

ARCAL

**REGIONAL CO-OPERATION AGREEMENT FOR THE PROMOTION OF NUCLEAR SCIENCE AND TECHNOLOGY IN LATIN AMERICA AND THE CARIBBEAN**

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| **ANNUAL REPORT****Country: Belize** |

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**INTRODUCTION**

The annual report by national coordinators must reflect progress achieved and setbacks encountered in programme implementation during the year. This report is the responsibility of the ARCAL national coordinator and must be sent before 15 March of each year to the IAEA.

In order to provide necessary and useful information for project reporting, monitoring and development, a report format, as set out below, must be followed.

ANNEXES

Annex 4.1 – Format of the annual report on ARCAL country activities.

Annex 4.2 – Table of financial indicators for assessing States’ contributions.

**ANNEX I – FORMAT FOR THE ANNUAL REPORT ON ARCAL COUNTRY ACTIVITIES**

**CONTENTS**

1. EXECUTIVE SUMMARY
2. PARTICIPATION OF THE NATIONAL COORDINATOR IN ARCAL ACTIVITIES
3. RESULTS

a) DIFFICULTIES AND PROBLEMS ENCOUNTERED IN IMPLEMENTING PROJECTS AND THE AGREEMENT

1. ANNEXES
2. **EXECUTIVE SUMMARY**

In 2022, the University of Belize’s participated in RLA5089 “Evaluation of the impact of heavy metals and other pollutants on soils contaminated by anthropogenic activities and natural origin ARCAL CLXXVII” 2022-2025.

The country counterpart (CP) for RLA5089, Shareen Arnold, and the named expert for the project, Joaquin Magana, virtually attended the First Coordination Meeting (Ref No. EV2201339), 21-24 March 2022, 8am-5pm hosted by IPEN, Peru. At this meeting, Shareen Arnold presented Belize’s situation on soil pollution including any ongoing soil pollutants monitoring programmes and most impacted areas/pollutants, our proposed country project team and existing capacities (human and infrastructure), and the country’s needs and expectations of the project.

Meetings with the University of Belize (UB) and the Belize Department of the Environment (DOE) for RLA5089 were held September 2nd, 2022 and November 10th, 2022 to give an update on RLA5089 progress, to establish collaboration between UB and DOE, and discuss potential case studies for Belize for RLA5089 based on DOE’s knowledge of the environment. DOE has committed to the collaboration and has assisted with identifying sample areas, as well as with transportation, and assistance with collecting and analysing soil samples. UB has committed their lab resources, research experts, and trainings for staff and stakeholders received through this project.

Shareen Arnold, as CP and Expert, attended the Regional Workshop on the Harmonization of Protocols for Sampling of Soils contaminated by Heavy Metals and on the Implementation Strategy in Demonstration Areas (Ref No. EVT2204079) in Lima, Peru from November 21-25th, 2022 8 am-5pm. At this meeting, Shareen Arnold presented Belize’s case study on proposed sampling site(s) for mercury in soil analysis, and collaboration with DOE in this study, and made potential collaborations with ICENS, Jamaica and CDTN/CNEN, Brazil for analysis of other heavy metals using their equipment.

Shareen Arnold, Joaquin Magana and Ms. Zeida Franco participated in all sampling and sample preparation working group for experts across Latin America and the Caribbean in soil sampling for the RLA5089 project. Meetings have been held virtually with all project participants on May 31st 2022, and October 26th 2022, and in person in Lima, Peru from November 21-25th, 2022, to discuss the Terms and references of the sampling and sample preparation working group, and to begin the work on a harmonized protocol for project participants. A mercury in soil working group has since been established and continue to meet every two weeks hosted by Columbia. During these meetings experts discuss their methodology for soil sampling for heavy metal analysis to prepare a harmonized protocol for sampling soil and preparing the sample for the RLA5089 project.

Shareen Arnold, Project Counterpart (CP) request a soil sampling kit for RLA5089 Belize valued EUR 9,360.08. The request was approved on Oct 18th 2022. The kit was received by UB on March 9th 2023.

As a complement to the RLA5089, UB has sought other opportunities for training researchers in mercury analysis in various types of samples and in Direct Mercury Analyzer (DMA) operation for total mercury analysis. In January 2022, Joaquin Magana, Expert for RLA5089, and all Chemistry Faculty, and science laboratory technicians received some training in general operation of the DMA at UB by the service provider.

