Is there a place for European standards on the international scene?

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Executive summary

The International Atomic Energy Agency has a long tradition in developing safety standards for nuclear, radiation, transport and waste safety. The present IAEA safety standards reflect an international consensus on what constitutes a high level of safety for protecting people and the environment. European organizations have played a major role in the development and endorsement of these standards. In the rapidly globalizing world today, a single set of universally applicable, global safety standards is the only viable option for industrial activities and public confidence. Developing separate European safety standards would lead to confusion in the nuclear industry and among the public and be a waste of resources. The IAEA safety standards can adequately be adopted and applied in the European context to further enhance common global standards.

IAEA MANDATE

Under the terms of Article III of its Statute, the International Atomic Energy Agency (IAEA) is authorized to establish or adopt standards of safety for protection of health and minimization of danger to life and property, and to provide for the application of these standards. The present IAEA safety standards reflect an international consensus on what constitutes a high level of safety for protecting people and the environment. They are considered the cornerstone of the global nuclear safety regime.

The IAEA Statute makes the safety standards binding on the IAEA in relation to its own operations and on States in relation to operations assisted by the IAEA. Any State wishing to enter into an agreement with the IAEA for its assistance in connection with nuclear and radiation related technologies is required to comply with the requirements of the safety standards that pertain to the activities covered by the agreement.

HISTORICAL EVOLUTION OF THE STANDARDS

The IAEA safety standards have historically covered the areas of radiation protection, transport of radioactive material, nuclear safety and radioactive waste management. The historical evolution of these four areas is described below.

Radiation Protection

Among the international organizations involved in radiation safety, the IAEA is the only one specifically authorized under the terms of its Statute to establish radiation safety standards. The IAEA's Board of Governors first approved basic safety standards in June 1962, and subsequent revision were carried out. The latest revision of the Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS) was published as Safety Series No. 115 in 1996. This publication was jointly sponsored by the Food and Agriculture Organization, the IAEA, the International Labour Organization, the Nuclear Energy Agency of the OECD, the Pan American Health Organization and the World Health Organization. At the same time these organizations jointly sponsored a so-called Safety Fundamentals publication on Radiation Protection and the Safety of Radiation Sources, which presents the basic principles and explains the rationale for the application of radiation protection standards. Several safety guides have been published to provide recommendations on how to apply the BSS.

The BSS have been based consistently and primarily on the recommendations of International Commission on Radiological Protection (ICRP). The quantities and units used in the standards are primarily those recommended by the International Commission on Radiation Units and Measurements (ICRU), a sister organization of the ICRP.

Also using the ICRP recommendations as a basis, the European Commission took a parallel route in developing the Council Directive 96/29/Euratom of 13 May 1996 that lays down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. Although there is a great similarity between the BSS and the Euratom Directive, there remain some regrettable differences as well.

Safety Standards for the Transport of Radioactive Material

By its very nature, the international transport of radioactive material requires a common set of standards. The first IAEA Regulations for the Safe Transport of Radioactive Material (commonly known as the Transport Regulations) were established in 1961. The transport regulations underwent comprehensive revisions in 1967, 1973, 1985 and 1996 to keep abreast of the scientific and technological developments pertaining to transport. To ensure that the IAEA transport regulations are well accepted and understood, supporting safety guides describe how to apply the regulations.

A large number of IAEA Member States and the relevant international organizations, like the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO) and the United Nations Economic Commission for Europe (UN/ECE), have adopted the IAEA transport regulations. These regulations, which have been implemented more widely than any other set of IAEA standards, form the basis for regulating the safe transport of virtually all radioactive material transported around the world, domestically as well as internationally. Through the international modal organizations, the IAEA transport regulations are incorporated in international agreements and have become binding on States. This also applies to the countries of the EU.

Nuclear Safety Standards

In 1974 an ambitious programme was started with the objective of establishing internationally agreed safety standards for land based stationary thermal neutron power plants. The NUSS programme was the first attempt by the international community to develop facility specific

standards. They cover five areas, namely, governmental organization, siting, design, operation and quality assurance.

After the completion in 1985 of the first set of documents (five Safety Codes and 55 Safety Guides), the accident in Chernobyl triggered the revision of the five Codes, which had then been in effect for about ten years (the category of Codes are now called Safety Requirements). After the International Nuclear Safety Advisory Group (INSAG) issued a publication on basic safety principles for nuclear power plants, the Agency developed a document to lay down the general principles for all safety standards that apply to nuclear installations. This Safety Fundamentals document, called *The Safety of Nuclear Installations,* would eventually become the basis for drafting the current international Convention on Nuclear Safety.

In parallel to the standards for nuclear power plants, a separate series of safety standards was developed for design and operation of research reactors.

Radioactive Waste Safety Standards

The involvement of the IAEA in the management of radioactive waste started soon after the Agency's creation in 1957. At that time, the disposal of radioactive wastes in the sea was an option that was favoured by countries developing nuclear power, and in the 1960s the IAEA published the waste safety standards for the disposal of radioactive waste in the sea and in the ground. By the late 1970s it had become clear that underground disposal was the internationally accepted approach for most types of solid radioactive waste and the IAEA outlined a programme for the production of a set of guideline documents on the subject. In 1995, the Safety Fundamentals document entitled *The Principles of Radioactive Waste Management* was issued. This document establishes the basic principles and concepts for safe radioactive waste management. These principles are being elaborated in standards and guides of the programme.

NEW PROCESS OF PREPARATION AND REVIEW

In 1996 the Agency launched a new approach and common process for the development and review of safety standards, with the objective of enhancing the consistency and coherency between the standards of the different areas.

