Concept Number: RLA2023001

Title: Strengthening Regional Capabilities on Radiation Protection for End Users and Technical Support Organizations

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Project Number: RLA9093

Project Type: Regional Latin America

Project For: Non Agreement

Submitted By: Member State and/or Observers With Rights

Priority: 1

Project duration (Total number of years): 4

Project duration (Start date): 2024-01-01

Field of Activity: 12 - Radiation protection of workers and the public

FOA Distribution:
FoA Code: 12 = 100%

Sustainable Development Goal:
98 - Multiple SDGs

Link to RB Programme: 3.3 Radiation and Transport Safety - 3.3.1 Radiation Safety and Monitoring

Project Description/Abstract: Nuclear techniques are widely used in a considerable number of industries, such as clinics, hospitals and research laboratories. The reliability and acceptance of nuclear applications by the population depends on a good radiation protection programme and a consolidated radiation metrology system. Compliance with radiation safety standards is an essential requirement for the application of nuclear technologies and one of the main priorities established in the Regional Strategic Profile (PER). The current situation in Latin America and the Caribbean (LAC) related to the radiation safety and monitoring, is similar in aspects like human resources, equipment and installations, and the application of radiation protection principles, accurate and reliable radiation measurements to evaluate the dose received by patients submitted to the diagnosis and therapy with ionizing radiation, and by occupational workers. Many countries of the region lack the infrastructure to achieve training of the necessary human resources and guidelines for the application of international standards and radiation protection (RP) programme.The aim of this project is to strengthen the regional capabilities and networking of end users and Technical and Scientific Support Organizations (TSOs) of occupational and medical radiation protection, as well as, strengthening of radiation measurement methods and metrology capabilities in the region. This project will support the ongoing national efforts of the Member States in the region to: (i) promote the standardization and harmonization of metrology standards in ionizing radiation; (ii) provide sustainability for nuclear applications; and (iii) contribute to the protection of the end users — the patients, workers and individuals of the general public — through strengthened regional cooperation and networking.

Problem to be addressed: The Technical Document (TECDOC-1763) and current the Regional Strategic Profile (RSP) for LAC covering 2022–2029 (agenda ARCAL 2030) highlights the main gaps in RP of workers and patients in the region: (1) insufficient implementation of international safety requirements and recommendations of RP for the control of medical exposure in computed tomography (CT), radiotherapy, interventional procedures and digital radiology and among end users; (2) insufficient coverage by the RP services for controlling occupational exposure, with a focus on extremity and lens dosimetry, internal dosimetry, monitoring of workplaces in the countries; (3) inadequate implementation of quality systems in laboratories and technical services and the lack of availability of unified or centralized national records of occupational dose (dose registers); (4) limitations in the calibration capacities of the region’s standard dosimetry laboratories, with regard to radiation protection, radiodiagnostics and radiotherapy; (5) the insufficient application of quality management systems among end users, including inadequate promotion

of safety culture; and (6) limited capacity for the safety assessment of facilities and activities, with a focus on reactors, cyclotrons, radiopharmacy and existing exposure situations. Hence, further actions are needed to strengthen the safety assessment and safety culture in end user facilities and activities, as well as optimizing the processes in industrial and medical applications. The absence of safety evaluation practices in the industrial area increases the risk of accidents and the overexposure of workers. At the first International Conference on Occupational Radiation Protection in Geneva, in August 2012, it was decided that an action plan with 14 actions, should be developed to improve the occupational RP in Member States through networks and the exchange of information. In medical applications, one of the ten actions of the Bonn Call for Actions is to improve RP in medicine (December 2012) and reports from subsequent meetings stress the growing unnecessary exposure of patients to radiation in diagnosis due to: (i) the transition to new imaging technology; (ii) the lack of the implementation of the principle of optimization for protection and safety; and (iii) the lack of education and training of health professionals in RP in medicine. Furthermore, in many places, paediatric examination is performed with the same exposure parameters as for adults, resulting in high patient doses and risk. In the radiotherapy area, new technologies have been available and introduced in radiotherapy clinics, requiring further studies on the methodology for beam dosimetry, planning, trained staff and special care to avoid errors in the dose of radiation administered to the patient. Another problem in the region is related to the methodology of risk analysis that has been developed for radiotherapy, but not implemented in all countries for new technologies. The RSP highlights the need for further development and strengthening of: (i) individual monitoring of occupationally exposed workers; (ii) RP of patients and of dosimetry calibration services; (iii) identification of the limitations for calibration at the level of RP; (iv) radiotherapy and radiodiagnosis by secondary standards dosimetry laboratories (SSDL); and (v) coverage by RP services (individual internal and external monitoring and workplace monitoring) of occupationally exposed workers in the countries. There is inadequate implementation of quality systems in technical services and the lack of availability of unified or centralized national records of occupational dose in all countries. The Regional Strategic Profile also indicated that the occupational monitoring services of external exposure are limited for the whole body, the lens of eyes and extremities and neutron monitoring services are very limited. Although in the region there are laboratories with the infrastructure and knowledge in internal dosimetry, this service is not regularly offered. The analysis carried out also shows a significant need with regard to the availability of human resources and equipment, as well as the status of quality management systems. It is expected that this regional proposal will contribute to enhance the capabilities of Member States for the implementation of the requirements of the IAEA General Safety Requirements (GSR), Part 3, in respect of requirements 34 to 42 (medical exposure) and requirements 19 to 28 (occupational exposure), as well to strengthen regional cooperation and capacities in radiation metrology and RP to support the end users to improve occupational and medical dosimetry procedures. The project builds on the progress made under RLA9088 and RLA9091.

