

Legal frameworks for the nuclear power in the European Union

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INTRODUCTION

The aim of this paper is to present the European Union (EU) nuclear-related legal frameworks relevant for the nuclear power¹. There is no legislation on the EU level adopted specifically for nuclear power, but there are instruments of the general atomic law, as well as other instruments applicable to the energy sector. Only the former, consisting of the Treaty establishing the European Atomic Energy Community (Euratom Treaty, ET)², and of instruments established or concluded on the basis of, or in conformity with it, are addressed in this paper.

The Euratom Treaty is one of the treaties constituting the EU's "primary legislation". It is the first source and the basis for all other segments of the atomic law in the Community. The second source is constituted by international agreements concluded on the basis of Art.101 of the ET, and the third source – so called "secondary legislation", known under the name *acquis communautaire*. Secondary legislation comprises the binding legal instruments (regulations, directives and decisions) and a series of other instruments such as the institutions' internal regulations and Community action programmes. The limited size of this paper permits only for a very brief overview of the so called "first pillar" (i.e. which is binding on the institutions of the Community and on the Member States). However, some non-binding instruments constituting the so called "soft law" (resolutions, recommendations, guidelines, opinions, communications) of some importance for the implementation of the binding instruments are also addressed in the paper. Review of international agreements is limited to those involving all or almost all Member States (MS).

¹The Paper is based on the information available as of 31 January 2006.

² Euratom Treaty was signed in Rome on 25 March 1957 together with the EEC Treaty (Treaty establishing the European Economical Cooperation Community). It entered into force on 1 January 1958.

Section I of this paper gives the general overview of different types of legal instruments which have to be considered, while Section II deals, per area of application, with specific instruments and provisions which are important for the nuclear power industry in the EU. The attempt to make it by selected topics could have been only partially successful because there are numerous cases when the jurisdiction in a specific area may require taking into account the jurisdiction in another one.

SECTION I: GENERAL OVERVIEW OF THE EURATOM LAW

EURATOM TREATY

The fundamental objectives of the Euratom Treaty (ET)³ according to its Preamble and Art. 1 are “*to contribute to the prosperity*” and “*to contribute to the raising of the standard of living in the Member States*”, respectively, by “*creating the conditions necessary for the speedy establishment and growth of nuclear industries in the Community*”. The Preamble also says that the Founders of the Treaty are resolved “*to create the conditions of safety necessary to eliminate hazards to the life and health of the public*”. Strong and safe nuclear industry (including nuclear power) remains one of the EU goals, although it is not being pronounced loudly for some time now .

Art.2 of the Treaty defines the means by which the objectives set out in Art.1 are to be achieved while substantial provisions regarding all these means are formulated in the **title II “Provisions for the encouragement of progress in the field of nuclear energy”**. It contains the following chapters: Promotion of research, Dissemination of information, Health and safety, Investment, Joint undertakings, Supplies, Safeguards, Property ownership, The nuclear common market, External relations. Whenever a chapter is referred to in this paper it is meant as one of these chapters of title II. Art.197 in title V contains the key definitions for the application of the Treaty and all other instruments of the Community atomic law. They concern nuclear material and explain what is meant by the source materials, special fissile materials, uranium and thorium ores and enrichment. For the purpose of the ET nuclear materials are source materials, special fissile materials, as well as uranium and thorium ores.

³ The Euratom Treaty is composed of the Preamble, seven titles, final provisions, protocols and annexes.

INTERNATIONAL AGREEMENTS

International agreements apply to the Euratom Community and to its Member States and may require implementation instruments on the level of the Community or individual States. The Community and its Member States are parties to the Treaty on the Non-proliferation of Nuclear Weapons (NPT)⁴ and to several international conventions. The Community alone is party to agreements with third countries or international organizations concluded under the provisions of Art.101 of the ET. First such agreements with third countries were concluded with the USA, Canada and Australia in order to create conditions for the delivery of technology and nuclear material. In 1975 Cooperation Agreement was concluded with the International Atomic Energy Agency (IAEA). During last years much effort is being directed towards conclusion of agreements with several other countries.

SECONDARY LEGISLATION

Council or Commission Regulations are directly applicable legal instruments binding in all their parts and addressed to everyone. They create law which takes immediate effect in all the Member States and applies basically to their subjects in the same way as a national instrument. Action on the part of the national authorities is sometimes required only to introduce the implementation provisions through the national law.

Council or Commission Directives are addressed to the Member States with the purpose to align the national legislation. A directive is binding on the Member States as to the result to be achieved, but leaves them the choice of the form and method they adapt to realize the Community objectives within the framework of their internal legal order. If a directive has not been transposed into national legislation in a Member State or if it has been transposed incompletely, citizens can directly invoke the directive in question before the national courts.

Council or Commission Decision is the instrument by which the Community institutions give a ruling on a particular matter. By means of a decision, the institutions can require a Member

⁴ NPT was signed in 1968 and entered into force in 1970.

State or a citizen of the EU to take or refrain from taking a particular action, or confer rights or impose obligations on a Member State or on its subjects⁵.

A recommendation allows the EU institutions to make their views known and to suggest a line of action without imposing any legal obligation on those to whom it is addressed.

SECTION II: LEGISLATION REVIEW BY TOPICS

PROMOTION, COORDINATION AND SUPPORT

Research and dissemination of information

Chapter I of the ET encourages the research and the dissemination of knowledge in the nuclear sector, as well as the necessary education and training. One of its aims was to select the fields of activity most important for the development of applications of nuclear energy, to introduce coordination and to avoid, by distribution of responsibilities, duplication in the research and industrial programmes. On the basis of Art.8 Joint Nuclear Research Centre has been established to carry out or coordinate research programmes funded by the Commission and other tasks to be assigned by it. It's worth to note that in the current VI programme⁶ there are, among others, tasks regarding radiation protection, nuclear safety and processing of radioactive waste.

In 2003 the Euratom Community became party to the International Forum "Generation IV", the purpose of which is to develop the concept of one or several nuclear reactor systems which could be operated as competitive and reliable energy sources, solving at the same time in a satisfactory way the questions of nuclear safety, wastes, nonproliferation and public acceptance⁷.

