



## **FEEDBACK NOTE FOR REGIONAL CONCEPTS FOR THE 2016-2017 TC CYCLE**

### **REGIONAL COOPERATIVE AGREEMENT FOR RESEARCH, DEVELOPMENT AND TRAINING RELATED TO NUCLEAR SCIENCE AND TECHNOLOGY FOR ASIA AND THE PACIFIC (RCA)**

#### **A. INTRODUCTION**

The Regional Programme Note and the regional concepts were reviewed by the IAEA Secretariat based on the TC programme quality criteria provided on the PCMF IT Platform, the TC Strategy and other relevant IAEA documents.

The comments included below are intended as guidance as the country and project stakeholders proceed with the preparation of the project proposals for the 2016-2017 TC programme.

This feedback note is aimed at providing project counterparts/proponents the results of the screening and appraisal of the proposed concepts, including the gaps/issues encountered in the documentation that should be addressed during the design phase and/or the recommendation on the viability of the proposed projects and whether or not to proceed with project design, on a case by case basis.

#### **B. PROGRAMME SIZE:**

- **Number of new concepts submitted and reviewed** : 13
- **Number of active projects for 2016-2017 (from previous cycle)** : 7
- **Total number of projects in the pipeline for 2016-2017** : 18

#### **List of active projects in 2016-2017 from previous cycle:**

- 1) **RAS1020:** Building Capacity for Applications of Advanced Non-Destructive Evaluation Technologies for Enhancing Industrial Productivity (RCA), 2015-2017;
- 2) **RAS5070:** Developing Bioenergy Crops to Optimize Marginal Land Productivity through Mutation Breeding and Related Techniques (RCA), 2015-2018;
- 3) **RAS5071:** Strengthening Adaptive Climate Change Strategies for Food Security through the Use of Food Irradiation (RCA), 2015-2017;
- 4) **RAS6071:** Strengthening Radionuclide Therapy for High Impact Cancer Treatment Strategy in Member States of the Regional Cooperative Agreement (RCA), 2015-2017;
- 5) **RAS6072:** Strengthening Intensity Modulated Radiation Therapy Capability in the Region (RCA), 2015-2017;

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**6) RAS6076:** Improving Cancer Management Through Strengthening the Computed Tomography Cancer Staging Process (RCA), 2014-2016; and

**7) RAS6077:** Strengthening the Effectiveness and Extent of Medical Physics Education and Training (RCA), 2014-2016.

### **C. REGIONAL PROGRAMME OVERVIEW:**

The RCA has submitted 13 project concepts for 2016-2017, which have been reviewed in accordance with the TC requirements, the RCA Medium Term Strategy 2012-2017, and the Guidelines and Operating Rules for the RCA Programme. The proposed programme for the forthcoming programming cycle reflects RCA's continued efforts towards promoting sustainable institutional capacity in nuclear science and technology in the RCA participating countries and increasing contribution in key areas in support of sustainable socio-economic development, including agriculture, human health, industry, hydrology, and terrestrial and marine environments. The analysis of the proposed portfolio of project concepts shows that great effort has been deployed by the RCA participating countries in terms of upstream planning work and priority setting. The overall quality of the submitted concepts reflects the upstream work accomplished collectively by RCA in terms of situation analysis, stakeholder analysis and problem/objective analysis. The specific technical and managerial comments made by the IAEA Secretariat, as reflected below, should be taken into consideration at the design phase.

For projects which are recommended for further development into projects, it is necessary for the RCA participating countries to clarify the necessary requirements of physical infrastructure and human resources for participation in each project, to identify and nominate appropriate project counterpart institutions as well as project counterparts who will interact closely with the Lead Country Coordinators (LCCs) in the design of projects.

It is essential that LCCs carry out proactive discussions with relevant project counterparts/experts, Technical Officers (TOs), members of the Programme Advisory Committee (PAC) and the Programme Management Officer (PMO) as soon as design of project is developed, to clearly define the specific objective/outcome and concrete outputs at the completion of the project. The necessary activities and inputs as well as appropriate modalities to implement the activities should be clearly identified. LCCs are also encouraged to identify potential partnerships and work towards linkages at the early stages of the project design phase.

There is a need to prioritise the projects with a view to having well-designed quality results-based projects with adequate resources for implementation within the level of possible funding from the TC Fund as well as extrabudgetary resources and Government cost sharing mechanisms.

