergency Notification Centre as the contact point with the IAEA regarding notification and assistance in the event of a nuclear emergency.

In the exercise of its regulatory functions, the CNCAN is the body which centralises all licences issued by other governmental bodies, which have a complementary role in regulating nuclear activities; for example:

- the Fire Protection Department of the Ministry of the Interior establishes rules concerning fire protection at nuclear installations, and the Physical Protection Department of the same Ministry is responsible for supervision of the physical protection of nuclear material;

- the Ministry of Health is responsible for the use of radioactive products for diagnosis and medical treatment;

- the Ministry of Water, Forests and Environmental Protection is responsible for developing environmental protection legislation and for the environmental protection licensing process;

- the Pressure Vessels Authority of the Ministry of Industry and Trade is responsible for the licensing and control of pressure vessels, boilers and pressure installations;

- the Central Commission for Nuclear Accidents and Falling of Cosmic Objects is responsible for off-site emergency preparedness; and

- the Ministry of Labour and Social Protection is responsible for industrial safety.

A National Atomic Energy Agency was established by Government Decision No. 743 of 1 November 1994 as a general division of the former Ministry of Research and Technology (now the National Agency for Science, Technology and Innovation – ANSTI). The National Atomic Energy Agency is responsible for scientific research, the development and application of nuclear technologies.

An important part of nuclear power plant research and design is performed by the Pitesi "Branch" for Nuclear Research (*Sucursala pentru Cercetari Nucleare*) and by the Bucharest Magurele "Branch" for Nuclear Projects Engineering and Technology (*Sucursala pentru Inginerie si Technologie Obiective Nucleare*), which, since the restructuring of RENEL, form part of the Autonomous Reggie for Nuclear Activities (*Regia Autonoma pentru Activitati Nucleare*). The Institute for Physics and Nuclear Engineering (INPE), under the authority of the Institute of Atomic Physics, a general division of ANSTI, conducts basic research in the nuclear field and development of nuclear techniques. It also acts as the central waste treatment organisation and bears, through its Waste Treatment Department, responsibility for the collection, treatment and disposal of waste.

A National Export Control Agency was created by Government Decision No. 594/1992 of 23 September 1992 to oversee the import and export of sensitive goods and technology. Its duties include the examination of certificates relating to the import of nuclear products and the provision of advice based on such examination; the verification of all aspects of the import and export of goods and technologies subject to control and participation in international co-operation in this field.

Legislation in Force

Law on the Safe Conduct of Nuclear Activities

On 10 October 1996, the President of the Republic of Romania promulgated the Law No. 111/1996 on the Safe Conduct of Nuclear Activities (*Monitorul Oficial*, Part I, No. 267/29 October 1996),* which entered into force on 26 December 1996. It repeals previous laws governing nuclear activities, such as Law No. 61/1974 regulating all nuclear activities in Romania, Law No. 6/1982 dealing with quality assurance in respect of nuclear installations and other legislation which is contrary to this Law.

Its purpose is to bring the Acts of 1974 and 1982 up to date, taking into account:

- changes in Romania's political and economic environment, including the transition to a market economy, democracy and a separation of powers;
- regulatory experience gained through the implementation of the two Acts mentioned above;
- new legal developments in the nuclear field, both national and international;
- recommendations by competent international organisations;
- the desire to strengthen the enforcement provisions.

The 1996 Law aims to establish a comprehensive legal framework for the regulation, licensing and control of activities involving the peaceful uses of nuclear energy. It applies to the design, construction, operation and decommissioning of nuclear installations. The Law is further applicable to ore extraction and the processing of uranium and thorium ores, and to production, supply and storage of nuclear fuels, radioactive materials and waste. These activities require a licence from the CNCAN in accordance with procedures which ensure nuclear safety, radiation protection, quality assurance, non-proliferation and physical protection.

A licence may be partially suspended or revoked by the issuing authority if:

- the licence-holder fails to comply with the provisions of the Law on the Safe Conduct of Nuclear Activities;
- new technical facts arise, affecting the validity of the licence;
- the licence-holder is no longer considered to be a valid legal entity.

All activities contributing to the proliferation of nuclear weapons or other explosive devices and which represent a threat to national security are henceforth prohibited. This provision covers the manufacture, import, export and transport of nuclear weapons or explosive devices on Romanian territory. The import of radioactive waste is forbidden, with the exception of the re-importation of spent fuel which has been reprocessed overseas.

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* The full text in English of this Law was reproduced in the Supplement to *Nuclear Law Bulletin* No. 59 (June 1997).

It is necessary to obtain the opinion of the Ministry of Health before the Commission issues a licence for the use of radionuclides and radiation sources for medical purposes or the provision of irradiated products for public consumption.

Licensees must apply the measures required for nuclear safety and for protection of personnel, the general public and the environment. Furthermore, they must pay a contribution to the Radioactive Waste Management and Decommissioning Fund, which is not yet operational.

Medical checks of exposed personnel are carried out regularly, in accordance with measures laid down by the Ministry of Health.

Licensees must also keep a detailed account of the radioactive and nuclear materials for which they are responsible and ensure that they will not be lost or stolen or that radioactive emissions will not be released accidentally. In the event of an accidental release, they must inform the CNCAN which, in turn, will inform neighbouring countries accordingly. Licensees must further limit and mitigate the consequences of any such possible release.

The 1996 Law does not cover nuclear third party liability in a detailed manner, since the government intended to pass a specific Law on Civil Liability for Nuclear Damage. However, the Law does stipulate that the operator is exclusively liable for damages resulting in personal injury or death, and loss of, damage to, and loss of use of property, in conformity with Romania's international obligations. Moreover, the 1991 Constitution provides that international treaties to which Romania is a Party are part of Romanian national law. Since 1992, Romania has been a Party to both the 1963 Vienna Convention on Civil Liability for Nuclear Damage and the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention.

A nuclear and non-nuclear liability insurance policy was signed for the Cernavoda NPP with the Romanian Nuclear Insurance Pool, and consequently the licensee for Unit 1 of this NPP is insured for 5 million Special Drawing Rights (SDR).

In order to ensure consistency with the provisions of the Convention on Nuclear Safety and EU legislation, the 1996 Law on the Safe Conduct of Nuclear Activities was amended, on 8 January 1998, by Law No. 16 (*Monitorul Oficial*, Part I, No. 8/13 January 1998). The amendments entered into force on 13 February 1998. Fourteen amendments were introduced, of which four are of particular importance as regards the structure and powers of the CNCAN:

- the CNCAN has been made more independent and is now responsible directly to the government instead of being under the authority of the Ministry of Water, Forests and Environmental Protection;

- the authorisation of the Commission to spend revenue from fees has been widened to cover, in addition to material expenses, personnel expenses, endowments and investments specifically relating to the activities of the Commission;

- the powers of the Commission are considerably strengthened and it is effectively raised to the rank of a ministry, allowing it to propose draft laws and other projects in the field, for submission to the government and then to Parliament;

- it is now the Commission, rather than the Central Authority for the Protection of the Environment, which is responsible for radiation monitoring in Romania.

Governmental Decree No. 287/1998 approved the new structure and additional duties of the CNCAN.

Furthermore, the Law sets out the legal requirements for radioactive waste management: the waste producer bears responsibility for the management of his radioactive waste, for the financial and material arrangements covering the collection, transport, treatment, conditioning and disposal of waste arising from his activities and the decommissioning of his facilities.

Licensing

On 10 December 1999, the President of the CNCAN issued Order No. 219 governing the Accreditation of Bodies in the Nuclear Field (*Monitorul Oficial*, No. 87/28 February 2000) which entered into force on 29 March 2000. This text was adopted pursuant to Government Ordinance No. 38 of 30 January 1998 on accreditation, which states in particular that the CNCAN is responsible for assessing and accrediting certification bodies and laboratories in the nuclear field. Order No. 219 provides that the following types of bodies will be accredited: testing laboratories, calibration laboratories, products certification bodies, quality assurance certification bodies and personnel certification bodies. These bodies provide the CNCAN with reports on specific issues related to the licensing of nuclear activities to help it in its task of determining whether or not a licence should be granted. It sets out the criteria which should be fulfilled by these bodies in order to be accredited.

Emergency Preparedness

The Law of Defence Against Disasters sets out the responsibilities of the central and local authorities in the event of emergencies, such as nuclear accidents. The responsibility at state level lies with the Governmental Commission for Defence Against Disasters, headed by the Prime Minister, and a Technical Secretariat attached to the General Secretariat of the government. Under the authority of this Governmental Commission, several central commissions are responsible for emergency planning and preparedness for different types of events qualified as disasters. Among them is the Central Commission for Nuclear Accidents and Falling of Cosmic Objects (CCANCOC), which is led by the Ministry of Defence and has as secretary the head of the Department of Civil Defence. According to the Law, the CCANCOC is responsible for off-site emergency planning and preparedness in the event of a nuclear accident at licensed utilities, for radiological emergencies occurring as a result of other licensed nuclear activities and radiological emergencies resulting from transboundary effects.

The CNCAN is responsible for on-site emergency planning and preparedness. In this respect, the Commission approves the response plan and procedure established by the public authorities and licensee, assists the state authorities in setting out the intervention procedures, and informs the public on the situation.

Import and Export of Nuclear Materials

Imports and exports of nuclear materials are regulated by the above-mentioned Government Decision No. 594/1992, amended by Government Decision No. 1020/1996, creating the National Export Control Agency and by other orders. Order No. 2/1993, which was made by the Minister of Industry and Trade in implementation of Government Decision No. 594/1992, lays down a licensing system for the import and export of radioactive materials and nuclear equipment other than equipment and products which can be used directly for the manufacture of nuclear explosive devices. Act

No. 88/1992 introduces a provision in the Penal Code which prohibits any breach of the regulations on imports of wastes and residues.

Order No. 40/1991, issued jointly by the Ministers of Foreign Affairs, Defence, and Industry and Trade, provides for a system of control over the export of materials, chemical and biological substances.

Draft Legislation and Regulations

Draft Law on Civil Liability for Nuclear Damages

A draft Law on Civil Liability for Nuclear Damages, prepared by the CNCAN, has been submitted to the Parliament for approval. This draft Law aims to establish a comprehensive liability regime for damages caused by nuclear incidents. It closely follows the provisions of the Protocol to Amend the Vienna Convention and the Convention on Supplementary Compensation for Nuclear Damage and is based on the following principles:

- a comprehensive definition of "nuclear damage", encompassing damage to the environment, loss of income, cost of preventive measures and other economic loss if awarded by the court;

- channelling of liability to the operator: strict and absolute liability *i.e.* liability without fault of the operator of the relevant nuclear installation;

- the amount of compensation will be determined by the competent court, but the total maximum amount of compensation for any one nuclear incident shall not exceed SDR 300 million; the limit of operator's liability per accident may not be less than SDR 300 million for nuclear power plants, SDR 30 million for research reactors and radioactive waste repositories, SDR 25 million for spent fuel transportation and SDR 5 million for the transport of nuclear materials;

- compulsory insurance: the operator must maintain insurance or other type of financial security to cover its liability up to at least SDR 150 million, or in some special cases to be determined by the regulatory body, to a sum which shall not be less than SDR 50 million, in order to acquire an operating licence; the state is obliged to make available public funds in order to provide supplementary compensation for the difference up to SDR 300 million;

- long prescription periods: compensation rights are time-barred if an action is not brought within 30 years from the date of the nuclear accident or 3 years from the date on which the victim becomes aware of the damage;

- exonerations: the operator is not liable for damage caused by a nuclear incident directly due to acts of armed conflict, civil war or insurrection, a natural disaster, or where the damage is caused by the person suffering damage.

Draft Law on the Fund for the Management of Radioactive Waste and Decommissioning

A draft Law on the Fund for the Management of Radioactive Waste and Decommissioning, prepared by the CNCAN, is still in discussion within the Ministry of Industry and Trade. The basic principle underlying this Law is that all users of nuclear techniques that produce radioactive waste must contribute to this Fund. The Fund is also financed from the state budget and from other sources. The draft Law establishes the respective contributions which different categories of users must make to the Fund. For example, NPPs shall contribute 10% of the value of electricity produced. The draft Law also establishes mechanisms of allocating resources from the Fund in order to improve techniques for radioactive waste management and for decommissioning of nuclear installations.

This draft legislation furthermore provides for the establishment of a Radioactive Waste Management Agency, which would be responsible for administrating this Fund, establishing strategies in this field and co-ordinating actions undertaken. This Agency will report to the Ministry of Industry and Trade. The establishment of a National Waste Management Company is also being considered to fulfil technical duties in the field of radioactive waste management. The company will also be under the authority of the Ministry of Industry and Trade.

Draft Regulations

The CNCAN has drafted a Basic Radiological Safety Regulation, which closely follows Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from radiation protection.

In addition, the CNCAN has prepared a draft National Regulation for Physical Protection of Nuclear Materials, which incorporates the guidelines specified in INFCIRC/225/Rev.3.

The regulations set out in Ordinance No. 133/1976 of the State Commission for Nuclear Energy concerning nuclear safety are under review to ensure implementation of the recommendations of the International Commission on Radiological Protection (Issue No. 60) and to improve the reporting system. Similarly, Ordinance No. 317/1975 of the State Commission for Nuclear Energy relating to the safe transport of radioactive materials is currently under review to ensure implementation of the recommendation to establish a standard document for transfers and provision of information relating to the shipments of radioactive substances based on Council Directive 92/3/Euratom on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community and Regulation (Euratom) No. 93/1493 on shipments of radioactive substances between Member States.

Further regulations under preparation concern the revision of standards governing quality assurance in activities of nuclear research and decommissioning of nuclear installations and safeguards.

International Conventions

Nuclear Third Party Liability

- Romania acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 29 December 1992 and it entered into force on 29 March 1993. Romania ratified the 1997 Protocol to Amend the Vienna Convention on 29 December 1998.

- Romania acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 29 December 1992 and it entered into force on 29 March 1993.

- Romania ratified the 1997 Convention on Supplementary Compensation for Nuclear Damage on 2 March 1999.

Other International Conventions

- Romania ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 12 December 1963 and it entered into force on 23 December 1963.

- Romania ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 4 February 1970 and it entered into force on the same date.

- Romania ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 10 July 1972 and it entered into force on the same date.

- Romania ratified the 1979 Convention on the Physical Protection of Nuclear Material on 23 November 1993 and it entered into force on 23 December 1993.

- Romania acceded to the 1986 Convention on Early Notification of a Nuclear Accident on 12 June 1990 and it entered into force on 13 July 1990.

- Romania acceded to the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 12 June 1990 and it entered into force on 13 July 1990.

- Romania ratified the 1994 Convention on Nuclear Safety on 1 June 1995 and it entered into force on 24 October 1996.

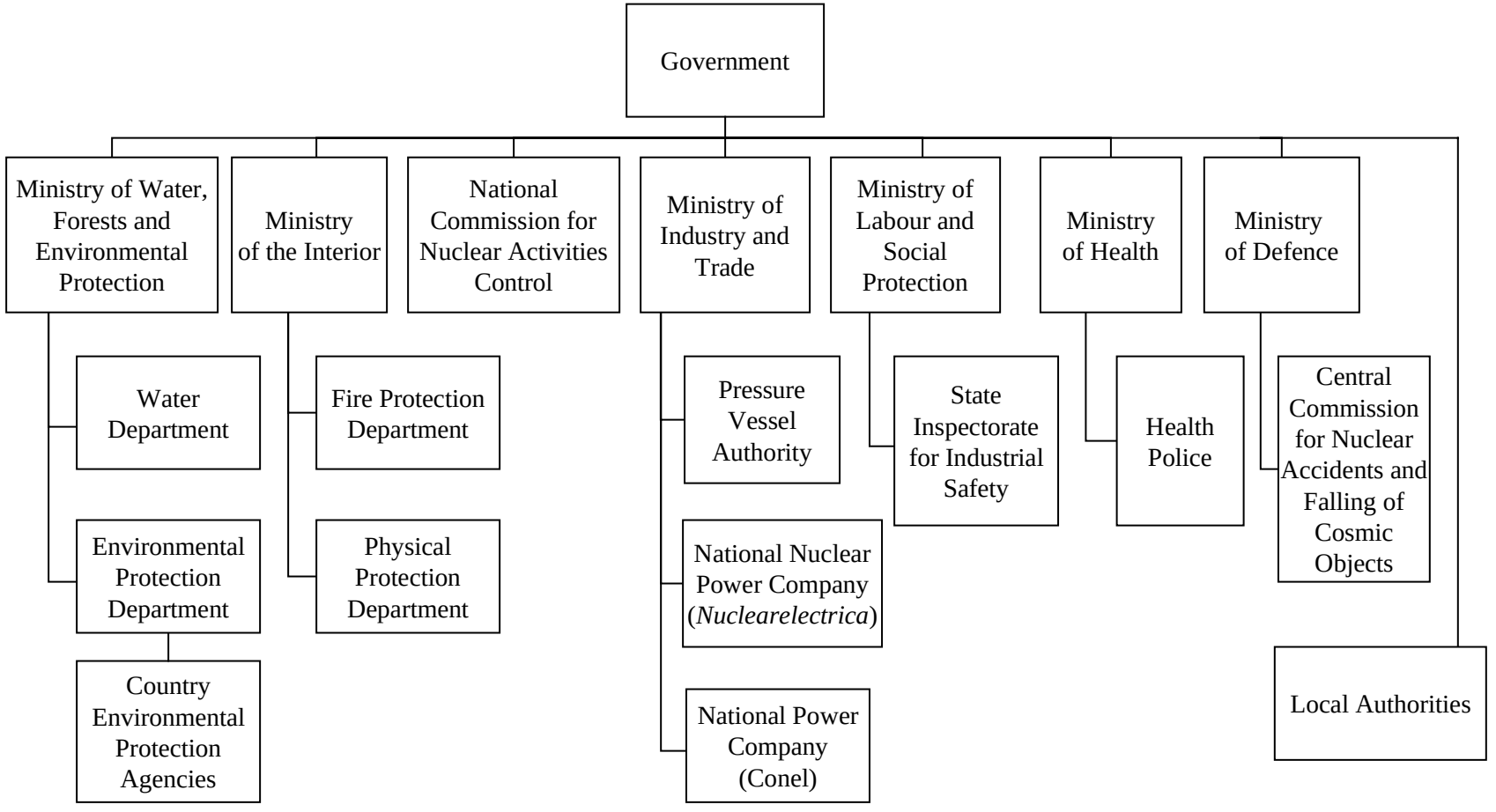
- Romania ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 5 October 1999.