⁵ There is a long list of decisions, but most of them have been taken in specific cases and, therefore, are not taken into account in this paper. They may, however, serve in some legal proceedings as reference cases.

⁶ Currently underway is the sixth framework programme based on the Council Decision of 3 June 2002 concerning the sixth framework programme of the European Atomic Energy Community (Euratom) for nuclear research and training activities, also contributing to the creation of the European Research Area (2002 – 2006), OJ L 232 of 29.08.2002, p.34.

⁷ Other parties are: USA, UK, France, Switzerland, Japan, Republic of South Korea, Republic of South Africa, Argentina and Canada. Council Decision endorsing the Euratom Community access to the framework agreement concerning international cooperation in the area of research and development of the IV generation nuclear energy systems is pending (as of December 2005).

Questions pertaining to the dissemination of information are addressed in Chapter II of the ET. It defines the role of the Commission in this process as well as the rights and obligations of all parties. The Commission is obliged to make all efforts to help the interested parties to obtain the necessary information, including that covered by patents and licenses, by means of “amicable agreements”. There is a requirement of compulsory communication to the Commission of all patents in the nuclear field.

Investment plans and programmes, industrial undertakings

Art.41 in Chapter IV of the ET requires that persons and undertakings engaged in specific industrial activities communicate to the Commission the investment projects regarding the installations as well as replacements or conversions thereof which meet certain criteria as to the type and size. It is considered necessary for the dissemination of the information and coordination of actions within the Community. The criteria are laid down by the Council on a proposal from the Commission. Art.42 stipulates that such information has to be conveyed not later than three months before the first contracts are concluded with suppliers or, if the work is to be carried out by the undertaking with its own resources, three months before the work begins. Art.43 obliges the Commission to discuss with the persons or undertakings all aspects of such investment projects which relate to the objectives of the ET.

The Commission is also obliged to the publishing of the gathered information and (under Art.40) of “illustrative programmes” indicating, in particular, nuclear energy production targets and all types of investment required for their attainment.

Detailed provisions for the implementation of the Art.41 are formulated in the **Council Regulation (Euratom) No 2587/1999**⁸ which introduces, per sectors of activity, the investment cost thresholds above which the communication to the Commission of the new investments, replacements and conversions is obligatory. Another instrument - **Council**

⁸ Council Regulation (Euratom) No 2587/1999 of 2 December 1999 defining the investment projects to be communicated to the Commission in accordance with Article 41 of the Treaty establishing the European Atomic Energy Community, OJ L 315 of 9.12.1999, p.1.

Regulation (EC) No 1209/2000⁹ - contains requirements as to the form and the contents of the communication to be made according to Art.41 of the ET. As certain information, described as “general data”, falling under the provisions of Art. 37 of the ET may have been communicated according to those provisions (see below chapter “Health and Safety”), this Regulation requires only a cross reference to such earlier submission of data.

Joint undertakings

Art. 45 of the ET stipulates that “*undertakings which are of fundamental importance to the development of the nuclear industry in the Community may be established as joint Undertakings within the meaning of this Treaty...*”. Articles 46 to 51 formulate the rules how this can be done.

Financial aid

Since 1977 there are possibilities to obtain Commission loans, basically on a long term basis, to finance investments in the nuclear power sector. According to Art.1 of the **Council Decision 77/270/Euratom**¹⁰, the Commission is empowered to contract loans to finance, within the Community, investment projects relating to the industrial production of electricity in nuclear power stations and to industrial nuclear fuel cycle installations. The basis for it create mainly Articles 2 and 203¹¹ of the ET. There is also **Council Decision 77/271/Euratom**¹² which limits the total capital of loans to certain amount¹³. Financing may be granted only for projects which have received the approval of the competent national authorities, particularly the safety authorities, and also a positive opinion of the Commission, in particular with regard to the objectives of the energy policy and the environmental policy of the European Union. Such loan would be in principle limited to 20% of the total cost of the

⁹ Council Regulation (EC) No 1209/2000 of 8 June 2000 determining procedures for effecting the communications prescribed under Article 41 of the Treaty establishing the European Atomic Energy Community, OJ L 138 of 9.06.2000, p.12, as amended OJ L 192 of 31.07.2003, p.15.

¹⁰ Council Decision 77/270/Euratom empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations, OJ L 88 of 6.04.1977, p.9; as amended: OJ L 84 of 29.03.1994, p.41 and OJ L 236 of 23.09.2003, p.33 (the latter amendment enlarges the list of non-member countries eligible to loans on the basis of the 1994 amendment).

¹¹ Also Art.179, but it addresses only financial provisions for the Commission.

¹² Council Decision 77/271/Euratom on the implementation of Decision 77/270/Euratom empowering the Commission to issue Euratom loans for the purpose of contributing to the financing of nuclear power stations, OJ L 88 of 6.04.1977, p.11; as last amended OJ L 212 of 3.05.1990, p.26.

project¹⁴ (the Commission can only grant loans supplementing loans which the borrower has contracted with other parties).

Supplies of nuclear material and services

The entire chapter VI of the ET has been devoted to this subject. Art. 52 stipulates that nuclear materials shall be ensured by means of a common supply policy on the principle of equal access to sources of supply (ores, source materials and special fissile materials). Articles 67 – 69 of the Treaty address the question of prices which in case of internal supplies are to be determined as a result of balancing supply against demand. Privileged position for certain users in violation of the principle of equal access is prohibited. In order to achieve these goals the Euratom Supply Agency (ESA) operating within the structure of the Commission, was established in 1960¹⁵. Its statutory task is to pursue the objective of long term security of supply through diversification of supply sources and the avoidance of excessive dependency on any one such source¹⁶. According to Art.52(2) of the ET the Agency has right of option on ores, source materials and special fissile materials produced in the territories of Member States and an exclusive right to conclude contracts relating to the supply of ores, source materials and special fissile materials coming from inside the Community or from outside”¹⁷. Further Articles contain detailed provisions regarding the status, rights and prerogatives of the Agency as well as obligations of Member States, which were considered crucial for the pursuing of the above formulated objective and which still have to be respected.

¹³ This amount is not more than 4 000 million of European Units of Account (ECU). The ECU is defined in Decision 75/250/EEC, OJ L 104 of 24.04.1975, p.35.