## D. COMMENTS ON INDIVIDUAL CONCEPTS:

### 1. Concept Number & Title:

**RAS2014001:** Advancing Technologies for Monitoring and Analysis of the Potential Impact of Radioactive Releases from Nuclear Power Plants (NPPs) in Asia-Pacific Marine Ecosystems Following the Fukushima Dai-ichi Accident

**Submitted by:**      **Regional/Cooperative Agreement:** RCA

#### Comments:

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and Logical Framework Approach (LFA). It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, commitment and ownership on the part of the RCA Government Parties (Government Parties).

It is important to clearly define the specific objective/outcome and outputs of the project, to identify the necessary activities and inputs as well as appropriate modalities to carry out the identified activities.

The concept is recommended for project development.

- **Specific Technical Comments**

The achievements of the previous and on-going RCA marine projects (RAS7016 - "Establishing a Benchmark for Assessing the Radiological Impact of Nuclear Power Activities on the Marine Environment in the Asia-Pacific region", RAS7019 - "Harmonizing Nuclear and Isotopic Techniques for Marine Pollution Management at the Regional Level", and RAS7021- "Marine benchmark study on the possible impact of the Fukushima radioactive releases in the Asia-Pacific Region") should be taken into account in designing this project.

Special attention should be given to hand-on training to enhance national competencies in sampling, sample preparation, radiochemical analysis, and application of radiotracer in field radioecological investigation.

For Pacific Small Island Developing States (PSIDS), their technical infrastructure and human resources for nuclear-related analytical techniques are very limited. It is not possible to establish technical infrastructure and human resources for these analytical techniques only within a regional project. It is therefore recommended that the project focus on enhancing PSIDS's capability in field sampling only. Sample analysis would be provided by the IAEA Environment Laboratories in Monaco and/or by other participating countries within the project through the regional cooperation.

- **Recommended for moving forward to design phase:** YES

## 2. Concept Number & Title:

**RAS2014002:** The Application of Isotopic Techniques on the Investigation of Carbon Sink in the Vegetated Systems of Asia

**Submitted by:** *Regional/Cooperative Agreement: RCA*

### **Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept meets the TC requirements and LFA. It is in line with the RCA Medium Term Strategy 2012-2017 and has a potential to make important contribution to solving regional development problems.

It is essential to clarify the specific objective and concrete outputs/products expected to be achieved at the completion of the project, and based on that to identify activities that need to be carried out.

The concept is recommended for project development.

- **Specific Technical Comments**

The different level of national competencies (technical infrastructure and human resources in investigating the change of sequestration rate as a consequence of climate change and higher CO<sub>2</sub> content in the atmosphere) should be taken into account in designing the project.

Special attention should be given to hands-on training to enhance national competencies in the application of isotopic techniques on the investigation of carbon sink in the vegetated systems.

- **Recommended for moving forward to design phase: YES**

## 3. Concept Number & Title:

**RAS2014003:** Application of Electron Accelerator in Irradiation Processing in Asia-Pacific Region

**Submitted by:** *Regional/Cooperative Agreement: RCA*

### **Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept meets the TC requirements and LFA. It is in line with the RCA Medium Term Strategy 2012-2017 and

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reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is necessary to clearly define the specific objective/outcome and outputs of the project, to identify activities and inputs that need to be carried out, taking account the different levels of development of the participating countries.

The concept is recommended for project development.

- **Specific Technical Comments**

The project deals directly with electron accelerators and radiation technologies that are clearly advantageous compared with conventional techniques; and the region demonstrates high motivation to introduce and/or develop these technologies. The experience and expertise of advanced countries on this topic could be of great benefit to the developing countries.

- **Recommended for moving forward to design phase: YES**

#### 4. Concept Number & Title:

**RAS2014004:** Application of Mutation Techniques for Breeding Green Super Crop to continually Increase Food Productivity.

**Submitted by:**      *Regional/Cooperative Agreement: RCA*

#### *Comments:*

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, commitment and ownership on the part of the RCA Government Parties.

It is important to clearly define the specific objective/outcome and outputs of the project, to identify the necessary activities and inputs as well as appropriate modalities to carry out the identified activities.

The concept is recommended for project development.

