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Translated from Spanish



**REGIONAL COOPERATION AGREEMENT FOR THE PROMOTION OF  
NUCLEAR SCIENCE AND TECHNOLOGY IN LATIN AMERICA AND THE  
CARIBBEAN**

**REGIONAL COOPERATION PLAN FOR THE PROMOTION OF  
NUCLEAR SCIENCE AND TECHNOLOGY IN LATIN AMERICA  
AND THE CARIBBEAN  
FOR THE FIFTH PHASE OF ARCAL  
(including technological goals)**

**FIFTH MEETING OF THE BOARD  
OF ARCAL REPRESENTATIVES (BAR)**

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## **1. INTRODUCTION**

Pursuant to the third meeting of representatives of ARCAL member countries held during the 46th session of the IAEA's General Conference in Vienna on 17 September 2002, the Working Group comprising the Managerial Group (Peru, Cuba and Mexico) and the National Coordinators of Argentina, Brazil and Bolivia elaborated a Regional Cooperation Plan Proposal for the Fifth Phase: 2005–2010. This Regional Cooperation Plan Proposal for the Fifth Phase was reviewed at the fourth meeting of the Technical Coordination Board held in Cuba in June 2003 and the new version (ATCB 2003-08 Rev.1) was submitted for approval to the Board of ARCAL Representatives (BAR) at the sixth meeting of the BAR in September 2003.

### **1.1. BACKGROUND**

1. The countries of the Latin American and Caribbean region have recognized the importance of the peaceful use of nuclear energy and its multiple applications as a factor in the social and economic development of their peoples, having been involved in the establishment of the International Atomic Energy Agency (IAEA) in 1957.
2. Nowadays, the possibilities offered by nuclear technology can help countries in the region solve a great variety of their problems with a view to achieving a better quality of life for their respective peoples.
3. History shows that any desire to promote social and economic development in countries is dependent on improving human resources in terms of availability, training and specialization in a particular discipline. Thus, now more than ever, horizontal cooperation links among countries in the region need to be made closer to ensure that staff are available who have sufficient capabilities and experience to strengthen nuclear activities needed in their respective countries.
4. The more developed countries of Latin America and the Caribbean have indicated their readiness to pass on their experience extensively so that the entire region can attain an adequate technological level, allowing tangible and sustainable results to be obtained.
5. The countries of the Latin American and Caribbean region participating in ARCAL have already completed four phases of cooperation within the framework of this programme (1985–2002). As a result of this cooperation, greater regional self-sufficiency has been achieved as regards the human resources dedicated to nuclear science and technology applications. It is therefore important that the ensuing phases strengthen the achievements made, that new paths are opened up for the development of regional cooperation and that policies and methods can be put in place which promote more efficiently the harmonized development of the region.
6. ARCAL will begin its fifth phase in 2005, which should last till 2010. In this phase, emphasis has been placed on consolidating the programme's achievements in the previous phases. To this end, a series of measures has been adopted aimed at strengthening the programme which include the following:

- Preparation of an increasingly focused and realistic programme which includes projects that have a significant impact in countries that participate in their implementation and that at the same time meet the specifications of the request;
- For activities carried out under the auspices of the IAEA or other donors, the guidelines, mechanisms and tools approved by the IAEA or the other donors will be put into practice, as appropriate;
- Increasingly active participation by countries in the preparation of cooperation projects and implementation of programme activities;
- Periodic updating of the Regional Cooperation Plan for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean;
- Review and updating of the Manual of Procedure for ARCAL;
- Establishment of a level of financial commitment for countries participating in the programme;
- Seeking of new sources of funding for the implementation of projects.

## **1.2. OBJECTIVES OF THE REGIONAL COOPERATION PLAN**

The aim of the Regional Cooperation Plan is:

- a) To establish a plan for the programming of projects which addresses regional priorities, in line with the development priorities of member countries;
- b) To promote and improve cooperation among countries in the region in the field of nuclear science and technology;
- c) To serve as a guideline, both for the IAEA and other donors and for countries in the region, when selecting projects which form part of the ARCAL programme;
- d) To serve as a guide for both the IAEA and other donors for the allocation of funds for the implementation of the activities envisaged for each project, so that these activities meet the real interests and needs of the region;
- e) To serve as a reference for countries outside the region interested in supporting or promoting the implementation of projects or activities under ARCAL, in order to channel the assistance or cooperation they wish to provide;
- f) To concentrate available resources in those sectors and subsectors prioritized by the region, with a view to enhancing the socio-economic impact of the projects;

- g) To encourage the participation of national production sectors in priority areas of interest to them.

