

NUCLEAR SAFETY IN THE EUROPEAN UNION

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Abstract: *Nuclear power is preferred by many countries as an alternative to energy from fossil fuels, as it generates no carbon dioxide emissions which lead to the increase of the greenhouse effect and global warming. Under normal circumstances full compliance with safety rules ensure the prevention of major accidents which endanger human health and life. In the European Union a series of Community documents have been adopted and implemented that aim to regulate nuclear safety. But the Fukushima case showed that all these norms are nothing compared to the unleashed force of nature. After this tragedy the following question arises: is it safe to use this type of energy or should other alternatives have to be found?*

Keywords: *Nuclear energy, nuclear safety, the European Union, the European Atomic Energy Community, EAEC, EURATOM.*

1. Short history

On 25 March 1957, the two treaties establishing the European Economic Community (EEC) and the European Atomic Energy Community (EAEC, EURATOM) were signed in Rome¹.

The treaty establishing the European Atomic Energy Community was a response to the Suez Crisis (1956), which showed that the six European countries are vulnerable regarding external supplies of oil. Nuclear power was unlimited and was thought to be an alternative to the use of fossil fuels.

EAEC / EURATOM is not pooling the existing economic activities but the institution generally aims to build and develop a European nuclear industry.

To this end it undertakes:

- to promote research and dissemination of technical knowledge in this field;
- to assume a regulatory function in providing Member States with ores and nuclear fuels;
- to establish uniform safety standards to protect the health of workers in the field;
- to stimulate capital investment in the nuclear industry and to accomplish the necessary facilities for the industry ;
- to create a common market in order to ensure free movement of materials, equipment and capital necessary for these investments;

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1. Dumitrescu Cristian Sorin, Stoica Marcela Monica, *The System of International Governmental Organizations and of International Nongovernmental Organization*, Universul Juridic Publishing, Bucharest 2006, quotation taken from Dumitrescu Cristian, Dumitrescu Corina, *Distances that get us closer – Romania's Integration on the E.U.*, Scripta Publishing, Bucharest 2002, p. 25.

- to ensure the peaceful use of nuclear materials².

EURATOM has the right of option regarding minerals, raw materials and special fusionable materials produced on the territory of Member States, and it also exercises security control over the final destination of the materials so as not to be used in the military field. The EAEC treaty places a strong emphasis on the joint nuclear research of Member States.

The European Atomic Energy Community Treaty is seen by some writers such as Henry Schermers as a major disappointment, since its initial objectives were at best partially implemented, and at worst were totally ignored³.

The EURATOM treaty is limited just to a certain field and to certain aspects of the nuclear fuel cycle. EAEC institutions have in particular tasks of promoting, to facilitate and monitoring the development of the nuclear industry.

The Community only seldom holds exclusive competence to fulfill the allocated tasks. In addition, Member States were reluctant to cede sovereignty in nuclear matters, so that in practice the Community powers are greatly reduced⁴.

If, in case of an accident, the question of the liability of the Community will arise, the liability will have to be shared with the Member State, even if the EURATOM treaty does not refer to joint liability⁵.

The Maastricht and the Lisbon Treaty amended the constituent treaties of the European Communities including the EAEC Treaty.

2. Nuclear safety

The Constituent treaties have provided the legal framework on which Community legislation would be developed in order to regulate specific issues, the source of inspiration for these documents were international regulations such as those adopted by the International Atomic Energy Agency (IAEA).

The advantage that nuclear power offers is that it generates no carbon dioxide emissions and thus does not contribute to the increase of the greenhouse effect and global warming, therefore it reached an important role in the energy mix chosen by the EU Member States.

From the outset the question of nuclear safety was raised, as a small mistake can cost the health or lives of hundreds or thousands of people.

The Council Resolution of 22 July 1975 on the technological problems of nuclear safety calls for the harmonization of Member States approaches regarding nuclear safety, to protect both human health and the environment.⁶

Because problems regarding nuclear safety can affect the entire Community and not only the countries concerned, the Community institutions encourage collaboration among states, especially in the field of research, information exchange, and facilitate cooperation between specialized institutions to stimulate

2. Zorgbibe Charles, *The European Construction. Past, Present and Future*", translated by Speranța Dumitru, Trei Publishing, Bucharest 1998, p.40.

3. Schermers Henry G., Heukels Ton, Mead Philip, „*Non-Contractual Liability of the European Communities*”, Kluwer Law International 1988, p.53.

