

The EURATOM regional safeguards system

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1. Introduction

This presentation is about the EURATOM regional safeguards system. However, for a fuller understanding of the subject it is also necessary to sketch out the broader structures in which EURATOM safeguards sit. The legal basis for EURATOM safeguards is to be found in the EURATOM Treaty of 1957, between six European states. It set out a framework for pooling efforts to develop nuclear energy. It had been successfully preceded by the 1951 Paris Treaty between the same six countries which provided for a common organisation of the strategic industries of coal and steel production. The well known European Economic Community Treaty was signed at the same time as the EURATOM Treaty. Over the intervening fifty years, these three Communities have evolved into today's European Union, which currently has 27 members.

The EURATOM Safeguards system became operational in 1960. The entry into force of the NPT in 1970 brought a new dimension to the EURATOM safeguards system, by introducing cooperation with the IAEA. Nowadays, EURATOM Safeguards is regarded as an integral part of the international regime of nuclear non-proliferation.

Clearly, aspects of the establishment of EURATOM and its safeguards system, as well as aspects of the implementation of safeguards in the European Union can be instructive when reflecting upon a Nuclear-Weapon-Free Zone (NFWZ) in the Middle East.

2. Historical and Legal Background

2.1 The EURATOM Treaty and the EU Institutions

As mentioned in the introduction, in the 1950's six European states established three Communities endowed with supranational powers to jointly develop their coal, and steel industries, to establish a Common Market, and to develop peaceful uses of nuclear energy. All three Communities were set up through international treaties, under which the parties transferred some sovereign powers to autonomous common institutions – hence the qualification of the Communities as *supranational* systems.

The fact that two of the three Communities addressed energy issues is a reflection of the then prevailing concerns about security of energy supplies, and is not without parallels to the situation today. Nowadays, the civil nuclear industry is a mature industry, well established in many countries around the world. In the 1950s this was not the case, and developing civil nuclear energy represented a challenge for any medium or small state on its own. International cooperation was thought to provide a model for developing this new industry.

The substantial provisions of the EURATOM Treaty cover ten areas including radioprotection, research, supply of nuclear materials, international relations – and nuclear

¹ The views expressed in this paper represent those of the author and do not reflect formal positions taken by the European Commission.

safeguards. These technical provisions are accompanied by provisions establishing institutions possessing the capacity to adopt decisions and legislation; to ensure the regularity of financial transactions; and, perhaps most importantly, to ensure the respect of the adopted decisions and legislation both by the member states and by the institutions themselves. These institutions are known as the European Commission, the Council of the EU, the European Parliament, the Court of Auditors, and the Court of Justice of the European Union.

Despite the adoption of the treaties on the European Union, the EURATOM Treaty remains in force and constitutes a separate legal entity from the European Union. Even so its institutions are shared with the European Union. The EURATOM Treaty together with its derived legislation remains the principal legal vehicle regulating civil nuclear questions in the EU and is binding primary law in all 27 Member States of the EU.

EURATOM possesses the legal capacity to become a party to international agreements: and this is the basis for the safeguards agreements with the IAEA, a topic to which I shall return shortly.

2.2 First example of a regional approach to safeguards in the world

The EURATOM Treaty assigns the responsibility for implementation of EURATOM Safeguards to the European Commission. Under the EURATOM Treaty, the Commission has the task of satisfying 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;
- (b) the provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third State or an international organization are complied with.

In order to achieve these objectives, all users of nuclear materials were obliged to report directly to the Commission. The Member States' authorities were requested to support and facilitate the Commission's tasks. The Commission was given the right to receive and analyze the operators' declarations on nuclear materials and facilities, and to perform on site inspections in order to verify the correctness of these reports. The Commission was furthermore given the right of imposing sanctions to operators that would infringe the provisions of the Treaty.

EURATOM adopted its first legislation in 1958, including a Regulation on the declaration of basic technical characteristics of nuclear installations and a Regulation on nuclear material accounting. The first safeguards accountancy declarations were received in mid-1959 and the first inspections were carried out in spring 1960.

The legal framework on safeguards in the EU has evolved over the years and is now laid down in Commission Regulation 302/2005 of 8 February 2005. This Regulation gives the Commission also the right to adopt, by means of a Commission Decision, Particular Safeguard Provisions which are directly binding to a person or undertaking holding nuclear material or operating a nuclear installation. Such particular safeguard provisions are a means to directly impose to operators of nuclear facilities specific accountancy rules, requirements on physical inventory taking, or the permission to use containment and surveillance measures in their installation. The Regulation also gives the Commission the right to transmit to the IAEA information and data obtained under the Regulation.

2.3 Multipartite Agreements with the IAEA (INFCIRC/193, /263, /290) and Agreements with third States

The NPT's Article III.4 requires NNWS parties to conclude safeguards agreements with the IAEA "either individually or together with other States". The safeguards agreement between the IAEA, EURATOM and EURATOM's non-nuclear weapon Member States (INFCIRC/193) represents the first multilateral NPT safeguards agreement. It includes a Protocol that amplifies the cooperation arrangements which are necessary because of the existence of the EURATOM safeguards system.