¹⁴ Although the funds for loans are available for an indefinite period, they have not been used since the late 1980s (the main reason being probably the lack of investments) and all earlier loans have been paid back.

¹⁵ Functioning of the Agency is determined by The Statutes of the Euratom Supplies Agency (OJ No.27 of 6.12.1958, p.534). It has the status of an institution of public interest, the legal personality and extensive rights in regard to nuclear materials handled or manufactured within the territories of Member States.

¹⁶ It is worth to mention that in 2005 the Advisory Committee has endorsed the report “Analysis of the Nuclear Fuel Availability at EU Level from a Security of Supply Perspective”, prepared by its special task force. It deals with the existing risks related to the nuclear material supplies.

¹⁷ This right of option covers the acquisition of rights to use and consume materials owned by the Community under the provisions of Chapter VIII which deals with the property ownership.

Exceptions from the above rules apply to the transfers of small quantities, under conditions set forth in the **Commission Regulation 17/66/EURATOM**¹⁸. Art.75 defines the situations when provisions of Chapter VI do not apply.

Articles 70 - 72 of the ET foresee financial support to uranium ores prospecting programmes in the territories of Member States and possibilities to build up commercial and emergency stocks.

The Rules of the Supply Agency¹⁹ require, *inter alia*:

- from users – submitting to the Agency declarations of their estimated requirements of ores, source materials and special fissile materials, of their supply programmes (on the basis of contracts already entered into), and delivering for signature of their contracts with tenders;
- from producers – submitting declarations of stocks, estimated production and delivery programmes (on the basis of contracts already entered into);
- from the Agency – communicating to users and producers of the information on market trends, balancing the demand against supply and endorsing contracts.

Fuel property ownership

This question is addressed in Articles 86 – 91 (Chapter VIII) of the ET. The Euratom Supply Agency is formally the proprietor of almost²⁰ all special fissile materials whereas the facility operators have only the right to use them, subject to the obligations imposed on them by this Treaty which are in particular those relating to safeguards, the right of option conferred on the Agency and health and safety. Art. 88 requires the Agency to keep in the name of the Community of a special account, called “Special Fissile Materials Account”.

HEALTH AND SAFETY

¹⁸ Commission Regulation No 17/66/EURATOM of 29 November 1966 exempting the transfer of small quantities of ores, source materials and special fissile materials from the rules of the Chapter on Supplies, OJ 241 of 28.12.1966, p.4057.

¹⁹The cooperation between the ESA, users and producers is regulated by the Rules of the Supply Agency of the EAEC determining the manner in which demand is to be balanced against the supply of ores, source materials and special fissile materials (OJ 32 of 11.05.1960, p.777) as amended by the Regulation of the Supply Agency of the EAEC amending the Rules of the Supply Agency of 5 May 1960 (OJ L 193 of 25.07.1975, p.37).

Protection against ionizing radiation

Articles 30 – 33 of the ET are devoted to the question of basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. They formulate, *inter alia*, the obligations of each Member State to lay down appropriate provisions to ensure compliance with the basic standards and to communicate these provisions to the Commission.

According to Art. 30 “*The expression “basic standards” means:*

- (a) maximum permissible doses compatible with adequate safety;*
- (b) maximum permissible levels of exposure and contamination;*
- (c) the fundamental principles governing the health surveillance of workers”.*

In 1959 the Council adopted its first directive serving the purpose of harmonisation of such basic standards within the Community. Since then it has been revised several times and finally repealed by the **Council Directive 96/29/Euratom**²¹. Its scope covers:

- all practices involving a risk from artificial or processed natural sources of radiation;
- work activities involving the presence of natural sources of radiation;
- intervention situations (radiological emergencies or past practices or work activities).

The directive reflects, in principle, the appropriate basic standards developed under the auspices of the IAEA and WHO as well as the ICRP recommendations.

This directive obliges Member States, *inter alia*, to require reporting of practices and issuing prior authorizations (licensing) where applicable, to introduce dose limitations provisions as part of measures to ensure optimum radiological protection and to require the necessary means for proper radiation protection, to ensure that the contribution to the exposure of the whole population from each practice is according to the ALARA principle and is regularly assessed, to require that workers have access to the results of their individual radiological monitoring, and to ensure that intervention plans are drawn up at national or local level and are tested at regular intervals. It also obliges Member States to establish a system of

²⁰ Material covered by Regulation 17/66/EURATOM falls not under this rule.

²¹ Council Directive 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 ionizing radiation, OJ L 159 of 29.06.1996, p.1; see also the repealed Directive 80/836/Euratom, OJ L 246 of 17.09.1980 p.1, to which references are made in several other instruments currently in force.

inspections to enforce provisions introduced in compliance with the Directive. Further, it establishes the following exposure prevention measures: classification of controlled and supervised areas, strict controlling of working conditions in these areas and assessing the exposures, dividing of workers into two categories A and B depending on potential exposures, arrangements for the radiological protection of exposed workers, adequate information for exposed workers and restrictions on assignments to work under exposure for youngsters and pregnant women. Employment or hiring by operators of qualified experts in radiation protection is required to guarantee that these measures are properly applied. Medical surveillance of exposed workers is to be based on the principles that govern occupational medicine in general.

The basic standard directive has been supplemented by a number of specific directives and regulations falling within the “Health and safety” premises. **Council Directive 90/641/Euratom**²² has for the purpose to make Member States ensure that the radiological monitoring system affords outside workers protection equivalent to that of workers employed by the operator on a permanent basis. The directive formulates specific obligations of Member States competent authorities, of operators and outside undertakings, as well as of outside workers. The State has to issue an individual radiological monitoring document to every outside worker (sort of a passport). This requires maintaining of a centralized data base of workers and radiation doses received by them. Outside undertakings are obliged to ensure the radiological protection of their workers, while the operator of a controlled area in which outside workers perform activities is made responsible for the operational aspects of their radiological protection.

Articles 35 and 36 of the ET oblige each Member State to establish facilities for continuous monitoring of the levels of radioactivity in the air, water and soil, and to communicate periodically to the Commission information collected by means of this monitoring. They decide that the Commission shall have the right to inspect such facilities and to verify their operation and efficiency. **Commission Recommendation 2000/473/Euratom**²³ has been issued to advise on implementation of Art.36.