- Romania ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 6 September 1999.

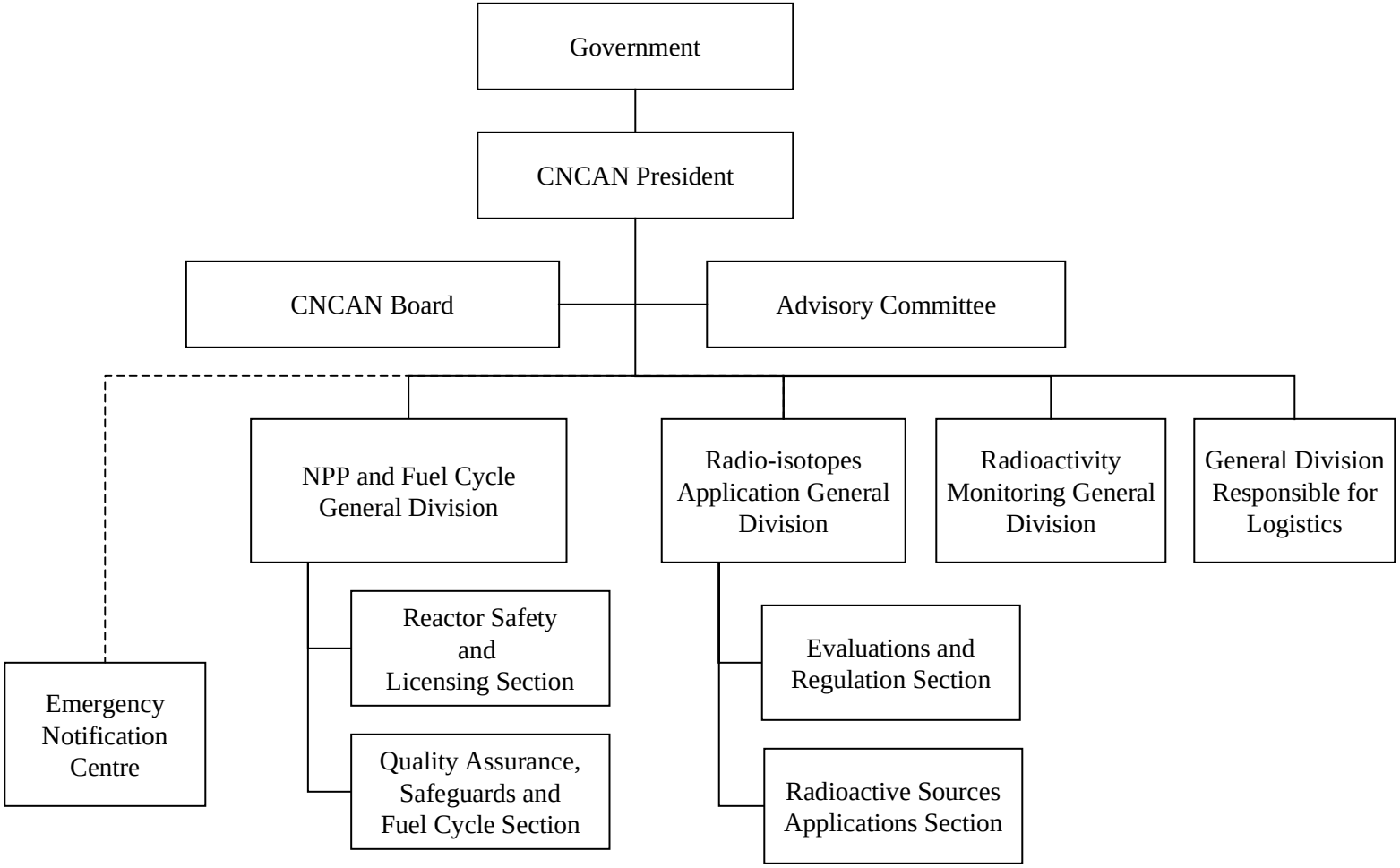
Membership in Nuclear Organisations

Romania is a member of the International Atomic Energy Agency (IAEA) and *Nuclearelectrica* is a member of the World Association of Nuclear Operators (WANO). Romania is a member of both the Nuclear Suppliers Group and the Zangger Committee.

ROMANIA
Competent Regulatory Authorities in the Field of Nuclear Energy



ROMANIA
National Commission for the Control of Nuclear Activities (CNCAN)



RUSSIAN FEDERATION

Introduction

With an installed capacity of approximately 21 242 MWe, the Russian Federation is the largest producer of nuclear power-generated electricity of the four former Soviet Republics having nuclear power plants in operation.

At present, there are 29 reactors in operation at 9 sites in the Russian Federation and a further 18 units are under construction. Of these reactors, 13 are VVER design pressurised water reactors, 15 are light-water-cooled graphite reactors (LWGR) of which 11 are of RBMK design, and one is a fast breeder reactor. Approximately 45 research reactors are also in operation.

In addition, the Russian Federation has three plutonium production reactors. One is located at Krasnoyarsk and has been operating since 1964. The two other reactors are located at Tomsk and have been operational since 1964 and 1965. They were originally used for the production of weapons-grade plutonium, but now essentially provide heat and electricity to the surrounding regions in Siberia.

There are two spent fuel-reprocessing plants in the Russian Federation: RT-1, operated by the Mayak enterprise at Chelyabinsk and RT-2, a reprocessing plant for VVER-1000 spent fuel which is under construction. Until the construction of the latter plant is completed, spent fuel is stored at a facility near Krasnoyarsk. Spent fuel from RBMKs is not reprocessed but is stored on site.

Finally, the Russian Federation has vast uranium resources and has one uranium ore processing facility, four uranium enrichment plants and two major fuel fabrication facilities, the Elektrostal complex near Moscow and one in Novosibirsk.

The Unified Electric Power System of Russia distributes and sells electricity in the Russian Federation. It owns the largest thermal and hydro plants as well as all the high-voltage transmission lines of more than 300 kV in the Russian Federation. In addition, it buys the output of the 21 individual utility companies and a large proportion of *Rosenergoatom*'s output (see *infra*).

Competent Nuclear Authorities

Jurisdiction over nuclear matters lies primarily with the Ministry of Atomic Energy (*Minatom*) which has a regulatory role with the following objectives:

- to implement state policies in scientific and technical fields;
- to develop and implement measures to ensure the safe utilisation of nuclear energy;
- to develop appropriate standards and rules in the nuclear field;

- to design and implement radioactive waste treatment programmes.

In order to provide centralised management of nuclear power plants and to ensure their safety, the Russian State Agency for the Generation of Electric and Thermal Power at Nuclear Power Plants (*Rosenergoatom*) was established by Presidential Decree No. 1055 on 7 September 1992. The Decree sets out the mandate of this body as a state-owned enterprise.

Rosenergoatom is responsible for the management of all nuclear power plants with the exception of the Sosnovy Bor Plant. It reports to *Minatom* even though it is, in principle, autonomous. *Rosenergoatom* is considered as the licensee for nuclear power plants as well as the liable operator with regard to nuclear third party liability. In addition, *Rosenergoatom* is responsible for plant maintenance, technical support, operations planning, emergency planning, the dissemination of information, and staff training.

The Russian nuclear regulatory agency is the State Committee for Nuclear and Radiation Safety (*Gosatomnadzor*), which is responsible for the supervision of Russian civilian nuclear power plants. The Statute of *Gosatomnadzor* was approved by Presidential Directive No. 283 on 5 June 1992 as amended by Presidential Directive No. 636 of 16 September 1993, Presidential Decree No. 1923 of 15 September 1994, dealing with measures to improve the system of accounting for and safe-keeping of nuclear materials, and Presidential Directive No. 350-r of 26 July 1995 redefining certain regulatory functions in the nuclear energy field. Until the adoption of the new federal constitutional Law on the Government of the Russian Federation and the confirmation of the new structure of federal executive agencies, *Gosatomnadzor* was subject to two authorities: as a federal agency forming part of the executive, it derived its authority from the government; however, insofar as it deals with matters of nuclear safety, it fell directly under the authority of the Russian President. Since the adoption of this Law, *Gosatomnadzor* is under the exclusive authority of the government.

Pursuant to the Law on the Use of Atomic Energy of 20 October 1995 (the Atomic Law) and to the provisions contained in its Statute, *Gosatomnadzor* is the chief regulatory body for nuclear safety. As such, it is responsible for the regulation of nuclear activities for peaceful purposes. It is entrusted with the task of defining safety principles and criteria, standards, rules and other regulatory measures, and in particular, for establishing a licensing and inspection system for such activities.

It should be noted that *Gosatomnadzor*'s main function is to issue licences for nuclear installations according to the special procedure outlined in the Atomic Law. In addition, *Gosatomnadzor* is vested with the following specific responsibilities:

- to ensure compliance with the requirements of Russian legislation on nuclear and radiation safety, in the manufacture, treatment and use of nuclear energy, nuclear materials and radioactive substances;

- to regulate the storage and treatment of radioactive waste and of spent fuel, as well as their recycling and disposal;

- to ensure the physical protection of nuclear materials as well as their non-proliferation;

- to conduct inspections of hazardous nuclear and radiation facilities;

- to issue licences to carry out activities involving the use of nuclear energy;

- to impose penalties in the event that safety regulations are violated, including the revocation of licences, if warranted.

Pursuant to Presidential Decree No. 26 of 21 January 1997 on the Federal Organs of Executive Power Authorised to Implement the National Safety Regulations for the Use of Nuclear Energy, *Gosatomnadzor*, the Ministry of Health, the Federal Mining and Industrial Supervisory Committee (*Gosgortechnadzor*) and the Ministry of Internal Affairs are empowered to implement the state regulations in their respective competence.

Other bodies which exercise jurisdiction in this field are the Ministry of Civil Defence, Emergencies and Natural Disasters, the Ministry of Transport, the State Committee for Environmental Protection, the Standardisation Office of the Russian Federation (*Gosstandart*), and the Russian Federal Hydrometeorology and Environmental Monitoring Service. The Russian Institute for Nuclear Power Operations is responsible for improving plant operations.

Lastly, *Minatom* operates a number of research institutes, among which are the Research and Development Institute of Power Engineering, the Institute of Physics and Electrical Engineering and the Institute for Reactor Research. The Kurchatov Russian Research Centre is the state scientific centre.

Legislation in Force

Law on the Use of Atomic Energy and Implementing Legislation

In the Russian Federation, the Federal Law on the Use of Atomic Energy* of 20 October 1995 is the general law that governs all nuclear activities. It came into force on 21 November 1995. It establishes the legal basis and the principles for the regulation of the use of atomic energy, such as safeguarding health and life and protecting the environment and property. The main objectives of this Law are to create a legal framework to govern state control over the use of atomic energy and state regulation of nuclear safety, and also to specify the rights and obligations of citizens, government officials, enterprises, the federal executive authority and other organisations engaged in the field of nuclear energy use. Activities associated with the development, manufacture, testing and use of nuclear weapons and nuclear military installations do not fall within the scope of this Law. Such activities are subject to other federal laws.

Under the Law, persons using nuclear energy are required to comply with the following principles:

- the safe use of atomic energy and radiation protection of the population and the environment;

- free access to information on the use of atomic energy (unless such information constitutes a state secret);

* The full text in English of this Law was reproduced in the Supplement to *Nuclear Law Bulletin* No. 57 (June 1996).

- the participation of citizens, and corporate bodies, including commercial undertakings in the review of state policy and the drafting of legislation relating to the use of atomic energy; and

- compensation for damage caused by the effects of ionising radiation.

The Law establishes the legal regime, including licensing requirements governing the siting, design, construction, operation and decommissioning of nuclear installations, radiation sources and storage facilities. It also regulates nuclear safety, physical protection, nuclear liability, transport, export and import of nuclear material and radioactive substances, and radioactive waste management. Persons working with radiation must obtain a permit and fulfil requirements as specified.

The Law establishes the legal status, rights and obligations of organisations engaged in nuclear activities, including operating organisations. Such organisations are responsible for ensuring the safety of nuclear installations and the protection of the staff, the population and the environment in the event of an accident at a nuclear installation.

Numerous legal instruments, including the following, have been enacted pursuant to this Law to regulate the use of nuclear energy:

- Government Decree No. 233 of 1 March 1997 on the List of Medical Counter Indicators and their Functions, and the Conduct of Medical Assessments and Psycho-Physiological Examinations of Employees who Work at Facilities Using Atomic Energy. This Decree confirmed the list of medical counter indicators, their functions and corresponding conditions for medical examinations.

- Government Decree No. 240 of 3 March 1997 on the List of Employees who Work at Facilities Using Atomic Energy.

- Government Decree No. 264 of 7 March 1997 establishing the Rules for the Physical Protection of Nuclear Materials, Nuclear Facilities and Sites Where Nuclear Materials are Stored.

- Government Decree No. 289 of 12 March 1997 on the Delimitation of Territories Adjacent to Dangerous Radiological and Nuclear Installations and Facilities, on the Mobilisation and Use of Centralised Resources to Finance Measures for the Protection of the Public Residing in Such Territories and for the Development of a Social Infrastructure for these Territories in accordance with the Federal Law on Financing of Particular Dangerous Radiological and Nuclear Installations and Facilities.

- Government Decree No. 306 of 14 March 1997 established the rules for the adoption of decisions on the siting and construction of nuclear installations and facilities using radiation sources.

- Government Decree No. 392 of 5 April 1997 confirmed the role of the Ministry of Atomic Energy as regards the management of the utilisation of atomic energy.

- Government Decree No. 718 of 16 June 1997 on the Procedure for the Establishment of a Unified System of State Accounting and Control in Relation to the Exposure of Individuals to Doses of Radiation.

- Government Decree No. 761 of 20 June 1997 establishing Rules for the Training, Operation and Financing of Regional Emergency Divisions of Operating Organisations in Order to Deal with Accidents Occurring During the Transport of Nuclear Material or Radioactive Substances.

- Government Decree No. 865 of 14 July 1997 on Licensing Procedures and Requirements for Activities in the Field of Nuclear Energy Use. These provisions provide that *Gosatomnadzor* is the body responsible for licensing such activities.

- Government Decree No. 1039 of 15 August 1997 set out rules requiring notification of both national executive bodies and local administrative agencies of the launch of a cosmic installation containing nuclear energy sources, and the provision of assistance to the public in case of accidental early return of such installation to Earth.

Furthermore, by Decree No. 367-r of 12 March 1996, the government has approved a plan to establish supplementary legislation to cover all activities in the nuclear field.

Presidential Decree No. 1012 of 2 July 1996 on Guarantees for the Safe and Sustainable Operation of the Nuclear Power Industry in the Russian Federation provides that a special fund is to be set up by the government to finance scientific research aimed at improving the safety of facilities defined in the Law on the Use of Atomic Energy. Under the Decree, the government is also to provide guarantees in order to attract foreign investment.

Regime of Nuclear Installations

Decree No. 306 of 14 March 1997 regulates the main procedures governing the commissioning of nuclear installations, radiation sources and storage facilities, feasibility of investments, siting, development of design, co-ordination and approval.

Government Decree No. 144 of 2 February 1998 concerns the development of space installations equipped with nuclear energy sources.