4. Ibidem, p.54.

5. Idem.

6. Council Resolution of 22 July 1975 on the technological problems of nuclear safety, Official Journal No. C 185, 14 Aug. 1975, p.1.

development of the nuclear sector which plays an important role in the supply of electricity.

The Member States are required to inform the Commission if they pass laws concerning the safety of nuclear installations, in order to hold consultations at Community level.⁷

Community members are urged to adopt common positions in international organizations when it comes to the harmonization of the criteria underlying nuclear safety.

The Commission is required to prepare annual reports showing the progress made in this area, and the Member States and the European Commission should provide information to citizens about Community or national actions concerning nuclear safety.⁸

After the 1986 Chernobyl accident occurred, the Council adopted a Resolution on June 18, 1992 which dealt with the same technological problems of nuclear safety.

The Resolution emphasizes the importance of consultation and coordination between institutions responsible for nuclear safety within the Community and the necessity to export safety standards outside EU especially in Central and Eastern Europe and former Soviet republics.⁹

The Resolution reaffirms the need for research and innovation in the field of nuclear safety, but also in terms of future generations of reactors, wishing to share gained knowledge with other third countries, even collaborating in the nuclear field.

The Member States and the Commission must intensify their efforts in developing nuclear safety criteria and incorporate knowledge accumulated over time, these requirements must be observed in the Community besides those already existing at international level.¹⁰

In 2003 the Council adopted a Directive setting out the obligations and principles of nuclear safety. This is based on a document of the International Atomic Energy Agency (IAEA) – The Convention on Nuclear Safety which entered into force in 1996, to which Member States adhered.

The Community provision applies not only to nuclear power plants but to all nuclear facilities¹¹ even after their decommissioning.

Under the Directive each Member State must have a regulatory body to monitor and regulate the safety of nuclear installations. This body grants licenses for the building of nuclear activities, follows their activity or can even decide the

7. Ibidem, p.2.

8. Idem.

9. Council Resolution of 18 June 1992 on the technological problems of nuclear safety, Official Journal No. C 172, 8 Jul. 1992, p.2-3.

10. Ibidem, p.2.

11. Nuclear facilities include buildings, their land and the equipments where radioactive materials are produced, processed, used, stored or disposed.

decommissioning of nuclear installations, therefore it must be fully independent to avoid being influenced.¹²

Member States shall take necessary measures to ensure that responsibility for nuclear safety rests with the holders of the licenses issued by the regulatory body, therefore only the license holders and the regulatory body can implement security and control measures.

Each Member State must adopt legislative acts in order to regulate nuclear safety, ranging from granting operating licenses, the prohibition of unlicensed operation, the suspension or revocation of license, to inspections verifying the principles established by the regulatory body.¹³

EU states must take the following steps:

- to take all measures to prevent radiological accidents;
- to prevent radiological accidents, and if they occur to minimize the effects;
- to ensure long-term management of all radioactive materials;
- to provide information and even consultation with the population living in the area where nuclear installations are located.¹⁴

It is necessary for the specific country to require their license holders to comply with all national, EU and international provisions in their work, as well as regulatory measures taken by the regulatory body, and they must also implement quality assurance programs for their installations.

The Member States must ensure they have the financial capabilities and experts required for the proper functioning of both the nuclear installations and the regulatory body.

It is imperative that there are contingency plans for accidents, approved by the regulatory body and tested regularly. The license holders will notify the regulatory body if an accident occurred and explain the measures they have taken to eliminate its effects.

A Committee of Regulatory Authorities will be established, composed of representatives of regulatory bodies in each Member State.

The Committee shall encourage experience exchange in order to harmonize approaches to nuclear safety, will advise the Commission on matters in this field, will define how the national reports are developed in order to be consistent with what will be submitted according to the Convention on Nuclear Safety, and last but not least will assess the national reports and make recommendations at the Commission's suggestion.¹⁵

Member States will have to report to the Commission regarding measures they have taken in the field of nuclear safety and legislative acts adopted in this regard, and the Commission will report to the Parliament and Council on the progress in this field.

12. Amended proposal for a Council Directive (Euratom) laying down basic obligations and general principles on the safety of nuclear installations, COM/2004/0526 final - CNS 2003/0021, p.9.

13. Ibidem, p.10.

14. Idem.

15. Ibidem, p.12-13.

In 2008 a Council Directive was created, which establishes a Community framework for nuclear safety. The Directive was elaborated after consultations with international organizations, such as IAEA and with various groups of experts on nuclear safety issues were held.