## **2. MISSION OF THE ARCAL PROGRAMME**

*To contribute to the sustainable development of the Latin American and Caribbean region through cooperation among countries for the promotion and peaceful use of nuclear science and technology to solve the priority problems of the region.*

## **3. VISION OF THE ARCAL PROGRAMME**

- *“We are the most effective technical cooperation programme on the use of nuclear technology.”*
- *“We have all the capabilities and they are being used.”*
- *“We guarantee the highest impact solution for priority problems of the region.”*

## **4. STRATEGIC OBJECTIVES OF THE ARCAL PROGRAMME**

1. To strengthen cooperation among countries in the region to solve priority problems in identified sectors through the optimal use, upgrading, modernization and transfer of nuclear technology.
2. To provide a timely response to the priority needs of the region in general and of Member States in particular through a dynamic and effective mechanism which facilitates the optimum and safe use of available capacities and resources in nuclear science and technology.

## **5. FIFTH PHASE OPERATIONAL OBJECTIVES RELATED TO GENERAL STRATEGIC OBJECTIVES**

1. To consolidate the network of institutions, promoting their cooperation and mutual assistance links, their complementarity, development and recognition, on the basis of their actual participation in the programme and the results achieved in the projects implemented.
2. To make effective use of the human resources potential in the region, combining the best experience in each thematic area, with continuous development of new capabilities.
3. To define criteria and procedures for allocating resources to projects, taking into consideration the level of technological development of countries in the region.
4. To define the roles of countries as transferrers or recipients of nuclear technology, indicating their respective commitments.
5. To establish the baseline for the group of priority sectors to receive the support from the programme.

6. To establish a system for monitoring and evaluating the results and impacts of the programme.
7. To position ARCAL strategically at the relevant political levels, in the media and in public opinion.
8. To establish a funding plan on the basis of the commitments of the participating countries, the IAEA and other donors.
9. To review the procedures for the design, selection, prioritization and evaluation of projects, applying the results-based management approach.
10. To improve the performance of the ATCB and its interaction with the BAR.
11. To identify project problems and opportunities and prepare competitive proposals to address them.
12. Increase in the supply of specialized products and services in the region.

## **6. GENERAL FRAMEWORK FOR THE DEVELOPMENT OF INTERNATIONAL ATOMIC ENERGY AGENCY COOPERATION**

Since the main source of funding at present is the International Atomic Energy Agency, a general framework for the development of ARCAL–IAEA cooperation needs to be established in the Regional Cooperation Plan.

### **6.1 MEDIUM-TERM PROSPECTS FOR REGIONAL COOPERATION**

As far as it has been possible to ascertain, over the next few years the following factors related to the nuclear sector will have a significant influence on the Agency's work:

- a) The ongoing national and international debate over how to reconcile a growing demand for energy with global and local environmental problems;
- b) The pressing need to achieve the highest levels of safety at relevant nuclear facilities throughout the world, and raising of radiation protection levels at existing radioactive facilities in countries in the region up to international standards;
- c) A rapid increase in experience in the area of spent fuel and waste management, in order to be able to address adequately the problems caused by the ageing and closure of nuclear facilities which have reached the end of their useful life;
- d) Increasing involvement of the private sector, in both nuclear power generation and other nuclear technology application areas, which means that special attention must continue to be paid to nuclear safety aspects to ensure that nuclear safety is not compromised;

- e) The reduction of public sector funding for basic and applied research in the nuclear field;
- f) Reduction in direct national financial support for many nuclear research centres: progressive transfer of the development of nuclear applications to “non-nuclear” public and private sectors, demonstrating their acceptance as already mature tools for a wide range of applications;
- g) Constant interest in the effective development and transfer of nuclear technology to developing countries under the auspices of the Agency, in order to address regional and international sustainable development priorities;
- h) Public opposition in many countries to the use of nuclear energy for the generation of electricity and concern over the safe and transparent management of radioactive waste;
- i) Rapid and great advances in information technology will open up exceptional opportunities for new forms of work. In addition, new information technology will facilitate improved communications and outreach.