Why should it be a regional project?: Common issues regarding occupational and medical radiation protection addressed to end users, require regional efforts. A regional approach will facilitate the sharing of experiences, tools and capacities in the region and will enable cost effective solutions in addressing of the issues. It will also provide a framework for extremities sharing knowledge, technical harmonization, and increase partnerships with other organizations. The project will support cooperation networks of TSOs in the region, dedicated to the exchange of expertise, experience and the harmonization of measurement protocols. On the other hand, to attend to these demands it is necessary to strengthen the regional calibration network of ionizing radiation in order to provide the calibration of dosimeters and to support the quality assurance implementation in the facilities. The network will be associated with the activities of the Latin America Occupational Radiation Protection Optimization Network (REPROLAM), and the Latin American Biological Dosimetry (LBDNET) network. The cooperation between the countries will be vital to transfer knowledge in the region and to support countries with more needs, especially in the introduction of advanced technology in radiotherapy.

Stakeholder: (1) Patients will be the direct beneficiaries of the result of this project as they will obtain better diagnosis and therapy procedures with the appropriate dosage and reduced risk; (2) the workers of industrial and medical installations will benefit from strengthened radiation protection programmes and safety culture. As a result of this project, it is expected to improve the radiation protection of this group, who can play an active role in the promotion of a safety culture and the fullfilment of the requirements established in the International Safety Standards; (3) the managers of industrial and medical installations and facilities will be the end users of nuclear applications with special responsibility for the safety of occupationally exposed workers and are responsible for the implementation of the International Safety Standards; (4) the regulatory authorities that control and verify the implementation of the International Safety Standards; (5) the ministries in the area of industry, health, interior, energy and mines, as well as other authorities with mandates that are relevant to the project objective will play a vital role in the establishment of the legal framework, the adoption of regulations and inspection of compliance with the safety standards set out on a national level; (6) TSOs will be the end users with special responsibilities to improve the radiation protection services in medicine and industry applications and to contribute for the dissemination of the safety culture; (7) the health care professionals will be the beneficiaries, as they will obtain improved radiation protection in their activities through the regional networks and the dissemination of new documents, material and scientific publications; and (8) the calibration laboratories services will directly benefit from the training provided, which will improve their calibration capability and knowledge to implement quality management programmes.

Partnerships: Strategic partners are: (i) the International Radiation Protection Association (IRPA); and (ii) the Latin American Association of Medical Physics (ALFIM). These associations and their scientific events constitute an interesting forum for the sharing of experiences and for the dissemination of the results of the project. The Latin American Forum of Nuclear and Radiological Regulatory Bodies (FORO) is an important strategic partner that also provides significant technical guidance through the elaboration of documents on topics relevant to the objectives of this project. REPROLAM, LBDNET and the European Radiation Dosimetry Group (EURADOS) have a crucial role in the promotion of occupational radiation. The Response and Assistance Network (RANET) will also play a crucial role, in order to integrate the capabilities of the region. Potential financial partners are Japan, Spain, and the United States through the United States Nuclear Regulatory Commission (US NRC). The cooperation with the Pan American Health Organization (PAHO) and the World Health Organization (WHO) will continue in the area of paediatric interventions. Lessons learned in previous projects and activities will be shared with these international organizations to optimize resources and consolidate synergies. PAHO and WHO will communicate directly with the ministries of health in the Americas region. Furthermore, the cooperation with the International Labour Organization (ILO) in aspects of occupational exposure, shall be further strengthened and will be fruitful, especially in the area of industrial practices.

