

RCARO Director's Report on the Progress of the 2024 Work Plan

The 46th RCA NRM decisions relevant to the RCARO 2024 Work Plan:

The Meeting took note of the report of the 38th RCARO SAC and endorsed the recommendations of

- hosting an introductory workshop for the new NRs;**
- developing new projects which will address the needs of the GPs for cooperative research focused on the regional issues, taking into consideration the ways to link the new projects with the IAEA's initiatives and the UN SDGs.**

The Meeting recommended that the RCA Newsletters, a useful document with a variety of RCA success stories, be distributed to a wider scope of stakeholders in and outside the RCA.

Proposed action for NRs' consideration:

- Take note of the progress made by the RCARO on its work plan for 2024.

1. Supporting the RCA as the Think-tank

1.1 Provision of Support to the RCA Chair and Policy Meetings

RCARO provides assistance to the IAEA in performing secretariat support and to the RCA Chair for coordination of various RCA activities. In 2024, RCARO assisted the RCA Chair and the IAEA in the preparation of the 46th RCA NRM, specifically on the preparations of the meeting agenda, background documents and meeting reports. In cooperation with the IAEA and GPs, the RCARO prepared a draft 2023 RCA Annual Report providing information on the implementation of the RCA Programme, key policy decisions of the NR meetings and achievements of the non-technical activities, and submitted it to the 46th RCA NRM for review and comments.

1.2 Introductory Workshop for the RCA NRs

As recommended by the 45th RCA NRM, RCARO hosted an introductory workshop for the RCA NRs on overall RCA policy matters to enhance the understanding of the newly appointed NRs on the RCA Programme. It was held on 22-25 July 2024 in Seoul, Korea, inviting 14 RCA NRs, RCA Focal Person and RCA PAC(Chair and a member). The event was conducted hybrid to expand the participation of NRs and relevant experts. It was successfully completed meeting its objectives to enhance the understanding on the IAEA TC Programme, RCA framework and activities of the RCARO.

2. Enhancing Partnerships

2.1 [US DOE] Implementation of the “Project on Supporting the Adoption of eBeam Technology and its Applications in Areas of Food and Agriculture, Industry, Human Health and Environment Treatment”

In the partnership with the Office of Radiological Security (ORS), National Nuclear Security Administration of the US Department of Energy, RCARO will implement the “Project on Supporting the Adoption of eBeam Technology and its Applications in Areas of Food and Agriculture, Industry, Human Health and Environment Treatment” from 2024 to 2028. The First Project Coordination Meeting was held in December 2023, to which a total of twenty-one (21)* RCA GPs were invited.

* AUL, BGD, CPR, KAM, FIJ, IND, INS, JPN, ROK, LAO, MAL, MON, MYA, NZE, NEP, PAK, PHI, SIN, SRL, THA and VIE.

2.1.1 Expert Missions

According to the work plan, two Expert Missions will be carried out in 2024: One in October to Mongolia and the other in December to Cambodia. Prior to the missions, the host countries will submit a request of mission in detail to find the most appropriate experts to fulfill the needs and respond to the pressing issues of each country.

2.1.2 Hands-on Electron Beam Technical Workshop

A hands-on workshop on the use of the eBeam technology was held on 15-19 April at the National Center for Electron Beam Research (NCEBR) of Texas A&M University, inviting 13 participants from the RCA GPs. In line with the overarching goal of the project to support the eBeam infrastructure building and facilitation of its applications, this workshop provided a comprehensive understanding of the principles and applications of eBeam and X-ray technologies to those countries who are planning to adopt the technology. During the workshop, participants

had a chance to participate in the hands-on sessions where they can learn dose-mapping and get preliminary data on the products they bring from their home countries.

In December, a regional workshop that provide hands-on experiments on dose mapping is planned to be held in Research and Development Center for Radiation Technology(VINAGAMMA) in Viet Nam.

2.2 [ASEANTOM] Implementation of the “Project on Enhancing Emergency Preparedness and Response Capabilities in the ASEAN Region through Building Technical Capacity in Radiation Monitoring and Dose Assessment (Phase 2)”

2.2.1 Online Workshop for Beginner Countries

According to the work plan confirmed at the project coordination meeting in November 2023, an introductory workshop on in-situ radiation detection demonstration and basic gamma spectrometry technique for enhancing emergency preparedness and response capabilities, was held virtually from 20 to 21 February 2024, inviting around 50 participants from the region. The workshop provided basic lectures including introduction to equipment/detectors (including backpack), selection of sites for monitoring/sampling, basic gamma spectrometry etc.

2.2.2 Regional Training Course

A Regional Training Course on practical application of radiation measurement, radioanalytical method for environment monitoring was held on 10-14 June 2024 in Bangkok, Thailand, with the aim to provide advanced theoretical and practical capacity on accurate radioactivity measurements for environment monitoring. The event was co-hosted with the Office of Atoms for Peace of Thailand and invited a total of 26 participants from the region.

