

ABACC's VIEWS ON SAFEGUARDS INTEGRATION

Elias Palacios, Marco Marzo

Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC)

ABSTRACT

The implementation of the measures to strengthen safeguards will change the relationship between the International Safeguards System and Regional or State Systems of Accountancy and Control. In the case of Argentina, Brazil and the ABACC, whose intention is to sign the Additional Protocol in the near future, one can expect that the new requirements and attributions would represent a major impact in the implementation of both the Bilateral and Quadripartite Agreements. A summary of the main changes expected with the implementation of integrated safeguards is presented.

BACKGROUND

Argentina and Brazil decided to establish a Common System of Accounting and Control of Nuclear Materials (SCCC) in 1990. This means that the norms of nuclear material control should be similar in the two countries and nuclear facilities should submit to the same safeguards' requirements. The SCCC was formalized through the Bilateral Agreement (INFCIRC/395), which was signed in July 1991 and ratified by the Congresses of the two countries six months later. To apply the SCCC, the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (the ABACC) was created. The boundary conditions for the application of the SCCC by the Secretariat of ABACC are designed in the Bilateral Agreement

and in one specific document named *General Procedures of the SCCC*, which is approved by representatives from each country, who act as Members of the Commission of ABACC. The safeguards measures foreseen in the SCCC refer to declared nuclear material after a defined starting point, although the existence of undeclared nuclear material and facilities is not excluded (i.e. facility misuse is considered). In the SCCC there is no provision to apply safeguards either to non-nuclear materials or to research and development activity that does not involve the processing or storage of nuclear materials.

In March 1994, the Quadripartite Agreement between Argentina, Brazil, the ABACC and the IAEA entered into force. Through this agreement the countries submit all nuclear materials in all nuclear activities to the IAEA safeguards. Under this agreement the IAEA, in carrying out its verification activities, shall make full use of the SCCC. Furthermore, the IAEA shall draw independent conclusion, but must avoid unnecessary duplication of ABACC's accounting and control activities. For this purpose, several provisions were introduced into the Quadripartite Agreement, its Protocol, and General Part of the Subsidiary Arrangements. These provisions produced several levels of coordination between the ABACC and the IAEA and between the two organizations and the two countries. Coordination arrangements were progressively implemented during the last

six years. Although the results from coordination of activities are in general satisfactory, taking into account the short time involved, a full implementation of the provisions of the Quadripartite Agreement is yet to be reached. It is important to observe that the provision for the full use of States Systems (SSAC) - in our case a Two States System - is not new and already existed in the INFCIRC/153. This provision has never been implemented by the IAEA. Independent from the entry into force of the Additional Protocol, this question should be discussed more intensively and will be treated in this paper.

In the safeguards system that succeeds from the Quadripartite Agreement, four levels exist together: the facility level, the State authority, the regional safeguards organization (the ABACC), and the international safeguards organization (the IAEA). Practically all IAEA safeguards activities in the two countries are coordinated with the ABACC or through the ABACC.

The measures for the strengthening of safeguards, which culminated with the approval of the Model Additional Protocol, introduced new safeguards objectives and new control tools. In our case, Argentina, Brazil and the ABACC have already expressed the intention to sign the Additional Protocol. As the roll of the ABACC and of the National Authorities in the implementation of the Additional Protocol has not yet been formally decided, this paper describes a probable situation based on boundary conditions already established. The application of the new control tools to assure the absence of undeclared nuclear materials and activities – collection and evaluation of information, complementary access, use of new technologies, application of integrated safeguards –

strongly changes the application of measures foreseen in the safeguards agreements and consequently the attributions of SSACs and RSACs. This is the second question that will be discussed in this paper.

THE USE OF SSAC/RSAC FOR INTERNATIONAL SAFEGUARDS

The use of States Systems for international safeguards is not new. In INFCIRC/153 type comprehensive agreements states (Art. 7) that the State shall establish and maintain a system of accounting and control of all nuclear materials, and the applied safeguards shall allow the IAEA to verify the findings of the SSAC. For this purpose, the IAEA shall perform independent measurements, and its verification shall take due account of the technical effectiveness of the State's system. Furthermore, the document foresees (Art. 31) that the IAEA, in its verification activities, shall make full use of the SSAC and shall avoid the unnecessary duplication of the SSAC activities. These provisions should be reflected in the technical criteria adopted by the IAEA: INFCIRC/153 states that the criteria to determine the actual number, intensity, duration, timing and mode of routine inspections of any facility shall include the effectiveness of the SSAC. In short, the clear purpose of all these provisions is to determine to the SSAC or RSAC the control of the facilities and to the IAEA the control of the SSAC or RSAC. This does not mean that the IAEA can not draw independent conclusions, but rather that, in order to draw independent conclusions, the IAEA does not need to repeat all the actions of the States or Regional System.

Observing the development of the international safeguards activities that lead

to the establishment of the IAEA Safeguards Criteria, one finds out that the provisions of INFCIRC/153 regarding the use of the SSAC or RSAC were never truly implemented. The following point should be noted:

- In the current IAEA Safeguards Criteria neither the use nor even the existence of SSAC or RSAC is considered. Not even the Criteria to plan and evaluate the whole State (Section 13) do consider the existence of States or Regional Systems.
- The Criteria were developed and are intended for a uniform application worldwide, while some differentiation should appear among States as results of differences in the quality and credibility of SSAC or RSAC.

