Nuclear Legislation in OECD and NEA Countries

Regulatory and Institutional Framework for Nuclear Activities

Belgium

OECD
BETTER POLICIES FOR BETTER LIVES

NEA
NUCLEAR ENERGY AGENCY

Belgium

I. General Regulatory Regime 4

1. Introduction 4
2. Mining regime 6
3. Nuclear facilities 6
   - *a) Licensing and inspection, including nuclear safety 6*
   - *b) Protection of the environment against radiation effects 7*
   - *c) Emergency response 8*
   - *d) Decommissioning 8*
4. Trade in nuclear materials and equipment 10
5. Radiological protection 10
6. Radioactive waste management 12
7. Non-proliferation of nuclear weapons and physical protection of nuclear material 13
   - *a) International aspects 13*
   - *b) National control and security measures 14*
8. Transport 15
9. Nuclear third party liability 15

II. Institutional Framework 17

1. Regulatory and supervisory authorities 17
   - *a) Federal Agency for Nuclear Control (FANC) 17*
   - *b) Federal Public Service for Home Affairs 18*
   - *c) Federal Public Service for Economy, SME's, Self-Employed and Energy 18*
   - *d) Federal Public Service for Employment, Labour and Social Dialogue 19*
   - *e) Federal Public Service for Defence 19*
   - *f) Federal Public Service for Foreign Affairs, Foreign Trade and Development Co-operation 19*
   - *g) Federal Public Planning Service for Science Policy 19*
2. Advisory bodies 19
   - *a) Scientific Council for Ionizing Radiation of the Federal Agency for Nuclear Control 19*
   - *b) Superior Health Council 20*
   - *c) Superior Council for Safety, Hygiene and Enhancement of Workplaces 20*
   - *d) Advisory Committee for the Non-Proliferation of Nuclear Weapons 20*
   - *e) Commission for Electricity and Gas Regulation (CREG) 20*

3. Public and semi-public agencies 21
a) Scientific Institute of Public Health 21
b) Nuclear Research Centre (SCK•CEN) 21
c) Institute for Radioelements (IRE) 22
d) Higher Institute for Emergency Planning 23
e) Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS) . 23
f) Synatom 25

I. General regulatory regime

1. Introduction

Belgium is a federal state composed of three regions (Flemish, Walloon and Brussels Capital Region) and three communities (Dutch, French and German speaking). The federal state is responsible for nuclear energy policy and radiological protection, but there are interfaces with the regional regulations (non-radiological aspects of safety and environmental protection) and the community regulations (education, preventive health care). This overview deals with the federal laws and regulations only. Belgium is a member state of the European Union and the European Atomic Energy Community. Hence, all regulations that are based on the Treaty establishing the European Atomic Energy Community apply. Belgium is a contracting party to many international conventions governing different aspects of the nuclear and radioprotection policy.

The main regulatory authority for the safety of nuclear facilities and activities is the Federal Agency for Nuclear Control (*Federaal Agentschap voor Nucleaire Controle - Agence fédérale de Contrôle nucléaire* – FANC/AFCN), a public agency under the political responsibility of the Minister for Home Affairs. In 2007, a private foundation, named Bel V, was created as a subsidiary of the FANC to support it, in particular, with respect to health physics control.

The legislative and regulatory framework has evolved in line with the developments in nuclear science and technology. Until 2001, the main pillar of the Belgian nuclear legislation was the Law of 29 March 1958 regarding the Protection of the Population against the Hazards of Ionizing Radiation. In implementation of this law, Royal Decree of 28 February 1963 laying down general regulations concerning the protection of the public and workers against the hazards of ionizing radiation constituted the basic regulations for the safety of nuclear activities. In particular, it governed the licensing of nuclear facilities, the inspection and control regime, radiological protection, the safety of radioactive waste management, the medical applications of ionizing radiation, the import, transit and distribution of radioactive substances as well as their transport. On 15 April 1994, a new Law on the Protection of the Population and the Environment against the Hazards of Ionizing Radiation and on the Federal Agency for Nuclear Control was promulgated. This law, which has been amended several times, repeals and replaces Law of 29 March 1958 and constitutes the legal basis for the FANC as regulatory body.

On 1 September 2001, Royal Decree of 20 July 2001 laying down the general regulations on the protection of the public, the workers and the environment against the hazards of ionizing radiation came into effect. This royal decree replaces Decree of 28 February 1963. As of 1 September 2001, FANC became fully operational. This royal decree has been amended several times, in particular to transpose European directives (high activity sources, transboundary movement of radioactive waste and spent nuclear fuel) and to take account of feedback experience.

There are currently seven nuclear power reactors in Belgium, four located in Doel and three in Tihange, with a total installed capacity of 5 936 MWe. All are pressurised water reactors (PWR). They are owned and operated by Electrabel and provided approximately 55% of the electricity in 2008.

There are also three research reactors operating in Belgium. At the Nuclear Research Centre (*Studiecentrum voor Kernenergie – Centre d'étude de l'énergie nucléaire* – SCK•CEN) in Mol there is the zero-power reactor BR1, the material test reactor BR2 and VENUS. The former pressurised water research reactor BR3, at the site of SCK•CEN, is being decommissioned. The research reactor THETIS at the University of Ghent is no longer in operation. Decommissioning of the reactor has started.

The Institute for Radioelements (IRE) in Fleurus, produces radioisotopes for medical purposes from high-enriched uranium targets that were irradiated in reseach reactors, e.g. the BR2.

FBFC International, a division of the industrial group AREVA, operates a nuclear fuel fabrication plant in Dessel. In the same area, Belgonucleaire, specialised in the production of mixed oxide fuel (MOX) for light water reactors, stopped its activities in 2006. Decommissioning and dismantling has started.

Radioactive waste produced in Belgium is partly treated by the operators of the nuclear power plants at their own sites and partly by Belgoprocess, a subsidiary of the Belgian Agency for Radioactive Waste and Enriched Fissile Materials *(Nationale Instelling voor radioactief afval en verrijkte splijtstoffen – Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF/NIRAS). All conditioned waste is currently stored in temporary storage facilities at Belgoprocess. On 23 June 2006, the Government has decided that short-lived low- and intermediate-level waste will be disposed of in a near-surface facility in Dessel. At the same time, the Government requested FANC to develop a specific licensing procedure for disposal facilities and requested the FANC and ONDRAF/NIRAS to co-operate in this project. It must be noted that three partnerships between ONDRAF/NIRAS and municipalities were set up in order to give the local population the opportunity to participate in the decision-making process for the selection of an appropriate site and design of a facility for the disposal of short-lived low- and intermediate-level waste. The application for a licence is in preparation.

For long-lived intermediate- and high-level waste, an extensive R&D programme is still ongoing. I aims at assessing the possibilities for a geological disposal facility in clay layers. ONDRAF/NIRAS is drafting a waste plan for the long-term management of the long-lived intermediate- and high-level waste. A strategic environmental assessment is part of this plan. Different options are being compared, with the geological disposal as the reference option. On the basis of the plan, the Government has to take a decision on the long-term management option. The general public is involved in the process. In case the reference option is confirmed, the execution of the plan and the R&D programme will result in a site selection towards 2020. Afterwards, a preliminary safety report will be prepared, which will be submitted to the safety authorities around 2025.

Spent fuel from the nuclear power plants has been reprocessed partly at the AREVA reprocessing facility in La Hague (France). The vitrified high-level radioactive waste repatriated from La Haque is stored at Belgoprocess. The compacted waste will be repatriated in the coming years. The non-reprocessed spent fuel is stored at the nuclear power plant sites in Doel (dry storage) and Tihange (wet storage).