All new states joining the EU are obliged to be parties to the NPT, and are obliged to accede to the INFCIRC/193 Agreement together with its Additional protocol. EURATOM is also a party to the safeguards agreements between the IAEA and the UK and the IAEA and France: (INFCIRC/263 and INFCIRC/290 respectively). All three agreements are complemented by their respective Additional Protocols which came into force in 2004.

The existence of safeguards supervision by the European Commission was an important element in the EURATOM cooperation agreements with third States. Especially in the early days of the Treaty it paved the way for the facilities in the EURATOM Member States to receive nuclear materials and equipment. EURATOM's first nuclear cooperation agreement was concluded with the USA and entered into force in 1958. It was followed by nuclear cooperation agreements with a number of other countries. Many of these cooperation agreements include reporting requirements on the use of the supplied nuclear materials or equipment, and are going beyond the scope of IAEA safeguards.

3. Strengths of the EURATOM Safeguards System as a Regional Safeguards System under the NPT

3.1 The EU fuel cycle

All components of the nuclear fuel cycle are present on the EU territory starting from mining and conversion, through enrichment and fuel fabrication to the use of nuclear fuel in power reactors. At the backend of the fuel cycle, the two largest plants for reprocessing of spent fuel in the world operate in the EU. In the near future, facilities for the final disposal of spent fuel will be in operation.

The obligation for the European Commission to safeguard this large variety of facilities requires the use of a wide range of adequate instruments and technologies. With the aim of contributing to an effective and efficient system of international safeguards EURATOM therefore also strongly supports technical development for safeguards and is an important IAEA safeguards support programme partner.

3.2 NNWS and NWS

The EURATOM safeguards system is the unique example of a comprehensive system for supervision and control of all civil nuclear material which is implemented in nuclear and non-nuclear weapon states.

A specific provision in the EURATOM Treaty does foresee the right of the EU's NWS, France and UK, to possess and manage a non-safeguarded fuel cycle for national defence purposes.

It is to be noted that implementation of the EURATOM safeguards system is done in a non-discriminatory way among all the 27 EU-Member States. Across the whole EU, nuclear materials and the basic technical characteristics of the nuclear facilities are subject to the same in-depth verification schemes in NWS and NNWS. In line with the number and complexity of the nuclear installations in the two NWS of the EU, about 60 % of the total EURATOM inspection effort was spent in the NWS in 2010.

3.3 EURATOM safeguards inspectorate

The EURATOM safeguards inspectorate is a service of the European Commission and has its base in Luxembourg. During 2010, EURATOM's 150 safeguards inspectors carried out more than 1400 inspections (with about 4000 person-days of inspection). The inspectors are supported by a technical support unit and a nuclear materials accountancy unit.

The EURATOM Treaty gives the Commission the right to send inspectors into the territories of the Member states who shall at all times have access to all places and data and to all persons who deal with materials, equipment or installations subject to safeguards. This right of access can be enforced by the Court of Justice of the EU if necessary. Inspectors are directly employed by the Commission and are therefore independent from their country of origin.

4. Joint Implementation of Safeguards in the EU by IAEA and European Commission

4.1 The Liaison Committees

Inspections in the NNWS and in certain installations in France and the UK are carried out jointly by EURATOM and IAEA inspectors. More generally, EURATOM and IAEA safeguards activities complement each other, which requires close cooperation. . It should be noted that the common implementation of safeguards between Commission and IAEA usually entails agreement on very detailed technical issues. A recent example is the definition of a common system for remote transmission of data from EU nuclear installations to the premises of the EURATOM Safeguards Directorate in Luxembourg and the IAEA headquarters in Vienna.

The main vehicle for institutionalising this cooperation is the Liaison Committee provided for in INFCIRC/193. The Committee meets annually at high level (High Level Liaison Committee - HLLC) and more frequently at a lower level (Lower Level Liaison Committee - LLLC). The work of the Liaison Committee is supported by technical working groups.

4.2 Implementation from signing the agreements through to the advent of Integrated Safeguards in the NNWS of the EU

INFCIRC/193 mandates a cooperative working arrangement between the IAEA and EURATOM to facilitate the implementation of safeguards and to avoid unnecessary duplication of safeguards activities.

Until 1992, the established co-operation was primarily based on "Observation"- and "Joint Team"-arrangements². These arrangements, however, led to co-operative safeguards approaches which, though effective, did not give effect to the important requirements that safeguards are to be implemented with due regard to efficiency and with the least burden to industry.

Examining ways and means by which co-operation and co-ordination between EURATOM and the IAEA in the implementation of INFCIRC/193 could be enhanced led to an agreement on the initiation of a "New Partnership Approach" (NPA), signed between the IAEA and EURATOM in April 1992. As stated in that document, the objective of the NPA is to "strengthen safeguards collaboration in a way that takes into account not only the effectiveness of safeguards but also safeguards efficiency and, in so doing, gives full effect to the purposes of the Agreement".