Overall Objective: To raise the level of compliance with radiation protection requirements, with regard to occupational and medical exposure, including calibration capabilities.

Role of nuclear technology and IAEA: This project will strengthen the enabling environment for the safe use of nuclear science and technology. The project aims at strengthening radiation protection and safety culture in the numerous uses of nuclear technology in industry and medicine. Furthermore, calibration capabilities will be strengthened for the calibration of dosimeters to ensure the safe use of radiotherapy equipment or industrial radiography. In this context, the IAEA will: (i) provide a forum for the exchange of experiences and good practices; (ii) convene meetings with relevant stakeholders; and (iii) foster cooperation and the exchange of knowledge among the end users in the region. The IAEA will support the objectives of the project with capacity building activities through regional training events relevant to occupational and medical exposure, regional coordination and technical meetings, and will facilitate the dissemination of project results in regional and global events relevant to the areas covered by the project.

Participating Member State(s):
Argentina
Bolivia
Brazil
Chile
Costa Rica
Cuba
Dominican Republic
Ecuador
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Uruguay
Venezuela

Physical infrastructure and human resources: In the participating countries, the project benefits from a strong physical infrastructure and well-equipped human resources to support the objectives of radiological protection in institutions responsible for safeguarding public and private end-users of ionizing radiation. These end-users encompass various sectors, including medicine, industry, and the protection of cultural heritage, where radioactive sources and radiation-emitting equipment are utilized. To address the project's complexity, a wide range of public and private technical support organizations, such as external dosimetry laboratories, internal dosimetry laboratories, secondary standards dosimetry laboratories, and biological dosimetry laboratories, are readily available. To ensure the safe and secure application of nuclear science and technology, especially considering the large number of end-users and occupationally exposed workers, each country should have a regulatory authority that effectively oversees regulation and control functions. It is crucial to note that the regulatory authorities already exist as a pre-condition, and the project's primary focus is on promoting the standardization and harmonization of metrology standards in ionizing radiation, and to enhance safety and radiation protection in occupational exposure, the patients and individuals of the

general public through reinforced regional cooperation and networking, rather than solely concentrating on bolstering regulatory capabilities and capacities. Each member state adhered to the regional project has informed in the accession communication about its infrastructure and availability of human resources.

Sustainability: The project aims to promote the establishment of quality management systems at Technical Support Organizations as a means for knowledge management and ensuring long-term quality and sustainability. The updated regulatory framework in the participating countries will establish comprehensive requirements and obligations for the regulated entities, leveraging the capacities of the institutions and laboratories that have been strengthened through the project. As part of the project, several e-learning courses will be developed to provide training access for professionals in the region. Dissemination of information and results will be a key focus, with national follow-up events organized by the Project Counterparts and Focal Points from TSA 2, SSDL, and TSA 3. By providing training to personnel involved in regulatory authorities, dosimetry and calibration labs services, and various institutions and users across different sectors related to RP, the project will cultivate a skilled pool of human resources capable of disseminating knowledge throughout the participating countries, ensuring long-term sustainability. The project will strengthen the exchange of information and knowledge transfer, and cooperation on a regional level through existing knowledge-sharing platforms like REPROLAM and LBDNet. Beyond the project's duration, each Member State will evaluate and implement strategies and national mechanisms to offer opportunities for professional growth and career advancement, fostering a supportive work environment to encourage talented employees to stay. Mentorship programs and regular training sessions will facilitate the proper dissemination of knowledge within organizations, promoting a culture of continuous learning and development. This sustainability focus will strengthen the RP community and support the long-term success and effectiveness implementation of the regulatory framework.

Safety and Regulatory Compliance: The objective of the project is to assist project participating countries to comply with IAEA Safety Standards, namely Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, General Safety Requirements Part 3; Leadership and Management for Safety, General Safety Requirements Part 2; Safety Assessment for Facilities and Activities, General Safety Requirements Part 4; This project is aimed to reinforce the end users' capabilities to comply with the regulatory framework and radiation protection requirements. Furthermore, through its activities, the project will promote the objectives of the Code of Conduct on the Safety and Security of Radioactive Sources, aiming to ensure that radioactive sources are used within an appropriate framework of radiation safety. All project participating countries must have an operational regulatory body discharging regulatory functions.