Nuclear Safety and Radiation Protection

The Federal Law on Radiation Safety of the Population was enacted on 9 January 1996 and entered into force on 28 January 1997. This Law, which complements the Federal Law on the Use of Atomic Energy, sets forth the basic principles governing radiation protection of the public throughout the entire territory of the Russian Federation, defines the rights and obligations of state agencies, legal entities and private individuals, and provides for the regulation of nuclear activities by the state and by government authorities to ensure the radiation safety of the public. It defines the procedure for supervising and controlling radiation safety, thus strengthening the international regime for the safe use of nuclear energy.

The legislation confirms that human health and environmental protection take priority over all other considerations in the utilisation of nuclear energy, radioactive substances and other sources of ionising radiation. It sets forth the three essential principles of radiation safety – dose limitation, justification and optimisation – and establishes a mechanism for their implementation.

Pursuant to Presidential Decree No. 1012 of 2 July 1996 on Guarantees for the Safe and Sustainable Operation of the Nuclear Power Industry in the Russian Federation, the government commits itself to providing state guarantees to operating organisations and *Rosenergoatom* with the aim of encouraging foreign investment in nuclear safety.

Furthermore, federal safety standards and rules are extremely important from the point of view of the safe use of nuclear energy. The most significant safety requirements and conditions are found in the Radiation Safety Standards (NRB-76/87), the Nuclear Safety Rules (NSR-RU-89) and the General Guidelines for Ensuring the Safety of Nuclear Power Plants during Design, Construction and Operation (OPB-88).

The Code of discipline for workers in fields of atomic energy use was established by Government Decree No. 744 of 10 July 1998.

A further Presidential Decree, No. 72 of 25 January 1995, deals with the government's support for the restructuring of the nuclear industry in the town of Zheleznogorsk of the Krasnoyarsk Region. The Decree establishes a system of environmental control for the residential areas affected by radiation from the Krasnoyarsk nuclear power plant's activities. It was amended by Decree No. 389 of 20 April 1995, which aims to guarantee the protection of the environment and of public health against the effects of ionising radiation.

Control over Nuclear Materials

Export and Import Controls

The Law on the Use of Atomic Energy and its implementing decrees substantially revises the regulatory framework for export and import. Decree No. 124 of 8 February 1996 provided for the establishment of a list of nuclear materials, equipment, special non-nuclear materials and related technologies subject to export control. This list was approved by Presidential Decree No. 202 of 14 February 1996. It aims to ensure compliance with domestic legislation and with the Russian Federation's international obligations on non-proliferation of nuclear weapons. Decree No. 312 on Control over the Export of Nuclear Materials, Equipment, and Technologies from the Russian Federation, issued by the President on 27 March 1992, remains, however, in force. It provides for the control of exports of nuclear materials, equipment and technology and specifically prohibits their export to countries which are not Parties to the IAEA Safeguards System.

Government Decree No. 574 of 8 May 1996 confirms the procedure for exports and imports of nuclear materials which was already set out in the Regulation on Exports and Imports of Nuclear Materials, Equipment, Special Non-nuclear Materials and Related Technologies.

Government Decree No. 291 of 16 March 1996 on Approval of the Statute Governing the Procedure for the Export and Import of Radioactive Substances and Products Manufactured with Such Substances defines the procedure for the import and export of radioactive substances, establishes the licensing and other regulatory requirements for such activities and designates the agencies with jurisdiction in this area.

Accounting and Control of Nuclear Material

Presidential Decree No. 1923 of 15 September 1994 establishes priority measures to improve the system of accounting for, and safe-keeping of nuclear materials, and also aims to ensure the prompt exchange of reliable information on the manufacturing, storage, use, and transportation of nuclear materials and the strengthening of border controls. In addition, it addresses compliance with international obligations in the area of non-proliferation of nuclear weapons. Pursuant to this Decree, responsibility for the state system of accounting for and supervision of nuclear materials is vested in *Gosatomnadzor*.

In implementation of Decree No. 1923, the government adopted Decree No. 34 on 13 January 1995 establishing a State System of Accounting for and Supervision of Nuclear Materials. Amongst other objectives, the government singled out the improvement of the legal framework governing accounting and control of nuclear materials. Many of the tasks set out in this Decree have been entrusted to *Gosatomnadzor*, together with other agencies. This state system was established by Government Regulation of 14 October 1996. The rules on the organisation of this system were set out in Government Decree No. 746 of 10 July 1998.

Radioactive Waste

The Law on Radioactive Waste Management has been adopted by the Parliament and, at the time of writing (May 2000), is awaiting signature of the President. It aims to establish a legal framework for the safe treatment, storage and disposal of radioactive waste, and to create a system of comprehensive environmental monitoring of regional storage facilities of spent fuel and waste disposal sites.

Apart from the provisions of the Law on the Use of Atomic Energy, radioactive waste management is also subject to various regulations in the area of environmental protection and public health:

- the Law of 3 March 1992 on the Protection of the Environment prohibits the import of radioactive waste and materials from other states for the purpose of storage and ground disposal;
- the Water Code of 1995 prohibits the emplacement of radioactive waste in water basins;
- the Federal Law of 1999 on the Health and Epidemiological Safety of the Population;
- Government Decree No. 472 of 21 April 1993 on the Implementation by the Russian Federation of Intergovernmental Agreements on Co-Operation in Relation to the Construction of Nuclear Power Plants Abroad;
- Government Decree No. 773 of 29 July 1995, which confirms reception procedure for the reprocessing by Russian enterprises of spent nuclear fuel from foreign nuclear power stations and the return of radioactive waste and materials produced in the course of its reprocessing;
- Government Decree No. 1030 of 23 October 1995, which establishes the federal programme on the treatment, use and burial of radioactive waste and spent nuclear materials for the period 1996-2005.

Physical Protection

Regulation No. 264 establishing the Rules Governing Physical Protection of Nuclear Materials, Nuclear Facilities and Sites for the Preservation of Nuclear Materials was adopted on 7 March 1997. It provides for organisational measures and technical interventions in order to protect nuclear materials.

Non-Proliferation

The Russian Federation has adopted several legal instruments concerning non-proliferation, including:

- the Government Regulation of 24 June 1996 on the Implementation of International Agreements for the Safe Storage and Transport of Nuclear Weapons, which aims to define the participation of the Russian Federation in international co-operation in this area.

- Government Decree No. 82 of 24 January 1998 on the Adoption by the Russian Federation of Guidelines on the Handling of Plutonium;

- the Government Decree of 1 June 1998 on the Implementation by the Russian Federation of the Provisions of the Model Additional Protocol to the Safeguards Agreement between the Government and the IAEA.

On 4 September 1999, Government Decree No. 1007 on Licensing the Use of Radioactive Materials for Works Involving the Use of Atomic Energy for Defence Purposes was adopted.

Indemnification of Nuclear Damage

The Russian Federation has adopted legislation concerning the protection and indemnification of Russian citizens who were victims of the Chernobyl accident or other radiation accidents. The following are relevant:

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

- the Act of 19 May 1995 on the social protection of citizens exposed to radiation as a result of nuclear testing at the Semipalatinsk Test Range; and

- the Act of 26 November 1998 on the social protection of citizens exposed to radiation as a result of the accident at the Mayak production centre and radioactive waste discharges into the Techa River in 1957.

These Laws define the legal status of such victims and establish the procedure for their indemnification. They are complemented by regulations, decrees and other texts, all of which aim to provide the highest level of social protection possible.

Moreover, the Federal Law on the Use of Atomic Energy contains provisions governing nuclear liability. Liability for damage caused by operations linked to the use of nuclear energy lies with the operating body of the nuclear installation, radiation source or storage centre. The operating body is strictly liable for damage caused, irrespective of fault.

The maximum limit of liability for loss or damage caused by the effects of radiation for a single incident may not exceed the amount of liability determined by international agreements to which the Russian Federation is a Party. In this regard, it should be noted that the Russian Federation signed the Vienna Convention on 8 May 1996, but it has not yet proceeded to ratify it. Furthermore, the Law stipulates that the operator is obliged to obtain financial security covering the maximum amount of liability as established. Finally, if the operator's financial security is insufficient to cover the damage for which it is liable, the Russian Government is to make available funds to cover such damages.

Article 1079 of the Civil Code, which entered into force on 26 January 1996, states that legal entities and physical persons whose activities involve an increased hazard to the general public, including activities in the field of the use of atomic energy, shall compensate the damage caused by such activities.

Lastly, a Law on Administrative Responsibility of Organisations Carrying Out Activities Involving the Use of Atomic Energy was passed by the Duma but has not yet been signed by the President.

As regards the insurance of nuclear risks, several Russian insurance companies established a Nuclear Insurance Pool in 1997.

Other Relevant Legislation

On 11 December 1994, the Parliament adopted an Act on the Protection of the Population and Territories in Emergency Situations. This Act defines emergency situations to include those resulting from accidents or disasters at nuclear installations.

The Federal Law on Amendments to the Criminal Code with Regard to the Use of Atomic Energy was adopted on 9 February 1999.

Draft Legislation and Regulations

Several laws are currently being prepared:

- A draft Law on Civil Liability for Nuclear Damage and the Provision of Financial Security for such Liability is under discussion before Parliament. The draft Law takes into account current international law provisions, in particular those established in the 1963 Vienna Convention on Civil Liability for Nuclear Damage. It aims to guarantee full compensation for nuclear damage and establishes procedures to obtain such compensation. It provides for strict and exclusive liability to be channelled onto the operator of a nuclear installation. The draft Law also provides for mandatory insurance up to the liability limit, and confirms that the Russian Government will pay full compensation for nuclear damage in excess of this amount. There is no time limit for submitting claims in respect of personal injury, whereas the limit for property damage claims is set at ten years.

- A draft amendment to the Law on the Use of Atomic Energy makes export of each type of nuclear fuel or nuclear or radioactive materials subject to specific rules. The change covers the export of nuclear fuel and radioactive substances. Only radioactive materials for medical purposes are excluded.

- A draft Law on Measures of Social Protection for Citizens Residing or Employed in Areas Where Nuclear Power Facilities are Located.

- A draft Law on the Creation, Operation, Disposal and Safety of Nuclear Weapons.

- A draft Law on Industrial Reprocessing and Storage of Spent Nuclear Fuel.

- A draft Law on State Regulation of Imports of Radioactive Substances and Nuclear Materials.

International Conventions

Nuclear Third Party Liability

The Russian Federation signed the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 8 May 1996 but has not yet ratified it.

Other International Conventions

On 21 December 1991, the Russian Federation declared that it would succeed to the conventions, agreements and other international legal instruments concluded by the Soviet Union in the nuclear field. These instruments are as follows:

- 1960 Convention concerning the Protection of Workers against Ionising Radiation, which was ratified by the Soviet Union on 22 September 1967 and entered into force on 22 September 1968.

- 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water, which was ratified by the Soviet Union on 10 October 1963 and entered into force on the same date.

- 1968 Treaty on the Non-Proliferation of Nuclear Weapons, which was ratified by the Soviet Union on 5 March 1970 and entered into force on the same date.

- 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof, which was ratified by the Soviet Union on 18 May 1972 and entered into force on the same date.

- 1979 Convention on the Physical Protection of Nuclear Material, which was ratified by the Soviet Union on 25 May 1983 and entered into force on 8 February 1987 (continued on 26 December 1991.

- 1986 Convention on Early Notification of a Nuclear Accident, which was ratified by the Soviet Union on 23 December 1986 and entered into force on 24 January 1987 (continued on 26 December 1991).

- 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency, which was ratified by the Soviet Union on 23 December 1986 and entered into force on 26 February 1987 (continued on 26 December 1991).

Furthermore, the Russian Federation:

- accepted on 12 July 1996 the 1994 Convention on Nuclear Safety, which entered into force on 24 October 1996;

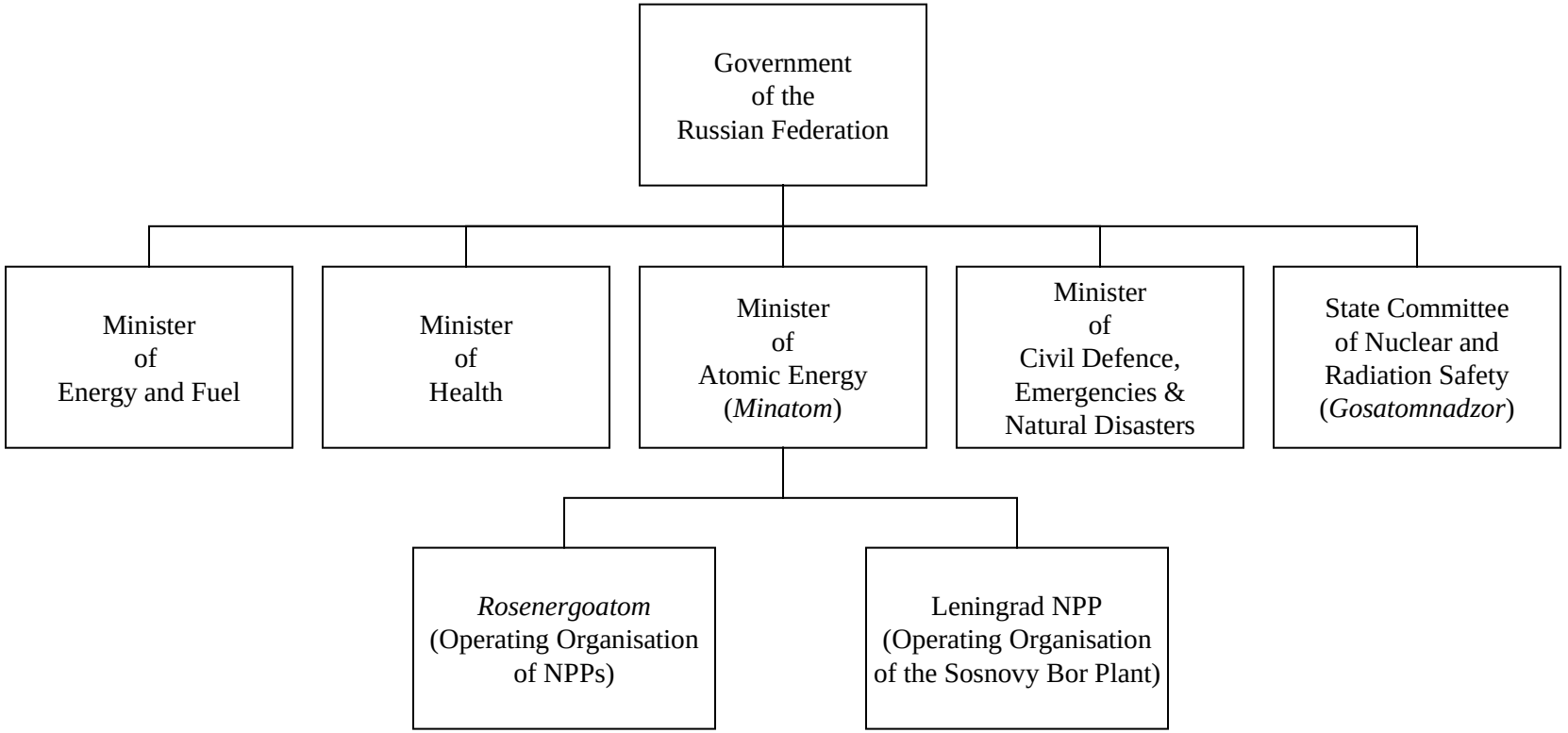
- signed on 24 September 1996 the 1996 Comprehensive Nuclear Test Ban Treaty; and

- signed on 27 January 1999 the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

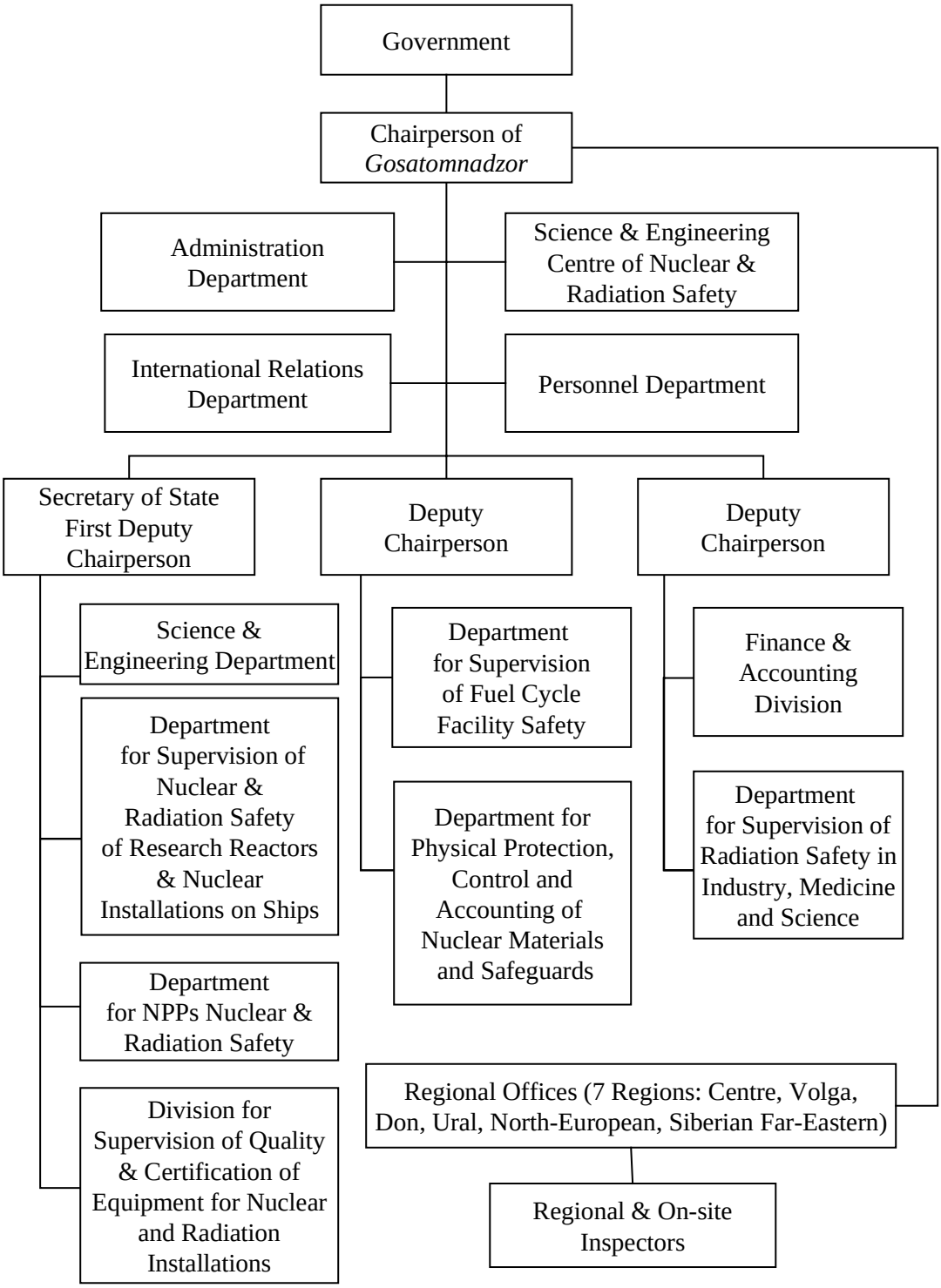
Membership in Nuclear Organisations

The Russian Federation is a member of the International Atomic Energy Agency (IAEA). *Rosenergoatom* is a member of the World Association of Nuclear Operators (WANO). The Russian Federation also joined the Nuclear Suppliers Group and the Zangger Committee.