The NPA is based on a number of elements, like

- optimizing the necessary practical arrangements and using commonly agreed safeguards approaches, inspection planning and procedures, inspection activities, and inspection instruments, methods and techniques;
- avoiding unnecessary duplication of effort by performing inspection activities based on the principle "one-job-one-person," supplemented by quality control measures;
- sharing analytical capabilities;
- co-operating in research and development and in the training of inspectors; and
- increasing the common use of technologies to replace, to the extent possible, the physical presence of inspectors by appropriate equipment.

The NPA then led to significant reductions in IAEA and EURATOM inspection effort while allowing both organizations to satisfy their respective obligations to reach independent conclusions and required assurances. The NPA arrangements also mark the step from where EURATOM can be seen as a regional system not only enabling IAEA activities but also as a system actively supporting the performance of common inspection activities ("one-job-one-person" principle) and being ready to further cooperate with the IAEA.

With the entry into force of the Additional Protocol (AP) to INFCIRC/193 and the subsequent submission of the initial declarations under the AP the first step for drawing broader conclusions on the absence of undeclared activities and material in the NNWS of the EU was done in 2004. The IAEA concept of Integrated Safeguards was then introduced state-by-state and has been in place for all NNWS of the EU with nuclear activities since the beginning of 2010. While it had been agreed that the principles of NPA continue to apply it was evident that a number of implementation arrangements had to be adapted. This process started in 2008 and is now generally completed. The IAEA inspection effort has been further reduced as a result of implementing Integrated Safeguards while maintaining the general approach of common EURATOM-IAEA inspections.

² The "Observation"-arrangement was based on the concept that the IAEA would, whenever it could achieve its objectives by so doing, observe the inspection activities of EURATOM. Under this arrangement, the IAEA used an equal number of inspectors to those used by EURATOM, to effectively observe and follow the activities being performed by EURATOM inspectors. It was used in facilities handling low enriched uranium (LEU), natural and depleted uranium (both fresh and irradiated material). The Joint Team was devised to rationalize the use of resources at facilities which required a higher inspection effort than those under the "Observation"-arrangement. The intention was that both organizations would perform inspections jointly in order to reduce the intrusiveness to the operator and to avoid unnecessary duplication of work, but would draw independent conclusions. This arrangement was applied to enrichment facilities and facilities handling unirradiated direct-use material (plutonium and high enriched uranium (HEU)).

5. Potentially relevant aspects of the EURATOM Safeguards System for a NWFZ in the Middle East

As described in the previous sections, the EURATOM Treaty led to the creation of a regional system which has developed over many decades and is a reliable partner for the IAEA in international non-proliferation.

Although primarily being a regional nuclear material verification system some aspect of this system may be of interest when thinking about a NWFZ in the Middle East. Without attempting to make a judgement as to their importance or applicability, the following aspects of the EURATOM safeguards system merit consideration in this respect:

- EURATOM safeguards are part of a wider set of arrangements for the peaceful use of nuclear energy. It also has to be seen in the context of creating economic development in a geographic region. Such an approach could also be envisaged in other regions.
- EURATOM is of a supranational nature and, in the area of safeguards, has especially wide powers. This aspect is to be considered when deciding on the degree to which use can be made of the activities and findings of a regional system for international safeguards purposes. With the Court of Justice an independent body exists which has full jurisdiction in the matters of the Treaty and therefore can ensure that the Treaty provisions are effectively implemented by all parties.
- EURATOM is part of a cooperative approach to international safeguards (common inspections with the IAEA, development of a partnership with the IAEA, IAEA making use of the EURATOM safeguards system as a whole).
- A common system of safeguards for all states in a region is a clear advantage for the effective and efficient implementation of safeguards in that region because of its independence of the technical capabilities of individual states. An independent inspectorate with experienced staff is an additional asset.
- Regional systems can contribute to cost-effectiveness in international safeguards by sharing resources between the IAEA and the regional system.
- EURATOM, as a supranational system, is fully accountable to the Council of the EU (representing all Member States of the EU) and to the European Parliament. Such a system is important for public acceptance of nuclear in general especially if there are Member States with and without nuclear activities or programs in the region.
- EURATOM, by virtue of the EU Treaty system, is a developing system. It has spread out from originally 6 member states to 27 member states and shows how a regional system can grow.
- EURATOM has entered into direct Agreements with third States (on cooperation in the peaceful use of nuclear energy) that contain guarantees as to the peaceful use of nuclear materials going beyond those foreseen under IAEA safeguards. Third states could potentially give higher value to multilateral assurances, i.e. a regional system, if compared to bilateral assurances between two states (related to the supply of nuclear material or equipment).
- The existence of a strong regional verification system, EURATOM safeguards, has contributed to the development of a successful nuclear industry in Europe over the past decades.

6. Conclusions

EURATOM and its safeguards system were created under specific historical circumstances. Its safeguards system has evolved over time and has become a partner of the IAEA in international safeguards and non-proliferation. There are a number of aspects in the development of the EURATOM safeguards system and its current implementation that might be of interest when considering ways to arrive at creating a NWFZ in the Middle East.