²² 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, OJ L 349 of 13.12.1990, p.21.

²³ Commission Recommendation 2000/473/Euratom of 8 June 2000 on the application of Article 36 of the Euratom Treaty concerning the monitoring of the levels of radioactivity in the environment for the purpose of assessing the exposure of the population as a whole, OJ L 191 of 27.07.2000, p. 37. It recommends States to

Safety of nuclear installations

The safety of nuclear installations is determined, in addition to the conventional industrial safety, fire safety, etc., also by its nuclear safety²⁴. Although the ET does not address the questions of nuclear safety directly, the legal interpretation of the provisions of its chapter “Health and safety” has permitted to create the appropriate legal frameworks for it²⁵. Therefore EURATOM, as a regional organization, could also become as its Member States, party to the **Convention on Nuclear Safety (CNS)**²⁶. This Convention, having incentive character, legally commits States operating land-based nuclear power plants to maintain a high level of nuclear safety by setting international benchmarks to which States would subscribe.

The Convention stipulates in its Art.4 that “*each Contracting Party shall take, within the framework of its national law, the legislative, regulatory and administrative measures and other steps necessary for implementing its obligations under the Convention*”. These obligations extend on siting, design, construction and operation of nuclear installations²⁷, requiring *inter alia* the availability of adequate financial and human resources, the assessment and verification of safety, quality assurance, appropriate radiation protection of workers and

notify the Commission the name of appropriate authorities, to define monitoring networks (taking into account the existence of representative geographical regions), sample types and measurements, reporting levels, minimum requirements per data record etc. and advises what monitoring results should be reported.

²⁴ Nuclear safety has neither been defined in any of the EU legal instruments nor in the further discussed Convention on Nuclear Safety. In the IAEA glossary it is defined as “*the achievement of proper operating conditions, prevention of accidents or mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation hazards*”.

²⁵ There were mixed opinions within the Euratom Community on whether the nuclear safety falls under the provisions of the Euratom Treaty. This question has been positively resolved in 1999 by the European Court of Justice in its sentence in the case C-29/99 by indication, that nuclear safety is one of the elements necessary to attain the goals established by the Chapter III (“Health and Safety”) of the ET.

²⁶ The CNS was concluded in 1994 under auspices of the IAEA It entered into force in 1996. All EU Member States and EURATOM are now its parties. For Euratom its access required communicating to the depositary (IAEA) of the declaration of competence of the European Commission. Such declaration, originally quoting articles of the Convention addressing only radiation protection issues, has been extended in 2004 to cover also the articles addressing nuclear safety.

²⁷ They are based to a large extent on the principles contained in the IAEA document “The Safety of Nuclear Installations”.

the public, and emergency preparedness. An important requirement regarding the siting is “consulting Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary information to such Contracting Parties, in order to enable them to evaluate and make their own assessment of the likely safety impact on their own territory of the nuclear installation”. The Convention obliges Parties to submit reports on the implementation of their obligations for review meetings of the Parties to be held at the IAEA. An important provision is formulated in Art.9 of the CNS which makes it clear that „each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant license and shall take the appropriate steps to ensure that each such licence holder meets its responsibility”.

The harmonization of rules and practices regarding nuclear safety on national levels followed in the Community the slow route, with the first initiative taken in 1975 by adopting the Resolution on the technological problems of nuclear safety²⁸. This situation appeared acceptable to most players until enlargement became an issue in 1990s. In its new Resolution of 18 June 1992 on the technological problems of nuclear safety²⁹ the Council encouraged the continuation of the process of consultation and co-operation established by the Resolution of 1975, and recommended its extension to CEEC and NIS. Special attention was turned to the new candidate States. Before the accession to the EU Poland, as one of the 10 newest Member States, committed itself in 2001 to respect the AQG/WPNS³⁰ recommendations contained in the document no 20529/01 ”Report on Nuclear Safety in the Context of the Enlargement” and agreed with the contents of the check list used to identify safety issues, attached to the Report³¹. The check list covered the following topics: legislative and regulatory framework, design and construction of NPPs, assessment and verification of safety, operational safety, safety culture, management and quality assurance, and emergency preparedness.

Still the common nuclear safety principles are not part of the binding *acquis* for the Euratom Community as the entity. Regulations of individual Member States address of course the nuclear safety questions, but according to the findings of the Western Europe Nuclear

²⁸ OJ C 185 of 18.08.1975, p.1.

²⁹ OJ C 172 of 8.07.1992, p.2.

³⁰ Atomic Questions Group (now Working Party for Atomic Questions, WPAQ) is one of the preparatory bodies of the EU Council. WPNS is its subgroup on nuclear safety.

³¹ These recommendations were no more restrictive than those already applicable within the EU.

Regulators Association (WENRA) they are harmonized with other MSs regulations on average only in about 50%. It is worth to note that the WENRA is currently working on so called “reference levels” in nuclear safety questions with the aim of issuing of a non-binding unified set of such reference levels by 2010. At the same time the Commission is working towards the adoption of the **Council Directive setting out basic obligations and general principles on the safety of nuclear installations**³² addressing the nuclear safety of all nuclear installations (while the CNS addresses only safety of NPPs) and foreseeing some monitoring mechanisms³³.

Safe management of radioactive waste and spent fuel and disposal of wastes³⁴

Article 37 of the ET stipulates that each Member State shall provide the Commission with general data relating to any plan for the disposal of radioactive waste to make it possible to determine whether the implementation of such plan can result in the radioactive contamination of the environment of another Member State. The **Commission Recommendation 99/829/Euratom**³⁵ explains that there may be two kinds of disposal of radioactive waste falling under that article: any planned disposal or accidental release of radioactive substance associated with the operations indicated in an enclosed list “*in gaseous, liquid or solid form in or to the environment*”. Operation of nuclear reactors (as well as other nuclear fuel cycle installations) is on that list. The recommendation also specifies what information and in which form should be submitted under general data.