RUSSIAN FEDERATION
Competent Authorities for Nuclear Energy



RUSSIAN FEDERATION
Structure of *Gosatomnadzor*



SLOVAK REPUBLIC

Introduction

The Slovak Republic has two nuclear power stations located at Bohunice and at Mochovce. At the Bohunice station there are four nuclear power plants in operation and one unit which has been decommissioned. Two are VVER 440 model V230 and two are 440 model V213 with a total installed capacity of 1 632 MWe. In September 1999, the government decided to shut down two units of Bohunice NPP in 2006 and 2008 respectively. At Mochovce power plant two units, each of which are VVER 440 model V213 with a capacity of 412 MWe each, were commissioned in 1998 and 2000 respectively. In 1999, nuclear energy represented 47% of total electricity generated in the Slovak Republic.

There are also three radioactive waste treatment facilities, an interim spent fuel storage facility and a radioactive waste disposal facility at Mochovce. A near-surface repository for low level and intermediate level waste was licensed and put into operation on a trial basis, and the construction of a disposal facility for high-level waste and spent fuel in deep geological formations is planned.

The Slovak public utility, *Slovenske Electrarne*, is responsible for the production and distribution of electricity in the Slovak Republic, including electricity generated by the nuclear power plants. It produces about 90% of the country's electricity.

Competent Nuclear Authorities

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 by Act No. 2/1993, which defines its responsibilities and tasks and grants it autonomy in nuclear safety matters. The ÚJD acts as a state regulatory body reporting directly to the government and is directed by a chairperson appointed by the government.

Besides its chairperson, the ÚJD comprises a small Secretariat and two departments, one for inspection activities, based at Trnava, and one for safety policy and international co-operation, located at the Bratislava ÚJD headquarters. There are also two inspection units located at the nuclear power plant sites. Lastly, in 1995, the ÚJD established an Information Centre in order to provide information on its activities to the public and the media.

The regulatory powers of the ÚJD cover the following areas:

- safety of nuclear installations;
- radioactive waste management, *i.e.* supervision of radioactive waste originating from nuclear installations and repositories for all types of radioactive waste;

- safeguards and control over nuclear and dual-use materials in accordance with the Treaty on the Non-Proliferation of Nuclear Weapons;

- quality assurance programmes;

- transportation of nuclear material;

- early notification of nuclear accidents;

- international agreements and obligations in the field of nuclear safety and nuclear materials.

The ÚJD is responsible, *inter alia*, for issuing and withdrawing licences and permits for reception, use, import, export and transport of nuclear materials, for radioactive waste and spent nuclear fuel management and for construction, operation and decommissioning of nuclear installations. The ÚJD also carries out state supervision, through nuclear safety inspectors, in the above areas within its jurisdiction.

A significant number of central bodies in the Slovak State administration are involved in various activities related to nuclear safety, in particular, the following:

- The Ministry of Economy is responsible for the promotion and development of the nuclear power programme and for preparing related legislation; it is also responsible for issuing licences, subject to the agreement of the ÚJD, for the export/import of nuclear material, nuclear-related or dual-use material, equipment and technology.

- The Ministry of Health is responsible for the adoption and control of radiation protection measures inside nuclear installations and off-site and for the supervision of radioactive waste originating from all sources other than nuclear installations until its treatment and transportation for final disposal.

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

- The Ministry of the Interior is responsible for fire protection, physical protection of nuclear materials and facilities, civil defence during radiological accidents and for assistance in the event of a nuclear accident or radiological emergency.

- The State Office for Occupational Safety is an independent agency reporting directly to the government on matters of industrial safety.

Technical support is provided by several institutions. The most important of these is the Nuclear Power Plant Research Institute (*Vyskumny Ustav Jadrovych Elektrarni Trnava a.s.*), which is involved in the research and development of nuclear safety. The Institute also conducts training for the employees of the nuclear power plants at Trnava. The training of personnel at the Mochovce plant is carried out with a full-scale simulator which is located on-site.

Legislation in Force

The legal framework for the regulation of nuclear safety in the Slovak Republic consists of a combination of laws adopted prior to the establishment of the Slovak Republic and new laws adopted since its independence.

Law on the Peaceful Uses of Nuclear Energy and its Implementing Regulations

Law No. 130 on the Peaceful Uses of Nuclear Energy was adopted by the Parliament of the Slovak Republic on 1 April 1998* (Official Journal, 8 May 1998) and entered into force on 1 July 1998. It replaces Law No. 28/1984 on State Supervision of the Safety of Nuclear Installations which was adopted prior to the independence of the Slovak Republic and which governed the construction and operation of nuclear installations as well as the related licensing system, in order to take into account social and political changes, new environmental legislation, experience with nuclear energy use and international obligations which had arisen since its adoption.

Law No. 130 sets out principles governing the use of nuclear energy, including the principle of justification. It furthermore states that nuclear energy must be used in compliance with international agreements concluded by the Slovak Republic in this field. It places particular emphasis on the safety of nuclear installations, radiation protection of the public and workers, physical protection and emergency preparedness.

The Law provides that the use of nuclear energy is subject to licensing and sets out, in a comprehensive manner, the application procedure and requirements for licensing.

A permit is also required for the acquisition and use of nuclear materials, including their import, export and transport. The Law sets out the obligation for all entities or persons involved with nuclear materials to keep accounting and operational records of such materials.

This legislation establishes requirements governing the construction, commissioning, operation and decommissioning of nuclear installations. It also contains provisions related to radioactive waste management and handling of spent fuel. In particular, it provides that the generator of such waste or fuel is responsible for its management until its transfer to an appropriate depository.

The Law sets out the responsibilities of the operator, as well as the conditions which must be fulfilled in order to ensure safety during all phases of operation of the nuclear installation. These include requirements for the qualification and training of nuclear installation personnel, quality assurance, the security of nuclear installations and emergency planning, both on- and off-site.

With regard to nuclear third party liability, the Law ensures the implementation of the obligations of the Slovak Republic under the Vienna Convention on Civil Liability for Nuclear Damage. The operator is liable for nuclear damage caused by a nuclear incident in its installation. Liability of the operator is limited to an amount of 2 billion Slovak crowns (SKK). The operator is obliged to secure financial coverage up to this amount.

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* The full text of the Law was reproduced in the Supplement to *Nuclear Law Bulletin* No. 62 (December 1998).

In accordance with its mandate under the Law on the Peaceful Uses of Nuclear Energy, the ÚJD issued several regulations, including:

- Regulations on Maximum Quantities of Nuclear Materials Excluded from the Application of the Vienna Convention, which entered into force on 1 March 1999;
- Regulations No. 29/1999 setting out the List of Special (Dual-use) Materials and Components, which entered into force on 1 March 1999;
- Regulations No. 198/99 on Accounting and Control of Nuclear Materials, which entered into force on 1 September 1999; and
- Regulations on Shipment of Nuclear Materials and Radioactive Waste, which entered into force in October 1999.

Regime of Nuclear Facilities

The Regional Environmental Offices, under the authority of the Ministry of the Environment, issue licences for the siting, construction, operation and decommissioning of nuclear facilities on the basis of approval by the ÚJD, the Ministry of Health and other organisations. The responsibilities of these bodies in respect of licensing are defined in Act No. 50/1976 (Civil Code), Decrees Nos. 2/1978 and 4/1979 of the former Czechoslovak Atomic Energy Commission and Decree No. 378/1992 of the Ministry of the Environment.

Act No. 127/1994 governs mandatory environmental impact assessments and authorises the Ministry of the Environment to evaluate all proposals for the construction of or technical changes to nuclear installations, which might have an adverse effect on the environment.

Nuclear Safety and Radiation Protection

Many decrees regulate safety in design, siting, licensing, construction, and operation of nuclear facilities (Decrees Nos. 2/1978, 4/1979 and 6/1980 of the former Czechoslovak Atomic Energy Commission); quality assurance of selected items of nuclear installations (Decree No. 436/1990 of the Commission); the terms and conditions for verification of the qualifications of certain members of staff (Decree No. 191/1989 of the Commission); and safety during the testing of devices for nuclear material transport and disposal (Decree No. 8/1981 of the Commission).

The safety documentation for the decommissioning of nuclear installations is governed by ÚJD Regulation No. 246/1999, which entered into force on 1 October 1999.

Act No. 290/1996 on the Safety of the Health of the Population lays down the requirements for radiation protection based on the International Commission for Radiological Protection and IAEA standards in this area.

Furthermore, Regulation No. 187/1999 on Training and Qualification of Personnel at Nuclear Facilities, which entered into force in August 1999, implements the Law on the Peaceful Uses of Nuclear Energy and lays down the requirements concerning the professional qualifications of personnel of such installations.

Radioactive Waste Management

Regulation No. 67/1987 of the former Czechoslovak Atomic Energy Commission 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. The Regulation sets out mandatory radioactive waste management procedures for organisations concerned and their staff during the design, commissioning, operation or decommissioning of nuclear facilities. It also establishes basic safety requirements for all steps of radioactive waste management, including collection, segregation, storage, treatment, conditioning, and disposal of such waste.

Act No. 254/1994, which was adopted on 25 August 1994 and entered into force on 1 January 1995, and Decree No. 14/1995 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 Fund is managed by the Ministry of Economy, which appoints the Fund's Director. The Ministry has also set up a Steering Committee of seven members who are experts in the fields of nuclear energy, health, environmental protection, economy and public administration, to provide advice on the distribution of funds. The Fund is financed by several means including contributions by nuclear power plant operators, bank and state funding.

Emergency Situations

The ÚJD issued Regulation No. 245/1999 on Emergency Preparedness, which entered into force on 1 October 1999 and a Regulation on Categorisation and Reporting of Nuclear Events and Nuclear Accidents, which entered into force in January 2000. This latter Regulation establishes *inter alia*, methods of notification and investigation of nuclear accidents.

Export/Import of Nuclear Materials

The current legislative framework for state control of exports and imports of nuclear materials and sensitive items, such as dual-use items, is governed by the following legal instruments:

- Act No. 547/1990 on the Management of Special Substances and their Control, which defines the basic requirements for export/import of certain goods and technologies and specifies that the Ministry of Economy is the authority with jurisdiction to issue export/import licences for nuclear materials or other sensitive items subject to the approval of the ÚJD.

- Law No. 130 on the Peaceful Uses of Nuclear Energy, which empowers the ÚJD to issue permits for export/import of nuclear material, nuclear-related or dual-use material, equipment and technology and also authorisations for transport of nuclear material; the ÚJD is also the official contact point for international bodies dealing with non-proliferation regimes such as the Nuclear Suppliers Group or the Zangger Committee.

Physical Protection

The physical protection of nuclear facilities, nuclear materials and radioactive waste is governed by Decree No. 186/1999, which entered into force on 1 August 1999.

Draft Legislation and Regulations

Pursuant to the Law on the Peaceful Uses of Nuclear Energy, the ÚJD is preparing a series of regulations on, *inter alia*:

- safety requirements for design, commissioning and operation of nuclear facilities (including safety reports);
- radioactive waste and spent nuclear fuel management; and
- quality assurance of nuclear facilities.

The ÚJD is also preparing a Decree on requirements for the transport of nuclear material and radioactive waste. This Decree is based on the IAEA Safety Standards Series No. ST-1 "Regulations for the Safe Transport of Radioactive Material" (1996 Edition), and states conditions under which the ÚJD will issue a licence for such transport. The Decree also contains requirements on physical protection during transport. These requirements reflect the IAEA recommendations issued in INFCIRC/225/rev. 3.

The Slovak Republic is also preparing an amendment of the Law on the State Fund for the decommissioning of nuclear power plants and the management of spent fuel and radioactive waste arising from their decommissioning.

A draft Governmental Decree on Radiation Protection is under preparation by the Ministry of Health. This Decree will replace Regulation No. 65/1972 of the former Czechoslovak Ministry of Health Governing the Protection of Workers, the Public and the Environment Against Ionising Radiation Sources.

International Conventions

Nuclear Third Party Liability

- The Slovak Republic acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 7 March 1995 and it entered into force on 7 June 1995.
- The Slovak Republic acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 7 March 1995 and it entered into force on 7 June 1995.

Other International Conventions

- The Slovak Republic succeeded to the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 1 January 1992 and it entered into force on 1 January 1993.
- The Slovak Republic succeeded to the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 1 January 1993 and it entered into force on the same date.

- The Slovak Republic succeeded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 1 January 1993 and it entered into force on the same date.

- The Slovak Republic succeeded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 8 October 1991.

- The Slovak Republic succeeded to the 1979 Convention on the Physical Protection of Nuclear Material on 10 February 1993 with effect from 1 January 1993.

- The Slovak Republic succeeded to the 1986 Convention on Early Notification of a Nuclear Accident on 10 February 1993 with effect from 1 January 1993.

- The Slovak Republic succeeded to the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 10 February 1993 with effect from 1 January 1993.