It is also thought that the Agency’s activities will be influenced by the following institutional factors:

- a) Member States are limiting their overall financial commitments to the United Nations system. This decision results in a lot of pressure to keep stable the level of the regular budgets of each organization for the promotion of international cooperation within the framework of the Agency;
- b) Increasing competition among international institutions for scarce resources, as well as persistent pressure for them to collaborate more closely with one another and avoid duplication;
- c) Strong interest in innovative funding measures for some components of international cooperation, for example direct payment of services and cost sharing for implementation of technical cooperation projects, particularly for the purchase of costly equipment and the implementation of certain activities, etc.;
- d) Increasing involvement of non-governmental organizations and civil society in the formulation of national and international policy, some of which do not support IAEA activities, which could limit the Agency’s activities in certain areas of international cooperation.

## **6.2 TECHNICAL COOPERATION FOR DEVELOPMENT**

1. An important part of the Agency’s technology transfer work is done through the technical cooperation programme, and its technical and scientific programmes.

2. It is to be expected that the complementary character of this task will increase: for example, as safety standards are adopted, work will be directed towards providing assistance for their application; and as nuclear techniques become established, work will be directed towards transferring them.
3. Owing to the disparity in the level of development in the application of nuclear techniques in the region, there is a need to build new capacities in less developed countries.
4. The main thrust of the Agency's technical cooperation programme has changed gradually in recent years, shifting from support for activities intended to foster national nuclear capacity to activities utilizing this capacity for sustainable and productive national development. This change involves new responsibilities, functions and resources outside the Agency's traditional role; in particular, new relationships with counterparts in Member States and with other national organizations, other international development organizations and, possibly, the commercial sector.
5. Safety continues to be a fundamental factor and therefore the aim is for all Member States to have established basic safety and radiation protection infrastructures as an indispensable requirement for the receipt of Agency cooperation in the future use of radioactive material.
6. It is anticipated that governments' support for and financial commitment to the implementation of Agency technical cooperation projects will be maintained, and that the IAEA will strengthen its support for technical cooperation as one of its main pillars.
7. It is anticipated that the IAEA and Member States will strengthen support for technical cooperation among developing countries.

## **7. TECHNICAL COOPERATION PROGRAMMING**

### **7.1 Introduction**

The Agency's technical cooperation with the countries of Latin America has yielded very valuable results in line with the priorities of governments. The region's current challenges require new approaches which allow each Member State to obtain the maximum impact from the technical cooperation programme.

In order to improve the Agency's technical cooperation with ARCAL and make it more efficient and effective, it is necessary to develop and implement effective work plans and seek realistic technical cooperation opportunities in each country, in line with its priorities and relevant national programmes, identifying the region's development priorities and potential solutions to them within the framework of ARCAL regional projects.

This action plan will allow each country to have an effective technical cooperation programme for the coming cycles which clearly meets the development requirements of the Latin American and Caribbean region.

## 7.2 Prioritization criteria

The Agency's main programmes are in its programme and budget documents. These programmes should be used as consultation material by National Coordinators, ARCAL Project Coordinators and future proposers of new projects.

It is important to point out that the Agency's priorities for the approval of technical cooperation projects are as follows:

- a) They should relate to areas for which the Agency has a mandate;
- b) They should relate to areas that have been designated a priority by its Member States through its policy-making organs;
- c) They should relate to areas where the Agency believes it has a clear role to play.

While complying with these priorities, the proposed ARCAL regional programme must be in line with the development requirements of the Latin American and Caribbean region and the Agency's central criterion for technical cooperation.

The main emphasis of the regional programme is the concept of technical cooperation among developing countries (TCDC) and addressing problems common to countries participating in ARCAL in line with national priorities.

An essential pre-condition for optimizing the benefits of the technical cooperation programme for each country is that coordination within each country between the National Liaison Officer (NLO) and the ARCAL National Coordinator should be close and effective.

Fundamental premises:

- Countries establish regional priorities in the Regional Cooperation Plan in accordance with their respective national development plans;
- The analysis of the region's priorities should be approved by the ATCB and submitted for consideration to the BAR.