In 2003, the Belgian Parliament adopted a law to phase out nuclear power in Belgium used for the industrial production of electricity. This Law of 31 January 2003 on the Phase-out of Nuclear Energy for the Purposes of the Industrial Production of Electricity stipulated:

- that all existing nuclear power plants must be deactivated after a lifetime of forty years after their commissioning;

- that no operating licences for new nuclear power plants for the industrial production of electricity, using fissile materials, may be granted.

Nevertheless, an exception clause is foreseen in the law. In case of *force majeure*, the Federal Government may take exceptional measures to guarantee the supply of electricity. In case of *force majeure* the King, after deliberation of the Council of Ministers and on advice of the Commission of Electricity and Gas Regulation (CREG), can take the necessary measures, including a modification of the nuclear phase-out, to assure the security of supply in the country. Successively three expert groups have already been formed to advise the Government on the issue. The final report of the "AMPERE Commission" was published in October 2002. A second commission, called "Commission Energy 2030", presented its final report in June 2007. Finally, the

Government set up a third expert group, called "GEMIX", whose final report was handed over to the Minister of Climate and Energy on 7 October 2009. Taking all these reports into account, the Government decided on the 13 October 2009 to allow Electrabel to keep the three oldest nuclear power reactors in operation for 50 years. This decision has yet to be confirmed by an amendment to the law of 31 January 2003.

2. Mining regime

Belgian regulations concerning prospecting and the export of ores contain no special provisions regarding nuclear ores.

3. Nuclear facilities

a) Licensing and inspection, including nuclear safety

The regulatory provisions are found in Royal Decree of 20 July 2001 laying down the general regulations on the protection of the public, the workers and the environment against the hazards of ionizing radiation (GRPIR).[1]

Civil nuclear facilities are categorised in four classes, according to their radiological hazard (nature and quantity of radioactive substances). Class I facilities (nuclear power plants and other nuclear fuel cycle facilities, radioactive waste management and disposal facilities) are to be licensed by royal decree. Class II facilities (particle accelerators, facilities involving moderate quantities of radioactive substances and high voltage X-ray equipment, facilities where radioactive substances are administered to humans) and Class III facilities (involving small quantities of radioactive substances and low voltage X-ray equipment) are to be licensed by the FANC. Class IV facilities (involving very small quantities of radioactive substances) are exempted from notification and licensing.

Licence applications for Class I installations have to be submitted to the Federal Agency for Nuclear Control (FANC). The most important elements of the application are the (preliminary) safety report and the environmental impact assessment report; the content of the application is further detailed in the GRPIR (Article 6.2). The FANC reviews the licence application and seeks the advice of the Scientific Council. This Council examines and gives a preliminary advice on the application (Article 6.3). It may seek the opinion from outside experts, national or international, or foreign organisations. The licence application, together with the preliminary advice of the Scientific Council, is then forwarded to the municipalities concerned (within a distance of 5 km from the installations) for a public enquiry and advice of the municipal authorities (Article 6.4). Following receipt of this advice, the file is forwarded for advice to the provincial authority concerned (Article 6.5). In parallel with the consultations of the local and provincial authorities, international consultations take place. In the specific cases as foreseen in Article 37 of the Euratom Treaty, FANC asks for the advice of the European Commission. Following the receipt of all advices the Scientific Council deliberates again. It gives a final advice, which may comprise specific conditions for operation (Article 6.6).The licence for a Class I facility is granted by royal decree, countersigned by the Minister of Home Affairs (Articles 6.1 and 6.7). The licence cannot be granted if the advice of the Scientific Council is negative.

Licence applications for Class II facilities are equally submitted to the FANC which reviews the application and takes a decision following the consultation of the authorities of the municipalities concerned (Article 7). For Class II facilities with a higher risk, the application comprises an environmental impact assessment report. In this case, the municipalities concerned organise a public enquiry and take the results of the enquiry into consideration when they draft their advice.

1. It must be noted that these general regulations deal with civil facilities and activities only. Military installations and activities are dealt with in Royal Decree of 11 May 1971 laying down the general military regulations for protection against the hazards of ionizing radiation.

Class III facilities are licensed by the FANC following its review of the application (Article 8).

With respect to Class IV facilities, FANC has issued criteria for the approval of types of ionization chamber smoke detectors (30 March 2009).

Annex IA of the GRPIR sets the criteria and levels for exemption. On 9 July 2009, FANC decided to complete the original list of radionuclides (taken from the European Basic Safety Standards) with the radionuclides that are also listed in the IAEA Regulations for the Safe Transport of Radioactive Material.

The facilities in which activities involving naturally occurring radioactive materials take place must be notified to the FANC (Article 4). Following a review of the notification, FANC decides which provisions of the GRPIR have to be applied; it can also impose specific radiological protection measures (Article 9).

The termination of the licensed activity must be notified to the FANC and to ONDRAF/NIRAS (in case radioactive substances are involved, Article 17.1). The decommissioning of Class I facilities and some Class II facilities must be authorised prior to any decommissioning and dismantling activities (Article 17.2).

Law of 15 April 1994 entrusts the FANC with the task to inspect nuclear facilities.

It must be noted that the operator of a licensed facility has to set up a health physics control department in order to supervise the compliance with the regulatory requirements and the operation conditions set in the licence. Operators of Class II and III facilities may entrust this task to organisations for health physics control recognised by the FANC. The health physics department of Class I facilities is supervised by Bel V which may be entrusted only to experts in health physics control recognised by the FANC. The recognised organisations for health physics control are supervised by the FANC.

Belgium is contracting party to the Convention on Nuclear Safety (Law of 13 January 1997). The national reports are made available to the public on the website of the FANC.

b) Protection of the environment against radiation effects

Radiological protection of the environment is also governed by Law of 15 April 1994 and the GRPIR. Class I facilities are required and a subcategory of Class II facilities may be required to provide an environmental impact assessment report. The licences for Class I and II facilities may comprise specific conditions with respect to the protection of the environment, e.g. limits for liquid and gaseous releases, environmental monitoring. Radioactivity on the Belgian territory is monitored continuously by the automatic TELERAD network; the results are made available to the public on the website www.telerad.fgov.be.

Section IV of Chapter III of the GRPIR, which deals with radioactive waste, prohibits the release of liquid radioactive waste into surface waters, soil, sewers or underground conduits and prohibits the discharge of radioactive substances into the atmosphere in the form of gas, dust, smoke or vapour, when their radioactivity exceeds generic release limits given in Annex III of the GRPIR. It also provides for clearance of solid waste; clearance levels are given in Annex IB (taken from EC-RP 122, Part 1).

It must be noted that Law of 5 August 2006 on access to environmental information by the general public also applies to the nuclear sector. In this context, Belgium is also contracting party to the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters (Law of 17 December 2002).

Belgium is contracting party to OSPAR, the mechanism by which 15 Governments of the western coasts and catchments of Europe, together with the European Community, co-operate to

protect the marine environment of the North-East Atlantic. Belgium is also contracting party to the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter.

c) Emergency response

Article 72 of the GRPIR deals with emergency response planning. It states that the Minister of Home Affairs has to establish, in co-operation with FANC, a nuclear emergency plan. It also defines the minimum contents of such a plan.

A Royal Decree of 17 October 2003 lays down the nuclear and radiological emergency response plan. This plan is to serve as a guide for the measures to be taken whenever necessary to protect the public and the environment (Article 1.2). It establishes the duties of the different services and bodies, in accordance with their responsibilities under national laws and regulations, and describes the general organisation. The plan is to be supplemented by intervention plans at the different levels involved: the provincial authorities, the communal authorities and the different institutions concerned (Article 1.3.2). It also sets procedures for the notification of accidents and alert, the definition of emergency and intervention areas, the radiological assessment, the information of the population. It also addresses possible protection measures and international assistance. Regular training and exercises are obligatory.

In support of the emergency response plan, FANC has set intervention levels for radiological emergency situations (Decision of 17 October 2003).