Although the ET addresses directly the question of radioactive wastes only in connection with the requirement to provide the Commission with data relating to any plan for their disposal or to their releases, the interpretation of its Art.30 provided the basis for the adoption of appropriate *acquis* (part of the directive 96/29/Euratom is devoted to the problem of radioactive waste) as well as for the Euratom accession to the **Joint Convention on the**

³² COM(2003)32 final – not published in the Official Journal. This document is now under deliberations of the Working Party on Atomic Questions of the EU Council as part of the “nuclear package”.

³³ Some of the goals are to apply, on the level of Member States and operators, nuclear safety measures complying with the commonly recognized safety standards and ensure their transparency on the Community level by means of reporting and “peer reviews”.

³⁴ The issue of radioactive waste and spent fuel is also addressed, although from a different point of view, in the *acquis communautaire* devoted to the movements of radioactive materials (see further).

³⁵ Commission Recommendation 99/829/Euratom of 6 December 1999 on the application of Article 37 of the Euratom Treaty, OJ L 324 of 16.12.1999, p.23.

Safety of Spent Fuel Management and the Safety of Radioactive Waste Management³⁶.

The key objective of the Convention is to ensure that during all stages of spent fuel and radioactive waste management³⁷ there are effective defences against potential hazards so that individuals, society and the environment are protected from harmful effects of ionizing radiation. The Convention addresses separately spent fuel and radioactive waste management and formulates general safety requirements for siting of waste management facilities, their design and construction, assessment of safety and operation. It requires that each contracting party introduces the legislative, regulatory and administrative measures and other steps necessary for implementing its obligations under this Convention. These measures are specified, with the appropriate stress put on the responsibility of the licence holder and provision by the Contracting Party of the necessary human and financial resources to guarantee the safety (to support safety and to enable controls) and to ensure quality assurance, operational radiation protection and emergency preparedness. It is like CNS also an incentive convention and foresees like it the review meetings and reporting.

The Commission is working now towards the adoption of a **Council Directive on the management of spent nuclear fuel and radioactive waste³⁸** as another part of the earlier mentioned “nuclear package”. Its main objectives are to accelerate works leading to final disposal in stable geological repositories of high-level and long-lived radioactive wastes generated by the use of nuclear energy³⁹ and to guarantee adequate financial resources to support management of spent fuel while respecting the “polluter pays” principle.

Decommissioning of nuclear installations

Decommissioning of nuclear installations is now a growing problem of concern because of the large number of ageing installations in the enlarged EU and the safety aspects involved.

³⁶ Joint Convention was adopted under auspices of the IAEA in 1997 and entered into force in 2001. Euratom and all EU MSs are parties to it.

³⁷ Radioactive waste management is defined in the Convention as meaning „all activities, including decommissioning activities, that relate to the handling, pre-treatment, treatment, conditioning, storage, or disposal of radioactive waste, excluding off-site transportation”. Spent fuel management is defined as meaning “all activities that relate to the handling or storage of spent fuel, excluding off-site transportation”.

³⁸ COM(2003) 32 final – not published in the Official Journal.

³⁹ This initiative is in line with the conclusions of the Green Paper on the future security of energy supply in the EU that there is need for maintaining research and technological development (RTD) which will ensure the required isolation of wastes over very long timescales. The original proposal contained a requirement that Member States adopt national programmes for the disposal of radioactive wastes in general and the long-lived high-level wastes in particular.

To be carried out as planned and according to appropriate procedures, and to avoid being abandoned before its completion, decommissioning requires adequate and reliable resources. With this goal in view, the Commission has originally included the question of decommissioning in its proposal for one of the directives belonging to the mentioned earlier nuclear package, but it may draft a separate recommendation instead. In the original draft of the Directive it was required that the funds be created from contributions by operators of nuclear installations during their operation⁴⁰. Decommissioning of nuclear facilities and the transboundary movements of waste are also addressed in the Joint Convention discussed in the previous section.

Movements of radioactive materials

Again the Euratom Treaty does not address this issue directly, but its Articles 30, 31 and 32 are referred to in the two main instruments of the *acquis* regulating the question of (mainly) transboundary movements of radioactive materials.

One of these instruments is the **Council Directive 92/3/Euratom**⁴¹ which is supported by the **Commission Decision 93/552/Euratom**⁴² and by the **Communication 94/C 224/02**⁴³. This Directive applies to shipments of radioactive waste between and (to some extent) within Member States and shipments entering and/or leaving the Community. The directive also applies to spent fuel if it is considered as waste to be disposed of⁴⁴, as well as to shipments of sealed sources containing fissile material (but not other sealed or open sources which fall under the Regulation 1493/93/Euratom). It provides for a common, mandatory system of notifications and authorisations/consents, and a uniform control document for the transfer of radioactive waste which exceed certain quantity and concentration levels. The model control document is provided in the Decision 93/552/Euratom. The Directive states that any

⁴⁰ The current EU practice is that the resources for the decommissioning of nuclear installations and for disposal of wastes are being accumulated by the operators. However, the concern is that they should be protected from any attempts to use them for other purposes. The legal provisions and practical arrangements in these matters are different, depending on the State.

⁴¹ Council Directive 92/3/Euratom of 3 February 1992 regarding the supervision and control of shipments of radioactive waste between Member States and into and out of the Community, OJ L 35 of 12.02.1992, p.24.

⁴² Commission Decision 93/552/Euratom of 1 October 1993 establishing the standard document for the supervision and control of shipments of radioactive waste referred to in Council Directive 92/3/Euratom, OJ L 268 of 29.10.1993, p.83.

⁴³ Communication 94/C 224/02 concerning Council Directive 92/3/Euratom, OJ C 224 of 12.08.1994.

⁴⁴ Spent fuel is not addressed as such in the Directive 92/3/Euratom which leaves some space for legal misinterpretations.

conditions laid down by the competent authorities at a Member State in respect of the shipment of radioactive waste within the Community may not be more stringent than those laid down by the national law of that Member State in respect of the shipment of radioactive waste on its territory⁴⁵.