The Managerial Group, with the support of the necessary advisers and the ARCAL Secretariat, will analyse the projects of common interest for the region and submit them to the ATCB at its annual meeting so that the latter can analyse and put forward to the BAR the proposals submitted. The ATCB must also request countries to elaborate the final document to be submitted to the IAEA on 31 December, taking into account the following criteria:

- a) The project should deliver a product of use to the region;
- b) It should meet a regional need in line with national development plans;
- c) Relevance/appropriateness;
- d) Regional impact;
- e) It should involve cooperation between countries;

- f) It should seek a balance in the participation of countries;
- g) Identification by country of expected benefits and inputs;
- h) Competitiveness as regards obtaining external resources for projects requiring this;
- i) Existence of a coordinating authority for the project;
- j) At least 3 countries should submit proposals on the topic;
- k) Common topics or areas should be identified;
- l) Consideration should be given to whether regional projects with objectives similar to those of the proposal already exist.

## **8. GENERAL FRAMEWORK FOR THE DEVELOPMENT OF COOPERATION AMONG COUNTRIES PARTICIPATING IN ARCAL**

1. Thanks to cooperation activities promoted by the ARCAL programme since its beginnings in the areas of radiation protection, instrumentation and control, industrial applications, nuclear medicine, nuclear analytical techniques and nuclear information, to cite a few examples, there has been a significant increase in the links between technical sectors in participating countries.
2. All this has allowed a real exchange of experience at regional level, facilitating the training of staff in the region itself, repair of equipment, transfer of technology, joint research and development work and, among other things, harmonization of standards and procedures for the peaceful use of nuclear energy.
3. In view of the successful conclusion of the fourth phase of the programme, the participating countries are contemplating the need to undertake prospective work to redefine priority areas for the sustained development of the region in the light of the new international strategic framework, and with broad recognition that direct applications of nuclear science and technology are capable of reducing significantly existing socio-economic inequalities in the region and are a suitable main focus for cooperation among participating countries.
4. Experience has shown that cooperation is a valid mechanism for sustainable social and economic development. Thus, cooperation should be strengthened. The path chosen to achieve this in the fifth phase has been to establish which areas the region needs to prioritize, in line with the interests and needs of each country, to ensure this prioritization facilitates greater effectiveness and efficiency in the use of the resources available for these purposes.
5. Hence, the sectors marked out for regional cooperation under the fifth phase of ARCAL are the following technical and management areas:
  1. Human health;
  2. Nuclear and radiation safety;
  3. Agriculture and food;
  4. Industry and the environment;

5. Radioactive waste management;
  6. Physical and chemical sciences;
  7. Nuclear installation safety;
  8. Nuclear power;
  9. Information management and support services;
  10. Management for development.
6. The entire process of preparing technical cooperation projects under the ARCAL programme will continue to be carried out by the countries themselves, which guarantees that the projects submitted actually meet their real needs and interests.
  7. The technical cooperation projects implemented under ARCAL must aim at resolving actual and specific problems identified by a country or group of countries, taking as a basis the approved Regional Cooperation Plan, and must be implemented within a specific period of time.
  8. The economic resources for ARCAL activities come from:
    - Member States' contributions
    - The IAEA
    - Other sponsors
    - Donor countries
    - International organizations
    - Others.
  9. The BAR is responsible for managing the raising of the various financial resources for ARCAL.

Although the IAEA has been the main funder of the ARCAL programme, countries need to seek other sources of funding for ARCAL through national, regional and international institutions. These activities should be the responsibility of the BAR.

10. In fulfilment of ARCAL's mission, countries should identify mechanisms for increasing technical cooperation among them.
11. For projects proposed and implemented under the patronage of the IAEA or other donors, ARCAL will take into account the guidelines and requirements of the Agency or other donors, as appropriate, for the announced project cycle.

## **9. GOALS TO BE ACHIEVED IN THE FIFTH PHASE OF THE PROGRAMME**

### **Management goals**

- a) To implement horizontal cooperation for the submission, control and evaluation of ARCAL projects.

- b) To ensure that all projects included in the programme for the fifth phase of ARCAL meet the highest quality standards and that:
- They contribute to achieving the goals of ARCAL;
  - They aim at solving regional problems, in line with the development priorities of countries;
  - They are in line with the strategies of the sponsor.
- c) To implement a number of projects per cycle amounting to at least 30% of the total applying nuclear technology for the benefit of least developed countries in the nuclear field in the region.
- d) To ensure full application of the logical framework methodology, thereby contributing to the monitoring and evaluation of projects implemented in the fifth phase of ARCAL.
- e) To ensure full use during the fifth phase of the designated centres and the ARCAL web page.