Belgium is contracting party to both the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.

d) Decommissioning

Pursuant to Royal Decree of 30 March 1981 laying down the duties and conditions of operation of ONDRAF/NIRAS, ONDRAF/NIRAS has jurisdiction over the decommissioning of nuclear installations.

All operators (and future operators) of nuclear facilities must provide ONDRAF/NIRAS with all information relating to the planned decommissioning of their installations, the nature and quantities of residual waste and the date of transfer of the waste to ONDRAF/NIRAS. Such information must be provided within a reasonable time and in any case no later than three years before the final shutdown of the installation. ONDRAF/NIRAS shall also establish, in consultation with the operators concerned, the financing conditions for the decommissioning of nuclear installations which have been shutdown and for the management of the waste generated. The operators of nuclear power plants are exempted from this provision, but must give ONDRAF/NIRAS access to the information necessary to carry out its responsibilities in this regard.

ONDRAF/NIRAS shall come to an agreement with each operator of a nuclear facility defining the nature of this information. In case the operator, or the party financially responsible for the shut down installation, wishes to transfer the execution of these activities, ONDRAF/NIRAS and the operator negotiate an agreement defining the technical and financial terms of the decommissioning activities.

The financing regime for the clean-up of the Eurochemic reprocessing pilot plant (on site 1 of Belgoprocess), the installations of the Nuclear Research Centre (SCK•CEN) such as BR 1, BR 2, BR 3, high- and medium-level activity laboratories, the former "Waste" Department of the Nuclear Research Centre (on site 2 of Belgoprocess) and the installations of the Institute for Radioelements (IRE), including the waste generated, is detailed in the following paragraphs.

Regarding the former Eurochemic plant and the former "Waste" Department of the Nuclear Research Centre (called passive BP 1/BP 2), Article 432 of Programme Law (*loi programme*) of 24 December 2002 provides for the levy of an excise tax, called federal dues, which is calculated on the basis of kWh consumed. These dues are paid to a fund earmarked to finance responsibilities resulting from the decommissioning of the BP 1 and BP 2 sites at Mol-Dessel as well as the

treatment, processing, storage and evacuation of accumulated radioactive waste. The Commission for Electricity and Gas Regulation (CREG) collects the amount owed as dues and transfers it to ONDRAF/NIRAS, which is responsible for the management and clean-up.

Beyond the amount fixed for the year 2003, Royal Decree of 24 March 2003 states that the amount intended for the financing of clean-up activities, to be deducted on the basis of kWh consumed, shall be fixed by a royal decree deliberated by the Council of Ministers on the basis of a five year financing plan set up by ONDRAF/NIRAS. This plan shall be submitted to the Minister responsible for energy issues, at the latest, six months before the beginning of the period concerned. The CREG transfers a quarter of the amount to a special ONDRAF/NIRAS bank account at the end of each trimester. The first royal decree was promulgated on 19 December 2003 for the period 2004-2008. The second royal decree was promulgated on 21 October 2008 for the period 2009-2013.

Regarding the other SCK•CEN installations, Royal Decree of 16 October 1991 regarding the rules of control and mode of subsidising and modifying the statutes of the Centre defines the *passif technique* in the same way as the debits of BP 1/BP 2. It further states that the ministers responsible for economic and energy issues shall plan in their annual budgets the grants earmarked for the Centre's *passif tehnique.* These grants are transferred to a special ONDRAF/NIRAS account.

Royal Decree of 16 October 1991 establishing the IRE Rules of control and mode of subsidising and modifying the statutes of the institute contains the same provisions for the former installations of the IRE as those described above for the SCK•CEN.

The law on the nuclear provisions for the decommissioning of nuclear power plants and the management of irradiated fissile materials in these nuclear power plants was promulgated on 11 April 2003. Under the terms of this law, Synatom, the Belgian company responsible for nuclear fuel supply and the management of spent fuel, ensures to cover the costs of decommissioning of the nuclear power plants and costs tied to the management of the irradiated fissile material in these plants. To this end, the company keeps sufficient funds in its accounts for decommissioning and managing irradiated fissile materials.

The operators of nuclear power plants are required to transfer any funds to Synatom. This comprises the funds which they have already collected as well as any amount which they should add to these funds (interest of the available funds) or the future operation of the power plant, until they constitute a sufficient amount.

Decommissioning will be carried out by the operators for the account of Synatom, and decommissioning costs will be charged to the reserved funds under the control of Synatom. If, during the dismantling operations, the funds prove to be insufficient, the operators will transfer to Synatom the amount necessary to cover costs of dismantling at the time it is due.

The funds for the management of irradiated fissile materials are increased annually by Synatom according to the quantity of the irradiated fissile materials produced in the corresponding year and according to the interest on the available funds. The same conditions apply to this management as well as for decommissioning.

A Commission for nuclear provisions, installed by Law of 11 April 2003, supervises the sufficiency and the adequacy of the nuclear funds hold by Synatom and the implementation of the law.

Every three years a revision has to be made of the scenarios for the decommissioning of the nuclear power plants, the management of spent fuel and of the corresponding cost estimates. If necessary, the provisions have to be adapted.

75% of the funds can be lent back to the nuclear operator, the solvency of which has to be guaranteed. In case of decrease of this solvency, the loan has to be paid back gradually. The other

25% can be used for loans, the users of which also have to prove their solvency, or can be invested outside the nuclear operators, with sufficient attention for diversification in order to minimise the risks. 10% of the 25% can be lent to projects and legal persons, to be defined by the Commission for nuclear provisions, at an interest rate lower than the market value, but without jeopardising the existence and the sufficiency of the provisions.

4. Trade in nuclear materials and equipment

Belgium is active in the nuclear equipment and services market and participates in various industrial undertakings in this field.

The supply of uranium and nuclear fuel in Belgium is subject to Chapter VI of Title II of the Euratom Treaty. Synatom (*Société belge de combustibles nucléaires*) is responsible for the uranium supply contracts of the nuclear power plants in Belgium. The Belgian Federal Government owns a golden share in the capital of this company. The majority of the supply contracts are covered by agreements on nuclear trade between Euratom and supplier countries, such as Australia and Canada.

As the Belgian Federal Government participates in the Nuclear Suppliers Group, exports of nuclear materials, nuclear equipment, technology and dual use nuclear items to non-nuclear weapon states, not member of the European Union, are subject to the respective preconditions of the Guidelines of the Nuclear Suppliers Group.

Import and export of nuclear materials and equipment to and from Belgium are in conformity with the respective nuclear non-proliferation obligations of Belgium as a non-nuclear weapons state under the Treaty on the Non-Proliferation of Nuclear Weapons. For intra-Community transfers of nuclear materials and equipment, Chapter IX of the Euratom Treaty and Declaration of Common Policy of 24 November 1984 on the transfers of nuclear goods within the European Commission (IAEA INFCIRC/322) are in force. All exports and intra-Community transfers of nuclear materials are to be declared to the IAEA directly through Euratom, in implementation of the Additional Protocol to the International Agreement between the European Union member states, Euratom and the IAEA. According to European and national implementation legislation, all exports and intra-Community transfers of nuclear equipment are to be declared to the IAEA through the Federal Government of Belgium.

Following the promulgation of European Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel, it was decided to thoroughly revise Chapter IV of the GRPIR which deals with the import, export, transit and distribution of radioactive substances. This chapter was replaced by a new royal decree regulating import, transit and export of radioactive substances. In addition to the implementation of the European system of surveillance and control of shipments of radioactive waste and spent fuel, it states that persons who import radioactive substances must be registered and that import of sealed sources and fissile material is subject to licensing. Registered importers are required to keep the accounts of the material imported and to report to FANC on a regular basis.