On the other hand it seems that requirements that a State's or Regional System has to accomplish in order to be considered effective were never established. As a consequence, methodologies or structures to evaluate the effectiveness of SSAC/RSAC are unknown. Another consequence is that the State or Region does not have a reference to implement an effective safeguards system. Specifically with regard to ABACC, the current situation reflects this development. There is an increasing cooperation between the ABACC and the IAEA, which lead to the approval of Guidelines for the Coordination of Inspection Activities. These Guidelines were the basis for the preparation of several procedures for the common use of safeguards' equipment. These procedures lead to the model of two inspectors (one from each organization) and one job. However, up to now, no concrete action was undertaken by the IAEA to really use the conclusions of ABACC activities in its methodology.

Therefore, it is fundamental to consider the following points in order to allow the use by the IAEA of the conclusion of SSAC/RSAC activities:

- The requirements for SSAC/RSAC have to be defined.
- The evaluation of the SSAC/RSAC effectiveness must be first based on objective elements. In the list of objective elements to be considered are: the legal basis of the SSAC/RSAC; its structure and independence; the number and quality of the personnel involved, the quality of verification activities; the quality of the available information from the State's or Regional System; and the correlation between personnel and budget with the nuclear activities controlled. Other less objective elements can be used in conjunction with the application of the Additional Protocol that will allow the IAEA to confirm the continuous credibility of the SSAC/RSAC.
- The application of an appropriate quality assurance program should allow the IAEA to confirm the continuous effectiveness of the SSAC/RSAC.

INTEGRATED SAFEGUARDS

The international safeguards system, which comes upon the entering into force of the Additional Protocol, has a nature quite different from the previous one. Firstly, one shall note the qualitative character of the evaluation of results. The basis of the system is the evaluation of information from the State's Declaration, collected from open sources and from third parties. This evaluation should allow reaching

conclusion about the consistence and coherence of the State's Declaration. Verification activities including complementary access will be performed to increase the level of assurance and to introduce deterrence effect. The successful implementation of this new safeguards system requires a change of mentality from all parties involved. Request for additional information from facilities and State, and request for complementary access to solve questions and inconsistencies shall be faced by Operators and State as a normal routinely situation to increase the credibility of IAEA conclusions. On the other hand, the IAEA planning and verification activities should be concentrated in relevant areas. The application of IAEA safeguards should be based more on performance requirements than on prescriptive ones.

The IAEA conclusions on the absence of undeclared nuclear materials and activities in a State allows the redefinition of the current safeguards parameters, especially for non sensitive nuclear materials and activities with the associated reduction of the intensity of the safeguards applied to declared materials. Further there is the boundary condition related to the cost neutrality in the implementation of integrated safeguards. This means that the increase of expense related to the application of the new measures should be compensated with the decrease of expense related to the traditional safeguards. This new situation will influence the role of State's and Regional Systems. The conclusion on the absence of undeclared nuclear material and activities in a State strengthens the credibility of the State or Regional System. In this case the nuclear material accountancy of declared material remains a measure of fundamental importance in integrated safeguards, but the use of SSACs/RSACs by the IAEA should be less complex. Therefore, it is

expected that the State or Regional Systems considered effective will be ultimately responsible for the verification of nuclear material inventories and fluxes declared by Operators. Furthermore, the IAEA will be responsible for assuring the credibility of the declarations from State or Regional Systems through independent audit mechanisms.

It should be noted that the reduction of IAEA safeguards activities applied to declared nuclear materials may not correspond to an equivalent reduction of the State or Regional safeguards activities. This situation should be analyzed on a case by case basis, depending on the sensitiveness of nuclear materials and activities involved.

The interaction between the IAEA and the Regional System to solve questions and inconsistencies should not be underestimated because the Regional System has deep knowledge of the activities developed in the States.

THE FUTURE

The implementation of integrated safeguards should make possible a more logic relationship between the IAEA and State and Regional Systems. The ABACC considers of fundamental importance and fully supports IAEA initiatives to define the conditions and activities pursuant to the conclusion of the absence of undeclared nuclear material and activities in a State and to review the current Safeguards Criteria. In particular, the ABACC considers that some basic documents should be prepared and made available for the appropriate reconsideration of the international system, in particular:

- a) A complete description of the safeguards objectives that are intended to be covered by the revised Safeguards Criteria. Such a description would allow to consider alternative safeguards activities for covering these objectives and facilitate the proper introduction of new safeguards tools, either because of new techniques (e.g. remote monitoring, environmental sampling) or because use is made of RSAC or SSAC resources.
- b) A scheme of the rules and criteria to be used for evaluating the objective elements of an RSAC or SSAC. This will allow both the IAEA to consider the eventual “delegation” of some verification activities and the RSAC or SSAC to consider improvements of its system for a better inclusion into the integrated scheme.
- c) A summary description of the basic rules that would be used to consider the less quantitative elements that shall be considered for evaluating the credibility and effectiveness of RSAC and SSAC. This will allow the States and the RSAC or SSAC to understand logical differences in the application of the integrated system to similar facilities as well as to promote changes aimed at increasing credibility and effectiveness of the local system.
- d) A summary description of the basic scheme of the quality assurance program to be used by the IAEA to confirm, on a continuous basis, that the RSAC or SSAC maintains its initial credibility and effectiveness. And, to the extent necessary, the use that will be made of the measures foreseen in the Additional Protocol to this end. This will allow the States and the RSAC/SSAC to be prepared for an extensive integration. It should be noted that an increase integration would imply, inter alia, the presence of IAEA inspectors at the RSAC or SSAC headquarters for long periods of time or the sudden incorporation of an IAEA Inspector to an ongoing RSAC/SSAC inspection at a given facility.
- e) A tentative schedule of how current IAEA safeguards activities will be modified as the Additional Protocol entries into force, how its measurements are implemented and the RSAC/SSAC evaluation is being satisfactorily completed. This will allow the international community to have a tentative picture of the transition between the present safeguards and a fully implemented integrated system.