- **Specific Technical Comments**

The development of "Green Super Crops" as understood from the project concept requires advanced mutant lines with desired characters and development of molecular markers that identify

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the mutant genes of interest and allow combining or “pyramiding” several desirable traits in one crop. Certain laboratory infrastructure and human capacity to do the necessary molecular and bioinformatics work should participate in the project.

The role of biotechnologies and mutation breeding in the project needs to be further elaborated and elucidated at the design stage.

- **Recommended for moving forward to design phase: YES**

#### 5. Concept Number & Title:

**RAS2014005:** Clinical Implementation of Image-guided Radiation Therapy (IGRT) and Adaptive Radiation Therapy (ART)

**Submitted by:**      **Regional/Cooperative Agreement:** RCA

#### **Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat’s technical and management reviews, the objective of the concept is basically similar to the objective of the on-going project RAS6072 “Strengthening Intensity Modulated Radiation Therapy Services in the Region (RCA)” that is approved for 2015-2017.

Therefore, the concept is not recommended for project development.

- **Specific Technical Comments**

Adoption of high precision radiotherapy techniques (3D CRT, IGRT, ART, IMRT etc.) is important in order to improve treatment results and minimise toxicity. However, this would require humongous resource mobilization and human resource capacity building. It would be appropriate to integrate similar project concepts to develop into a common project as this will ensure better resource utilization and a more comprehensive approach.

The objective of the concept can be achieved through the on-going project RAS6072 by implementing IGRT Protocol related activities under Output 4 “Regional IMRT Protocols development.”

- **Recommended for moving forward to design phase: NO**

In case of NO the reason is: **The objective will be met through a similar on-going TC project RAS6072 “Strengthening Intensity Modulated Radiation Therapy Services in the Region (RCA)”**

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**6. Concept Number & Title:**

**RAS2014006:** Impact of Air Particulate Matter in the RCA Region: Quantification of Key Sources and the Relationship between Major Components, Light Scattering and Visibility for Managers to Better Understand and Control Key Components

**Submitted by:**      *Regional/Cooperative Agreement: RCA*

**Comments:****On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is necessary to clearly define the specific objective/outcome and outputs of the project as well as the concrete activities and inputs that need to be carried out.

The concept is recommended for project development.

- **Specific Technical Comments**

Achievements of the on-going RCA project RAS7023 "Supporting Sustainable Air Pollution Monitoring Using Nuclear Analytical Technology" should be taken into account in designing this proposed project.

It is requested the title of the project be reviewed and revised in a more concise manner.

- **Recommended for moving forward to design phase: YES**

**7. Concept Number & Title:**

**RAS2014007:** Diagnosing and Optimizing Industrial Processes Using Radiotracers and Sealed Source Techniques

**Submitted by:**      *Regional/Cooperative Agreement: RCA*

**Comments:**

- **On compliance with TC requirements and LFA**

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Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is necessary to clearly define the specific objective/outcome and outputs of the project, to identify activities and inputs that need to be carried out, taking account of the different levels of development of the participating countries.

The concept is recommended for project development.

- **Specific Technical Comments**

The achievements of the on-going RCA projects (RAS1012 "Characterizing and Optimizing Process Dynamics in Complex Industrial Systems Using Radiotracer and Sealed Source Techniques" and RAS1020 "Building Capacity for Applications of Advanced Non-Destructive Evaluation Technologies for Enhancing Industrial Productivity") should be taken into account when designing this project.

- **Recommended for moving forward to design phase: YES**

**8. Concept Number & Title:**

**RAS2014008:** Isotopic Techniques in the Assessment of Groundwater Resources for Sustainable Management

**Submitted by:**      **Regional/Cooperative Agreement:** RCA

**Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is important to clearly define the specific objective of the project and concrete outputs to be achieved at the completion of the project. On these bases the necessary activities and inputs as well as an appropriate roadmap to carry out the identified activities should be clearly identified.

The concept is recommended for project development.

- **Specific Technical Comments**

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The achievements of the on-going RCA project RAS7022 “Applying Isotope Techniques to Investigate Groundwater Dynamics and Recharge Rate for Sustainable Groundwater Resource Management” should be taken into account in the design of the project.

- **Recommended for moving forward to design phase: YES**

#### 9. Concept Number & Title:

**RAS2014009:** Development and Upscaling of Radiation Processed Advanced Grafted Materials for Industrial Wastewater Clean-up

**Submitted by:** *Regional/Cooperative Agreement: RCA*

#### *Comments:*

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat’s technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017, and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is essential to clearly define the specific objective of the project and concrete outputs at the completion of the project. On that base, the necessary activities and inputs as well as appropriate modalities to carry out the identified activities, should be clearly reflected.

