

**REGIONAL SAFEGUARDS ARRANGEMENTS: THE ARGENTINA-BRAZIL EXPERIENCE**

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A Common System of Accounting and Control of Nuclear Material (SCCC) was established by Argentina and Brazil in July 1992. It is a full scope safeguard's system in both countries. The Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) was created to apply the SCCC.

Based on the Bilateral Agreement, a Quadripartite Safeguards Agreement among Argentina, Brazil, ABACC and the International Atomic Energy Agency (IAEA) was signed in December 1991. This agreement is a full scope safeguards agreement and entered into force on March 1994. The main elements of the SCCC and Quadripartite Agreement are presented. The main safeguards' procedures are described. A brief discussion of the inspection methodology and its impact for facility operators is performed, taking as example a fuel fabrication plant in Argentina and a uranium enrichment plant in Brazil.

The Bilateral Agreement establishes the Common System of Accounting and Control of Nuclear Material (SCCC), which is a set of procedures established by the Parties to detect, with a reasonable degree of certainty, whether the nuclear materials in all their nuclear activities have been diverted to uses not authorized under the term of the Agreement.

The SCCC was conceived as a full scope safeguards system to be implemented by a central executive body (the permanent staff of ABACC), which is technically and financially supported by the Parties to carry out its duties. This system requires the concurrence of efforts of Operators, National Authorities and ABACC. The National Authorities play a significant and special role in the implementation of the SCCC: besides the usual activities at state level, each of them is the natural channel through which ABACC requires the services needed to perform control activities in the other country. With this conception, the SCCC requires very well established National Authorities, not only able to fulfill its responsibilities at a national level but also to support ABACC's activities (for instance, they need to expand their inspection capabilities to be able to provide ABACC with the necessary support to carry out inspection in the other country). This double role of the National Authorities is new in the safeguard's field and is the subject of several discussions and adjustments. The technical support available from the two Parties embraces inspectors; consultants; equipment maintenance and calibration; preparation of standards, laboratory services and any other safeguards related study or service.

Table I presents the number and type of inspections that were carried out by ABACC in the last three years, in compliance with their objectives.

Inspections	1994	1995	1996
DIQ Verification	73	5	8
PIV and interim verifications	113	139	151
Total Inspection Number	186	144	159
Inspection Efforts (B) (PDI)	562	683	626

Table I: ABACC's inspections

In order to study the impact of the safeguard's activities on the facility operation, it is important to observe the inspection effort for some relevant installations. As examples considered in this paper, one considers the fuel fabrication plant in Argentina (CONUAR) and the centrifuge enrichment plant in Brazil (LEI).

ABACC performs in CONUAR normally one PIV and 3 interim inspections per year with a total inspection effort of 21 PDI.

LEI is a small centrifuge enrichment plant, whose safeguard's approach is complex, essentially due to the verification that the facility is operating as declared. In order to verify the inventory and internal and external flow of material, ABACC is performing one PIV and 5 interim inspection per year. Additionally, ABACC performs 3 unannounced inspection per year. The total inspection effort amounts approximately 30 PDI.

ABACC is applying its safeguard's system in a way to balance conveniently the safeguard's effort depending on the relevancy of the concerned nuclear activity.

In principle, the regional system may contribute in many ways to enhance the safeguards, which can be summarized, as follow:

- the model of regional organization can reduce strongly the costs involved in safeguards implementation; ABACC for instance has a permanent technical staff of only 10 people, that have a coordination function, and may use conveniently the technical and human resources of the countries;
- the regional organization controls a small universe of facilities and materials and is not constrained by requirements of universality of procedures, as required in multilateral systems. It is therefore in better condition to maximize the verification procedures on those stages in the nuclear fuel cycle involving the production, processing, use or storage of nuclear material from which nuclear weapons could readily be made.
- the safeguard's criteria and procedure can be applied to each specific facility, since the number of nuclear facilities is not too large, and allows to increase substantially the efficiency and effectiveness of safeguards. For instance, there is no basic constraint for the definition of significant quantities or detection time;
- the mutual inspection model, as implemented by ABACC, allows to use the best available expertise in both countries. This makes possible to perform in each inspection the re-verification of the technical characteristic of installations and therefore to improve the safeguard's effectiveness.