

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: Jamaica** |

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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**

For the 2021 period, Jamaica had active participation in 2 ARCAL projects, and one in closing, al counterparts responded to the request for information.

**Table 1. Jamaican Active Projects**

|  |  |
| --- | --- |
|  **Project Counterpart(s)** | **Project # and Title**  |
| *\*Ms. Asha Badaloo* | *RLA6079: Using Stable Isotope Techniques for Monitoring and Interventions to Improve Young Child Nutrition (ARCAL CLVI)* |
| Ms Tracia-gay Kareem Kennedy-Dixon | RLA6084: Strengthening Regional Human Resource Development in Different Areas of Radio-pharmacy (ARCAL CLXIX) |
| Mr Johann Antoine | RLA7023: Assessing Atmospheric Aerosol Components in Urban Areas to Improve Air Pollution and Climate Change Management (ARCAL CLIV) |

**\* Project in closing**

Based on the counterparts that submitted reports, good progress has been made on the two (2) of the projects, with significant outputs from the working group for the selection of specialization programmes in radio-pharmacy including different types of training (RLAA6084) and sample collection of air filters for assessing atmospheric aerosol components in urban areas (RLA7023) on target.

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

Project counterparts reported attending a total of 6 virtual meeting s and training sessions, all of which were deemed to be very successful. Please see project counterpart summaries.

Time spent for project coordination and NCR totalled €1500, a total of €550 was spent for transportation during fieldwork for project RLA7023.

1. **RESULTS**

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

In previous years concerns were raised regarding the language barrier and its impact on the selection of suitable candidates, however, this was not the case for this period. The COVID19 had a large impact on face-to-face meetings and training sessions, however, some aspects of the projects were implemented through various online platforms.

**4.**  **ANNEXES**

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

|  |  |  |
| --- | --- | --- |
| Project code and title | Project coordinator  | Assessed contribution |
| RLA6079 | Ms. Tracia-gay Kareem Kennedy-Dixon | Time worked as project coordinator€500 |
| RLA7023 | Mr. Johann Antoine | Time worked as project coordinator€500 |
| RLA7023 | Mr. Johann Antoine | Internal Transport€550 |
| NCR Jamaica | Mr. Charles Grant | Time worked as national coordinator€500 |
| **Total** |  | **€2050** |

This report has been compiled by Charles Grant, ARCAL National coordinator.

**PROJECT COUNTERPART SUMMARIES:**

**INTRODUCTION**

**RLA6079:** “Using Stable Isotope Techniques for Monitoring and Interventions to Improve Young Child Nutrition” (ARCAL CLVI)

Project in closing, no activities planned for the period.

**1. EXECUTIVE SUMMARY**

Project in closing, no activities planned for the period.**2. IMPACT OF PROJECT ACTIVITIES IN THE COUNTRY**

Project in closing, no activities planned for the period.

**3. RESULTS**

Project in closing, no activities planned for the period.

**4. DIFFICULTIES AND PROBLEMS PRESENTED DURING THE PROGRESS OF THE PROJECT:**

None reported.

**INTRODUCTION**

**RLA6084:** " Strengthening Regional Human Resource Development in Different Areas of Radio-pharmacy "(ARCAL CLXIX)

This project aims to strengthen the partnerships of national institutions in the region to provide access to radiopharmaceuticals in all countries. Brazil, Cuba, Uruguay, Argentina and Peru, possess infrastructure that can serve as a basis for the propagation of the activity and overall regional solutions that benefit all the participating countries. Relevant international partners are the World Health Organization (WHO) and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

**1. EXECUTIVE SUMMARY**

Jamaica participated in the following project meetings/workshops:

1. Participation by the project coordinator (coordination meetings, workshops and working groups).

The working group with participants from seven selected countries (Uruguay, Cuba, Argentina, Panama, Mexico, Columbia and Jamaica) did significant work throughout 2021. This group was previously tasked to strategize virtually on the production of specialization programmes in radio-pharmacy including different types of training.

July 02, 2021 – First virtual meeting of the designated working group

July 30, 2021 – Second virtual meeting of the working group

October 22, 2021 – Third virtual meeting of the working group

November 8 -12, 2021 - Virtual meeting of the working group and the experts in curriculum development

December 13 - 17, 2021 – Participation in the IAEA Virtual Regional Train-the Trainers Course in Radio-pharmacy

b) Resources contributed by the country to the project (include the detailed account as required in the table of financial cash indicators).

• Other than time spent as project coordinator, there was no additional financial contribution made to the project by Jamaica.

**2. IMPACT OF PROJECT ACTIVITIES IN THE COUNTRY**

Highlight actual contributions of project activities, quantitatively and qualitatively, as far as possible.

• As the only English-speaking Caribbean country involved in the project, there is great need for the development of a regional strategy and training programmes to overcome human resource development gaps in this field in a sustainable manner. Participation in the Train-the-Trainers Course will have significant impact on the training of pharmacists and other scientific professionals in the Radio-pharmacy.