Requirements for participation: The countries participating in the project must fulfill certain requirements to ensure effective participation. Firstly, they should possess updated information on occupational and patient radiation protection (Thematic Safety Areas 2 and 3) within the RASIMS platform. They must commit to keeping this information updated to reflect all the advances achieved during project implementation and beyond. Additionally, countries are required to report on the national capacity of SSDL or any TSOs related to occupational and medical radiation protection at the project's outset and during its implementation. Criterion 1: Participating countries must have a Regulatory Authority and infrastructure in at least one of the project areas (TSA2 or TSA3). The information on the RASIMS computer platforms should be updated before September 30, 2023, with a maximum interval of 6 months between updates; Criterion 2: the counterpart institution, which should play a leading role in the thematic areas of the project (TSA2 and TSA3). The institution must have sufficient financial and human resources to ensure the implementation and sustainability of the project either directly or through collaboration with other interested parties. Criterion 3: participating country to designate a focal point with a leading role, linked to the thematic area of the SSDL or TSO of occupational and medical radiation protection (dosimetry, calibration labs). This designated focal point must complete a designed survey on its current capacities, provided at the beginning of the project implementation. The institution responsible for the focal point must ensure sufficient human resources to guarantee the commitment to project activities and the transfer of knowledge to the organization; Criterion 4: designating a counterpart professional with extensive experience in the thematic areas of the project. This professional should have the capacity to assume managerial responsibilities and effectively communicate with the focal points designated within the project. Moreover, the counterpart should possess experience in project management and be capable of preparing progress reports on the results of the corresponding output, with a commitment to submitting them in a timely manner for the preparation of the Project Progress and Annual Report.

Cross Cutting Issues Environment: The project provides assistance to Member States in RP, considering the standards and safety guides developed by the IAEA to protect people and the environment from the detrimental effects of ionizing radiation without unduly limiting its beneficial use.

Cross Cutting Issues Gender: The project will incorporate the inclusion of outcome indicators disaggregated by gender, whenever feasible. By doing so, we aim to gain valuable insights into the differential impacts and outcomes experienced by women and men. This gender-disaggregated data will facilitate targeted interventions and foster a more equitable and inclusive approach, ensuring that the project's benefits are distributed equitably among all genders.

Implementation strategy: The development of the project will be implemented through involvement of stakeholders and counterparts sharing experiences through the promotion of networking and dissemination of products and results. A limited number of strategic training courses will also be facilitated to this project, complementing the national training efforts. The project will be organised in phases: 1. Start with the review and update of the status of the safety radiation protection framework of workers and patients of participating countries based on RASIMS, expert reports of previous projects and the activities proposed under national projects. A survey on SSDL and TSO will be applied at the beginning of the project to identify exiting capacities and gaps to provide an efficient dosimetry, calibration services and other activities related to occupational and medical radiation protection; 2. For the success of the project the synergies between regional and national efforts will be crucial. Hence, the mobilization of the Focal Points of each Thematic Safety Area will facilitate the coordination and streamlining of regional and national efforts to achieve a greater impact. 3. Virtual and face-to-face meetings will be held with Focal Points and Project Counterparts to coordinate and prepare the activities well in advance.4. Each country will elaborate a summary on national actions on the preparation, participation and dissemination of meeting results. 5. According to the findings in the meetings and the progress made by each country, the RASIMS coordinator will be informed to update RASIMS according to the existing situation in each country under TSAs 2 and 3; 6. Conducting regional meetings, training and activities as planed and agreed with the MSs adhered to the project. 7. In parallel actions need to be taken to include relevant events also in the work plans of national projects on safety to maximise the dissemination of results with end-users and technical support organizations. 8. Results of national and regional projects will be disseminated also in international and regional conferences and congresses.

Monitoring and progress reporting: Project implementation will be monitored by the DTM in coordination with all project counterparts and the internal project team. Furthermore, coordination meetings with project counterparts and TSA focal points will provide an opportunity to review and plan project activities and propose corrective action as needed. In the first coordination meeting national action plans will be developed, to ensure the dissemination of project results on a national level including a communication plan with relevant stakeholders. These action plans will be reviewed and updated according to the results achieved on a yearly basis. The DTM will coordinate the inputs for the elaboration of the Project Progress Achievement Report (PPAR) on an annual basis, reporting on the achievements on a regional level. In addition, at the end of the project a follow-up review mission should be organised for each of the participating countries that should issue a report considering compliance with initially given recommendations and implementation of the agreed national action plan. The achievement report will include the results of the regional project, as well as the synergies with national projects on safety.