Accordingly, the preparation and review of safety standards involves four safety standards committees for safety in the areas of nuclear safety (NUSSC), radiation safety (RASSC), the safety of radioactive waste (WASSC) and the safe transport of radioactive material (TRANSSC), and a Commission on Safety Standards (CSS), which oversees the entire safety standards programme. Their membership includes senior government officials having responsibility for establishing national standards, nominated by Member States.

During the early development stage in the 1960s, while the radiation and transport standards had been considered to lead the safety technology in these areas, some of the safety standards for nuclear power plants were considered to be of the 'lowest common denominator'. However, the new and rigorous approach adopted at the IAEA in the mid 1990sfocused on the importance of developing a comprehensive set of high quality safety standards for all areas. For this purpose governmental, scientific and industrial organizations from IAEA Member States have committed substantial human resources in drafting, reviewing and revising the

new set of safety standards. The EU countries were among the major contributors in the process, which made it clear that the input was meant to produce standards that would be useful in the national context of these participating countries. Today the set of standards covering all safety areas is practically complete and updated. The present status of development of the safety standards and other relevant information of interest are available on the IAEA web site (see box).

SAFETY THROUGH INTERNATIONAL STANDARDS

Regulatory bodies and governmental agencies use the IAEA safety standards in developing and adopting national regulations. Likewise, organizations that design, manufacture and operate nuclear and radiation related technologies, and users of radioactive materials in industry, medicine, agriculture, research and education use these standards. While safety remains a national responsibility, international standards and global approaches to safety promote consistency, facilitate international technical co-operation, trade and research and development, and help to provide assurance that nuclear and radiation related technologies are used safely.

The IAEA standards provide support for States in meeting their international obligations. It is a general international obligation that a State must not pursue activities that cause damage in another State. Specific obligations on contracting States are set out in international safety related conventions. International conventions contain requirements similar to those in the safety standards, and make them binding on contracting States. The Safety Fundamentals were used as the basis for the development of the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. The internationally agreed IAEA safety standards provide an excellent reference for States to demonstrate that they are meeting the obligations under the Conventions. The increased use of the IAEA safety standards by the contracting parties under the safety related conventions endorses the status of the standards as a global benchmark. The Safety Requirements on Preparedness and Response for a Nuclear or Radiological Emergency reflect the obligations on States under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.

THE IAEA STANDARDS SERIES

The publications by means of which the IAEA establishes standards are issued in the **IAEA Safety Standards Series**. The categories of publications are **Safety Fundamentals, Safety Requirements** and **Safety Guides**.

Safety Fundamentals present the objectives, concepts and principles of protection and safety and provide the basis for the safety requirements.

Safety Requirements establish the requirements that must be met to ensure the protection of people and the environment, both now and in the future. The requirements, which are expressed as 'shall' statements, are governed by the objectives, concepts and principles of the Safety Fundamentals. If the requirements are not met, measures must be taken to reach or restore the required safety level. The Safety Requirements publications use regulatory language to enable them to be incorporated into national laws and regulations.

Safety Guides provide recommendations and guidance on how to comply with the requirements. Recommendations in the Safety Guides are expressed as 'should' statements, meaning that it is necessary to take the measures recommended or equivalent alternative measures. The Safety Guides present international good practices: increasingly they reflect best practices to help users striving to achieve high levels of safety.

To ensure a broad international consensus, draft safety standards are submitted to all Member States for comment. For Safety Fundamentals and Safety Requirements, the draft endorsed by the Commission on Safety Standards is submitted to the IAEA Board of Governors for approval for publication. Safety Guides are published subject to the approval of the Director General. The safety standards are kept up to date: five years after publication they are reviewed to determine whether revision is necessary.

IAEA SAFETY STANDARDS IN THE EU CONTEXT.

The Agency maintains that its safety standards provide a solid basis for national legislation and regulations for protecting people and the environment. They are already written in a regulatory style so as to facilitate that process. The Agency welcomes all initiatives by Member States that aim at the promulgation of legislation and rulemaking on such a basis and at making the IAEA safety standards binding in an explicit or implicit manner, possibly with amendments to make them fit within the national legal structure. Provided that European Commission has the legal authority to take steps in this direction, the Agency would also welcome the adoption by the EU of the IAEA safety standards as the basis for the EU Council Directives on the safety of nuclear installations and on the management of spent fuel and radioactive waste. In the area of the transport of radioactive material, this is already de facto the case and for radiation protection the relevant directives are by and large similar to the BSS. The adoption of the other IAEA safety standards by the European Union would underscore the quality of the Agency's safety standards, which have been developed with the significant input of and approval by the European countries. In this regard, the development of separate European safety standards would be a duplication of efforts for the States already involved in the development of the IAEA safety standards, would lead to confusion in the nuclear industry and among the public and would constitute a waste of resources.

In the rapidly globalizing world today, a single set of universally applicable, global safety standards is the only viable option for industrial activities and public confidence. The Agency considers that the promulgation of 'higher level' European standards over and against IAEA safety standards would be a mistake that would undermine the global safety regime, of which the IAEA safety standards are the main cornerstone. There cannot be first and second rate safety standards. If European ideas emerge on where the safety level can be further improved, such information should drive the review and revision process of the IAEA safety standards.

In the process of keeping the safety standards current, the Agency will continuously strive to achieve higher levels of safety, which will reinforce the global nuclear safety regime.

In conclusion, European standards are justified in as far as they adopt the IAEA safety standards and make them binding in the European region.

BOX

The IAEA website http://www-ns.iaea.org/standards/ provides an overview of the English language texts of published and draft safety standards, a status list for safety standards both current and under development, and the IAEA Safety Glossary. The full texts of some published safety standards in other languages (namely Arabic, Chinese, French, Russian and Spanish) can also be found at this site. The IAEA web site also provides the names of the members of the Commission and Committees, who may be contacted as national sources of information on the IAEA safety standards.
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