The concept is recommended for project development.

- **Specific Technical Comments**

The achievements of the on-going RCA project RAS1014 “Supporting Radiation Processing for the Development of Advanced Grafted Materials for Industrial Applications and Environmental Preservation” should be taken into account in the design of the project

- **Recommended for moving forward to design phase: YES**

#### 10. Concept Number & Title:

**RAS2014010:** Quantifying Climate Change and Anthropogenic Impacts in Marine Ecosystems through Nuclear and Isotopic Technologies

**Submitted by:** *Regional/Cooperative Agreement: RCA*

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**Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is important to clearly define the specific outcome and concrete outputs/products of the project, and on that base, the necessary activities and inputs and the modalities to carry out the identified activities.

The concept is recommended for project development.

- **Specific Technical Comments**

The project concept is considered as a continuation of the project RAS7024 "Supporting Nuclear and Isotopic Techniques to Assess Climate Change for Sustainable Marine Ecosystem Management". It is therefore requested to take into consideration the achievement of the project RAS7024 in the design of the new project.

- **Recommended for moving forward to design phase: YES**

**11. Concept Number & Title:**

**RAS2014011:** Enhancing Stereotactic Body Radiation Therapy for Frequent Cancers in the RCA Region

**Submitted by:**      **Regional/Cooperative Agreement:** RCA

**Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is important to elaborate the specific outcome and concrete outputs/products of the project and on that base, the necessary activities and inputs as well as appropriate modalities should be clearly identified.

The concept is recommended for project development.



• **Specific Technical Comments**

The project concept is considered as a continuation of the project RAS6065 “Strengthening the Application of Stereotactic Body Radiation Therapy (SBRT) to Improve Cancer Treatment”. It is therefore requested to take into consideration the achievements of the project RAS6065 in the design of the new project.

Safe and effective implementation of SBRT requires team work; it is therefore suggested to develop teams consisting of radiation oncologists, medical physicists and radiotherapy technologists.

- **Recommended for moving forward to design phase: YES**

**12. Concept Number & Title:**

**RAS2014012:** On-site Problem Solving in Diagnostic and Therapeutic Applications of State-of-the-Art Radionuclide Technologies in the Region

**Submitted by:** *Regional/Cooperative Agreement: RCA*

**Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat’s technical and management reviews, the proposed concept appears to be in line with the TC requirements and LFA. It is relevant to the RCA Medium Term Strategy 2012-2017 and reflects the actual need of the region, with the commitment and ownership on the part of the RCA Government Parties.

It is essential to analyse and define specific objective/outcome and concrete outputs/products of the project, and on that base, to identify the necessary activities and appropriate inputs and modalities to carry out the identified activities.

The concept is recommended for project development with full funding from the Government of the Republic of Korea.

• **Specific Technical Comments**

There is an actual need for on-site nuclear medicine applications in the region, which requires special attention and a dedicated mechanism for addressing the issue. The concept proposes an innovative approach to training and experience sharing to facilitate on-site problem solving through a central hub to be established in the region. Several centres in the region have the necessary infrastructure, both in terms of human resources and equipment, and are therefore suitable to participate.

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- **Recommended for moving forward to design phase: YES**

**13. Concept Number & Title:**

**RAS2014013: Rescue Toxic Drugs via Radio-Refinery**

**Submitted by:**      **Regional/Cooperative Agreement: RCA**

**Comments:**

- **On compliance with TC requirements and LFA**

Based on IAEA Secretariat's technical and management reviews, the proposed concept does not meet the TC requirements.

The concept is not recommended for project development. However, it may be possible to submit the proposal as a new coordinated research project (CRP).

- **Specific Technical Comments**

The proposal aims to reduce the financial burden on developing or underdeveloped countries by enabling an alternative solution for curing problematic diseases using potentially cheaper drugs rescued from market withdrawal by favourable radiation-induced detoxification. The project deals with the irradiation of drugs in order to remove toxicity by modifying their structure and to re-use them. This is not a proven technology and is still at the research and development stage.

- **Recommended for moving forward to design phase: NO**

In case of NO the reason is: **The concept deals with research**

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