

Experiences and infrastructure development within RLA 1014

“Advancing Non-Destructive Testing Technologies for the Inspection of Civil and Industrial Structures”

2024 - 2025

“Advancing Non-Destructive Testing Technologies for the Inspection of Civil and Industrial Structures”

OBJECTIVE: To improve the quality of industrial goods and services, security of operation and protection of human lives.

Estimated Duration: 4 Years (2018 – 2022)



12 Participant Countries:



Non-destructive testing (NDT): This category includes nuclear and non-nuclear techniques to determine the status of industrial components; the most widely used nuclear technique is radiography, e.g. for detecting with gamma rays and X-rays welding defects in pipework and tanks. Computed tomography and neutrography are also important. Non-nuclear techniques include ultrasound, induced current, liquid penetrant and magnetic particle testing, etc.



ARCAL AGENDA 2030



IAEA

T7. Justification: Non-destructive testing technologies play an important role in general quality control programmes and are essential to improve the safety of infrastructure and civil structures and the competitiveness of regional industries within the international regulatory framework. The potential of using such technology needs to be disseminated and promoted (among users, service providers and decision makers).

Objective: To improve the use of advanced technologies, harmonize methodologies and train personnel in accordance with certification schemes and standards.

Indicator: Increase in number of countries that have established methodologies and an established structure for the training of personnel, in accordance with the new standard ISO 9712:2012 for NDT and the certification of processes involving radiation technologies. Increase in number of scientific publications and news articles drafted by the respective communications departments (technical-journalistic outreach).





SUSTAINABLE DEVELOPMENT GOALS



- 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- 13. Take urgent action to combat climate change and its impacts.
- 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.



Sub-Regional Centres specialized in the inspection of civilian structures



Country	Basic level	Advanced level
Argentina		X
Plurinational State of Bolivia	X	
Brazil		X
Colombia	X	
Chile	X	
Costa Rica	X	
Cuba	X	
Ecuador	X	
Guatemala	X	
Haiti	X	
Mexico		X
Paraguay	X	
Peru	X	
Uruguay	X	
Bolivarian Republic of Venezuela	X	



Infrastructure development and Skills developed at Regional Level



4 Sub Regional Centres



PRACTICAL ARRANGEMENTS

between

THE INTERNATIONAL ATOMIC ENERGY AGENCY

and

THE ITALIAN SOCIETY FOR NON-DESTRUCTIVE TESTING MONITORING DIAGNOSTICS (AIPnD)

on

COOPERATION IN THE AREA OF

APPLICATION OF NON-DESTRUCTIVE TESTING

Partnerships built:

- Argentina: AAENDE & CNEA CEND + SINAGIR (Ministry of National Security)
- Perú: IPEN & SENCICO
- México: ININ & Centro Nacional de Prevención de Desastres (CENAPRED).
- Chile: CCHEN & Universidad de Santiago de Chile + Emergency Coordination
- PA IAEA & Italian Society for NDT (AIPnD)

Conclusions



Challenges

- Interaction with National Authorities of the Participating Institution.
- Strategic alliance with Partners (AAENDE).
- Establishment of relationships with new actors.
- Delays on equipment acquisition

Sustainability Actions

- Payment for services offered
- Upscaling of results with new synergies and associated projects.
- Academic Offer Extended
- Institutional personnel restructuring would be an appropriate mitigation measure for personnel retirements.

Results

- 4 SubRegional Centres
- “Syllabus” development for NDT in civil infrastructure
- “Technical Meeting on Artificial Intelligence (AI) Assisted Non-Destructive Testing (NDT) for Natural and Non-Natural Disaster Management”
- Other alternatives Projects associated like SEVEND Project “Virtual Training System for Non destructive Testing”
- Equipment acquired with certified experts trained and capacities strengthened in this thematic area.

Lessons learnt

- Process continuity – RLA8044 / RLA1014
- Coordination with other international cooperation mechanisms (Argentine Fund for South-South and Triangular Cooperation (FO.AR))
- Subregional Alternatives as a policy to equalize capacities in the region.