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

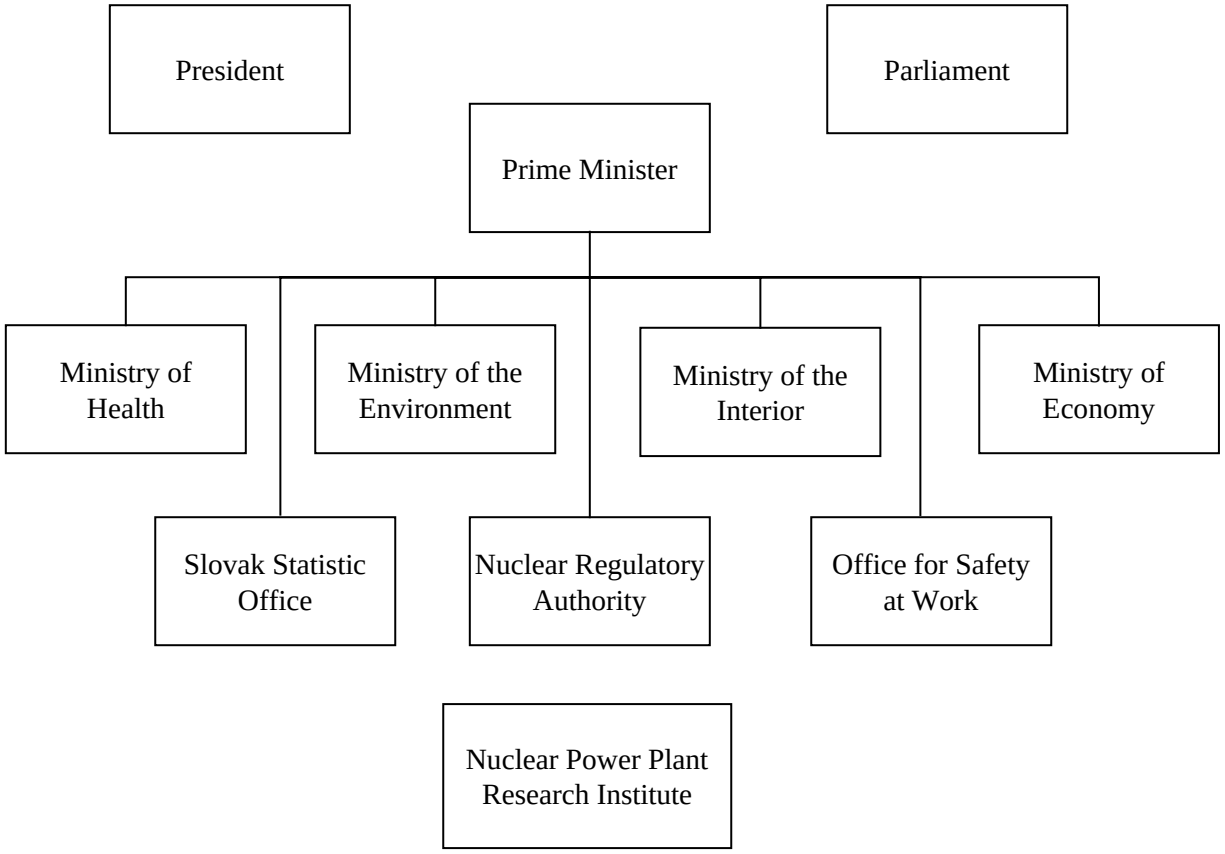
- The Slovak Republic ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 3 March 1998.

- The Slovak Republic ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 6 October 1998.

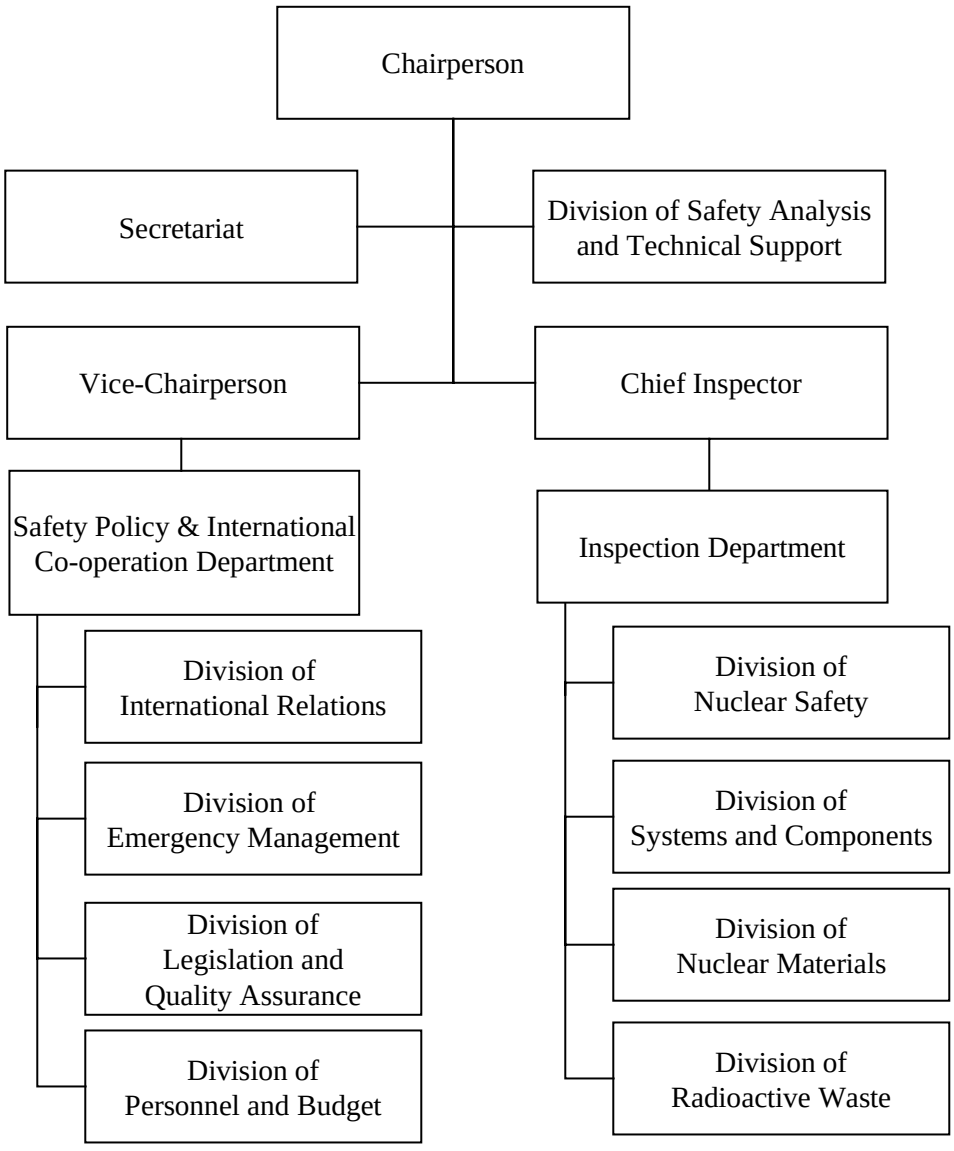
Membership in Nuclear Organisations

The Slovak Republic is a member of the International Atomic Energy Agency (IAEA), and the Slovak utility is a member of the World Association of Nuclear Operators (WANO). The Slovak Republic joined the Nuclear Suppliers Group and the Zangger Committee.

SLOVAK REPUBLIC
Competent Authorities for nuclear Energy



SLOVAK REPUBLIC
Nuclear Regulatory Authority (ÚJD)



SLOVENIA

Introduction

Slovenia has one nuclear power plant in operation (a PWR-664 model of 632 MWe), at Krško in south-east Slovenia, which commenced operations in 1981. The plant is jointly owned by Slovenia and Croatia and supplies both countries with electricity. It generates around 39% of the total electricity production in Slovenia. The installation is operated by the Slovenian utility *Nuklearna Elektrarna Krško*.

Slovenia also possesses a Triga-type research reactor (250 kWh) near Ljubljana and a uranium mine, *Zirovski Vrh*.

There are no waste disposal repositories. Slovenia does, however, have a storage facility at the Krško site for low and intermediate level radioactive waste from the nuclear power plant, and an interim storage facility at the Research Reactor Centre at Podgorica near Ljubljana for low and intermediate level waste originating from all other producers of radioactive waste.

Competent Nuclear Authorities

In 1991, the Slovene Nuclear Safety Administration (SNSA) (*Uprava Republike Slovenije za Jedrsko Varnost*) was completely reorganised. Formerly an autonomous regulatory body answerable to the government, it is now under the authority of the Ministry of the Environment and Physical Planning. The SNSA is managed by a director, nominated by the government upon proposal of the Ministry.

The Slovenian Nuclear Safety Administration is divided into five departments, as follows:

- the Nuclear Safety Inspection Department;
- the Nuclear Safety Department;
- the Radiation Safety Department;
- the Nuclear and Radioactive Materials Department; and
- the Legal and International Co-operation Department.

The Nuclear Safety Inspection Department's primary mission is to verify that nuclear power plants are in compliance with existing rules and regulations, during both their construction and operation. The Inspection Department therefore determines whether licence-holders are adhering to the safety requirements contained in the regulations and in their licence. Inspections may be done one

at a time, or may form part of an overall plan of inspections. To increase their efficiency, inspections may be unannounced. Regular inspections are carried out on a weekly basis.

The Nuclear Safety Department is divided into two sections which reflect its main functions. The first deals with licences; the second analyses for which purposes such licences are used.

The Radiation Safety Department verifies radiation safety at nuclear installations and is responsible for radiation dosimetry control, radiation monitoring, and for early notification in the event of a nuclear or radiation accident. The Department works directly with the Ministry of Health, which is responsible for radiation protection (with the exception of the protection of nuclear installations). Within this Department there are two sections, one for licensing and one for monitoring.

The Nuclear and Radioactive Materials Department deals with trade, transport and treatment of such materials. It is responsible for the physical protection of nuclear power plants and nuclear materials. It also deals with the treatment, temporary storage and disposal of radioactive waste and participates in the selection of sites for nuclear facilities, especially those destined for radioactive waste. Finally, it is responsible for safeguards issues and illicit trafficking problems.

There are two expert commissions attached to the SNSA: the Nuclear Safety Expert Commission, which has an advisory role (with regard to various issues including the annual report of the SNSA, important licences issued to nuclear facilities, draft laws, and regulations for physical protection of nuclear materials and facilities, etc.), and the Expert Commission for Operators' Exams which organises examinations and recommends that the SNSA grant or extend accreditations to nuclear plant personnel.

The Legal and International Co-operation Department is involved with licensing procedures and the preparation of legislation on nuclear and radiation safety and on nuclear third party liability.

The Act of November 1994 (Off. Gaz. No. 71/94) on the Organisation and Assignment of Ministerial Responsibilities, redefines the SNSA's main responsibilities as the following:

- nuclear and radiological safety in nuclear installations;
- trade in and transport of nuclear and radioactive materials;
- safeguards for nuclear installations and materials;
- physical protection of nuclear installations and materials;
- third party liability for nuclear damage;
- licensing of operators and personnel of nuclear installations;
- quality assurance;
- radiological monitoring;
- inspections;
- early notification in the event of a nuclear or radiological accident;

- international co-operation in the field of nuclear safety.

Thus, the SNSA is responsible for issuing and amending licences for all nuclear facilities and performs regular inspection at those facilities. The rules applicable to public administration are defined in the following laws, applied by the relevant regulatory bodies:

- the Act on Administrative Procedures (Off. Gaz. No. 47/86) which governs all the official legal procedures to be followed by the ministries and other regulatory bodies;

- the Act on the Government (Off. Gaz. No. 4/93) which regulates the relations between the Prime Minister, the different ministries and the heads of other regulatory bodies in the government;

- the Act on Administration (Off. Gaz. No. 67/94) which deals mainly with the territorial division of the Slovenian administration at both national and local levels and sets out the general powers and responsibilities of inspectors;

- the Criminal Act (Off. Gaz. Nos. 63/94 and 70/94) and the Act on Minor Offences (Off. Gaz. No. 66/93) which are applicable to criminal conduct and minor civil offences; and

- the Act on Administrative Disputes (Off. Gaz. No. 50/97).

The Agency for Radioactive Waste Management (*Agencija za radioaktive odpadke* – ARAO) was created in 1991 by the Slovenian Government. Its main objective is to manage the final disposal of all types of radioactive waste in the Republic of Slovenia. In order to reach this goal, the Agency is responsible for the preliminary stages of safe radioactive waste disposal; for preparing and organising the construction, operation and management of a facility for final disposal of radioactive waste; for research and development in the field of radioactive waste management; for data collection on radioactive waste producers, quantities and types; for the transport of radioactive waste to the repository and for education. The Agency's mandate was extended by the government in 1996 to include, *inter alia*, the management of a temporary storage facility for low and intermediate radioactive waste from small users (*e.g.* hospitals); the transfer of management from the Jozef Stefan Institute to the Agency was carried out in June 1999.

Slovenia has established a National Notification Centre (NNC) which is responsible for notification procedures in the event of a radiological emergency, in accordance with the National Plan for Protection and Rescue in the Event of a Nuclear Accident at Krško. The notification procedure depends of the level of the emergency, but in all cases the NNC is required to notify the SNSA and the National Civil Protection and Rescue Administration.

As regards insurance for nuclear third party liability, in March 1994 Slovenian insurers established the Nuclear Insurance and Reinsurance Pool, consisting of specialised insurance and reinsurance companies. The Pool, which is located in Ljubljana, is based on the fundamental principles common to all nuclear pools.

Finally, the Jozef Stefan Institute has, since its foundation in 1949, engaged in research and development of radioactive materials and other sources of ionising radiation. It operates the research reactor Triga Mark II. The Institute has an independent Radiation Protection Group, answerable to the Director of the Institute, which develops criteria for and advises on the personal dosimetry of radiation workers, environmental monitoring and the control of radioactive sources in radioactive waste storage facilities.

Legislation in Force

Laws on Nuclear Energy

The Constitutional Law on Enforcement of the Basic Constitutional Charter on the Autonomy and Independence of the Republic of Slovenia, adopted on 23 June 1991 (Off. Gaz. No. 1/91), provides that all the laws adopted by the Yugoslav (federal) authorities in the past, which are not incompatible with the Slovene legal system, will remain in force in the Republic of Slovenia pending the adoption of appropriate legislation by its Parliament.

Accordingly, legislation on nuclear energy in Slovenia is made up of the following instruments:

- Act of 19 April 1978 on Third Party Liability for Nuclear Damage (Off. Gaz. No. 22/78);*
- Act on Insurance for Liability for Nuclear Damage (Off. Gaz. No. 12/80);
- Act of 5 November 1980 on Protection against Ionising Radiation and Measures for the Safety of Nuclear Facilities and Equipment (Off. Gaz. No. 28/80);
- Act of 21 November 1984 on Radiation Protection and the Safe Use of Nuclear Energy (Off. Gaz. No. 62/84);**
- Act on Health Protection (Off. Gaz. Nos. 8/73 and 9/85);
- Act on the Decommissioning Fund (Off. Gaz. No. 75/94);
- Decree establishing the Agency for Radioactive Waste Management (Off. Gaz. Nos. 5/91 and 45/96); and
- Regulations adopted in implementation of the above instruments.

Other relevant legislation consists of the body of regulations on civil protection defined by the 1994 Act on Protection Against Natural Disasters or Other Disasters (Off. Gaz. No. 46/94), which superseded the Act on Defence and Civil Protection (Off. Gaz. No. 15/91).

Legislation on Nuclear Third Party Liability

The Law on Liability for Nuclear Damage, adopted by the Parliament of the former Yugoslavia on 19 April 1978, contains the following provisions:

- The operator of a nuclear installation is strictly liable for damage caused by a nuclear incident in its nuclear installation.

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* The full text in English of this Act was reproduced in the Supplement to *Nuclear Law Bulletin* No. 23 (June 1979).

** The full text in English of this Act was reproduced in the Supplement to *Nuclear Law Bulletin* No. 36 (December 1985).

- The operator is liable for nuclear damage caused by a nuclear incident occurring during the carriage of nuclear material from its nuclear installation or during storage incidental thereto, if the nuclear incident caused by the nuclear material occurs before the operator of another nuclear installation has assumed liability with regard to nuclear incidents.

- The operator's liability is excluded if damage is caused by a nuclear accident due to an aggression, a war or an act of armed conflict, or a nuclear incident directly due to an earthquake, floods, fire or any other grave natural disaster, upon proof that such damage could not have been anticipated or avoided. The operator is also exonerated from its liability for nuclear damage suffered by a person upon proof that such person caused the damage intentionally.

- The operator is required to take out and maintain insurance or other financial security covering its liability for nuclear damage (1980 Act on Insurance for Liability for Nuclear Damage).

The Decree establishing the Amount of Operator's Liability and the Corresponding Amount of Insurance for Nuclear Damage, which was adopted by the government on 26 November 1998 (Off. Gaz. of 11 December 1998) and entered into force on 1 February 1999, raised the amount of operator's liability for nuclear damage to the sum in Slovenian tolars equivalent to 42 million United States dollars (USD).

Furthermore, the operator of a nuclear installation is required to have and maintain insurance up to the above-mentioned amount. Exceptions to this rule exist in respect of the transport of nuclear materials, for which the insurance requirement is set at USD 14 million, and research reactors for which the insurance requirement varies between USD 187 000 and USD 467 000 depending on the thermal power of the particular reactor.

The adoption of this Decree is deemed to be an interim solution while revision of the existing legislation takes place.

Radiation Protection and Nuclear Safety Legislation

The Law on Radiation Protection and the Safe Use of Nuclear Energy was adopted on 21 November 1984. This Law sets out the requirements for protection against the effects of ionising radiation and nuclear safety measures. It contains general definitions, measures for ionising radiation protection, special safety measures for nuclear facilities and nuclear materials, rules concerning surveillance, competent authorities, inspection and penalties. The Law also contains provisions with respect to the responsibility of the licence-holder, quality assurance, safety assessment and verification (during siting, construction, commissioning and operation of a nuclear installation), physical protection, the import and export of radioactive and nuclear material, safeguards, dose limits and other matters.

Regarding emergency preparedness, the Law requires each licensee to have an emergency plan and protective measures in place in the event of a nuclear accident, and to notify, without delay, the competent body on radiological dangers. The emergency plan for protecting the public in the event of an accident at a nuclear installation should be incorporated in a final safety analysis report, in accordance with the Regulation on the Preparation and Content of Safety Analysis Reports. The Law also contains provisions with respect to the evacuation of the public in emergency situations and the functions of civil defence in response thereto.