Chapter V of the GRPIR deals with the use of unsealed sources for medical and veterinary purposes. The import, the fabrication, the preparation and the sale of such products (radiopharmaceuticals) is subject to licensing by FANC. This chapter is currently under revision.

5. Radiological protection

The basic legal and regulatory instruments in Belgium governing radiological protection are Law of 15 April 1994 and Royal Decree of 20 July 2001 laying down the GRPIR.

The GRPIR ensure the implementation of European Directives 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation, 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionizing radiation in relation to medical

exposure, 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources, and 89/618/Euratom of 27 November 1989 on informing the general public about health measures to be applied and steps to be taken in the event of a radiological emergency.

Chapter III of the GRPIR deals with the general provisions for radiological protection: application of the basic radiological protection principles for practices and interventions (justification of the practice/intervention, optimisation of protection, individual dose limits for occupational exposure and for public exposure), use of the concept of dose constraint, reference levels to be used in work activities involving natural radionuclides, health physics control in nuclear facilities and transport companies, medical surveillance of workers, information and training of workers, general protection measures and procedures [controlled areas, supervised areas, individual protection of workers, dosimetry (dosimetric services must be recognised by FANC), warning signs…], operational protection of outside workers. Special attention must be given to pregnant and breastfeeding women.

Pursuant to this chapter, FANC has issued criteria for recognition of services for external dosimetry of occupationally exposed persons (1 July 2008). One service has been recognised so far.

Chapter VI of the royal decree regulates the use of sources of ionizing radiation for medical and veterinary purposes. It details the application of the principles of justification and optimisation for medical exposure and states that the user of radiation sources for medical and veterinary purposes must be authorised by FANC. Authorisation is granted only to persons who have received an appropriate education and training in radiological protection related to the application. The minimum content of the education and training are detailed for the use of X-rays and radionuclides (radiology, nuclear medicine, radiotherapy). Medical doctors and dentists have to call on the assistance of experts in medical radiation physics, who must be recognised by the FANC. Criteria are set for the recognition of those experts.

Pursuant to this chapter, FANC has issued directives on the dosimetry of patients (14 September 2006), on the acceptability criteria for X-ray equipment used in dentistry (12 December 2008) and on the acceptability criteria for X-ray equipment used in veterinary medicine (29 July 2009).

The principal mission of the Federal Agency for Nuclear Control (Articles 14 to 27 of the Law of 15 April 1994) is to make sure that the population and the environment are protected in an effective way against the hazards of ionizing radiation. In this context, it proposes laws and regulations and ensures that these laws and regulations are complied with.

The Agency is responsible for gathering scientific and technical documentation, as well as distributing neutral and objective information in the domain of nuclear safety and radiological protection. It also promotes and co-ordinates the research and development work for these disciplines.

Several other federal public services and agencies are involved in radiological protection questions, e.g. home affairs (emergency planning – see section 3.c) and employment, labour and social dialogue (protection of workers).

The Medical Inspectorate of the Federal Public Service for Employment, Labour and Social Dialogue gathers and evaluates dosimetric data on occupational exposure. Accredited doctors ensure the medical supervision of workers; they must be recognised by the FANC for the surveillance of occupationally exposed workers (Article 75 of the GRPIR).

Royal Decree on the protection of workers against the hazards of ionizing radiation was promulgated on 2 April 2002 and entered into force on 20 June 2002. It amends royal decree of the same title of 25 April 1997 in order to harmonise the Belgian legislation with the provisions of

Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas.

Pursuant to this royal decree, a radiological passport is established for each outside worker operating in controlled areas. Outside workers are subject to an evaluation of their exposure and to medical surveillance, details of which are recorded in the radiological passport. The dosimetric data of each worker is considered to be personal medical information and is protected. The royal decree specifies the tasks of the Industrial Health and Medicine Department and the Health Physics Control Department of operators of nuclear facilities.

6. Radioactive waste management

The management of radioactive waste is governed by Article 179, § 2 of Law of 8 August 1980 on the 1979-1980 budget proposals (as amended). This law is the legal basis for the creation of ONDRAF/NIRAS, whose missions are defined in Royal Decree of 30 March 1981 (as amended).

With respect to radioactive waste management, ONDRAF/NIRAS is in charge of the transport of conditioned and unconditioned waste, the recognition (qualification) of treatment and conditioning installations, the treatment and conditioning of radioactive waste generated in facilities without recognised installations, the storage of radioactive waste outside the installations of the waste producer (the qualification criteria and procedure can be found in Royal Decree of 18 November 2002 on the qualification of installations for storage, treatment and conditioning of radioactive waste), the disposal of radioactive waste, keeping an inventory of the waste produced and making prognosis for future waste production, the establishment of a long-term management programme, the establishment of acceptance criteria on the basis of general rules approved by the competent authority, the establishment of specifications for clearance of radioactive waste, the choice of treatment and conditioning methods (in consultation with the waste producers), ensuring compliance of the waste with the acceptance criteria and final acceptance of the waste and the definition of R&D programmes to enable the execution of its missions (in consultation with the waste producers). ONDRAF/NIRAS has the choice to execute these tasks with its own means or to subcontract them to third parties under its responsibility and supervision.

Transport of radioactive waste has been subcontracted to specialised transport companies. Belgoprocess, a subsidiary of ONDRAF/NIRAS, has been entrusted with the storage, treatment and conditioning of radioactive waste produced in nuclear installations that do not operate such installations. All installations for storage, treatment and conditioning must be qualified by ONDRAF/NIRAS in order that the waste can be accepted as in compliance with the acceptance criteria. An important criterion for qualification is the establishment and implementation of a quality system that allows ONDRAF/NIRAS to verify that the acceptance criteria are complied with.

Royal Decree of 30 March 1981 also regulates the relationship between ONDRAF/NIRAS and the producers of radioactive waste. All persons in possession of radioactive waste or who operate facilities producing such waste, including those who plan to build such installations, must provide ONDRAF/NIRAS with all the necessary information.

ONDRAF/NIRAS concludes an agreement with the operators of nuclear installations which it considers to be regularly producing a significant quantity of radioactive waste, which relates to the implementation of the general radioactive waste management programme and lays down the rights and obligations of the parties concerned.

In addition, an agreement is concluded with the person in possession of the waste to the taking over of the radioactive waste for transport, processing, storage and disposal. These agreements specify in particular the arrangements for the transfer of responsibility and the financial and technical conditions that apply.

An insolvency fund has been set up to ensure the financing of waste management and decommissioning activities in case the waste producers and operators of nuclear facilities are insolvent or bankrupt. Royal Decree of 13 June 2007 (amending Royal Decree of 30 March 1981)

makes it possible to use this insolvency fund to finance the recovery of orphan sources as radioactive waste.

According to Law of 13 February 2006 on the assessment of the environmental impact of plans and programmes and on the participation of the general public in the development of plans and programmes related to the environment (transposition at the Belgian federal level of the European Directives 2001/42/EC on strategic environmental assessment and 2003/35/EC on public participation in decision making in environmental matters), a waste plan has to be elaborated and a strategic environmental assessment must be carried out related to the long-term management of radioactive waste. The plan for long-term management of long-lived intermediate- and high-level waste is under development.

According to Article 33 of the GRPIR, FANC and ONDRAF/NIRAS have concluded a co-operation agreement. Following Decision of the Council of Ministers of 23 June 2006 with respect to the disposal of short-lived low- and intermediate-level waste, Addendum 10 to this agreement was revised to specifically address this project (development of safety guides, design of the facility, methodology for safety assessment, environmental impact assessment…).

In furtherance of its programme of information and communication ONDRAF/NIRAS created ISOTOPOLIS, an information centre on radioactive waste management, on the site of Belgoprocess in Dessel.

Annex IB of the GRPIR sets criteria and levels for clearance of solid radioactive waste. The levels are taken from EC-RP 122, Part I.