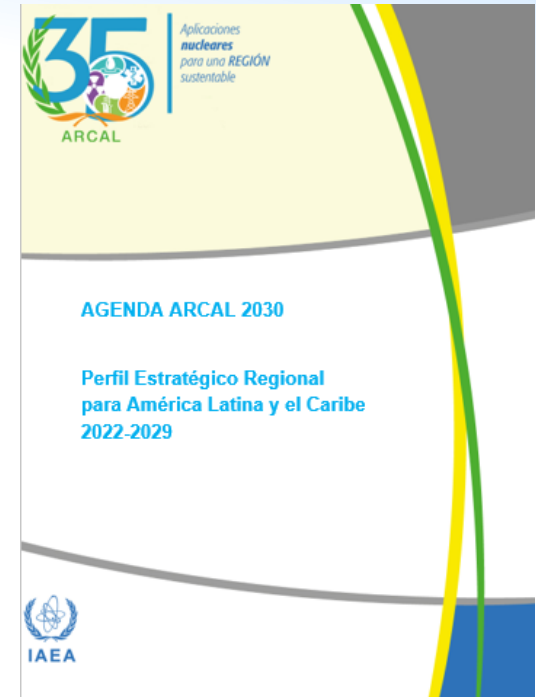
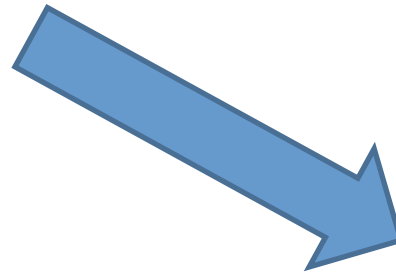
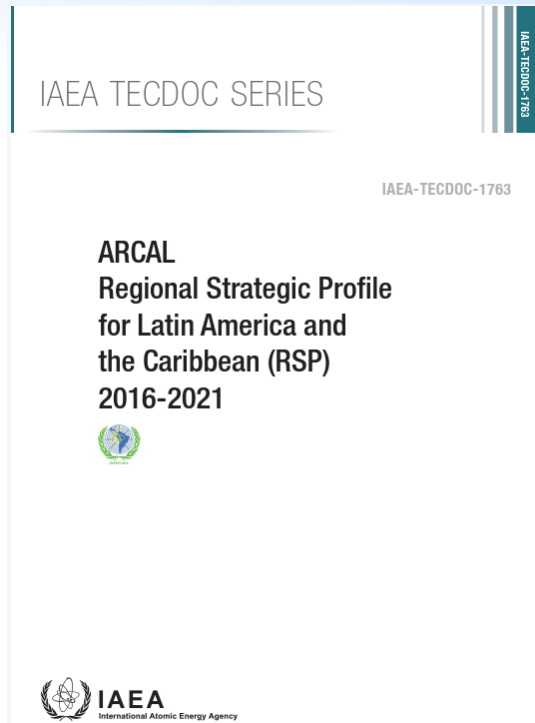


IAEA

International Atomic Energy Agency

Thank you!





For RT, the needs identified were in areas of: water, the environment, coastal engineering, advanced materials, medicine, cultural heritage, industrial processes, natural resources and inspection technologies, taking into account the use of nuclear techniques like: Radiation processing technology (gamma, electrons and X-rays), Radiotracers, Non-destructive testing; Analytical techniques.

T7. Harmonization of methodologies and training of personnel in accordance with certification schemes and standards for advanced non-destructive testing techniques.

Challenges

- Interaction with National Authorities of the Participating Institution.
- Formalization of strategic alliance with Partners (AAENDE).
- Establishment of relationships with new actors.
- Time estimated for purchase orders and equipment acquisition

Results/impact achieved

- 4 SubRegional Centres
- Participation in the contents of “Syllabus” for NDT in civil área.
- Invitation for other meetings and activities within IAEA and other Organizations: “Technical Meeting on Artificial Intelligence (AI) Assisted Non-Destructive Testing (NDT) for Natural and Non-Natural Disaster Management”
- Other alternatives Projects associated like SEVEND Project “Virtual Training System for Non destructiveTesting”



➤ Implementation action:

What was the coordination mechanism?

Based on the participating Institutions of the countries active in the TC Project, and considering the consolidation of the 4 subregional centers and national associations of NDT, a regional network was created based on the Constitutive Act of the Pan American Federation of NDT. RLA1014 as promoter of the creation of National END Associations (based on expert missions and participation in training activities).

Partnerships built:

Argentina: AAENDE & CNEA CEND
+ SINAGIR (Ministry of National Security)

Perú: IPEN & SENCICO

México: ININ & Centro Nacional de Prevención de Desastres

Chile: CCHEN & Universidad de Santiago de Chile
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