Joaquin Magana who had previous experience in DMA analysis for mercury in fish tissue in Cuba, attended a 3-week intensive Central American course November-December 2022, in CIRA/UNAN-Managua hosted by JICA. The course covered sampling in sediments/soils, fish tissue, and hair tissue and mercury analysis of these.

UB Hosted a site visit done by PMO Magali Zapata-Catier in November 2022. The PMO was able to visit our newly launched UB Hummingbird Analytical Lab which houses the DMA for RLA5089 and other IAEA sponsored equipment through various research.

For 2022, there were two regional meetings to introduce and encourage full countries’ participation of the regional project RLA7026. The first meeting was a virtual coordination session, which was the introduction of the RLA7026 project, held from March 28 to 31, 2022. The following country representatives were present: Argentina, Brazil, Belize, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, and Venezuela. The opening of the meeting was given by the Project Management Officer (PMO) of the International Atomic Energy Agency (IAEA) and the Technical Project Officers (TO) of the IAEA. The following international experts were also present: Ms. Asunción Romanelli from the Institute of Marine and Coastal Research, National University of Mar del Plata, Argentina; and Mr. Augusto Abilio Comas González from the Centre for Environmental Studies of Cienfuegos, Cuba. Each country, in attendance, presented the proposed country project team. Along with the existing capacity and needs/ expectations of the Project. Belize presented such information. The strategy and the general goal of the Project RLA7026 was presented to the participating countries.

The second regional workshop was held in Panama City, Panama from 28th November to 2nd December, 2022. This workshop accomplished the second specific objective of RLA7026 project, namely; the Harmonization of Methodologies for Sampling and Analysis of Physicochemical Variables to Define Quality and Trophic Status of Water Bodies in Latin America and the Caribbean. The objective of the workshop was to harmonization of technical criteria/index to implement monitoring programs of trophic status of aquatic ecosystems, define physiochemical parameters to establish the trophic status, sampling methods and complementary analysis for isotope hydrology, and the approval of a monitoring strategy at areas of interest.

1. **PARTICIPATION OF THE NATIONAL COORDINATOR IN ARCAL ACTIVITIES**

In 2022, the National Coordinator for ARCAL was represented by Alexya Perez at XXIII Meeting of the ARCAL Technical Coordination Board (OCTA) (RLA0070-2200506) from May 16 to 20. The meeting was organized to review and select project proposals to be submitted by ARCAL for the next technical cooperation cycle 2024-2025.

In December 2022, Belize hosted the ARCAL Communication Strategy Meeting for the 2023-2024 period in San Ignacio Town, Belize. This meeting was used to strengthen the roles and participation of the National Communication Representatives in ARCAL to increase the promotion and visibility of the projects of the regional initiative. The project was successful in developing the proposal for the Communication Strategy and the Action Plan, throughout the week, the group worked in teams that identified and organized relevant issues, such as the activities to commemorate the 40th anniversary of ARCAL in 2024, the strategy of digital channels and the incorporation of the gender perspective, the latter through concrete actions such as the promotion of an inclusive and non-sexist language, and the greater visibility of the role of women in nuclear issues within the framework of the ARCAL projects. The foregoing, it should be noted, that work will be coordinated with WiN ARCAL.

As the National Communication Representative, Belize participated in the “I am Nuclear” campaign on International Women’s Day by contributing to two WiN ARCAL videos that featured two female nuclear scientists from Belize.

1. **RESULTS**
2. **DIFFICULTIES AND PROBLEMS ENCOUNTERED IN IMPLEMENTING PROJECTS AND THE AGREEMENT**

The difficulties with participating in ARCAL are sometimes due to the language barriers. Events and workshops are mostly hosed in Spanish and it limits participation from some Belizeans who only speak the country’s national language, English. It would be suggested to have simultaneous translation during meetings and trainings. Also, it would be helpful to have the Procedures Manual of ARCAL Annual Report for Project Coordinators be translated to English.

For RLA7026, some challenges that the country counterparts had identified for implementation of the project were (i) COVID19 pandemic restrictions, and (ii) the communication platform – Microsoft Teams – was not the adequate communication platform for sharing documents and communication.