In implementing this Law, several regulations on nuclear safety and radiation protection were adopted, governing, *inter alia*:

- siting, construction and operation of nuclear power plants, including quality assurance requirements (Off. Gaz. No. 52/88);
- safety analysis reports (Off. Gaz. No. 68/88);
- operator licensing (Off. Gaz. No. 86/87);
- safeguards (Off. Gaz. No. 9/88);
- monitoring radioactivity in Slovenia and radioactive waste (Off. Gaz. No. 40/86);
- monitoring radioactivity in the area of nuclear power plants (Off. Gaz. No. 51/86);
- radioactive waste management (Off. Gaz. No. 40/86);
- trade in radioactive sources and nuclear materials (Off. Gaz. Nos. 40/86 and 45/89);
- occupational conditions for radiation workers (Off. Gaz. No. 40/86);
- dose limits to the public and to radiation workers (Off. Gaz. Nos. 31/89 and 63/89);
- imports and exports of specific goods (Off. Gaz. No. 75/95), amended in February 1999.

Act on Transport of Dangerous Goods

The Act on Transport of Dangerous Goods, which was adopted on 16 September 1999 and entered into force on 1 January 2000, replaces the 1990 Act on the Transport of Dangerous Substances (Official Gazette No. 27/90). It applies to the transport of nuclear and radioactive materials by road, rail, sea, inland waterway, and air. A permit is required to transport dangerous goods. The Act sets out obligations for all persons involved in such transport operation. The Act confirms the direct application of several international agreements, in particular the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and the International Regulations concerning the Carriage of Dangerous Goods by Rail (RID).

Environmental Protection Act

The Environmental Protection Act was adopted on 2 June 1993. The Act is implemented by approximately 50 regulations and decrees.

Draft Legislation and Regulations

Draft Law on Nuclear and Radiation Safety

A draft Law on Nuclear and Radiation Safety is under preparation. It will, when adopted, replace the 1984 Law on Radiation Protection and the Safe Use of Nuclear Energy.

Draft Act on Liability for Nuclear Damage

The 1978 Act on Liability for Nuclear Damage is currently under revision. Pending its revision, a 1999 Decree raised the amount of operator's liability (see *supra*).

Draft Law on Export Control of Dual-Use Items

In order to strengthen the non-proliferation of weapons for mass destruction, the Ministry of Economic Affairs, in co-ordination with the Ministry of the Environment and Physical Planning, the SNSA, the Ministry of Defence, the Ministry of Health, the Ministry of Internal Affairs and the Ministry of Finance, has prepared a Law on Export Control of Dual-Use Items. The purpose of this Law is to enforce the export control of equipment, material and technology which may be used for production of nuclear, chemical and biological weapons or for production and abuse of missile technology ammunition and explosives. During the preparation of this Law, IAEA document INFCIRC/254/Part II and Council Regulation (EC) No. 3381/94 of 19 December 1994 setting up a Community regime for the control of exports of dual-use goods were taken into account.

International Conventions

Nuclear Third Party Liability

- Slovenia succeeded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 7 July 1992 with effect from 25 June 1991.

- Slovenia acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 27 January 1995 and it entered into force on 27 April 1995.

Other International Conventions

- Slovenia succeeded to the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 7 April 1992 and it entered into force on the same date.

- Slovenia succeeded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 7 April 1992 and it entered into force on the same date.

- Slovenia succeeded to the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 7 April 1992 and it entered into force on the same date.

- Slovenia succeeded to the 1979 Convention on Physical Protection of Nuclear Material, on 7 July 1992, with effect from 25 June 1991.

- Slovenia succeeded to the 1986 Convention on Early Notification of a Nuclear Accident on 7 July 1992 with effect from 25 June 1991.

- Slovenia succeeded to the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 7 July 1992 with effect from 25 June 1991.

- Slovenia ratified the 1994 Nuclear Safety Convention on 20 November 1996 and it entered into force on 18 February 1997.

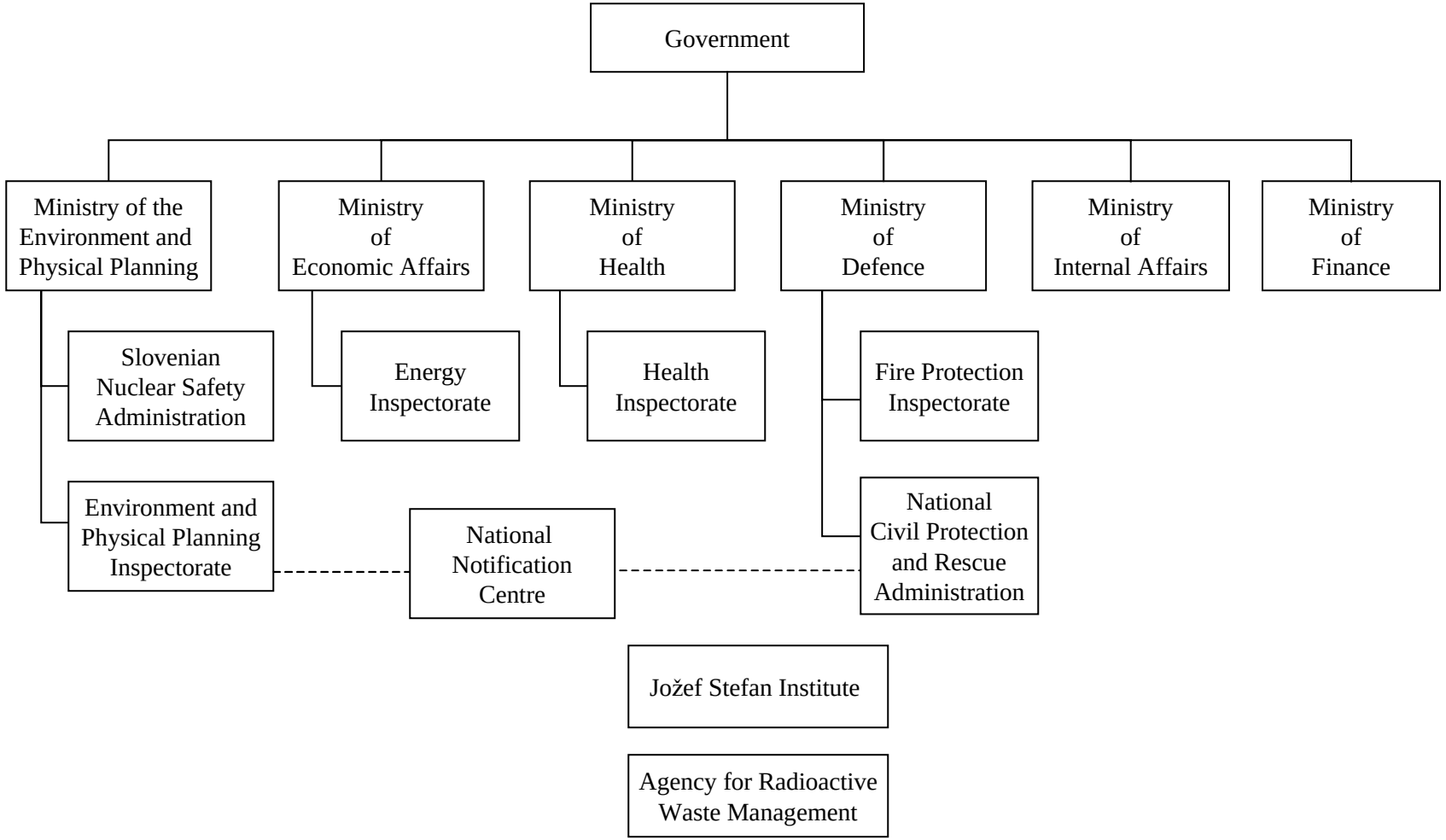
- Slovenia ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 31 August 1999.

- Slovenia ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 25 February 1999.

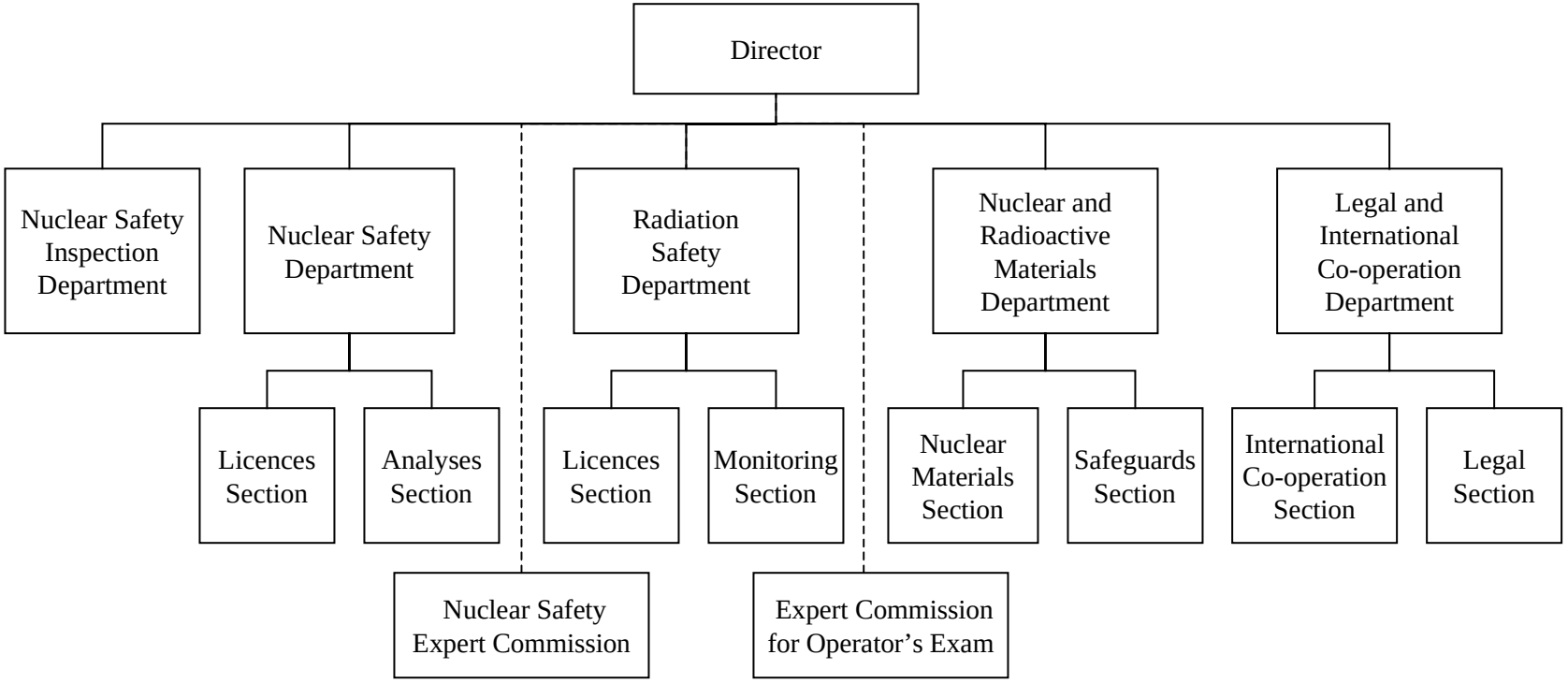
Membership in Nuclear Organisations

Slovenia is a member of the International Atomic Energy Agency (IAEA), and *Nuklearna Elektrarna Krško* is a member of the World Association of Nuclear Operators (WANO).

SLOVENIA
Competent Authorities in the Field of Nuclear Energy



SLOVENIA
Slovenian Nuclear Safety Administration



UKRAINE

Introduction

There are 14 nuclear power reactors in operation at 5 sites in Ukraine with an installed capacity of 12 880 MWe. Nuclear energy represents 42% of the total national energy production. The Chernobyl nuclear power station has one operating reactor (Unit 3 – RBMK), the Khmelnitskiy station also has one (Unit 1 – VVER-1000), the Rovno nuclear power station has three (Units 1-3 – VVER 440 V 213 and VVER-1000), the South Ukraine station has three (Units 1-3 – VVER 1000), and the Zaporojie station has six (Units 1-6 – VVER 1000) in operation. Four units are currently under construction.

In addition, Ukraine possesses two research reactors: a WWR-M research reactor in Kiev operated by the Nuclear Research Institute of the National Academy of Science, and a DR-100 in Sevastopol operated by the Nuclear Power and Industry Institute.

Ukraine also has uranium ore mining and treatment facilities, as well as production facilities for metallic zirconium and hafnium.

Competent Nuclear Authorities

The State Committee on Nuclear and Radiation Safety, set up by Government Decree No. 52 of 3 February 1992, was the regulatory authority for nuclear safety in Ukraine until December 1994. At that time, its responsibilities were transferred to the Ministry of Environmental Protection and Nuclear Safety, created by Decree No. 768 of the President of Ukraine on 15 December 1994. This Ministry was in its turn replaced, pursuant to the Decree of 15 December 1999, by the Ministry of the Environment and Natural Resources whose competences remain similar to these of the former Ministry.

The main objective of this Ministry is to strengthen environmental protection and to establish a more efficient safety system for activities involving the use of nuclear energy and nuclear technologies.

The former State Nuclear Regulatory Administration (SNRA), which previously reported to the Ministry of Environmental Protection and Nuclear Safety, now forms part of the Ministry of the Environment and Natural Resources as the Department for Nuclear Regulation. The main structure and functions of the Department are similar to those of the SNRA. It is responsible for issuing licences for nuclear activities. It is headed by the Deputy Minister for Industry and Agriculture and two deputy heads. One of the deputy heads supervises the Office for the Safety of Nuclear Installations, the Office for the Safety of Radioactive Waste Management and the Department for the Safety of Radioactive Technologies and Devices, while the other manages the Office of Normative and Legal Regulation of

Nuclear and Radiation Safety and the Office of Physical Protection and Nuclear Weapons Non-proliferation and Safeguards.

In October 1996, the President of Ukraine decided to establish a state-owned company called the National Nuclear Generating Company (*Energoatom*) to take over, from the *Goskomatom*, all of the assets of existing nuclear power plants in operation (Resolution No. 1268 of the Council of Ministers of 17 October 1996). Resolution No. 830 of 8 June 1998 of the Council of Ministers appoints *Energoatom* as the operator of all nuclear reactors.

Energoatom is the producer of nuclear-generated electricity in Ukraine and is responsible for its distribution, the management of radioactive waste generated by its facilities and for decommissioning, with the possibility of delegating its operational responsibilities to each individual nuclear power plant operator. *Energoatom* is managed by a president, vice-president and board of directors, all of whom are appointed by the Council of Ministers.

Energoatom is the "operator" for the purpose of the nuclear liability regime under the 1995 Law on the Uses of Nuclear Energy and Radiation Safety and the 1963 Vienna Convention on Civil Liability for Nuclear Damage.

The Ministry of Health Protection is responsible for establishing radiation protection regulations and standards, including those applicable to occupational exposures.

The Ministry of Internal Affairs is in charge of the physical protection of nuclear materials and installations.

Pursuant to the Presidential Decree of 26 July 1996, the Ministry responsible for addressing the consequences of the Chernobyl accident and the Ministry of Civil Defence merged to form the Ministry of Emergency Situations and Removal of the Consequences of the Chernobyl Accident. This Ministry is responsible for:

- state monitoring and control over technical safety, preparedness for action in emergency situations and implementation of preventive measures;
- organising and co-ordinating implementation of measures in the zone of evacuation and zones of compulsory resettlement of the population;
- assessing radiation conditions in the territories contaminated as a consequence of the Chernobyl accident, implementing radiation monitoring, management and co-ordination of work aimed at examining the radiation situation in these territories;
- organising and co-ordinating activities in the field of radioactive waste management.

The Ministry of Fuel and Energy, established by the Decree of 15 December 1999, replaces, *inter alia*, the Ministry of Energy and its Department on Nuclear Energy (formerly *Goskomatom*) with regard to the management of radioactive waste generated by nuclear fuel cycle enterprises. The Ministry of Fuel and Energy is responsible for the regulation of nuclear energy and radiation safety. A Department for Nuclear Energy is to be established within the new Ministry of Fuel and Energy. The status and structure of this Department has not yet been defined.

The Ministry of Industrial Policy is responsible for management in the field of utilisation of radiation technologies.

The Science and Technology Centre of Ukraine is responsible for conducting research and analyses in the area of nuclear energy.

By Decree of 26 April 1996, the President of Ukraine created a Chernobyl Centre for Nuclear Safety, Radioactive Waste and Radioecology. The purpose of the Centre is to promote international scientific research into the effects of nuclear and radiation accidents and the improvement of rehabilitation procedures for contaminated areas.

The NPP Operation Support Institute, founded in 1997, is entrusted with analysing the Ukrainian NPPs' operational experience, assessing safety of units in operation and under construction, and participating in the development of programmes to upgrade them. Furthermore, it acts as an expert organisation for scientific and technical support of NPP operation.

