

Additional Protocol: logic and impact

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In 1993, the IAEA adopted an extensive program to strengthen the safeguards, which became known as the Program 93 + 2. The chief measures of this program related basically to a greater volume of information, to the application of new technologies and to an ampler physical access. There was an intense discussion at the international level, based on the Safeguards Agreements in force, on whether the IAEA had the legal authority to apply new safeguards measures. As a result, the Program 93 + 2 was divided in two parts.

The first part of the Program 93 + 2 included the measures that could be implemented immediately, considering the legal authority (Safeguards Agreements) already existent. Among these, the most relevant measures are:

- The acquisition of additional information regarding the facilities that contain or have contained nuclear materials;
- the application of environmental sampling at strategical points of the nuclear facilities;
- the intensification of the performance of non-announced inspections;
- the utilization of more advanced techniques, such as the remote monitoring; and
- a wider cooperation between the IAEA and the national and regional systems of accounting and control of nuclear materials.

The first two of these measures were implemented gradually by the IAEA, inclusively in Brazil and Argentine, whereas the others were studied but were not – until the present time – applied systematically.

The second part of the Program 93 + 2 comprehended the measures that required complementary legal authority such as, for instance, the access of the inspectors to any part of the country. The discussion of this part of the program developed into a negotiation within the Committee of the Board of Governors of the IAEA – called Committee 24 – with the participation of Argentine and Brazil, and culminated with the adoption, in 1997, of the Model of the Additional Protocol to the Safeguards Agreements, which is known simply as the Additional Protocol.

The Additional Protocol altered radically the international philosophy of safeguards. Up to then, the purpose of the safeguards (which from this point on shall be called traditional) was to detect the diversion of nuclear materials declared by the government in the nuclear facilities. All the activities were based on the verification of the exactness of the information given by the operator of the facility and, as a last resort, supplied by the Government through its national authority. But, with the adoption of the Additional Protocol, the international safeguards aim also to assure the absence of non-declared nuclear materials or activities. The conclusion of the safeguards is no longer reached individually, for each facility, but taking into account the country as a whole.

The new situation required, therefore, a fundamental step which is the definition of the appropriate conditions to lead to the conclusion of the absence of non-declared nuclear materials and facilities. It must be considered that this task is extremely difficult. How should one proceed in order to certify that a

country does not carry out non-declared activities? The question is not about establishing an event any more, but, on the contrary, to attest the absence of any evidence of the event in question.

The Measures of the Additional Protocol

The measures included in the Additional Protocol were adopted in order to assure that the declaration of nuclear materials and facilities supplied by the country is correct and complete. In other words, these measures shall support the conclusion, by the IAEA, on the absence of non-declared nuclear materials and facilities in a given country. They provide a base for a whole range of activities by the IAEA, regarding the nuclear materials, the nuclear fuel cycle, the research and development of the fuel cycle and other relevant issues.

The logic of the Protocol is that, if a state decides on carrying out a clandestine nuclear activity, it probably will try to develop it in a declared nuclear facility, or in its surroundings, due to the infra-structure that is already available. Therefore, the measures of verification of the Additional Protocol concentrate especially on these geographic regions. If the country decides to perform the clandestine activity far away from a nuclear site, important construction works shall be required, along with a great movement of personnel and equipments, which besides raising the costs of the enterprise will also make it more difficult to conceal. In this case, the IAEA counts with an important instrument to discover the non-declared activity, which is the information analysis. The IAEA has the right to use the information supplied by third parties – including by intelligence services – as well as satellite pictures. The Additional Protocol stipulates that in case of a well-founded accusation the IAEA shall have access to the suspect site.

By means of the Article 2 of the Additional Protocol, the states engage to provide an extensive declaration concerning the materials and activities related to the nuclear field. The main aspects of this declaration are:

- The site of the nuclear facility, which comprises the area contiguous to the nuclear facility and includes all the existing buildings, shall be described with certain detail.
- The definition of the site is primarily a prerogative of the countries. Nonetheless, the IAEA shall evaluate the information supplied and, in case of doubt, explanations about the site may be requested.
- Activities of research and development related with the nuclear fuel cycle shall be reported, even when not involving any nuclear material;
- Information shall be given on the manufacture of equipments used for isotopic separation – including centrifuges – or for reprocessing;
- The localization and productive capacity of uranium mines, as well as of uranium and thorium concentration plants shall be declared;
- The localization and amounts of nuclear materials employed in non-nuclear use, of nuclear materials at a point preceding the application of safeguards, as well as of those exempted of safeguards shall be informed.

It is interesting to observe that this item includes, for example, several equipments of radiotherapy whose shielding is made of depleted uranium utilized in hospitals.

- A description shall be provided, containing the plans for the development of the nuclear fuel cycle embracing a period of ten years; and
- Finally, the countries shall report the production, export and import of specified equipments and non-nuclear materials (as, for instance, graphite, heavy water, etc.) essential for the operation of nuclear facilities.
- All these information shall be updated periodically.
- The chief elements available to the IAEA in order to assure a reasonable level of certainty regarding the absence of non-declared nuclear materials and activities are:
- The analysis of the information available about the country, provided by the declarations of the government of the country itself, by open sources and by third parties;
- The complementary access to other locations of the facility, in addition to those to which the inspectors have access for the application of the traditional safeguards;
- The complementary access to other locations of the site; and
- The complementary access to other locations of the country, whenever necessary in order to clarify some question or some inconsistency.