FANC has issued directives for the removal of radioactive lightning rods (13 May 2003) and for the removal of ionization chamber smoke detectors that are no longer used (30 March 2009, in case of domestic use; 17 August 2009 in case of non-domestic use). FANC has also issued directives on the use of radiation measurement devices at the entrance of non-nuclear facilities, such as scrap yards and (non-radioactive) waste management installations.

Belgium is contracting party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Law of 2 August 2002). The national reports are made available to the public on the website of the FANC.

7. Non-proliferation of nuclear weapons and physical protection of nuclear material

It must be noted that this section only applies to nuclear material, i.e. (fissile) material that can be used to fabricate nuclear weapons. In this context, nuclear installations/facilities are installations/facilities where nuclear material is held or used.

a) International aspects

Any person or company producing, using or storing source material and special fissile materials on Belgian territory must comply with the provisions of Chapter VII "Safeguards" of the Treaty establishing the European Atomic Energy Community (Law of 2 December 1957) and its implementing regulations, in particular Commission Regulation (Euratom) No. 302/2005 of 8 February 2005 on the application of Euratom safeguards. They must also allow and facilitate verification and inspection activities by the IAEA in conformity with the international agreement between the non-nuclear weapons states of the European Union, the European Atomic Energy Community and the International Atomic Energy Agency in implementation of paragraphs 1 and 4 of Article III of the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/193). Law of 20 July 1978 lays down the national modalities of the safeguards inspections on Belgian territory.

On 30 April 2004, the Additional Protocol to the international safeguards agreement, as mentioned above, entered into force in Belgium, the same time as in other member states of the European Union. The legal instrument for the implementation on Belgian territory is Law of 1 June 2005.

Belgium has strict measures for the control of export of nuclear material, equipment and technology. Law of 9 February 1981 lays down a prior authorisation system for the export of nuclear materials, equipment and nuclear technology. Specific procedures and conditions are stipulated in Royal Decree of 12 May 1989 (as amended) relating to the transfer to non-nuclear weapon states of nuclear material, equipment, technological data and derivatives (as listed in the annexes to the decree).

After obtaining the advice of a committee composed of representatives of the various ministries concerned, the Federal Minister of Energy authorises nuclear transfers only upon the condition that the goods are exclusively used for the peaceful purpose and that they are subject to the international requirements regarding non-proliferation and physical protection. Conditions are in compliance with Belgium's commitments under the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Law of 2 May 1975) and the Guidelines of the Zangger Committee (IAEA INFCIRC/209), the Guidelines for the export of nuclear material, equipment and technology (IAEA INFCIRC/254/Part 1) and the Guidelines for transfers of nuclear related dual use equipment, materials, software and related technology (IAEA INFCIRC/254/Part 2). Belgium also ratified the 1996 Comprehensive Nuclear-Test-Ban Treaty (Law of 29 June 1999) as well as the 1979 Convention on the Physical Protection of Nuclear Material (Law of 6 September 1991). Once the authorisation is given by the federal Minister of Energy, it is transferred to the competent regional authorities, who then issue an export licence.

b) National control and security measures

According to Law of 4 August 1955 concerning state security in the field of nuclear energy, research, materials and production methods carried out or used by institutions, establishments or physical or legal persons which have at their disposal information, documents or nuclear materials obtained either directly from the Government or with its permission and which, in the interests of the defence of the national territory and of state security, come under the rules of secrecy, must comply with the security measures laid down in Royal Decree of 14 March 1956.

These measures govern the fitting out, protection and surveillance of premises, the classification of documents and materials, the safe-keeping of documents and the preservation of materials, the determination of criteria for their dissemination and the requirements for conducting an activity in or entering premises where such research and work is carried out (Royal Decree of 14 March 1956, as amended by the Decree of 18 October 1974).

In principle, Belgian nationality is required in this respect. Nevertheless, an exception may be made by decision of the Minister of Energy if the foreign applicant possesses specialised knowledge.

Article 37*bis* of the GRPIR provides that it is prohibited to enter the sites or premises referred to in the said decree or to visit them without the specific permission of the person in charge of the facility or his deputy. Official inspectors are exonerated from the obligation to seek such permission.

Article 19 of Law of 2 April 2003 modifying Law of 15 April 1994, entered into force on 30 May 2003, repeals Law of 4 August 1955. A proposal for a new law is being developed, together with a number of decrees to implement it.

In addition, the disclosure of manufacturing secrets and inventions relating to the nuclear field which are not subject to Law of 4 August 1955 but whose disclosure is declared jointly by the Minister of Energy (responsible for industrial property) and the Minister of National Defence to be contrary to the interests of the defence of the territory or of state security, is prohibited, or else the conditions in which they may be exploited are temporarily determined and controlled by the said Ministers in accordance with Law of 10 January 1955 relating to the disclosure and use of inventions and manufacturing secrets concerning the defence of the territory or state security. Prohibitions or limitations may be partly or totally waved at any time by joint decision of the

ministers who issued them. An application may be made by the holder of the rights for the prohibition or limitation to be lifted.

The purpose of Law of 17 April 1986 on implementation of the Convention on the Physical Protection of Nuclear Material is to implement Sections 7 and 8 of the convention of 3 March 1980 in Belgian national law. Section 7 requires contracting parties to provide penalties for a number of serious criminal offences with respect to nuclear material. Section 8 specifies the cases in which measures contracting parties must take measures to establish their jurisdiction over such offences. The 1986 Law therefore specifies that sanctions for these offences must be added into the Penal Code. It also states that provisions must be inserted into the Code of Criminal Procedure to the effect that Belgian courts have jurisdiction to hear cases in which such offences are committed in the territory of contracting parties to the convention or on board a vessel or aircraft registered in one of those states if suspect is within national territory and the Government of Belgium has made no arrangements with the state concerned regarding extradition.

8. Transport

The transport of radioactive substances is governed by Chapter VII of the GRPIR.

Article 57 stipulates that the relevant international regulations must be complied with: the International Regulations concerning the Carriage of Dangerous Goods by Rail (RID), the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the IMO International Maritime Dangerous Goods Code, the Ordinance concerning the Transportation of Dangerous Goods on the River Rhine (ADNR) and the Technical Instructions for the Safe Transport of Dangerous Goods by Air of the International Civil Aviation Organisation (ICAO).

A licence issued by FANC is required for the transport of radioactive substances. Licences may be of a general nature when the carrier transports moderate quantities of radioactive substances on a regular basis, specific when the carrier occasionally transports such substances, or special when the radiological risk is more important.

FANC is also empowered to verify that the provisions of the international and national regulations and the licence conditions are complied with. In case of violation, the Agency may demand immediate corrective actions or, if need be, withdraw the transport licence. FANC ensures the training and certification of drivers of vehicles transporting radioactive substances and also the training and certification of safety advisors of carriers.

Following the promulgation of European Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel, Chapter IV of the GRPIR dealing with the import, export, transit and distribution of radioactive substances was deleted and replaced by Royal Decree of 24 March 2009 regulating import, transit and export of radioactive substances (see Section I.4).

9. Nuclear third party liability

Rules on nuclear third party liability are contained in Law of 22 July 1985 on Third Party Liability in the Field of Nuclear Energy, as modified by Law of 11 July 2000. This law implements the 1960 Paris Convention and the 1963 Brussels Supplementary Convention as well as its protocols.

The 1985 Law, as modified, lays down the principle of strict liability, limited liability in amount and time, channelled to the operator of a nuclear installation. In this respect, Article 7 of the law establishes the maximum amount of the operator's liability for nuclear damage at BEF 12 billion [Article 7(1)]. This sum is equivalent to approximately EUR 300 million. A royal decree can increase or reduce this amount in order to fulfil Belgium's international obligations as well as to take into account low risk installations or transport; however it may not set a level lower than that required by the Paris Convention [Article 7(2)]. Pursuant to the terms of the law, the operator is obliged to take out insurance or another form of financial guarantee in order to cover

his liability up to the amount set in the law (Article 8). The law further establishes, as a corollary of this obligation, a procedure whereby the King recognises the operator (Articles 9 to 13).