Lessons Learned: The project builds on the progress made under RLA9088 and RLA9091, taking into account valuable insights and lessons learned (both technically and in project management) reported by Member States during regional meetings. Additional recommendations and lessons captured by RLA9090 were included in the design process to establish complementary activities and integrate efforts to maximize the impact of both regional safety projects. Continuous communication with all stakeholders is recognized as a best practice, fostering a collaborative and informed approach. By building upon past successes and maintaining open channels of communication, the project ensures effectiveness and optimizes outcomes for the benefit of all involved parties.

Risk management: For the success of the project the identification and involvement of national stakeholders will be crucial. In order to strengthen national and regional stakeholder involvement the role of the Thematic Safety Area Focal Point has been established. The TSA Focal Point is an expert and representative of the specific TSA and will ensure the communication with the relevant stakeholders in each TSA, establishing a link between regional and national efforts as well as between public and private actors, such as operators of industrial and medical facilities and installations. To ensure ownership and commitment the Focal Points will be designated by the National Liaison Officer, the counterparts of regional and national projects in safety. Another risk associated to project implementation is the lack of political support and national commitment. This includes necessary cooperation procedures between competent authorities and national stakeholders. Naturally, this risk could be aggravated in those cases where political stability at national and/or sub-regional scale cannot be ensured throughout the lifetime of the project. To minimize this risk, participating States will be thoroughly informed of the prerequisite conditions to ensure a successful participation and the delivery of assistance. As the project is targeted at end-users, the main risk of the project is that the information and training provided in the activities is not being disseminated in the countries. It is vital to ensure that participants in regional events disseminate the information, results and lessons learnt on a national level in a timely and comprehensive manner. The high risk of receiving non-qualified candidates shall be mitigated through the elaboration of very specific and detailed Information Sheets, indicating the required qualification of participants to facilitate the selection process. Participants will be selected with a view to ensure the dissemination of results on a national level subsequent to the participation in the activities. The mentioned TSA Focal Points will be instrumental in identifying qualified candidates to be proposed by the counterpart and endorsed by the NLO. Jobs instability at end-user´s facilities and installations: There is a risk of loss of trained personnel due to

the transition to employment in other sectors or due to a generational change due to retirements. In this regard, the establishment of quality management systems in the relevant areas to sustain acquired knowledge will be promoted.

CORE FINANCING										
Year	**Human Resource Components** (Euros)						**Procurement Components** (Euros)			**Total** (Euros)
	Experts	Meetings/ Workshop	Fellow-ships	Scientific Visits	Training Courses	**Sub-Total**	Equipment	Sub-Contracts	**Sub-Total**	
2024	51 450	96 600	0	0	158 760	**306 810**	0	18 190	**18 190**	**325 000**
2025	49 350	113 400	0	0	35 280	**198 030**	0	26 970	**26 970**	**225 000**
2026	27 300	165 900	0	0	88 200	**281 400**	0	15 000	**15 000**	**296 400**
2027	11 550	145 950	0	0	57 330	**214 830**	0	6 000	**6 000**	**220 830**

FOOTNOTE-a/ FINANCING										
Year	**Human Resource Components (Euros)**						**Procurement Components (Euros)**			**Total (Euros)**
	Experts	Meetings/ Workshop	Fellow-ships	Scientific Visits	Training Courses	**Sub-Total**	Equipment	Sub-Contracts	**Sub-Total**	
2024	0	126 000	0	0	0	**126 000**	0	0	**0**	**126 000**
2025	0	25 200	0	0	0	**25 200**	0	0	**0**	**25 200**
2026	23 100	0	0	0	0	**23 100**	0	12 000	**12 000**	**35 100**
2027	0	191 100	0	0	0	**191 100**	0	0	**0**	**191 100**

First Year Approved : 2024

Non-Agency FINANCING										
Year	**Human Resource Components (Euros)**						**Procurement Components (Euros)**			**Total (Euros)**
	Experts	Meetings/ Workshop	Fellow-ships	Scientific Visits	Training Courses	**Sub-Total**	Equipment	Sub-Contracts	**Sub-Total**	
2024	1 050	0	0	0	0	**1 050**	0	0	**0**	**1 050**

2027	1 050	0	0	0	1 470	**2 520**	0	0	**0**	**2 520**
First Year Approved : 2024										

Logical Framework Matrix (LFM)