Legislation in Force

Law on the Uses of Nuclear Energy and Radiation Safety

The Law No. 40/95 on the Uses of Nuclear Energy and Radiation Safety* was adopted on 8 February 1995 and entered into force on 21 March 1995. On 3 December 1997 the Law was amended by the Law on the Introduction of Amendments to certain Legislative Acts of Ukraine in connection with the accession of Ukraine to the Vienna Convention on Civil Liability for Nuclear Damage. Law No. 40/95 lays down basic principles governing the peaceful uses of nuclear energy, including the protection of the public and the environment, and defines the rights and obligations of citizens in relation to the use of nuclear energy.

The Law applies to the following activities:

- construction, commissioning, operation and decommissioning of nuclear installations;
- management of nuclear materials and ionising radiation sources, in particular the mining of materials containing nuclear substances;
- accounting and control of nuclear materials and radiation sources;
- physical protection of nuclear installations and materials; and
- co-operation with respect to Ukraine's international obligations in the nuclear field.

The Law provides for citizens' rights to information on the uses of nuclear energy and radiological safety, and for the dissemination of such information by the organisations and institutions concerned.

As regards nuclear third party liability, the Law on the Uses of Nuclear Energy and Radiation Safety provides for the strict liability of the nuclear operator. Exceptions to this principle exist where the nuclear damage is caused by a nuclear incident as a result of a natural disaster of an exceptional nature, or acts of armed conflict, hostilities, civil war or uprising. The Law, as amended in 1997, also

* The full text in English of this Law was reproduced in the Supplement to *Nuclear Law Bulletin* No. 56 (December 1995).

contains provisions on the consequences of lost or stolen nuclear material, the liability of two or more nuclear operators, the state's right of recourse against the operator, nuclear damage resulting from an intentional act, on-site property damage and liability for damage caused during transport. The limit of the operator's liability is set at 50 million Special Drawing Rights (SDR), and a 10-year limitation period for property damage claims is prescribed, while there is no limitation period at all for personal injury claims.

With regard to insurance against nuclear liability risks, the Ukrainian insurers established a Nuclear Insurance Pool in 1996. It was registered at the Ministry of Justice in January 1997 in order to obtain legal status.

Law on the Licensing of Activities in the Field of Nuclear Energy

This Law, which was signed by the President on 11 January 2000 and entered into force on the same date, defines the legal and organisational framework governing permitted activities in the field of nuclear energy and provides for certain exemptions from the general provisions established by the Law on Business Undertakings.

The Law aims to ensure that operators of nuclear facilities, users of radiation sources and managers of radioactive waste management installations comply with internationally-accepted safety levels. It lists those activities in the nuclear energy field which are subject to licensing: design, construction, commissioning, operation and decommissioning of nuclear facilities or radioactive waste storage or disposal facilities; processing of uranium ore; transport of radioactive material; processing, storage and disposal of radioactive waste; manufacture, storage, use and maintenance of radiation sources; activities related to the physical protection of nuclear material; and training of personnel operating nuclear facilities. The Law also provides for exemptions from licensing requirements for the use of certain radiation sources. Furthermore, it describes the licensing procedure and the content of a licence, including any conditions which may be attached thereto.

Supervision to ensure compliance with licence conditions is carried out through inspections and analysis of nuclear and radiation safety. The licensing authority may suspend or revoke a licence.

The Law also requires certification of, *inter alia*, radiation sources, packages for radioactive waste storage or disposal and packages for radioactive material transportation. Radioactive sources are also subject to state registration.

Lastly, this Law amends Section 33 of the 1995 Law on the Use of Nuclear Energy and Radiation Safety on the definition of "operating organisation".

Law on Protection against Ionising Radiation

The Law on Protection against Ionising Radiation of 14 January 1998 entered into force on 19 February 1998, with the exception of Section 19 which came into force on 1 January 2000. Its objective is to protect the health and property of the public against the harmful effects of ionising radiation caused by activities related to the utilisation of nuclear installations, sources of ionising radiation (including radioactive waste), and in the event of a radiation accident. The Law establishes maximum permissible dose limits for exposure to radiation of 20 mSv per year for occupationally exposed persons and 1 mSv per year for members of the public. The Law also identifies the authorities, at executive, ministerial and local levels, which are responsible for its implementation, and

imposes special duties upon certain individuals and organisations with regard to protecting the public in the event of a radiation accident. It also provides for protective measures against the effects of radionuclides which are contained in building materials, foodstuffs and potable water, or which are used for medical treatment or diagnostic purposes. In addition, the Law establishes rules concerning compensation for damage resulting from ionising radiation.

There are several regulatory documents in the field of radiation safety, in which the provisions of the above mentioned Law are detailed, including:

- Radiation Safety Norms (NRBU-97), which entered into force on 1 January 1998;
- Radiation Safety Norms (NRB-76/87), which are the principal measures regulating radiation protection requirements for NPPs in operation during the transitional period before reduction of radiation safety levels in compliance with NRBU-97;
- General Provisions of Safety Assurance of NPPs (OPB-88 Pi), which govern safety issues in relation to specific features of NPPs as a possible source of radiation impact upon the personnel, the public and the environment; and
- Rules for Radiation Safety at Operational NPPs (PRB AS-89), which set out organisational and technical requirements in relation to radiation safety of the personnel and the public and protection of the environment at NPPs during their commissioning, operation and decommissioning.

Law on Radioactive Waste Management

The purpose of Law No. 256/95 on Radioactive Waste Management of 30 June 1995 is to protect humans and the environment against the hazards of radioactive waste. It establishes the basic principles of state policy on the management of such waste. In particular, it contains provisions dealing with storage operations and the establishment of a special public fund to finance the cost of the radioactive waste management programme.

Storage operations are subject to prior licensing and are financed from the special public fund. The fund is constituted according to a procedure decided by the Council of Ministers. In the event of an accident involving waste, its owner is held liable and must eliminate the source and mitigate the consequences of the resulting damage.

Law on Basic Principles Governing the Decommissioning of Chernobyl NPP

On 11 December 1998, the Ukrainian Parliament approved the Law on Basic Principles Governing the Decommissioning of Chernobyl NPP and the Transformation of its Destroyed Unit 4 into an Environmentally Safe Area. This Law aims to develop legal principles governing the decommissioning of Chernobyl NPP, to ensure the rehabilitation of Unit 4 and social security cover for the personnel of the power plant and the population of Slavutich city.

This legislation aims also to determine criteria for the more efficient use of international technical assistance offered for the above purposes, and to establish a special tax regime for commercial entities within the administrative territory of Slavutich city. Activities involving the early closure and decommissioning of Chernobyl, or measures of reinstatement of the impaired environment

must be approved by the Council of Ministers of Ukraine. Such activities are financed through the state budget, funds from *Energoatom*, international technical assistance or voluntary contributions and, in the event of measures of reinstatement of the impaired environment, by the Fund for the elimination of the consequences of the Chernobyl catastrophe and security of the population.

Law on Uranium Ore Mining and Processing

This Law, which was adopted on 19 November 1997 and entered into force on 19 December 1997, regulates uranium mining, reprocessing and trading activities. It contains specific provisions for the protection of uranium mine workers, the public and the environment against the harmful effects of ionising radiation.

Other Relevant Legislation

The Law on Civil Defence, adopted on 3 February 1993, defines the following basic tasks of the state authorities: emergency prevention, reduction of damage and losses as a result of an accident and the early notification of the public about an emergency. This Law establishes a system of analysis and control, early notification and communication and a special system for the supervision, control and monitoring of the radioactive contamination.

The Law on the Energy Sector, adopted on 16 October 1997, defines the legislative, economic and organisational framework governing activities in the energy sector. It regulates relations connected with the production, transfer, supply, delivery and use of energy, ensuring compliance with the rules on safety, competition and consumers' and workers' rights.

Certain regulatory documents inherited from the former USSR are still in force, pending revision of these documents.

The following regulations should also be noted: the Decision of the Council of Ministers of 12 April 1992 on the fuel cycle, the Decision of the Council of Ministers of 27 January 1993 on the Transport of Radioactive Substances, the Presidential Decree of 28 December 1993 on the Physical Protection of Materials and Nuclear Installations, the Decision of the Council of Ministers of 11 August 1995 establishing a State Agency Responsible for the Physical Protection of Nuclear Materials and Installations, the Decree of the Council of Ministers of 12 March 1996 on the Control for Export, Import and Transit of Goods Related to Nuclear Activities, and finally the Decree of the Council of Ministers of 18 December 1996 on the State System for Accounting and Control of Nuclear Materials.

Other relevant legislative instruments include the Law of 1991 on Protection of the Environment, the Law of 1992 on Air Quality, the Law of 1994 on the Protection of Public Health, the Civil Code, the Penal Code, the Administrative Code and the Land Use Code.

Draft Legislation and Regulations

Ukraine is currently preparing a number of draft laws. The main drafts under consideration are:

- Draft Law on Civil Liability for Nuclear Damage and its Financial Security, which establishes the principal rules and procedures governing the compensation of nuclear damage caused by a nuclear incident, provides for the limited liability of the nuclear operator and identifies methods of financial security to provide the compulsory coverage for such liability. The draft Law is comprised of five Sections which deal respectively with the following aspects: General Provisions, Civil Liability for Nuclear Damage, Financial Security for Civil Liability for Nuclear Damage, Participation of the State in the Indemnification of Nuclear Damage and Final Provisions The draft Law also draws up the conditions governing state intervention in the indemnification of nuclear damage. The adoption of this Law will make it necessary to revise the current legislation, in particular the Law on the Uses of Nuclear Energy and Radiation Safety.

- Draft Law on Amendment of Other Ukrainian General Laws resulting from the adoption of the 1995 Law on the Use of Nuclear Energy and Radiation Safety, such as the Civil Code, Civil Procedure Code, Administrative Code and Insurance Law.

- Draft Law on Conditions for the Privatisation of Atomic Energy Enterprises, which is a *lex specialis* of the draft Law concerning privatisation in the energy sector.

- Draft Law on Physical Protection of Nuclear Materials and Installations and Other Radiation Sources, which defines the legal basis for activities of legal entities and physical persons in the field of physical protection of nuclear installations and materials, radioactive waste and other sources of ionising radiation.

- Draft Law on Transportation of Dangerous Substances, which includes the transportation of nuclear substances and is designed to reflect the principles of the Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous & Noxious Substances by Sea (HNS) and the IAEA rules on transportation of dangerous substances.

- Draft Law on the Creation of a Special Fund for the Implementation of Measures on State Regulation of Nuclear and Radiation Safety.

- Draft Law on Amendments to the Law on the Taxation System, which provides for introduction of a compulsory fee in respect of electric power generated at NPPs to be lodged to the above Fund in order to help finance activities related to the state regulation of nuclear and radiation safety.

International Conventions

Nuclear Third Party Liability

- Ukraine acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 20 September 1996 and it entered into force on 20 December 1996. Ukraine also signed the 1997 Protocol to Amend the Vienna Convention on 29 September 1997.

- Ukraine acceded to the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention on 24 March 2000 and it entered into force on 24 June 2000.

- Ukraine also signed the 1997 Convention on Supplementary Compensation for Nuclear Damage on 29 September 1997.

Other International Conventions

- Ukraine ratified the 1960 Convention concerning the Protection of Workers against Ionising Radiation on 19 June 1968 and it entered into force on 19 June 1969.

- Ukraine ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 30 December 1963 and it entered into force on the same date.

- Ukraine acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 5 December 1994 and it entered into force on the same date.

- Ukraine ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and in the Subsoil thereof on 3 September 1971 and it entered into force on 18 May 1972.

- Ukraine acceded to the 1979 Convention on Physical Protection of Nuclear Material on 6 July 1993 and it entered into force on 5 August 1993.

- Ukraine ratified the 1986 Convention on Early Notification of a Nuclear Accident on 26 January 1987 and it entered into force on 26 February 1987.

- Ukraine ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 26 January 1987 and it entered into force on 26 February 1987.

- Ukraine ratified the 1994 Nuclear Safety Convention on 8 April 1998 and it entered into force on 7 July 1998.

- Ukraine signed the 1996 Comprehensive Nuclear Test Ban Treaty on 27 September 1996.

- Ukraine signed the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 29 September 1997.

Membership in Nuclear Organisations

Ukraine is a member of the International Atomic Energy Agency (IAEA) and *Energoatom* is a member of the World Association of Nuclear Operators (WANO). Ukraine also joined the Nuclear Suppliers Group and the Zangger Committee.

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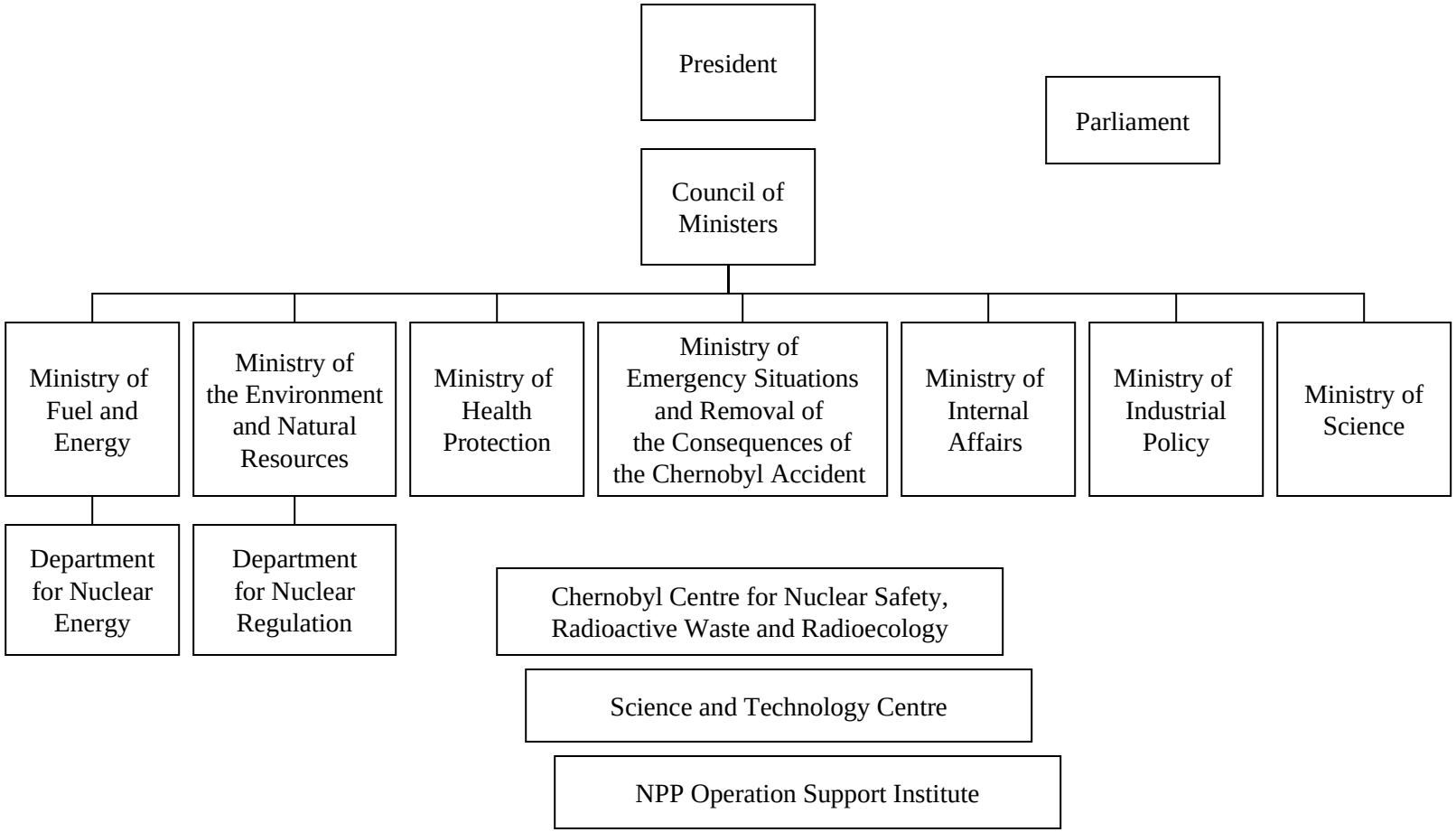