Although the law provides that the operator remains liable during the carriage of nuclear substances, it does not exclude the possibility of transferring liability to the carrier (Article 14). In any event, the carrier is required to hold a certificate stating that he complies with the financial security conditions (Article 15).

Article 23 of the law establishes a prescription period of 10 years from the date of the nuclear incident in respect of the right to claim compensation. Beyond this period, the state is responsible for the payment of compensation in respect of claims for damage which are time-barred, within a maximum period of 30 years from the date of the incident.

Several decrees have been adopted to implement the 1985 Law, in particular:

- Royal Decree of 28 April 1986, determining the financial security certificate for transport of nuclear substances, whose purpose is to ensure that financial security certificates (given to all carriers of nuclear substances by the operator liable) comply with the Paris Convention requirements in this respect, as prescribed by the 1985 Law;

- Ministerial Decree of 9 March 1987 on the register concerning nuclear installations, which aims to implement Section 13 of the 1985 Law regarding the obligation to make available to the public the register containing the texts granting recognition to the operators of nuclear installations. This register contains a certified copy of the royal decrees of recognition and a card of the installations indicating the limits of each site. It may be consulted at the Federal Public Service for Economy, SME's, Self-Employed and Energy. The local authority for the territory where the installation is located must comply with a similar obligation.

Belgium is now preparing an amendment to the Law of 22 July 1985 in order to bring it in line with the latest 2004 revisions of the Paris and Brussels Conventions.

Belgium also ratified the 1971 Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material on 15 June 1989.

II. Institutional framework

1. Regulatory and supervisory authorities

a) Federal Agency for Nuclear Control (FANC)

i) Legal status

The Federal Agency for Nuclear Control (FANC) is a public body with legal personality, established by Law of 15 April 1994 on the Protection of the Public and the Environment against Radiation and Relating to the Federal Agency for Nuclear Control. This law grants the Agency broad independence, which is indispensable for the impartial carrying out of its responsibilities. The FANC became fully operational on 1 September 2001. By the decree laying down the GRPIR, the regulatory responsibilities for radiological protection were transferred from the specialised offices of the Ministry of Public Health and the Environment and the Ministry of Labour and Employment to this Agency.

ii) Responsibilities

FANC's mission (Articles 14 to 17 of the Law of 1994) is to ensure that the public and the environment are effectively protected against the hazards of ionizing radiation. In this context, it may propose laws and decrees to the Government and it has to implement laws and decrees to review licence applications, to propose licences or to grant licences, as applicable, to ensure compliance with the regulatory provisions and the licence conditions.

FANC participates in the work programme of international organisations (such as the European Commission and the International Atomic Energy Agency) in which directives, recommendations and international regulations are developed. It manages "Telerad", the automatic network for monitoring radiation on the Belgian territory and plays an important role in the operation of the nuclear emergency plan, in particular regarding the assessment of the radiological consequences of an accident and the communication with the public and media.

FANC is responsible for maintaining scientific and technical documentation as well as distributing neutral and objective information in the area of nuclear safety and radiological protection. It encourages research and development projects in these same fields.

FANC is responsible for the national declarations of nuclear fuel cycle activities under the provisions of the additional protocol to the international safeguards agreement between the member states of the European Union, Euratom and the International Atomic Energy Agency which entered into force on 30 April 2004.

iii) Structure

FANC is directed by a Board, whose members (comprised of equal numbers of French and Dutch speaking individuals) are appointed by royal decree upon proposal by the Government. The general manager is also appointed by royal decree upon proposal by the Government. The Agency employs specialised personnel who either come from its own recruitment efforts or have been transferred from ministries with responsibilities in the nuclear field (Ministry of Social Affairs, Public Health and the Environment, Ministry of Employment and Labour, Ministry of Foreign Affairs, Ministry of Economic Affairs and Ministry of Justice).

The law also created a scientific council (Article 37 of the Law of 15 April 1994; Royal Decree of 18 December 2002) which is to advise the FANC, in particular on licences for nuclear installations. The Council is composed of scientists appointed by the competent minister for a period of six years.

FANC is mainly financed by annual taxes on licensed persons and companies (Law of 15 April 1994) and fees for licensing (Royal Decree of 24 August 2001 fixing the amount and the manner of payment of licence fees in application of the regulations on ionizing radiation) paid by persons and companies that apply for a licence required by regulation.

b) Federal Public Service for Home Affairs

Responsibility for emergency policy in the case of an accident in a nuclear power plant or in another nuclear installation is allocated to the Federal Public Service for Home Affairs. On this basis, Royal Decree of 17 November 2003 was promulgated to provide emergency plans for nuclear risks in Belgium.

c) Federal Public Service for Economy, SME's, Self-Employed and Energy

The Federal Minister of Energy is responsible for nuclear energy policy. As such he is, with the assistance of the Federal Public Service for Economy, SME's, Self-Employed and Energy, responsible for:

- the supervision of SCK•CEN, IRE and ONDRAF/NIRAS;
- the investment policy and adequate funding of the national research institutes;
- the policy and adequate funding of the national nuclear research programmes for nuclear fission and thermonuclear fusion;
- the financial resources of the historical liabilities of the cleanup of nuclear sites, such as BP1, BP2, BR3 and others;
- the financial assistance of the safety of nuclear reactors in the former states of the Soviet Union;
- the recognition of a nuclear operator in the field of nuclear liability;
- the policy of the nuclear funds for the decommissioning of nuclear power plants and the management of spent fuel.

The Minister is also responsible for the conditions, the scope and the implementation of nuclear export controls. He decides on the authorisation of exports of nuclear materials, nuclear equipment and nuclear technology and their by-products and nuclear dual use goods with respect of the nuclear non-proliferation obligations under the Treaty on the Non-Proliferation of Nuclear Weapons and the Guidelines of the Nuclear Suppliers Group.

The Federal Public Service for Economy, SME's, Self Employed and Energy gathers the information for the national declarations in the framework of the additional protocol with respect to nuclear fuel cycle related research and development activities not involving nuclear material, the activities specified in Annex 1 and the export of equipment and non-nuclear material listed in Annex II.

Pursuant to Law of 29 April 1999 on the organisation of the electricity market, the General Energy Directorate of the Federal Pulic Service for Economy, SME's, Self-Employed and Energy has to elaborate a prospective study on the means of producing electricity, in co-operation with the Commission of Electricity and Gas Regulation (CREG), the Federal Planning Bureau, the Interdepartmental Commission for Sustainable Development and the regional governments. The strategic plan, designed as a ten year outlook to be adjusted every three years, is submitted for approval to the Minister of Energy and shall contain the following elements:

- an estimate of the evolution of demand and identification of the production requirements that result;

- a summary of the developments of choices of primary energy sources to ensure an appropriate diversification of fuel;
- a summary of preferred sources of production to promote technologies which produce few greenhouse emissions; and
- an assessment of the obligations of public services in the area of electricity production.

d) Federal Public Service for Employment, Labour and Social Dialogue

The Minister of Employment and Labour is responsible for the safety and health of workers exposed to ionizing radiation. He is in particular responsible for the Industrial Health and Medicine Department of the Federal Public Service for Employment, Labour and Social Dialogue which is responsible for the protection and medical supervision of workers.

e) Federal Public Service for Defence

The Minister of National Defence has general authority over nuclear activities in military installations (Royal Decree of 11 May 1971 laying down the general military regulations for protection against the hazards of ionising radiation).

f) Federal Public Service for Foreign Affairs, Foreign Trade and Development Co-operation

The Minister of Foreign Affairs, with the assistance of the Federal Public Service for Foreign Affairs, Foreign Trade and Development Co-operation, is responsible for all international matters concerning nuclear energy. In particular, he conducts negotiations for Belgium's adhesion to, or participation in, international, bilateral or multilateral agreements and treaties and represents Belgium in international organisations.