	Design Element	**Indicator and Baseline**	**Target**	**Means of Verification**	**Assumptions**
Outcome	Capabilities and networking of end-users, metrology laboratories and technical support organizations on occupational and medical radiation protection improved and strengthened	All the participating Member States with improved levels in RASIMS in the relevant TSAs by 2027; Baseline: As per RASIMS Regional Status January 2024 All the participating Member States with improved capacities levels in SSDL/TSO Baseline: as established in the survey at January 2024	Target: Q4/2027: RASIMS Regional Status December showing increase of levels in at least 60% of the evaluated aspects and for all participating Member States. Q4/2027: Status December showing increase of levels in at least 40% of the evaluated aspects at the survey and for all participating Member States	Regional profile in RASIMS, considering project participating countries Survey report validated with TO and project participating countries	Continued commitment by the governments to allocate necessary and sufficient resources to strengthen the regulatory framework and TSOs. Sustainable knowledge and information management at the national level of participating Member States
Output	1 Project team established and project implemented within scope, time and budget	Number of project coordination meeting conducted, baseline (BL) 0 in Q1/2024 Number of project team and partner meetings (consider stakeholders), BL 0 in Q1/2024 Number of PPARs completed, BL 0, Q1/2024 PAR completed, BL 0, Q1/2028	At least 1 project coordination meetings and conducted with CPs and focal points of TSA2/SSDL/TSA3 (one every year) At least 1 project team and partner meeting conducted every year 3 PPARs completed (Q4/2024, Q4/2025, Q4/2026) At least a draft of PAR completed at the end of the project	TCPride PCMF reports Reports of Regional coordination meetings Minutes, meetings reports TCReports	Senior management of official laboratories provide continued support and facilitate the cooperation with external actors. Decision-makers are sensitized and continue to provide sufficient human resources available to counterpart institutions to participate efficiently and effectively in the project.
	2 Occupational Radiation Protection and Safety Assessment	Number of tools and assessment developed on	At least 2 tools on occupational radiation safety at the end of	Assessment reports and tools	Trained staff remains on board. Facilities have availability for

	strengthened and new tools/standards disseminated (TSA 2)	occupational radiation safety radon and naturally occurring radionuclides Number of technical services members trained in Quality Management; BL:0 at project start Number of team members trained on safety assessment, optimization of RP and safety culture assessment BL: TBD at project start Number of team members informed/aware about guidelines, tools and document on RP in different practices and applications BL:TBD at project start Number of regional intercomparison exercise successful conducted; BL: TBD at project start	the project At least 10 people trained on Quality Management by 4Q-2027 At least 20 people informed about guidelines, tools and document on RP by 4Q 2027 At least 20 people informed about guidelines, tools and document on RP by 4Q 2027 At least 2 regional intercomparison exercise successful conducted and recommendations provided to the MSs	Attendance capture at regional events; Training program Expert mission reports PPAR Documents provided to MSs	safety culture assessment.
	3 Knowledge capacities of regional Secondary Standards Dosimetry Laboratories (SSDLs) strengthened and calibration methodologies implemented in the region	Number of people working in SSDLs trained (brachytherapy, neutron, survey and contamination monitors) BL: TBD at project start Number of regional intercomparison exercices for SSDL implemented	30 SSDL staff trained by the end of the project At least one intercomparison exercise implemented in the region and recommendation provided to MSs	Training and Workshop reports; attendance capture Expert Mission Reports; inter-comparison report	Retention of trained staff. Dissemination of knowledge and proper knowledge management
	4 Radiological protection in medical exposure with emphasis in radiodiagnosis, radiotherapy and	Number of people trained in radiation protection in medical exposure (TSA3) BL: TBD at project start Number of tools,	Around 100 people trained and sensitised by Q4-2027 At least 2 document/tools developed and provided to MS at the	Training Reports; Expert Mission/HBA reports Attendance capture;	Trained staff remains on board. Uptake of training of trainers

	nuclear medicine strengthened (TSA3)	protocols and procedures developed (TSA3) BL: TBD at project start	end of the project	Workshop Reports; Document provided to MSs: procedures, protocols	
	5 Visibility and dissemination of new documents, material and scientific publications provided and end-user regional networks strengthened	Number of articles and social media published BL:0 Q1/2024 Number of team members supported to participate in Congress and international events	At least 2 articles published 10 participants supported at the end of the project	Info published in IAEA Website, ARCAL website, social media, REPROLAM newslatter Events reports	Relevant material and publications disseminated by national counterparts and regional networks
Activity	1.1 To set up cooperation mechanisms for efficient and effective project implementation				
	1.2 To monitor project progress and report on project achievements				
	2.1 To develop capacities on occupational radiation safety radon and naturally occurring radionuclides				
	2.2 To enhance capacities of technical services in Quality Management				
	2.3 Promote the occupational radiation Safety Assessment, the Optimization of protection actions and Safety culture in End users				
	2.4 To update and disseminate guidelines, tools and documents on the promotion and optimization of RP in				