This principle of national responsibility as well as the principle of prime responsibility for the safety of a nuclear installation which rests with the license holder under the control of its national regulatory body should be enhanced by this Directive.¹⁶

The objective is the improvement of nuclear safety within the Community and the enhancement of the role of national regulatory bodies.

The safety measures and controls to be implemented in a nuclear installation shall be decided only by the regulatory body and applied by the license holder, who shall have the prime responsibility for safety throughout the lifetime of the nuclear installations until its release from regulatory control. This responsibility of the license holder cannot be delegated.¹⁷

The regulatory body shall be provided with adequate authority, competence and financial and human resources to fulfill its responsibilities.

Besides supervision, monitoring and regulation of nuclear installations safety, the regulatory body is responsible for the implementation of safety rules and requirements. Also the regulatory body shall ensure that license holders have at their disposal appropriate staff in terms of numbers and qualifications.

At least every ten years the regulatory body shall submit itself and the national regulatory system to an international peer review aimed at continuously improving the regulatory infrastructure.¹⁸

Member States shall observe the obligations and requirements incorporated in the Convention on Nuclear Safety including inter alia effective arrangements against potential radiological hazards, accident prevention and response, ageing management, long term management of all produced radioactive materials and information of the population and the authorities of neighbouring States.¹⁹

As regards the safety of new nuclear power reactors Member States shall aim to develop additional safety requirements, in line with the continuous improvement of safety on the basis of the safety levels developed by the Western European Nuclear Regulators' Association (WENRA) and in close collaboration with the European High Level Group on Nuclear Safety and Waste Management.

WENRA is made up of chiefs and high ranking officials of nuclear regulatory authorities from 17 European countries and the association's objectives is to harmonize the approach of Member States concerning nuclear safety.

The HLG was established in 2007 when the Nuclear Illustrative Programme was adopted and has an important role in assisting EU institutions in

16. Proposal for a Council Directive (Euratom) setting up a Community framework for nuclear safety, COM/2008/0790 final - CNS 2008/0231, p. 13.

17. Ibidem, p.15.

18. Ibidem, p.16.

19. Idem.

progressively developing additional European rules in the fields of the safety of nuclear installations and the safety of the management of radioactive waste.²⁰

This group includes chiefs of national regulatory authorities or of authorities that deal with nuclear safety in Member States.

License holders shall design, construct, operate and decommission their nuclear installations. They shall establish and implement management systems which shall be regularly verified by the regulatory body and allocate adequate financial and human resources to fulfil their obligations²¹.

The regulatory body controls the nuclear installations and, if necessary, withdraws or suspends the operating license, if the safety rules have been breached.

In order to ensure that the nuclear installations from states that wanted to be part of the Community meet specific safety standards, the EU has imposed the improvement of the installations or, in some cases, even their decommissioning. What is worrisome is the fact that states which were already Member States did not have to prove the safety of their own nuclear installations in any manner²².

There were some voices that argued that “the imposition of Communitarized nuclear safety standards is capable of inflaming a conflict between the responsibility of Member States to ensure the safety of nuclear installations and the Commission’s competence to enforce legislation under the Euratom Treaty”²³.

At the level of Member States there were fears related to the interference of the Commission in national legislation, fears that have disappeared only after it was stressed in the Community legislation that the responsibility for nuclear safety lies with the Member State²⁴.

The EU has regulated nuclear safety for two reasons: to prevent nuclear accidents from happening and to stimulate Member States to adopt this type of energy.

Most of the states fear to adopt nuclear energy into their energy mix because they are afraid of non-compliance with safety rules, which can easily lead to catastrophic accidents.

Also in many European states there is a strong popular opposition towards nuclear energy. The pressure of the population but also of green parties has sometimes even lead to the decommissioning of nuclear plants.

3. Exchange of information in case of a radiological emergency

The Council Decision of 14 December 1987 deals with Community arrangements for the early exchange of information in the event of a radiological

20. Ibidem, p.6-7.

21. Ibidem, p.16.

22. Managing Nuclear Safety and Waste: The Role of the EU; 37th Report of Session 2005-06, Great Britain: Parliament: House of Lords: European Union Committee, The Stationery Office, 06.07.2006, p.9.

23. Konstadinides Theodore „*Division of Powers in European Union Law: The Delimitation of Internal Competence Between the EU and the Member States*”, Kluwer Law International 2009, p.19.

24. Idem.

emergency, subject which is also regulated by an IAEA document – the Convention on Early Notification of Nuclear Accidents.

