

**RLA 2/014 TECHNICAL COOPERATION PROJECT:
A CASE STUDY ON IAEA SUPPORT FOR LATIN AMERICAN
ECONOMIES IN ENHANCING CAPABILITIES FOR
CERTIFICATION OF REFERENCE MATERIALS**

**A. Shakhashiro^a, R.F. Kastens^a, V.A. Maihara^b, S.M. Resnizky^c, E. Cortés Toro^d,
P. Bedregal Salas^c, A.M. Alvarez^f, A.J. Quejido Cabezas^g, P. Galan Valera^g**

^aInternational Atomic Energy Agency (IAEA), Vienna, Austria

^bInstituto de Pesquisas Energéticas e Nucleares CNEN, São Paulo, Brasil

^cComisión Nacional de Energía Atómica, Buenos Aires, Argentina

^dComisión Chilena de Energía Nuclear (CCHEN), Santiago, Chile

^eInstituto Peruano de Energía Nuclear (IPEN), Lima

^fCentro de Estudios Aplicados al Desarrollo Nuclear (CEADEN), La Habana, Cuba

^gChemistry Division, CIEMAT, Madrid, Spain

E-mail address of main author: a.shakhashiro@iaea.org

ARCAL — a Regional Cooperation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean — has assigned a high priority to the regional Technical Cooperation (TC) project RLA 2/014 for the improvement of measurement results quality through proficiency testing and certification of matrix reference materials. Analytical results produced by laboratories have to be reliable and valid before they can be used for setting policies and/or making decisions. It is well known that participation in proficiency tests and analyses of reference materials (RMs) are among the most important quality control tools to support production of reliable and valid measurement results and to fulfill international standards' requirements regarding method validation, quality control and metrological traceability.

For laboratories from Latin American countries it is quite difficult to find the appropriate reference material or to participate in a proficiency test. There are three reasons behind this difficulty:

- 1) the scarcity of locally produced reference materials (RMs) and proficiency test (PT) providers;
- 2) the high cost for importation of RMs and participation in external PTs; and
- 3) unavailability of RMs and PTs which meet the specific needs of Latin American economies.

Therefore, the group of ARCAL countries requested the IAEA to implement a Technical Cooperation (TC) Project to assist 17 countries in Latin America and the Caribbean to enhance their technical competence in production and certification of RMs and organizing regional and national PTs. The first project coordination meeting was held in Lima, Peru in

July 2008 to set-up the project objectives and implementation plan: The primary objective of the TC project RLA 2014 was identified as the following: "to contribute to self-sufficiency of laboratories in Latin American Countries through improvement of analytical quality control systems and the preparation and certification of matrix reference materials that support trade, science, environment and industry". The project implementation plan covers the four year period 2008-2012 and consisted of three phases:

- Organization of a regional proficiency test (PT) to assess the current analytical performance of participating laboratories from Latin American countries.
- Organization of training courses and workshops to cover quality assurance aspects, method validation and measurement results estimation. In addition, national PTs will be organized in participating countries.
- Conduction of regional training courses on preparation and certification of reference materials and organization of PTs. Based on the acquired information, a selected group of laboratories will prepare RMs in close collaboration with the IAEA experts. At the end of the project, the region will have at least 3 certified RMs of natural matrices. The produced RMs will be shared among in the region for use in internal quality control and for organization of national PTs.

During the last three years, most of the planned activities were implemented. Five RMs are in the characterization process and expected to be certified by the end of the project. Four training courses and two coordination meetings were implemented in this project, namely:

- Regional training course on preparation of reference materials Santiago, Chile, 22–26 June 2009.
- Regional training course on organization, evaluation and reporting of interlaboratory comparisons and proficiency test, San Salvador, El Salvador, 13–17 July 2009.
- ARCAL regional training course on technical requirements, method validation and uncertainty estimation Guatemala City, Guatemala, 28 September - 2 October 2009.
- Second coordination meeting, Mexico State, México, 16– 18 February 2010.
- ARCAL regional training course on preparation and use of in-house reference materials for quality control of analytical results and method validation, Panama City, Panama, 28 February - 4 March 2011.

The paper will present and discuss the activities implemented in this TC project. An outline of the evaluation results of the regional proficiency test and the methodology applied in production of reference materials will also be reported. The needs for further development and engagement of decision makers to strengthen quality measures will be discussed. The experience gained and lessons learned will be discussed and reported.

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