Another binding instrument is the **Council Regulation 93/1493/Euratom**⁴⁶, supported by the **Communication (93/C 335/02)**⁴⁷, which sets up the Community system of declarations of shipments between Member States for sealed sources and other radioactive sources⁴⁸. What concerns safety of the movements of nuclear materials and other radioactive substances it is up to each Member State to provide the appropriate legislation and to decide how to carry out all necessary controls within its territory in order to ensure that each consignment of such materials which are subject of a shipment from another MS complies with the national provisions.

What concerns the transport of radioactive substances appropriate provisions are contained in several Council Directives on transporting dangerous goods. Different legal documents of Euratom (such as international agreements concluded by the Community) refer to the IAEA rules on this subject.

Proceeding in case of nuclear accidents

The Chernobyl NPP accident in 1986 has led already in that year to the adoption and entry into force under auspices of the IAEA of two international conventions⁴⁹:

- **Convention on Early Notification of a Nuclear Accident**, and
- **Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency**.

⁴⁵ The Commission has recently proposed a replacement for the existing Directive in order to simplify the current arrangements and make them more effective. It is the Proposal for a Council Directive on the supervision and control of shipments of radioactive waste and spent fuel COM(2005)673 final. The new directive is going to cover also spent fuel in shipments for disposal or for reprocessing.

⁴⁶ Council Regulation 93/1493/Euratom of 8 June 1993 on shipments of radioactive substances between Member States OJ, L 148, 19.06.1993, p.1.

⁴⁷ Communication 93/C 335/02 concerning Council Regulation (Euratom), OJ C 335 of 10.12.1993, p.2.

⁴⁸ This system was adopted following the removal of frontier controls in the Community as from 1.01.1993.

⁴⁹ Almost all EU MSs are parties to these conventions, and since 2005 - also the Euratom Community.

The first of them establishes a notification system for nuclear accidents which have the potential for international (transboundary) release that could be of radiological safety significance for another State. It requires States to report the accident's time, location, radiation releases, and other data essential for assessing the situation. Notification is to be made to the affected States directly or through the IAEA, and to the IAEA itself. The second Convention sets out an international framework for co-operation among the States-Parties, and with the IAEA, to facilitate prompt assistance and support in the event of nuclear accidents or radiological emergencies. It requires States to notify the IAEA of their available experts, equipment, and other materials for providing assistance. Each State-Party decides whether it can render the requested assistance as well as on its scope and terms. The IAEA serves as the focal point for such co-operation by channelling information, supporting efforts, and providing its available services. Within the EU itself there is no such framework for assistance.

In line with these conventions and with Art.31 of the ET the **Decision 87/600/Euratom**⁵⁰ has been adopted. Its aim pronounced in Art.1(1) is to protect the general public in case of a radiological emergency following, *inter alia*, “*an accident in the territory of the State involving facilities or activities, from which a significant release of radioactive material occurs*”. These facilities and activities are specified and include, among others, any nuclear reactor or any other nuclear fuel cycle facility. The Decision requires Member State to take measures of a widespread nature in order to protect the general public and to notify the Commission and those Member States which are, or are likely to be, affected of such measures and to give the reasons for taking them. Also any available information relevant to minimizing the foreseen radiological consequences has to be delivered.

The EU Council has also adopted the **Directive 89/618/Euratom**⁵¹. Its aim is to strengthen the national law so that it would guarantee giving in advance the sections of the population, likely to be affected by the radiological emergency, appropriate and continuing information on the planned health protection measures and on possible action they should take in the event of such emergency. The Directive makes distinction between prior information (Art.5) and

⁵⁰ Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency, OJ L 371, 30.12.1987, p.76.

⁵¹ Directive 89/618/Euratom of 27 November 1989 on informing the general public about the health protection measures to be applied and steps to be taken in the event of a radiological emergency, OJ L 357, 07.12.1989, p.31.

information upon the event of a radiological emergency (Art.6) and specifies in the Annexes the required information elements. The **Commission communication 91/C 103/03**⁵² addresses the questions of implementation of articles 5 and 6, as well as of the Annexes.

For the Community purposes the Commission has established its own radiological emergency information collection and processing system ECURIE, connected with the IAEA system. There are agreements with the Member States and also with some non Member States (e.g. Switzerland) on the exchange of information within ECURIE.

Impact on the environment

General environmental legislation under the EU (originally EEC) Treaty is very large. One of its instruments - the **Council Directive 97/11/EC**⁵³ includes nuclear installations on the list of projects requiring an Environmental Impact Assessment (EIA). It has been recognized that from the environmental point of view the nuclear sector should be treated in the same way as other sectors having a potential impact on it. A number of instruments of *acquis communautaire* adopted on the basis of the ET and discussed in this paper also address certain environmental aspects.

INSURANCE, LIABILITY AND COMPENSATION FOR NUCLEAR DAMAGE

Article 98 of the ET obliges Member States to “*take all measures necessary to facilitate the conclusion of insurance contracts covering nuclear risks*”. Insurance, however, is only part of a special *régime* for nuclear third party liability. The prime objective of the nuclear liability *régime* is to ensure the adequate compensation of damage caused to persons and property by a nuclear incident. The ordinary common law in this area is not suited to deal with such particular problems of the use of nuclear energy which are hazards of a special character and potentially far-reaching consequences. The question of nuclear liability is not regulated in a uniform way both on the international as well as the EU scale. There are two - IAEA and

⁵² Commission communication 91/C103/03 on the implementation of 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, OJ C 103, 19.04.1991, p.12.

⁵³ Council Directive 97/11/EC of 3 March 1997 on the assessment of the effects of certain public and private projects on the environment; it is amending the former Directive 85/337/EEC. Other environmental legislation may also apply to the nuclear sector, for example the New Drinking Water Directive.

OECD systems of international conventions as well as protocols amending them or creating a link between them (both organizations being depositaries, as appropriate). They are:

❖ In the IAEA system:

- **Convention on Civil Liability for Nuclear Damage**⁵⁴ called “Vienna Convention”, and
- **Convention on Supplementary Compensation for Nuclear Damage (CSCND)**, adopted in 1997 but not yet in force.

❖ In the OECD system:

- **Convention on Third Party Liability in the Field of Nuclear Energy**⁵⁵, called “Paris Convention”, and
- **Convention Supplementary to the Paris Convention**⁵⁶ called “Brussels Convention”.

❖ **Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention**⁵⁷ from 1988.