During the complementary accesses to the sites, the IAEA inspectors shall be able to observe the sites, collect environmental samples, employ radiation measuring devices, apply seals and take any other measures agreed upon by means of the Subsidiary Arrangements. Besides these activities, in sites containing uranium mines, nuclear materials at a point preceding the application of safeguards, as well as of exempted nuclear materials, the inspectors shall be able to examine the records of the quantity and origin of the material. It is important to point out that the IAEA shall not verify the information related to the Article 2 in a mechanical or systematic manner. The intention at this point, due to the qualitative character of the information, is not to verify each element of the declaration of the Article 2, but to assure the absence of non-declared nuclear materials and activities in the sites and other locations that deal with nuclear materials as well as to clarify questions and inconsistencies in any location.

The conclusion on the absence of non-declared nuclear materials and activities in a given country is drawn from the determination that:

- The declared nuclear program is consistent with the planned one;
- the nuclear activities and the type of nuclear materials at the declared locations are consistent with what was declared;
- the inventories and the flow of nuclear materials, as well as the production, imports and exports correspond to the utilization as planned in the declared nuclear program;
- the manufacture and import of specified equipments and non-nuclear materials are compatible with the declared nuclear program;
- the situation of closed or decommissioned facilities and of other locations complies with the declaration made by the country;
- the activities of research and development related to the nuclear fuel cycle are consistent with the declared plans regarding the future developments of the nuclear program; and

- the explanations provided by the Government clarify any question or inconsistency regarding the supplied information or the information available to the IAEA, including the information related to activities carried out in the past.

The impact of the Application of the Additional Protocol

The new measures of the Additional Protocol require that the governments shall assure the access of international inspectors to any location of a site and to any location of their countries in order to clarify any question that may arise from a well-founded denunciation. Furthermore, the governments must be the ultimate responsible for information that are not always their responsibilities. An example of this are information about scientific researches that are not directly involved with the nuclear program. Another instance is the information about a given process in a private industry or the permission of access of international inspectors to a private industry which does not handle nuclear material and yet possesses the know-how of a certain technology. At the present time, there is no legal disposition that obliges the owner to allow the access of international inspectors in order to carry out activities of verification in his industry. Consequently, the implementation of the Additional Protocol in Argentina and Brazil should be preceded by a modification in the current legislation, such as already happened in almost all the countries in which the Protocol is in force.

On the other hand, after the alteration of the legislation and once invested of legal authority to act within the Additional Protocol, the nuclear authorities of both countries shall have to collect, analyze and centralize the information about the materials, equipments and processes of the different sectors, both statal and private. Collecting and managing this information is not trivial, especially in countries which possess the extention of Argentine and Brazil. This shall require the perfectioning of the already existing safeguards services, as well as the capacitation of new personnel and the improvement of the available infra-structure.

Moreover, a great effort shall be exerted in order to inform and prepare the staff that will be involved with the activities in the frame of the Additional Protocol. Regarding the nuclear facilities, this probably will not constitute a great problem since, in a certain way, there is already a knowledge of the activities of control. However, this task will be extremely complex and shall demand time and resources with respect to the other locations subject to verification, inside and outside the site. The experience of the countries in which the Additional Protocol is already in force proves that, in many cases, it is important to have a person legally responsible to deal with the application of the Protocol in each one of these locations and even, in a certain number of cases, that it is necessary to appoint a representative of the national authority to this purpose.

Another great effort shall be done in order to define the sites. This activity shall probably involve specialists of various spheres and institutions under the coordination of the national authority. This definition shall take into consideration the criteria prescribed in the Additional Protocol as well as the best practice for the optimization of the management of the information.

Still another important aspect is the identification of the locations that shall be subjected to managed access . This is due to the fact that the Additional Protocol admits managed access , that is, access done under certain conditions, in locations in which the countries consider necessary to protect any sensitive

information. The conditions in which the access shall be performed – the procedures of access – shall be prepared and agreed upon one by one.

It is important to observe that the Additional Protocol causes impact even before coming in force, and that each country must prepare itself adequately in order to avoid technical and political issues and problems later on, when the Protocol shall be implemented.

Finally, it is also relevant to remind that the conclusion on the absence of non-declared nuclear materials and activities can only be inferred from the lack of any evidence in contrary. The absence of evidence, however, does not prove and shall never prove with absolute certainty that there is no non-declared materials or activities. Thus, the result of the application of the Additional Protocol is based on an essentially qualitative evaluation, that is, not quantifiable, and is therefore liable of a subjective judgement. Consequently, in the point of view of many analysts, the Additional Protocol is a necessary condition, but it is not sufficient to be able to consider a country as transparent in the field of its nuclear activities nor as fulfiller of its duties regarding the TNP.