• Efforts from this project will be based on a regional network of collaboration and training between academic institutions and health-care facilities. This harmonized strategy will employ different forms of radio-pharmacy training including e-learning combined with experiential practice. The University of the West Indies, Mona Campus (which currently offers a Doctor of Pharmacy program) in collaboration with the University Hospital of the West Indies is ideally poised to benefit from the implementation of this activity. The UWI is currently ranked as the #1 university in the Caribbean, within the top 2% in Latin America and in the top 4% of universities in the world. This project is therefore of immense benefit to the specialized training of pharmacists in Jamaica as well as other countries in the Caribbean.

 **3. RESULTS**

The working group with participants from seven selected countries (Uruguay, Cuba, Argentina, Panama, Mexico, Columbia and Jamaica) did significant work throughout 2021. This group was previously tasked to strategize virtually on the production of specialization programmes in radio-pharmacy including different types of training.

**INTRODUCTION**

**RLA7023:** Assessing Atmospheric Aerosol Components in Urban Areas to Improve Air Pollution and Climate Change Management (ARCAL CLIV)

In Latin America and the Caribbean, as in other regions, the scientific knowledge about air quality in megacities is uneven, which represents a clear opportunity for transfer of knowledge, from some urban areas with more experience to others with lower levels of experience. Examples are Santiago in Chile, Sao Paulo in Brazil and Mexico City in Mexico, where due to the adverse geographical conditions and the consequent high levels of contaminants measured, the problem of air pollution has been extensively studied during the last 20 years, while in other cities, capabilities for physicochemical characterization is limited. A regional project will allow not only the possibility to perform regional training activities, but also to create a network of researchers that provide the basis for improving atmospheric studies on a continental scale. Furthermore, the need to identify synergies and co-benefits of taking joint actions to reduce the emissions of greenhouse gases and toxic pollutants in the region was raised in the 19th Meeting of the Forum of Ministers of Environment of Latin America and the Caribbean (held in Los Cabos, Mexico, in March 2014).

**1. EXECUTIVE SUMMARY**

Summary of participation in the project:

Sampling continued in January 2021 using the high-volume sampler that was sited on the roof of the National Environment and Planning Agency (NEPA), which is the national regulator and a primary stakeholder in the project. The low-volume sampler was still non-operational at the very beginning of the year but was repaired in late January and pressed into service shortly after. This allowed the collection of filters for the remainder of the year from this sampler and effectively doubled the number of filters collected for analysis. In total, one hundred and one (101) samples were collected from the high-volume sampler and ninety-five samples were collected from the low-volume sampler. Responses to COVID-19 and an outbreak at the International Centre for Environmental and Nuclear Sciences (ICENS) resulted in the collection of four (4) fewer filters than scheduled. On June 17th, 2021, ICENS took delivery of the Multi-wavelength absorption black carbon instrument (MABI) from The Australian Nuclear Science and Technology Organisation (ANSTO) through the project. This gave ICENS the ability to measure the black carbon component of the sample particulate matter.

a) participation by the project coordinator (coordination meetings, workshops and working groups).

Mr. Johann Antoine of the ICENS attended the RLA7023-EVT2003614 VIRTUAL Regional Training Course on the Use of Remote Sensing Analysis for Pollution Source Identification on October 5th, 7th, 12th, and 14th, 2021. Mr. Antoine attended in his capacity as project counterpart. The counterparts from the attending member states were introduced to the basic concepts of atmospheric physics needed to comprehend remote sensing analysis. The meeting participants were subsequently introduced to the various technologies and concepts of remote sensing analysis. The counterparts were also given exercises to use platforms for remote sensing and how these could be used for source apportionment.

**2. IMPACT OF PROJECT ACTIVITIES IN THE COUNTRY**

One of the major contributions of the project this year has been the acquisition of the multi-wavelength absorption black carbon instrument (MABI). This has given the ICENS and by extension Jamaica the ability to easily and accurately measure black carbon which is an important component of air pollution and to use this parameter for source apportionment.

Additionally, the virtual training course on the Use of Remote Sensing Analysis for Pollution Source Identification has also resulted in further capacity building for the Centre and the country.

**3. RESULTS**

For the calendar year 2021, ninety-five filters from the low-volume sampler and one-hundred and one (101) samples were collected from the high-volume sampler.

1. **DIFFICULTIES AND PROBLEMS PRESENTED DURING THE PROGRESS OF THE PROJECT:**

The major difficulty for project implementation was the scheduled metal analysis of the collected filters. Although the Shimadzu EDX-7000 spectrometer was commissioned virtually as mentioned in the previous report there have been software issues that have prevented its proper functioning. An installation engineer is due to complete the commissioning and training and to determine the issue with the spectrometer and this will occur in March of 2022.

Secondly, there was a malfunction of the primary gamma-ray spectrometry system that resulted in the shipping of one of the high-purity germanium (HPGe) detectors back to the vendor for repair. It has also been determined that another component of the system will have to be replaced as this instrument can't be repaired. This is the system was earmarked for the analysis of the filters and both these equipment issues have resulted in the continued delay of analysis.

A minor issue was the response to the COVID-19 pandemic affecting the collection of samples. Due to an outbreak of COVID-19 and the closure of the Centre at one point, there was a delay in the collection of four (4) samples. This was not deemed a significant problem, but it was a deviation from the schedule, nonetheless.