All these Conventions are based on the civil law concept, limit their scope to nuclear incidents⁵⁸ and share the main principles. They force the States - parties to take measures necessary to facilitate the conclusion of insurance contracts covering nuclear risks. The concept of damage extends on persons (life, injury) and on property, although under CSCND also other economical losses would be covered. Liability is channelled exclusively to the operators of nuclear installations and is absolute (strict liability without fault). However, the operators of nuclear installations should not be exposed to an excessively burdensome liability and all those (such as builders or suppliers) associated with the construction or operation of such installations should be exempted from liability.

⁵⁴ Convention of 21 May 1963 (in force since 12.11.1977), as amended by the Protocol of 12 September 1997 (INFCIRC/500).

⁵⁵ Convention of 29 July 1960 (in force since 1.04.1968) as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982.

⁵⁶ Convention of 31 January 1963, as amended by the Additional Protocol of 28th January 1964 and by the Protocol of 16th November 1982.

⁵⁷ In force since 27.04.1992 (INFCIRC/402).

⁵⁸ In the case of Paris Convention a nuclear incident is defined as “*any occurrence or succession of occurrences having the same origin which causes damage, provided that occurrence or succession of occurrences, or any of the damage caused are due to radioactivity or a combination of radioactivity with toxic, explosive or other hazardous properties of nuclear fuel or radioactive products or waste or due to ionizing radiations emitted by any other source of radiation which is inside a nuclear installation*”.

The essential differences between the IAEA and OECD Convention systems concern the availability of the operator's resources for compensation and of the special funds established for this purpose by the contracting parties, as well as the rules governing the creation of such funds.

Parties to the Joint Protocol are treated as if they were parties to both Conventions. A choice of law rule is provided to determine which of the two Conventions should apply to the exclusion of the other in respect of the same incident.

Since the Paris and Brussels Conventions were adopted in the OECD framework, almost all of the EU Member States from before the enlargement of 1 May 2004 became parties to them⁵⁹. For any country deciding on its access to the OECD conventions it will be important to follow two **Commission recommendations** - **65/4/Euratom**⁶⁰ and **66/22/Euratom**⁶¹ - devoted to the harmonization of the application of these conventions in the Member States.

NUCLEAR SECURITY AND NONPROLIFERATION MEASURES:

Nonproliferation of nuclear weapons and nuclear material safeguards

All nuclear material in the Community, as defined in the Euratom Treaty, is subject to the Euratom safeguards under the provisions of Chapter VI of the ET and to the IAEA safeguards under the **NPT**. Art. 77 of the ET stipulates that *“the Commission shall satisfy itself that, in the territories of Member States, (a) ores, source materials and special fissile materials are not diverted from their intended uses as declared by the users”* and *“(b) the provisions relating to supply and any particular safeguarding obligations⁶² assumed by the Community under an agreement concluded with a third State or an international organization are*

⁵⁹ Among “old” MSs exceptions are: Austria, Greece, Ireland, Luxembourg and Portugal for Brussels Convention and Austria and Ireland for Paris convention. These States do not have NPPs on their territories. Poland is at present party to the Vienna Convention (since April 1990) and to the Joint Protocol (since April 1992). Poland has also signed, but not ratified, the Protocol to Amend the Vienna Convention of 12 September 1997.

⁶⁰ Recommendation of the Commission to the Member States of 28 October 1965 on harmonization of legislations for the application of the Paris Convention of 29 July 1960 and of the complementary Brussels Convention of 31 January 1963, OJ 196 of 18.11.1965, p.2995-2996.

⁶¹ Second Recommendation of the Commission to the Member States of 28 October 1965 on harmonization of legislations for the application of the Paris Convention of 29 July 1960, OJ 136 of 25.07.1996, p.2553-2554.

⁶² Obligations means here safeguarding obligations imposed by States exporting nuclear materials to the Community according to the concluded agreements. Such materials have to be accounted for separately.

complied with". In order to meet these objectives Euratom safeguards system has been developed and its functioning ensured by the Euratom safeguards inspectorate operating within the DG TREN⁶³ of the Commission. According to the ET provisions Euratom safeguards

- encompass, apart of the source and special fissile materials as in the case of the IAEA safeguards, also uranium and thorium ores; and
- have to follow nuclear material which had been delivered under different cooperation agreements concluded with the third states or international organizations.

In addition to the fulfilment of the tasks resulting from the ET, the Euratom safeguards inspectorate performs the functions of the collective State System of Accounting and Control (SSAC, foreseen by the IAEA safeguards system), and cooperates with the IAEA safeguards inspectorate.

Under both the IAEA and Euratom safeguards systems operators are obliged to keep defined operating and accounting records, to submit necessary information in form of basic technical characteristics of nuclear installations as well as specified reports, and to enable inspections on site. The obligations of operators under the ET are formulated in its Articles 78 – 80, while articles 81 and 82 – formulate the rules under which the Commission may send inspectors into the territories of Member States to perform inspections at nuclear installations. Art.83 speaks about possible sanctions in a case of infringement of safeguards requirements. It is the responsibility of the State to enforce Commission decisions on sanctions. The enforcement rules are clarified in Art.164 of the ET.

The implementation of the IAEA safeguards in the Euratom Community is based on trilateral safeguards agreements (known as “verification agreements”) concluded by the IAEA under Art.III.1 of the NPT with the Euratom Member States and the Euratom Community⁶⁴. A Protocol added to these agreements reflects the existence of the own Euratom safeguards system under provisions of the ET and sets up the cooperation framework for the two inspectorates. The IAEA receives the required information from the operators only via

⁶³ Direction General for Transport and Energy of the European Commission.

⁶⁴ The full name of the agreement in case of non-nuclear-weapons states is: The Agreement between Austria, Belgium, Denmark, the Federal Republic of Germany, Finland, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the European Atomic Energy Community and the Agency in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons. It is reproduced in the document INFCIRC/193/Add.7. Accession of new member states is done by means of protocols to this agreement.

Euratom office, and Euratom inspectors come to nuclear installations either alone or accompany IAEA inspectors.