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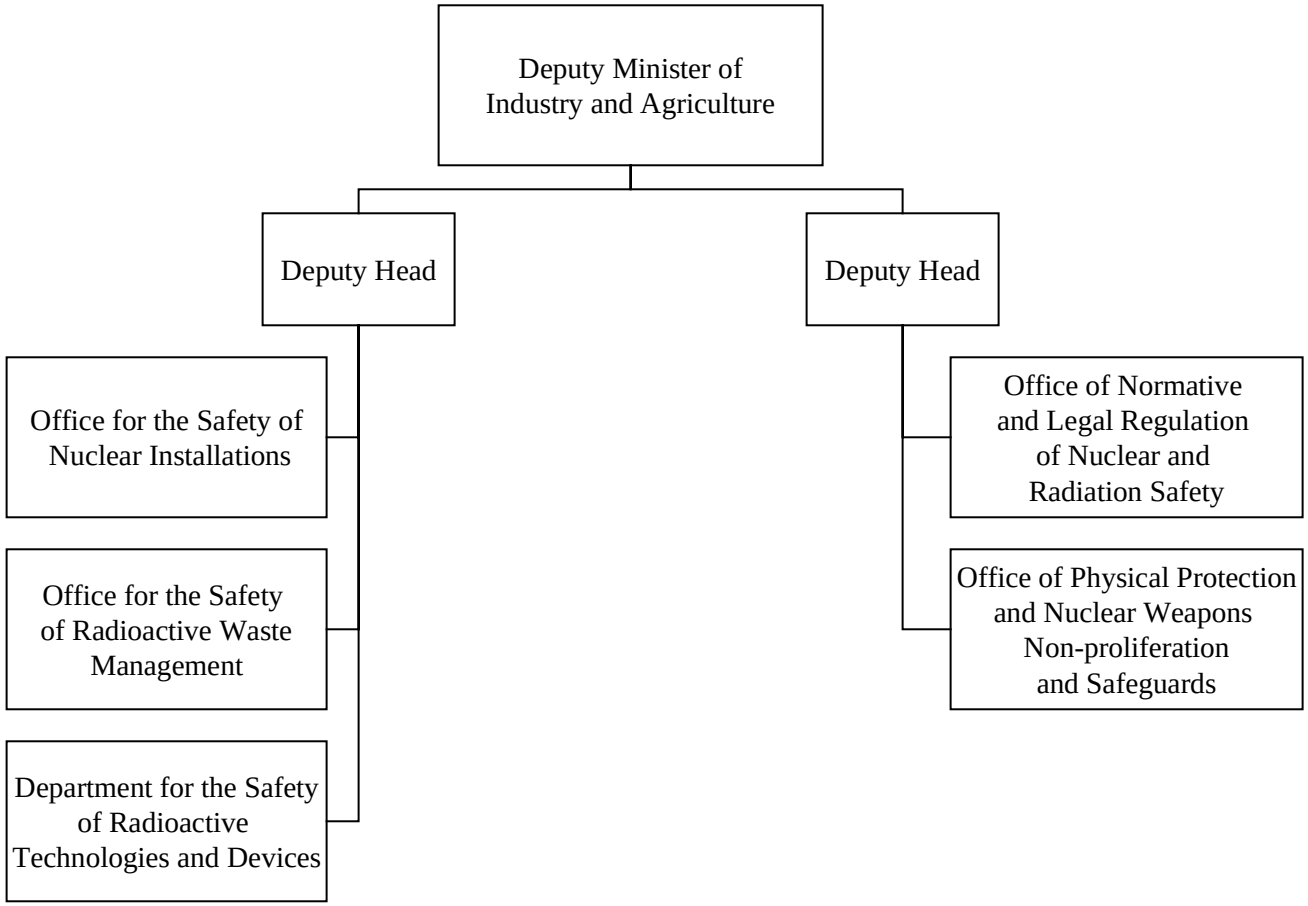

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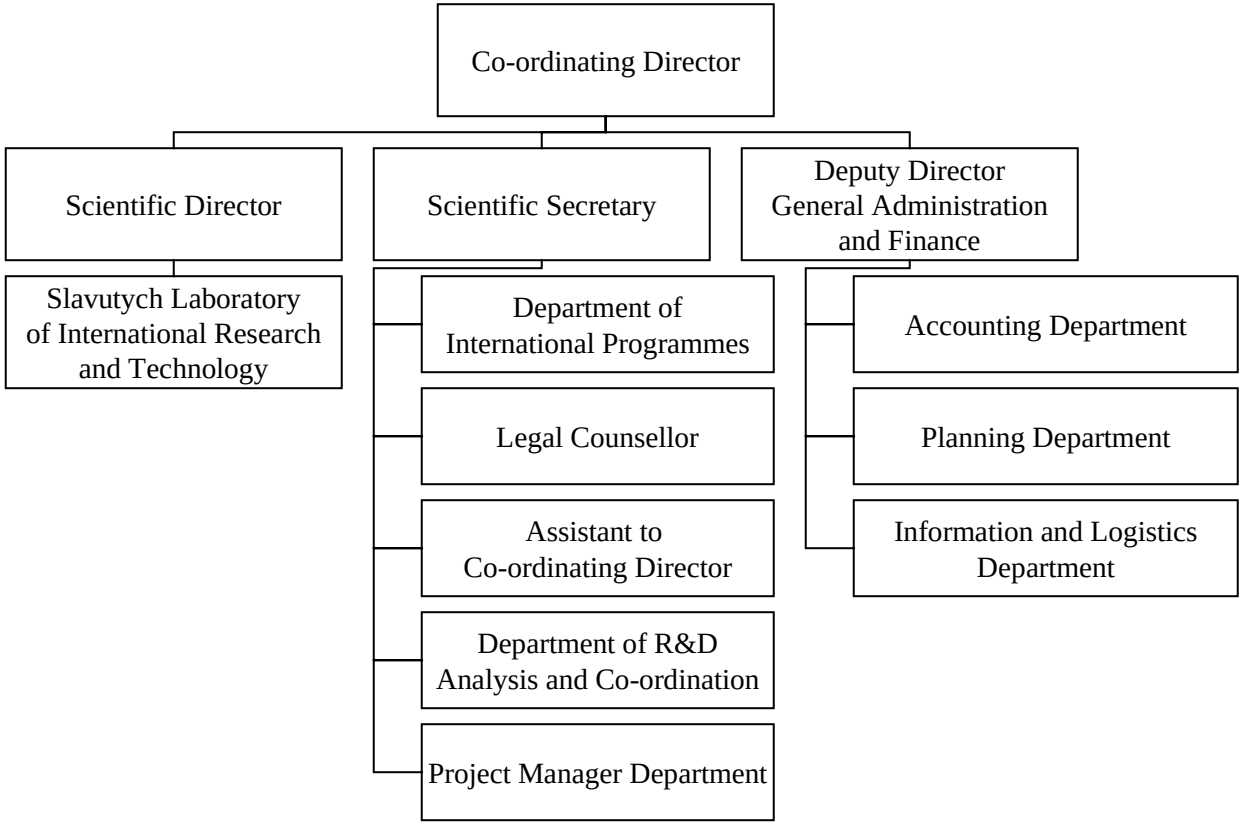


UZBEKISTAN

Introduction

There are no nuclear power plants or reactors in Uzbekistan at present. However, there is a WWR-SM research reactor (10 MW). Research is conducted at the Nuclear Physics Institute of the Academy of Science of Uzbekistan, located in Tashkent.

Uzbekistan also has a large uranium reserve.

Competent Nuclear Authorities

The following Ministries are involved in the nuclear energy field:

- The Ministry of Internal Affairs is in charge of the storage of radioactive materials.
- The Ministry of Health is responsible for radiation protection.
- The Ministry of Emergencies is responsible for responses to radiological accidents.
- The State Committee on Safety in Industry and Mining is responsible for engineering safety.

The Institute of Nuclear Physics, founded in 1956 within the Academy of Science of Uzbekistan, conducts research and development programmes on nuclear energy.

Legislation in Force

Before April 1994, Uzbekistan applied the Standards for Radiation Safety and the Principle Health Rules issued by the Ministry for Health of the former USSR. Since it became a member of the IAEA, Uzbekistan has endeavoured to develop its own standards and rules for radiation safety based on international recommendations.

In 1994, the Ministry of Health adopted the Basic Standards and Rules on Radiation Protection [SanPiN (SanN&R ed.) No. 0029-94] to complement the Law on State Supervision of Health and the IAEA Basic Safety Standards. These Standards and Rules regulate the protection of the public against the harmful effects of ionising radiation as a consequence of activities involving the use of radioactive substances and sources of ionising radiation (nuclear facilities, generators of ionising radiation, etc.). They are comprised of three chapters establishing respectively:

- Regulations for the assessment of the exposure of the environment to radiation;

- Regulations to assess and approve measures which may strengthen natural background radiation;

- Regulations for emergency situations in relation to natural sources of radiation.

Draft Legislation and Regulations

Pursuant to the Programme to Strengthen the Radiation Safety and Waste Management Infrastructure, a draft Law on Radiation Safety was prepared with the assistance of the IAEA. The draft Law aims to incorporate principles of the following international conventions: the Convention on Physical Protection, the Convention on Nuclear Safety, the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency, the Vienna Convention on Civil Liability for Nuclear Damage and the Joint Protocol relating to the Application of the Vienna Convention and Paris Convention.

Furthermore, as regards the treatment and disposal of nuclear waste originating from uranium mining industries, a draft Law on the Management of Radioactive Waste is under consideration.

International Agreements

Nuclear Third Party Liability

Uzbekistan is not a Party to any of the international conventions governing civil liability for nuclear damage.

Other International Conventions

- Uzbekistan acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 7 May 1992.

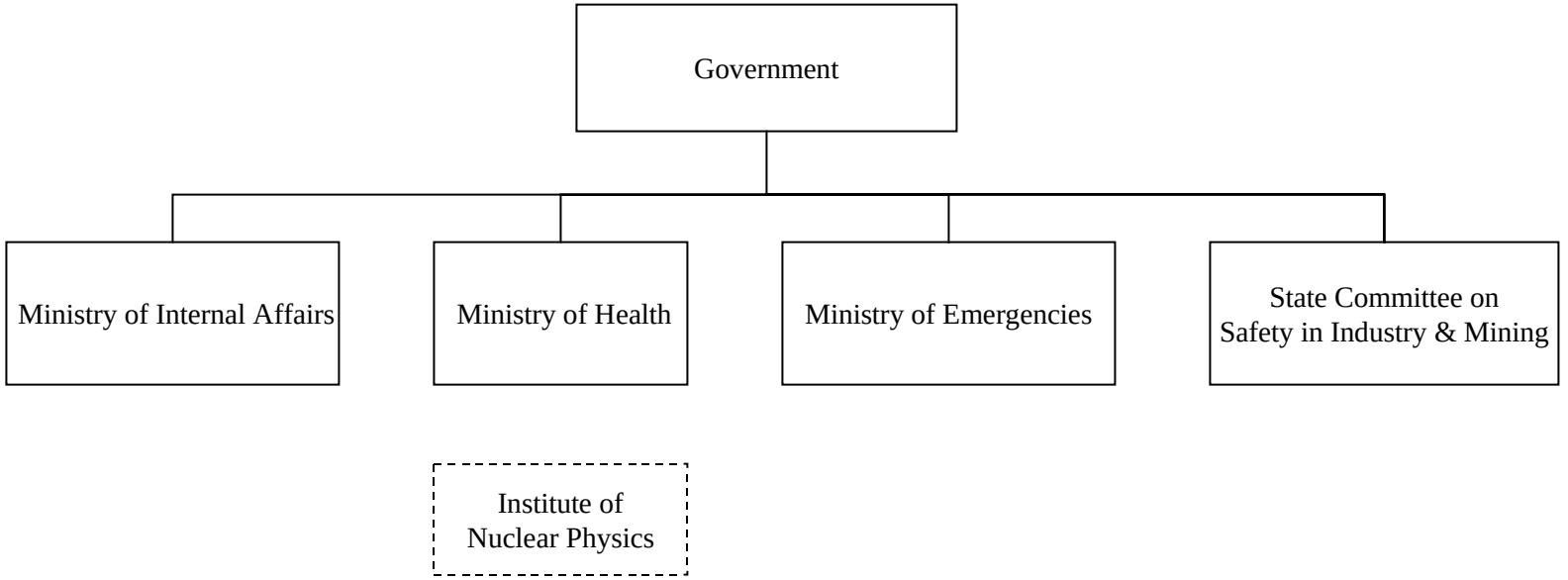
- Uzbekistan acceded to the 1979 Convention on the Physical Protection of Nuclear Material on 9 February 1998 and it entered into force on 11 March 1998.

- Uzbekistan ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 29 May 1997.

Membership in Nuclear Organisations

Uzbekistan is a member of the International Atomic Energy Agency (IAEA).

UZBEKISTAN
Competent Nuclear Authorities



PARTICIPATION IN INTERNATIONAL NUCLEAR TREATIES

COUNTRY	1960 Convention on the Protection of Workers	1963 Vienna Convention on Civil Liability for Nuclear Damage	1963 Treaty Banning Nuclear Weapon Tests	1968 Non-Proliferation Treaty	1971 Nuclear Weapons Emplacement Treaty	1979 Physical Protection Convention	1986 Early Notification Convention
Albania	NO	NO	NO	YES	NO	NO	NO
Armenia	NO	YES	YES	YES	NO	YES	YES
Belarus	YES	YES	YES	YES	YES	YES	YES
Bosnia and Herzegovina	NO	YES	NO	YES	NO	YES	YES
Bulgaria	NO	YES	YES	YES	YES	YES	YES
Croatia	NO	YES	YES	YES	YES	YES	YES
Czech Republic	YES	YES	YES	YES	YES	YES	YES
Estonia	NO	YES	NO	YES	NO	YES	YES
Georgia	NO	NO	NO	YES	NO	NO	NO
Hungary	YES	YES	YES	YES	YES	YES	YES
Kazakhstan	NO	NO	NO	YES	NO	NO	NO
Latvia	YES	YES	NO	YES	YES	NO	YES
Lithuania	NO	YES	NO	YES	NO	YES	YES

PARTICIPATION IN INTERNATIONAL NUCLEAR TREATIES (continued)

COUNTRY	1960 Convention on the Protection of Workers	1963 Vienna Convention on Civil Liability for Nuclear Damage	1963 Treaty Banning Nuclear Weapon Tests	1968 Non-Proliferation Treaty	1971 Nuclear Weapons Emplacement Treaty	1979 Physical Protection Convention	1986 Early Notification Convention
Former Yugoslav Republic of Macedonia	NO	YES	NO	YES	NO	YES	YES
Republic of Moldova	NO	YES	NO	YES	NO	YES	YES
Poland	YES	YES	YES	YES	YES	YES	YES
Romania	NO	YES	YES	YES	YES	YES	YES
Russian Federation	YES	SIGNED	YES	YES	YES	YES	YES
Slovak Republic	YES	YES	YES	YES	YES	YES	YES
Slovenia	NO	YES	YES	YES	YES	YES	YES
Ukraine	YES	YES	YES	YES	YES	YES	YES
Uzbekistan	NO	NO	NO	YES	NO	YES	NO

PARTICIPATION IN INTERNATIONAL NUCLEAR TREATIES

COUNTRY	1986 Assistance Convention	1988 Joint Protocol	1994 Nuclear Safety Convention	1996 CTBT Treaty	1997 Protocol to Amend the Vienna Convention	1997 Convention on Supplementary Compensation	1997 Convention on Safe Management of Spent Fuel/Waste
Albania	NO	NO	NO	SIGNED	NO	NO	NO
Armenia	YES	NO	YES	SIGNED	NO	NO	NO
Belarus	YES	NO	YES	SIGNED	SIGNED	NO	SIGNED
Bosnia and Herzegovina	YES	NO	NO	SIGNED	NO	NO	NO
Bulgaria	YES	YES	YES	YES	NO	NO	SIGNED
Croatia	YES	YES	YES	SIGNED	NO	NO	YES
Czech Republic	YES	YES	YES	YES	SIGNED	SIGNED	YES
Estonia	YES	YES	NO	YES	NO	NO	NO
Georgia	NO	NO	NO	SIGNED	NO	NO	NO
Hungary	YES	YES	YES	YES	SIGNED	NO	YES
Kazakhstan	NO	NO	SIGNED	SIGNED	NO	NO	SIGNED
Latvia	YES	YES	YES	SIGNED	NO	NO	NO
Lithuania	NO	YES	YES	YES	SIGNED	SIGNED	SIGNED

PARTICIPATION IN INTERNATIONAL NUCLEAR TREATIES (continued)

COUNTRY	1986 Assistance Convention	1988 Joint Protocol	1994 Nuclear Safety Convention	1996 CTBT Treaty	1997 Protocol to Amend the Vienna Convention	1997 Convention on Supplementary Compensation	1997 Convention on Safe Management of Spent Fuel/Waste
Former Yugoslav Republic of Macedonia	YES	NO	NO	YES	NO	NO	NO
Republic of Moldova	YES	NO	YES	SIGNED	NO	NO	NO
Poland	YES	YES	YES	YES	SIGNED	NO	YES
Romania	YES	YES	YES	YES	YES	YES	YES
Russian Federation	YES	NO	YES	SIGNED	NO	NO	SIGNED
Slovak Republic	YES	YES	YES	YES	NO	NO	YES
Slovenia	YES	YES	YES	YES	NO	NO	YES
Ukraine	YES	YES	YES	SIGNED	SIGNED	SIGNED	SIGNED
Uzbekistan	NO	NO	NO	YES	NO	NO	NO

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