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Improved performance of neutron activation analysis laboratories by feedback meetings following interlaboratory comparison rounds.

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Over the years, the IAEA has stimulated the orientation of neutron activation analysis (NAA) laboratories worldwide on fields of application in which a large number of samples may exist for analysis. Whereas the markets for service by NAA laboratories may have been identified, demonstration of valid analytical data and organizational quality of the work process are preconditions for consolidating and expanding the stakeholder community. Eventually, laboratories and/or stakeholders may prefer that the facility's management system is accredited for compliance with the International Standard ISO/IEC17025:2005.
One of the requirements in the process towards such accreditation is that the laboratory provides evidence of the validity of its measurement results by participation in proficiency testing schemes by interlaboratory comparison. Participation in interlaboratory comparison study may reveal that some results are not satisfactory. Laboratories are then facing the problem of finding the source of such non-conformity and applying corrective actions. Obviously, providers of intercomparison rounds cannot provide such a laboratory and technique-specific after-care.
The IAEA has therefore implemented a new mechanism for supporting the NAA laboratories in their Member States in demonstrating their analytical performance by assisting them in identifying unanticipated sources of error, to assess with them approaches for elimination thereof and to design with them a path for growing towards sustainable performance at the analytical state of the practice. This was accomplished by an evaluation and feedback meeting following the participation in proficiency testing by interlaboratory comparison.

Laboratories under the IAEA Technical Cooperation (TC) projects RAF4022, RAS1018, RER4032/RER1007 and RLA0037 participated, facilitated by the IAEA, between 2010 and 2013 in consecutive proficiency testing schemes by interlaboratory comparison of the Wageningen Evaluating Programs for Analytical Laboratories (WEPAL) to assess their analytical performances. WEPAL, a provider of proficiency testing schemes, is accredited by the Dutch Council for Accreditation for compliance with the International Standard ISO17043:2010. The results have been analysed by IAEA experts providing first indications for potential sources of error, and further discussed by experts and participants in feedback meetings.
This IAEA's initiative to facilitate laboratories participating in proficiency testing schemes complemented by the new approach of feedback meetings resulted in a significant increase in the analytical and associated organizational performance of most participating laboratories. Several other laboratories demonstrated consolidation of their already satisfactory performance.
The increase in performance was achieved by an increase in awareness on potential sources of error, technical and/or organizational, and related approaches of quality control and quality assurance to be implemented.
Recently the initiative has been extended to all regions resulting in 35 NAA laboratories world-wide who are signed for 2015 round tests, with the follow up workshop scheduled in August 2015.

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