In the last years a new instrument, named **Additional Protocol**, was agreed upon and came into force to enlarge the powers of the IAEA inspectorate *vis a vis* States-Parties to the NPT and to safeguards/verification agreements. All Euratom Member States have already ratified it. The Additional Protocol enables access of inspectors on short notice (less than 24 hours or, in specific cases, 2 hours) not only to nuclear materials, but also to different locations where nuclear fuel cycle related activities or other activities involving nuclear materials are being carried out or could have been carried out in the past. Additional Protocol requires submitting of additional information⁶⁵ to the IAEA which, depending on the character of information, is the task of the State, the Community, or both, while the Commission receives the necessary input directly from operators.

The organizational and technical questions of the implementation of the Euratom and IAEA safeguards in the Community have been addressed in the **Commission Regulation 302/2005/Euratom**⁶⁶. Most of the provisions of the ET and the Commission Regulation apply directly to the operators.

International transfers of nuclear materials and technology, and of equipment and non-nuclear materials enabling uses of nuclear energy

Art.III.2 of the NPT requires that: *“Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this article”*. While all source or special

⁶⁵ Such additional information concerns: nuclear fuel cycle-related research and development activities, operational activities at nuclear installations, output of uranium mines, source materials that have not yet reached the composition and purity suitable for fuel fabrication or for being isotopically enriched (including information on exports and imports thereof), information on nuclear material exempted from safeguards (eg. for non-nuclear uses), information on intermediate and high-level waste containing plutonium and high enriched uranium or U-235 on which safeguards have been terminated, as well as information regarding specified equipment and non-nuclear material imported or prepared for export. In addition, general plans for the succeeding ten-year period relevant to the development of the nuclear fuel cycle when approved by the appropriate authorities, are to be submitted to the IAEA.

⁶⁶ Commission Regulation 302/2005/Euratom of 8 February 2005 on the application of Euratom safeguards, OJ L 054 of 28.02.2005 p.1.

fissionable materials in the States Parties are placed under safeguards, the additional controls of shipments out of the Community of such materials and controls of shipments of equipment and other materials indicated under (b), including dual-use items, are exercised using the mechanisms set up by the Nuclear Suppliers Group (NSG) to which Euratom Member States and the Community itself are members. Specific obligations are set forth in the **Regulation 1334/2000/EC**⁶⁷. Annex I of the Regulation contains a list of dual-use items and technology where under “category 0” nuclear materials, installations and equipment subject to export controls are listed. This list corresponds to the list annexed to the discussed earlier Additional Protocol.

Physical protection of nuclear materials and nuclear facilities

Physical protection (PP) against the theft or unauthorized removals of nuclear materials and against the sabotage at nuclear facilities by individuals or groups is of vital importance for the protection of public health and safety, the environment, as well as for national and international security. These questions have been regulated by means of the international **Convention on the Physical Protection of Nuclear Material**⁶⁸ which was amended in July 2005 and is now awaiting the ratification and entry into force in its new version. Both original and amended texts of the Convention establish the required levels levels of physical protection as per category of nuclear material, while this categorization is taken from the IAEA “Recommendations for the Physical Protection of Nuclear Material”. Its latest revised version is contained in INFCIRC/225/Rev.4.

The amended Convention applies to nuclear material in peaceful domestic use, storage and transport (before the amendment only nuclear material in international transport) and to nuclear facilities (this being entirely new). While the Convention requires from the State - party to establish, implement and maintain appropriate physical protection *régime*, to establish and maintain a legislative and regulatory framework to govern PP, and to establish or designate a competent authority or authorities responsible for the implementation of the legislative and regulatory framework, the prime responsibility for the implementation of

⁶⁷ Regulation 1334/2000/EC setting up a Community regime for the control of exports of dual-use items and technology, as amended, OJ L 159 of 30.06.2000 p.1; subsequent amendments: OJ L 338, 20.12.2001 p.1, OJ L 168, 01.05.2004 p.1, OJ L 281, 31.08.2004, p.1.

⁶⁸ It was opened for signature on 3 March 1980 and came into force on 8 February 1987. All 25 current EU Member States and Euratom are parties to this Convention.

adequate PP of nuclear materials and of nuclear facilities rests with the holders of the relevant licences for practices. Export, import or transit are permitted only if appropriate assurances of adequate levels of PP are received. The technical issues of the Convention are dealt with in the annexes to the Convention⁶⁹.

FINAL REMARKS

As it could be seen, the EU legal frameworks of importance for nuclear power address: on the one side - questions of promotional character (coordination of certain investments and RTD, exchange of information, support for joint undertakings, care for stable and equitable nuclear fuel supplies based on the knowledge of the market and reasonable contracts, and limited financial support in the form of loans), and on the other – measures designed in order to avoid or mitigate possible negative consequences of the uses of atomic energy as well as to guarantee (through reporting, licensing, consultations, inspections etc.) the nuclear and radiation safety, as well as transparency regarding the practices. The latter is necessary for the appropriate perception of the real safety of the installations of the nuclear fuel cycle.

It also should be noted that after the nuclear energy polls, carried out in 2001 in the EU Member States, and the publishing of the final report on the Green Paper “Towards a European strategy for the security of energy supply”⁷⁰ the regulatory activeness of the Commission in the nuclear area has significantly increased. This will most probably result in the adoption in the near future of a number of new legal binding and non-binding instruments dealing with the questions of safety of nuclear installations, safe management of radioactive waste and spent fuel and decommissioning of nuclear installations. Also planned revision of several instruments in the radiation protection field has already been envisaged. Some of the Commission initiatives in this area have been mentioned in this Paper.

⁶⁹ Annex I - Levels of Physical Protection to be Applied in International Transport of Nuclear Materials as Categorized in Annex II; Annex II – Table: Categorization of Nuclear Material (amended). For each of the nuclear material types (plutonium, uranium-235, uranium-233 and irradiated fuel) following categories are foreseen: I, II and III, depending on quantities involved. Category III applies to the lowest amounts, while the quantities not falling into it and natural uranium should be protected in accordance with prudent management practice only. Irradiated fuel falls always into category II.

⁷⁰ Initial (main) document was COM(2000)769 final of 29.11.2000. Document COM(2002)321 final contains summary of discussions held on the main document. Both have not been published in the Official Journal.