#### **Implementation goals**

- f) To achieve at least 85% implementation of all activity plans for projects included in the fifth phase of the ARCAL programme.
- g) To achieve an overall ARCAL programme budget implementation rate of over 80% by the end of each year during the fifth phase.
- h) To ensure that, by the end of the fifth phase, at least 90% of the experts required for the implementation of ARCAL projects come from the region, depending on availability, and that at least 90% of the training required is carried out essentially in the region.

#### **Outreach goals**

- i) To ensure that, by the end of the fifth phase, the database of ARCAL experts is established and made available on the web page.
- j) To convert the web page into the basic working tool for the exchange of information under the ARCAL agreement among all participating countries (including projects).
- k) To enhance the ARCAL outreach and information process through publications and participation in scientific and technical events.

### **Evaluation goals**

- l) To evaluate the effective use of the protocols, procedures, guides and manuals introduced in the fourth phase of the ARCAL programme.
- m) To evaluate the impact of the results obtained in each project during its implementation.

### **Financial goals**

- n) To ensure, by the end of the fifth phase, that participation of countries in the financing of projects included in the programme amounts to over 30% of the total resources required, and that resources from sources external to the Agency increase by comparison with the levels attained in previous phases.
- o) To evaluate the creation of a cooperation fund for ARCAL during the fifth phase.

### **Education and training goals**

These goals will be established during the meeting of the ATCB as the basis of the analysis of regional priorities in each project cycle.

### **Technological goals**

The technological goals of this Regional Cooperation Plan were established taking into account the following:

- The projects submitted by ARCAL member countries;
- IAEA medium-term strategies;
- Attention to and study of surveys of the current capacities, needs and priorities of Member States in the region as regards ARCAL issues.

### **Human health**

- i. To harmonize quality control programmes in the region's reference centres for molecular diagnosis of diseases transmitted by insects.
- ii. To establish pilot intervention programmes in the region to prevent and control childhood obesity and overweight.
- iii. To validate diagnosis and treatment to measure deficiencies in the diet and nutrition of the population of the Latin American and Caribbean region.
- iv. To harmonize a regional quality audit programme for radiotherapy, nuclear medicine and radiodiagnosis.
- v. To make available to national authorities the harmonized quality and technical procedures used in the region to determine radioactive contamination of food.

### **Environment**

- vi. To elaborate the manual of standardized procedures for the integrated management of coastal aquifers using isotopic and conventional methodologies.
- vii. To provide national authorities responsible for environmental quality control with standards related to air quality.
- viii. To establish environmental management protocols for a sustainable management of agricultural systems.
- ix. To make available to national authorities in the region harmonized protocols for the proper management of pesticides in agriculture.

### **Physical and chemical sciences**

- x. To establish at least five certified/accredited laboratories in the region offering nuclear instrumentation development, electronic calibration and maintenance services.
- xi. To make available to national authorities in the region the database of nuclear techniques (fission trace and radon gas) used to identify potential oil prospecting, mining and seismic risk areas.

### **Nuclear and radiation safety**

- xii. To elaborate the systematized and standardized methodology guide applying risk analysis techniques adapted to radiological practices.

The project proposals submitted during the fifth phase should contribute to achieving ARCAL's goals and objectives.

The implementation of points d) and k) in the goals section will be the responsibility of the ATCB. The Managerial Group is requested to elaborate a proposed procedure for implementing point k) and to submit it to the next meeting of the ATCB.

With regard to goal k), and the objective of strategically positioning ARCAL at the relevant political levels, the following actions must be taken periodically:

#### **By National Coordinators:**

1. Inform national authorities and institutions in the country involved in the nuclear sector of ARCAL's results.
2. Keep the ARCAL representative and the country's authorities in Vienna constantly informed about ARCAL's actions and activities.

**By the Managerial Board:**

1. Initiate actions aimed at disseminating the results of the ARCAL programme.

**10. DISTRIBUTION OF ARCAL RESOURCES**

For the implementation of projects under the programme, each country will make available the physical infrastructure and human resources required for the implementation of the activities it has engaged to participate in.

The resources offered by donor countries and participating countries when implementing a specific activity should be added to the resources provided by the Agency in order to ascertain the total resources that will be available.

ANNEX 1. GLOSSARY.

<b>ATCB</b>	ARCAL Technical Coordination Board
<b>BAR</b>	Board of ARCAL Representatives
<b>IAEA</b>	International Atomic Energy Agency
<b>NLO</b>	National Liaison Officer
<b>Secretariat</b>	Secretariat for the Agreement
<b>TCDC</b>	Technical cooperation among developing countries