	different practices/applications				
	2.5 To conduct regional intercomparison exercices for dosimetry services for establishing a Improvement Plan				
	3.1 To strengthen technical capacities of SSDL (update and enhance)				
	3.2 To conduct regional intercomparison exercices for SSDL for establishing a Improvement Plan				
	4.1 To deliver implementation guidances/training on SSG-46				
	4.2 To strengthen radiation protection and optimization in medical exposure				
	4.3 To train and to advice on prevention and mitigation of accidents in nuclear medicine				
	4.4 To create awareness on Justification in Medical Exposure				
	4.5 To train and to create awareness and tools on radiation protection in pregnant.				
	5.1 To share lessons learned and good practices on Occupational RP to promote end-user regional networks				
	5.2 To participate in Congresses and				

	International Conferences/events to share project results				
Input	1.1.1 MT1_First Regional Coordination Meeting (CPs,3TOs, 1 PMO)				
	1.1.2 RM Regional Coordination Meeting focal point TSA2				
	1.1.3 RM Regional Coordination Meeting focal point- SSDL				
	1.1.4 RM Regional Coordination Meeting focal point TSA3				
	1.1.5 MT2_Final Regional Coordination Meeting (CPs,3TOs, 1 PMO)				
	1.2.1 Elaboration of Project Progress Assessment Reports (PPAR)				
	1.2.2 Virtual_Regional Meeting with CPs to follow-up project activitites (at least 1 per year)				
	1.2.3 Virtual_Regional Meeting with focal point TSA2, TSA2-SSDL and TSA3 to follow-up project activitites				
	1.2.4 Elaboration of the final Project Achievement Report (PAR)				
	2.1.1 HBA for mapping regional capacities and current situation (NORM)				

	2.1.2 RM Virtual on workplace analysis for NORM in industries				
	2.1.3 RTC on occupational radiation protection in NORM industries				
	2.1.4 RM to define regional strategy for Radon measurements (workers) * possible synergy with TSA4				
	2.1.5 HBA to develop regional guidelines for Radon measurements				
	2.1.6 VM to present and discuss regional strategy and guide on measurements of Radon. (possible synergies with TSA 4)				
	2.2.1 HBA to update, install and maintain the RND				
	2.2.2 RTC of RND software for external dosimetry laboratories and excesices review (virtual)				
	2.2.3 RM to promote the implementation of RND in LAC countries and generate a regional database (virtual)				
	2.2.4 RTC Virtual to strengthen external dosimetry on use of algorithms for calculation and adjustments				
	2.2.5 HBA to elaborate regional guide on how to apply ISO 17025 in dosimetry services (REPROLAM)				

	2.2.6 RTC Virtual to promote ISO 17025 for SSDL and radiation protection services (REPROLAM)				
	2.2.7 RTC of AIDE/TAURUS/IDA software for internal dosimetry laboratories and excersice review				
	2.2.8 RTC virtual on Planing and Shielding of Radiotherapy Bunkers for Energies above 10 MeV for End-users. Semi-empirical methods				
	2.2.9 RTC virtual on Planing and Shielding of Radiotherapy Bunkers for Energies above 10 MeV using Montecarlo codes for End-users.				
	2.3.1 RTC Train-the-Trainers Course on Safety Culture (based on e-learnig and other tools)				
	2.3.2 HBA to adjust requirements to practical on Safety assessment and optimization in gammagraphy industries				
	2.3.3 HBA to adjust requirements to practical on Safety assessment and optimization in radiopharmaceuticals activities				
	2.3.4 RTC on Safety assessment and optimization in radiopharmaceuticals activities and base on proposed documents				
	2.3.5 HBA to adjust regional practical				

	requirements for Safety assessment and optimization in brachytherapy of high dose rate				
	2.3.6 HBA to adjust regional practical requirements for Safety assessment and optimization in brachytherapy of high dose rate				
	2.3.7 HBA to adjust regional practical requirements on Safety assessment and optimization in Nuclear Medicine for Workers				
	2.3.8 RTC on safety culture in nuclear facilities				
	2.3.9 HBA to prepare assessment and optimization for veterinary radiology				
	2.3.10 RTC Virtual practical exercise on TOKSA application in gammagraphy for industries (Reprolam)				
	2.4.1 Webinar to disseminate information on the new guidance in new quantities magnitude for external dosimetry				
	2.4.2 RM to disseminate the guidance GSG-07				
	2.4.3 Webinar to disseminate a document for radiation protection monitoring in emergency situations (with TSA5)				
	2.4.4 Webinar to diseminate use de postal				