Jointly with the other ministers involved, the Minister of Foreign Affairs is also responsible for international co-operation and for ensuring that Belgium's international commitments are respected.

g) Federal Public Planning Service for Science Policy

The Minister for Science Policy is responsible for generally co-ordinating the Federal Government's activities relating to science policy. He shares the responsibility for nuclear research with the Minister of Energy (Royal Decree of 18 May 1971).

2. Advisory bodies

a) Scientific Council for Ionizing Radiation of the Federal Agency for Nuclear Control

The Scientific Council for Ionizing Radiation is established by Law of 15 April 1994. Its composition and competences are laid down in Royal Decree of 18 December 2002. The Scientific Council replaces the former "Special Commission" as the main advisory body of the Federal Agency for Nuclear Control and the Minister of Home Affairs. Its mission is to advise the Agency with respect to its inspection policy and to give advice on licence applications for Class I facilities and on applications for recognition as Class I expert in health physics control.

The Scientific Council is composed of 22 experts selected in view of their scientific or technical knowledge in nuclear safety, radiological protection and environmental protection. Sixteen of them are appointed by the Minister of Home Affairs; six of them are appointed by the regions (two each, without voting rights). In addition, the general manager of the Agency and the heads of the technical departments participate in the deliberations of the Scientific Council (without voting rights).

The Scientific Council plays an important role in the review of licence applications of Class I facilities. In this case, a licence application is first presented for advice to the Scientific Council.

After the necessary public enquiries and consultation of the local authorities, the licence application returns to the Scientific Council for final advice. A positive advice of the Scientific Council is necessary to be able to issue a licence which is granted by royal decree. This construction and operation licence allows the applicant to construct and to operate the installations in conformity with the licence.

The Scientific Council can also be asked for advice on new regulations and guidelines which are developed by the FANC.

b) Superior Health Council

The Superior Health Council (*Conseil supérieur de la Santé*) is under the auspices of the Minister of Public Health. It may submit opinions to the public health authorities on any matter concerning public health and environment, including the domain of ionizing radiation. Proposals for new regulations dealing with radiological protection are submitted to the Council for advice.

c) Superior Council for Safety, Hygiene and Enhancement of Workplaces

This Superior Council (*Conseil supérieur de sécurité, d'hygiène et d'embellissement des lieux de travail*) provides opinions, on its own initiative or upon demand, concerning measures taken by firms on safety in the workplace, physical and mental health of workers, ergonomics, improvement of working conditions and actions undertaken in regard of the environment. Proposals for new regulations dealing with radiological protection of workers are submitted to the Council for advice.

d) Advisory Committee for the Non-Proliferation of Nuclear Weapons

Belgian law has set up an authorisation system for export (Law of 9 February 1981) in order to ensure that the transfer of nuclear materials and equipment, nuclear technological data and their by-products is intended for peaceful use of nuclear energy.

Authorisations are granted by the Minister of Energy after obtaining the opinion of this Advisory Committee for the non-proliferation of nuclear weapons (formerly the *Commission consultative pour l'exportation des matières et équipements nucléaires, ainsi que des données technologiques nucléaires*).

The members of this Committee are appointed by royal decree and represent the federal public services involved.

The Committee may request leading scientists to give their opinion on specific matters.

e) Commission for Electricity and Gas Regulation (CREG)

This Commission is an independant organisation with legal personality created by Law of 29 April 1999 on the Organisation of the Electricity Market. This Commission is allocated with the responsibility to advise public authorities regarding the functioning of the electricity market and with the responsibility to monitor in general the application of related laws and regulations.

f) Commission of Nuclear Funds

The Commission of Nuclear Funds is established by Article 3 of Law of 11 April 2003 concerning the funds for the decommissioning of nuclear power plants and the management of spent fuel (as amended). It gives advice on the methodology for funds for the decommissioning of nuclear power plants and the management of spent fuel, on the conditions of the financing and on the conditions of the re-investment of the funds. The Commission is also responsible for the verification of the data concerning the funds and for the adequate application of the methods of calculation.

3. Public and semi-public agencies

a) Scientific Institute of Public Health

Royal Decree of 6 March 1968 establishes the Institute as a state scientific establishment and defines one of its tasks as the study of scientific problems relating to the prevention and correction of factors likely to impair the health and well-being of mankind.

In practice, the Institute is the laboratory and scientific service of the Federal Public Service of Public Health, Food Chain Safety and Environment. Its task is to supply permanent scientific assistance in various fields, including that of radioactivity, to the authorities concerned with public health and environmental protection at national, regional and local levels.

The Institute may, in the performance of its duties, call on the co-operation of outside bodies (SCK•CEN, universities etc.).

b) Nuclear Research Centre (SCK•CEN)

The development of nuclear energy applications resulted in the creation of the Nuclear Energy Applications Research Centre which faced increasingly complex and diversified activities involving heavy investment which the private industry could no longer finance on its own. This led the Belgian Government to replace this non-profit association, set up on 19 April 1952, by the Nuclear Research Centre (*Studiecentrum voor Kernenergie – Centre d'étude de l'énergie nucléaire* – SCK•CEN).

i) Legal status

Royal Decree of 23 July 1957 established the Nuclear Research Centre as a public institution (*établissement d'utilité publique*) with administrative headquarters in Brussels and scientific facilities in Mol. The relationship between the SCK•CEN and the Government was regulated by a convention concluded between the Centre and the Minister of Energy on 1 February 1963. It provided in particular that the Minister was the supervisory authority of SCK•CEN. This convention was replaced by Royal Decree of 16 October 1991 which lays down the rules for supervising the Centre and provides for its funding. The royal decree also amended its Statute.

In accordance with the Special Law on Institutional Reforms of 8 August 1988, amending Law of 8 August 1980, the Special Law for Financing the Communities and Regions of 16 January 1989 and Royal Decree of 16 October 1991 concerning the transfer of some of the tasks, assets, rights and obligations of the Nuclear Energy Research Centre to the Flemish region, the Centre's responsibilities, except for nuclear tasks and administration of the nuclear fuel cycle, were transferred to the Flemish region together with the physical and real property corresponding to the tasks transferred and the staff involved.

Due to modifications in the legislation with respect to non-profit organisations and foundations, the Nuclear Research Centre has been obliged to become a foundation with public objectives and to change its statutes accordingly. With respect to its book-keeping, it has to follow the rules for the private companies.

ii) Responsibilities

The SCK•CEN is historically a centre for basic and applied nuclear research (nuclear reactor and fissile material safety, radiological protection, safe processing and storage of radioactive waste, protection of nuclear infrastructures from attack, nuclear energy applications, update of scientific documentation etc.). It therefore offers a major scientific and technical resource potential in the nuclear field, and its role is to pass that potential on to other bodies concerned and to industry.

iii) Structure

The SCK•CEN is directed by a board. The board is appointed by royal decree, on the proposal of the Ministers of Economy and Energy, after deliberation of the Council of Ministers. The general manager is responsible for carrying out the decisions taken by the board. The Centre is supervised by two Government commissioners.

iv) Financing

The SCK•CEN's budget is funded by public appropriations derived primarily from the budget of the Federal Public Service for Economy, SME's, Self-Employed and by its own revenue in the form of fees for services rendered and research contracts.

c) Institute for Radioelements (IRE)

Because of the growth in the applications and uses of radioisotopes, the Government set up a specialised Institute for Radioelements (*Institut des radioéléments* – IRE) based in Fleurus.

i) Legal status

Royal Decree of 20 October 1971 created the Institute as a public institution. Its relationship with the Government was regulated by a convention between the Institute and the Minister of Energy signed on 28 July 1980. This convention provided in particular that the IRE is supervised by the Minister. It was replaced by Royal Decree of 16 October 1991 laying down the rules relating to the supervision and financing of the Institute for Radioelements, and amending its Statute.