**4.**  **ANNEXES**

4.1 The country’s contribution to the programme (include the detailed account as required in the table of financial cash indicators)

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| --- | --- | --- |
| Project code and title | Project coordinator  | Assessed contribution |
| RLA0070 | Orla Kantun-Coleman | * Alexya Perez travel to Vienna: 15 May to 21 May (EVT2200506)
* Communication Strategy Meeting hosted in Belize December 12-16, 2022
 |
| RLA5077 | Victoriano Pascual | N/A |
| RLA5080 | Natalie Gibson | N/A |
| RLA5081 | Natalie Gibson | N/A |
| RLA5085 | Donald Yah | N/A |
| RLA5089 | Shareen Arnold | * The country counterpart (CP) and expert for the project virtually attended the First Coordination Meeting (Ref No. EV2201339), 21-24 March 2022, 8am-5pm hosted by IPEN, Peru.
* Collaboration meetings with the University of Belize (UB) and the Belize Department of the Environment (DOE) for RLA5089 were held September 2nd, 2022 and November 10th, 2022.
* CP and Expert attended the Regional Workshop on the Harmonization of Protocols for Sampling of Soils contaminated by Heavy Metals and on the Implementation Strategy in Demonstration Areas (Ref No. EVT2204079) in Lima, Peru from November 21-25th, 2022 8 am-5pm.
* Shareen Arnold, Joaquin Magana and Zeida Franco participated in all sampling and sample preparation working group for experts across Latin America and the Caribbean in soil sampling for the RLA5089 project. Meetings have been held virtually with all project participants on May 31st 2022, and October 26th 2022, and in person in Lima, Peru from November 21-25th, 2022, and every two weeks in the new year.
* CP requested a soil sampling kit for RLA5089 Belize valued EUR 9,360.08. The request was approved on Oct 18th 2022. The kit was received by UB on March 9th 2023.
* In January 2022, the Expert for RLA5089, and all Chemistry Faculty, and science laboratory technicians received some training in general operation of the DMA at UB by the service provider.
* Joaquin Magana who had previous experience in DMA analysis for mercury in fish tissue in Cuba, attended a 3-week intensive Central American course November-December 2022, in CIRA/UNAN-Managua hosted by JICA. The course covered sampling in sediments/soils, fish tissue, and hair tissue and mercury analysis of these.
* Hosted a site visit done by PMO Magali Zapata-Catier in November 2022. The PMO was able to visit the newly launched UB Hummingbird Analytical Lab which houses the DMA for RLA5089 and other IAEA sponsored equipment through various research.
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| RLA7026 | Henry SanchezJosue Ake | * Virtual coordination session introducing RLA7026 project, held from March 28 to 31, 2022
* Mr. Josue Ake travelled to Panama: 27 November to 3 December (EVT2204717)
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| Total |  |  |

**ANNEX 4.2 – TABLE OF FINANCIAL INDICATORS FOR ASSESSING COUNTRY CONTRIBUTIONS TO THE ARCAL PROGRAMME**

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| --- | --- | --- |
| ITEM | REFERENCE VALUE | AMOUNT in € |
| 1. Experts/conference attendees sent abroad by the Agency
 | €300 X 21 | €6,300.00 |
| 1. ATCB Steering Group, ATCB working groups and focal points
 | €300 per person per day (including travel days) |  |
| 1. Local cost of the venues of a regional event held in the country (working group/training courses/workshops/ seminars)
 | €5000 per week | €5,000 |
| 1. Local costs of national events included in the activity plan
 | €3000 per week |  |
| 1. Fellowship holder whose local expenses are borne by the country
 | €3500 per fellowship holder per month |  |
| 1. Publications
 | Up to €3000  |  |
| 1. Database establishment and/or updating
 | Up to €5000 |  |
| 1. Local cost of venues ARCAL Technical Coordination Board (ATCB) sessions
 | €50 000 per week |  |
| 1. Shipment of reagents/radiation sources/radioisotopes/other material
 | Up to €5000 |  |
| 1. Services provided (e.g. irradiation of material)
 | Up to €5000 |  |
| 1. Time worked as national coordinator, with supporting team
 | €1500 x 12 months | €18,000 |
| 1. Time worked as DTM
 | Maximum €700 per month |  |
| 1. Time worked as project coordinator
 | €500 x 2 project coordinators x 12 months | €12,000 |
| 1. Time worked as local specialists collaborating on projects (maximum of 3 specialists per project)
 | Maximum €300 per month per specialist  |  |
| 1. Contributions to the implementation of each project, broken down as:
	* internal/external subsistence
	* internal/external transport
 | €250 X 4 project implementation | €1,000 |
| 1. Expenditure by the country on the project (infrastructure, equipment, etc.)
 | Maximum €10 000 |  |
| **TOTAL** | **€42,300.00** |

**Note: Activities not included in this Table must not be taken into account.**