Member States are advised to inform other neighbouring States and the Commission in case a radiological accident takes place on their territory or if they detect abnormal levels of radioactivity. To this end, the countries must establish facilities that monitor the level of radioactivity in the air, water and soil.²⁵

In the event that any type of accident occurs in any kind of nuclear installation and could affect the health of the population, the respective state must supply information to the Commission and to the other states in order to minimize the consequences and should notify the Commission and the other states regarding the measures which shall be taken.

The information provided must contain certain mentions, without jeopardy to national security:

- the nature and time of the event, its exact location and the facility or the activity involved;
- the cause and the development of the accident;
- the characteristics of the radioactive release;
- meteorological and hydrological conditions that can influence the dispersion of radioactive release;
- the results of the environmental monitoring and the results of measurements of foodstuffs and drinking water;
- the measures taken, or planned, to inform the public;
- the predicted behaviour over time of the radioactive release.²⁶

The Member State shall continue to inform the Commission at appropriate intervals of the development of the situation. Also, the other states shall inform the Commission regarding the measures they have taken and the level of radioactivity arising from the measurements that have been performed.

The Commission shall inform the Member States regarding the event that occurred and shall contact the competent authorities of each state. The information received may be used without restrictions except when such information is provided in confidence by the notifying Member State.²⁷

On November 27th 1989 the Council Directive on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency has been adopted.

The population of a state where a nuclear accident occurred should be encouraged to take appropriate action likely to increase the effectiveness of the emergency measures taken or planned by competent authorities. It is very important to inform the population that will probably be affected by such radiological emergencies.²⁸

25. Council Decision of 14 December 1987 on Community arrangement for the early exchange of information in the event of a radiological emergency, Official Journal No. L 371 , 30 Dec. 1987, p.76.

26. Ibidem, p.77.

27. Ibidem, p.77-78.

28. Council Directive of 27 November 1989 Council Directive on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency, Official Journal No. L 357, 07 Dec. 1989, p.32-33.

Member States shall ensure that, when a radiological emergency occurs, the population actually affected is informed at regular intervals and ensure that the information is permanently available. The respective country shall inform the citizens without delay of the facts of the emergency, of the steps to be taken and, as appropriate to the case in point, of the health-protection measures applicable to it.

Persons who are involved in the organization of emergency assistance in the event of a radiological emergency are given adequate and regularly updated information on the health risks their intervention might involve and on the precautionary measures to be taken.²⁹

The population must be informed regarding radioactivity and its effects on humans and the environment, and also related to the measures that have to be taken in case of a radiological emergency.

The citizens that have been affected as a result of such an accident shall receive the following information: information on the type of emergency which has occurred, advice related to the protection of health such as restrictions on the consumption of certain foodstuffs likely to be contaminated, simple rules on hygiene and decontamination, recommendations to stay indoors, distribution and use of protective substances, evacuation arrangements and recommendations regarding cooperation with competent authorities.³⁰

There are critics that argue that the notion of „informing affected citizens” used in Community documents is in fact a way of limiting the rights of all Community citizens to be informed in the event of an accident.

Therefore, in case an event occurs, only affected citizens shall be informed and that is because the regulatory body rules out the possibility of the spread of negative effects over large areas. The consequence of the application of these measures being the confinement of the circulation of the information only in the affected area³¹.

In my opinion it is important to notify authorities and all citizens if radiological emergencies occur, in order to take measures to counteract the harmful effects.

The information of neighbouring states and of the Commission is also imperative because neighbouring countries can also be affected, even if the accident did not occur on their territory.

Heavy fines and even criminal sanctions should be imposed on license holders who „omit” to notify the occurrence of an accident, as the health and life of citizens is put at risk.

4. Conclusions

Initially I have considered nuclear energy as the saviour of this planet, because it does not intensify global warming. I was convinced that strict compliance with all rules shall eliminate the risk of major accidents.

29. Ibidem, p.33.

30. Ibidem, p.34.

31. BARKER F., „*Management of Radioactive Wastes: Issues for Local Authorities*”, Thomas Telford 1998, p.70.

However, after the Fukushima accident I have radically changed my opinion, because I have realised that there is a superior force which I have ignored up to that point in time. The force of nature cannot be controlled by any human and can affect even the safest constructions.

Even if all the rules concerning nuclear safety are observed, certain events such as earthquakes, tsunamis and other natural disasters cannot be controlled or prevented.

I think that the UE should encourage Member States to decommission their nuclear plants and instead of these, the states should adopt solar and wind energy. Ideally, fossil fuel energy should be replaced with renewable energy.

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