In accordance with the Special Law on institutional reforms of 8 August 1988, the Institute only carries out work related to the nuclear fuel cycle.

Due to modifications in the legislation with respect to non-profit organisations and foundations, the Institute for Radioelements has been obliged to become a foundation with public objectives and to change its statutes accordingly. With respect to its book-keeping, it has to follow the rules for the private companies.

ii) Responsibilities

The main tasks of the IRE are:

- to produce and condition radioisotopes;
- to study, promote and encourage applications of radioisotopes;
- to study and develop techniques for processing the radioactive waste arising from such activities; and
- to study, from the radiological protection point of view, the safety of persons employed in Belgian companies and institutes using radioisotopes.

iii) Structure

The IRE is directed by a board. The board is appointed by royal decree, on the proposal of the ministers of Economy and Energy, after deliberation of the Council of Ministers. The general manager is responsible for carrying out the board's decisions. The Institute is supervised by two Government commissioners.

d) Higher Institute for Emergency Planning

The Higher Institute for Emergency Planning (*Institut supérieur de planification d'urgence*) was set up by Royal Decree of 29 July 1991 in pursuance of national legislation on the protection against major industrial risks and Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency.

i) Legal status

The Institute is a public institution under the supervision of the Minister of Home Affairs.

ii) Responsibilities

The Institute's duties include:

- the organisation of training for emergency planning and assistance;
- the promotion of the exchange of ideas on emergency planning between the authorities and operators of installations preventing potential major risks (including nuclear installations); and
- the dissemination of adequate and regularly updated information to persons involved in emergency assistance about the risks they incur and the protection measures to be taken.

In the performance of its duties, the Institute organises conferences and seminars, sets up study groups and undertakes simulation exercises.

iii) Structure

The board of the Institute includes representatives of the different federal public services and regional authorities concerned and of various industries, as well as scientists and insurers. Members are appointed for a period of six years by the Minister of Home Affairs on the proposal of the Minister, regional governments and the institution or body concerned.

iv) Financing

The Institute's operating costs are included in the budget of the Minister of Home Affairs.

e) Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS)

Pursuant to Article 179, §2 of the Law of 8 August 1980 on the 1979-80 budget proposals (as amended), Belgium set up a National Organisation for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF/NIRAS). The tasks and operating conditions of this agency were laid down in Royal Decree of 30 March 1981 (as amended).

Until ONDRAF/NIRAS began operations in 1982, responsibility for radioactive waste management was with the waste producers in accordance with the licence granted to them by the authorities. In this context, the "Waste" Department of the Nuclear Energy Research Centre (SCK•CEN), which undertook the treatment and conditioning of radioactive waste, played an important role. ONDRAF/NIRAS was set up in order to ensure the long-term coherence and safety of the management of all radioactive waste in Belgium. The "Waste" Department was transferred to ONDRAF/NIRAS which entrusted its subsidiary Belgoprocess with the operation. Since the transfer, several installations of the "Waste" Department have been closed down, dismantled and replaced by new installations.

i) Legal status

ONDRAF/NIRAS is a financially independent public body and legal entity. It is answerable to the Ministers for Economic Affairs and Energy [Decree of 16 October 1991, Article 6(3)]. It is also supervised by two Government commissioners, one appointed by the Minister of Energy and the other by the Minister of Public Health; these commissioners take part in the meetings of the board of directors.

For the application of the federal tax laws, ONDRAF/NIRAS is assimilated to the state. It can be authorised by royal decree, after deliberation of the Council of Ministers, to do expropriations for the realisation of its objectives and its missions.

ii) Responsibilities

Under the law, ONDRAF/NIRAS is responsible for the management of all radioactive waste on the Belgian territory as well as certain tasks related to the management of enriched fissile material, plutonium-bearing materials, irradiated fuel and the decommissioning of nuclear installations that have been closed down. The law specifically states that the Agency shall not take charge of waste from a foreign source for treatment, conditioning and temporary storage without first receiving permission from its supervising minister.

ONDRAF/NIRAS's tasks with respect to decommissioning of nuclear installations are dealt with in Section I.3.d of this study. Its tasks with respect to radioactive waste management are dealt with in Section I.6.

In the area of management of surplus quantities of enriched fissile material, plutonium-bearing materials and irradiated or fresh fuel, the Agency:

- periodically collects the information necessary to allow it to evaluate when and how it shall eventually take possession of these surplus quantities;
- establishes criteria for accepting these surplus quantities with a view to their storage on the basis of general rules proposed and approved by competent authorities; and
- ensures that the properties of the surplus quantities conform to the criteria of acceptance referred to above.

Apart from drawing up a general programme for radioactive waste management, ONDRAF/NIRAS has to prepare an inventory of all existing nuclear installations and sites containing radioactive substances (Law of 12 December 1997). This responsibility includes the establishment of a register, to be updated every five years, of the locations and state of every nuclear installation and site containing radioactive substances, an estimate of the cost of their decommissioning and clean-up and an evaluation of the sufficiency of financing for these future operations.

Article 9 of the Law of 12 December 1997 states that the Agency's costs for setting-up the register shall be covered by a fee paid by operators of nuclear installations and the persons in possession of radioactive sources or, by way of default, the owners. The amounts of the fees were set by the programme law of 30 December 2001 (Section 90). This law also sets up the procedures to follow for the payment of the fee as well as how to appeal against its levy.

iii) Structure

ONDRAF/NIRAS is directed by a board appointed by royal decree, upon proposal of the Ministers of Economy and Energy after deliberation of the Council of Ministers. Members are selected for their scientific or professional knowledge in the Agency's fields of activity [Royal Decree of 16 October 1991, Article 7(1)].

Before taking any decision concerning waste management policy or financing, the board seeks the opinion of a Standing Technical Committee made up of representatives of the waste producers.

iv) Financing

ONDRAF/NIRAS's income is made up of unique appropriations from the Ministry of Economy for use as working capital, bequests and grants made to it, statutory and regulatory payment for services rendered, occasional subsidies and revenues. The cost of ONDRAF/NIRAS's activities is recovered in full from the companies and bodies which have benefited from its services.

ONDRAF/NIRAS is obliged to balance its books. It may, however, be authorised to take out loans to finance its investments.

f) Synatom

Article 179, §1 of Law of 8 August 1980 on Budgetary Proposals for 1979-80 (as amended by Law of 11 April 2003) authorises the Belgian state to participate in a mixed company (shares held by both public and private investors), that has activities related to the nuclear fuel cycle, radioactive waste management excluded. This mixed company is the *Société belge des Combustibles Nucléaires Synatom*, also called Synatom.

The participation of the state in Synatom is governed by Royal Decree of 10 June 1994 introducing a special share of the Belgian State in Synatom. This decree summarises the special rights that the state possesses as a result of its privileged share. These rights are:

- to deny certain transfers of property; and
- to appoint two representatives from the Federal Government to the Board of Directors of Synatom. These representatives have the right to appeal all board decisions that it considers to be contrary to the guidelines on the national energy policy of the Minister of Energy, and that compromise the objectives of the government concerning the supply of energy.

Synatom is also responsible for establishing and managing the provisions for the decommissioning of the operational nuclear power plants and the management of spent nuclear fuel and the sufficiency of the nuclear provisions.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 31 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

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 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Commission 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 programme 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.