	dosimetry por quality asurance facilities				
	2.4.5 Webinar to disseminate a SRS 104 radiation protection and safety in veterinary medicine				
	2.4.6 Webinar to disseminate a guideline on ISO 17025 for labs				
	2.4.7 HBA to prepare a practical guidelines on occupational medical surveillance				
	2.4.8 Webinar to disseminate a guidelines on occupational medical surveillance				
	2.5.1 PRSERV Regional interlaboratory intercomparison exercise for dosimetry services for whole body dosimetry Hp(10) and Hp (0.07) (2024)				
	2.5.2 PRSERV Service of Regional interlaboratory intercomparison exercise in lens dosimetry of the eyes and extremities				
	2.5.3 SP for regional interlaboratory intercomparison in computational dosimetry for accidents				
	2.5.4 RM virtual to discuss the results of the intercomparison exercises (whole body, eye lens and extremities) to generate reports and recommendations				
	2.5.5 SP for regional interlaboratory				

	intercomparation in biological dosimetry				
	2.5.6 RTC specialists dosimetry (based on the training material for medical physicists) REPROLAM				
	2.5.7 RM virtual on retrospective dosimetry with results intercomparison and recommendations (Reprolam)				
	2.5.8 RM for Intercomparison exercise in Computational dosimetry (Reprolam)				
	3.1.1 RTC training on calibration with x-ray beams including ISO4037				
	3.1.2 VM to discuss the results of the intercomparison exercises on survey meters, surface contamination monitors and generate reports (2024 y 2027)				
	3.1.3 VM for SSDL and dosimetry services to discussed on the implication of the new radiation protection magnitudes quantities for External Exposure (2026)				
	3.1.4 RTC on calibration of radiation protection equipment with beta source				
	3.1.5 HBA to develop a protocol for technical validate the activimeters on site (nuclear medicine).				

	3.1.6 RM on the harmonization of the calibration methodology of the activimeters used in nuclear medicine installations				
	3.1.7 HBA to elaborate regional guide on how to apply ISO 17025 in SSDL				
	3.2.1 PRSERV Service of regional interlaboratory intercomparison exercise for SSDL for survey meters and surface monitors (2025)				
	3.2.2 RM Virtual to discuss the results of the intercomparison exercises on survey meters, surface contamination monitors and generate reports (2025)				
	4.1.1 RM/VM on radiotherapy				
	4.1.2 RW/VM on nuclear medicine				
	4.1.3 RM/VM general radiology and interventionism				
	4.1.4 RM on radiotherapy accident and incident reporting systems-SAFRON (Spansh version).				
	4.2.1 RM Harmonization of protocols and discharges in nuclear medicine				
	4.2.2 RVM on interventionism in				

	traumatology, urology and gastroenterology				
	4.2.3 RVM advanced dental radiology				
	4.2.4 RVM on dosimetry and radiation protection in nuclear medicine including hybrid systems (in cooperation with FORO)				
	4.2.5 HBA to establish diagnostic reference levels in Interventional Procedures				
	4.2.6 HBA to establish diagnostic reference levels in Computer Tomography (including regional consultations)				
	4.3.1 RWS prevención de accidentes en medicina nuclear				
	4.4.1 RW on Application of the principle of justification in radiology and role of the prescribing physician				
	4.5.1 RVM on radiation protection of Pregnant patients including the fetus				
	4.5.2 EM/HBA to design and update practical guidelines documents				
	5.1.1 RM to share lessons learned and good practices related to TSA2, SSDL and TSA3				
	5.1.2 HBA to develop documents and tools for Spanish audience (TSA3)				

	5.1.3 Subcontract for editing outreach material and dissemination for Spanish audience				
	5.2.1 Sponsored Participation IRPA, IRCP, Regional Congress on solid state dosimetry, Eurados, etc..				
	5.2.2 Sponsored Participation Symposio REPROLAM on Occupational radiation Protection				
	5.2.3 Sponsored Participation in IAEA Congress for Technical Support Organisations or international congress/event to present project results				
	5.2.4 LOCAL Each country will disseminate knowledge gained at the national level				