2.2.3 Final Review Meeting

A Final Review Meeting will be held at the end of the year as a completion of the project. The project achievements will be reviewed and follow-up actions will be discussed among the NPCs and experts.

2.3 [ARCCNM] Implementation of a Joint Workshop

Since 2008, RCARO has been supporting the joint workshop with the Asia Regional Cooperative Council for Nuclear Medicine (ARCCNM) to train nuclear medicine physicians and scientists in developing and less developed Asian countries and to further promote regional cooperation to promote nuclear medicine in these countries.

A workshop will be held in November in collaboration with the Korean Society of Nuclear Medicine and the Asian Nuclear Medicine Board. Experts will be invited to exchange views and opinions on specific matters related nuclear medicine in Asia.

2.4 [FNCA] Participation in FNCA Events

On behalf of the RCA, RCARO has been participating in the FNCA Coordinators Meeting to present the achievements of the RCA and promote cooperation between the RCA and the FNCA.

Representing the RCA, RCARO participated in the 24th FNCA Coordinators Meeting on 12-13 March 2024 in Tokyo, Japan, and delivered a presentation on the RCA activities and the progress of the RCA-FNCA cooperative activities.

3. Expanding the RCA Programme

3.1 [EB Project] Implementation of RAS9092 “Strengthening the Capacity to Respond to Radiological Emergency of Category II and III Facilities in the RCA Region”

RAS9092 on “Strengthening the Capacity to Respond to Radiological Emergencies of Category II and III Facilities in the Asia-Pacific region” was developed by the RCARO under the IAEA TC Programme. It aims to transfer knowledge and technology in establishing adequate emergency preparedness and response procedures for category II and III facilities, using a graded approach. Funded by the Korean Government, the project is to be implemented for five years from 2020 to 2024, with a one-year extension decided at the project coordination meeting in 2020 due to the difficulties in undertaking the planned activities resulting from the COVID-19 pandemic.

Fifteen (15) GPs, with ROK as the lead country, are participating in the project: AUL, BGD, KAM, IND, INS, MAL, MON, MYA, NEP, PAK, PHI, SIN, THA and VIE.

3.1.1 Regional Workshop on the Development of a National Radiation Emergency Plan (NREP)

Regional Workshop on the Development of a National Radiation Emergency Plan (NREP) (including Hazard Assessment) was held on 25-29 March 2024 at the OAP, Thailand, attended by 28 participants from the IAEA and 13 participating countries. The workshop provided strategies for the development of a national radiation emergency plan, which will serve as an important basis for the implementation of follow-up expert missions under the project.

3.1.2 Expert Missions

Eight (8) Expert Missions are planned in 2024 to Bangladesh, Cambodia, Laos, Mongolia, Myanmar, Nepal, the Philippines and Vietnam, with Cambodia and Mongolia to be confirmed subject to the progress of the development of the national emergency plan and protection strategy. Accordingly, target countries were requested to send request forms but only one from the Philippines was received as of August 2024. The remaining countries will be encouraged to send request forms and based on their requests, Expert Missions will be carried out arranged by the Technical Officer and the Project Management Officer of the project, engaging relevant experts.

3.1.3 Final Review Meeting

A Final Review Meeting will be held tentatively on 11-13 December virtually as a completion of the project. The project achievements will be reviewed and follow-up actions will be discussed among the NPCs and experts.

3.2 [RP] Implementation of RCA Research Projects

3.2.1 [RP02] Implementation of the RP on Air Quality and Environmental Impact Assessment of Industrial Activities in the Region

With the aim of improving the quality of the environment by providing appropriate pollutant data to the researchers and relevant stakeholders, the project has been implemented during Phase 1 (2018-2020) and Phase 2 (2020-2023). Ten (10) GPs participated in the project: AUL, NZE, ROK as Agreement Holders and CPR, INS, MAL, MON, PAK, THA and VIE as Contract Holders.

Upon the completion of the project in 2023, RCARO, in cooperation with the Technical Officer

of the project and INS Chief Scientific Investigator (CSI), has drafted an achievement report of the project elaborating the results and outcomes of the project at the national and regional level. RCARO will publish its final version after incorporating comments from the CSIs in Q4 2024.

3.2.2 [RP03] Implementation of the RP on Closing the Gap in Access to Radiotherapy in RCA

To improve cancer planning and scale up radiotherapy services by providing evidence-based information on the radiotherapy services, the project was launched in 2022 and is to be implemented for three years until 2024. Six (6) GPs are participating in the project: AUL and PHI as Agreement Holders and INS, MAL, MON and THA as Contract Holders.

A Research Training Course on outcome assessment was held virtually on 19-20 February 2024, inviting over 50 participants including the CSIs and research team members of the participating countries, Technical Officer and relevant experts.

A Research Coordination Meeting was held on 6-8 May 2024 virtually, inviting 23 participants including the CSIs, Technical Officer and relevant experts. The meeting reviewed the progress/results of the research activities towards project completion in 2024. In conjunction with the meeting, a technical workshop on the outcome assessment was held to provide a more practical and advanced knowledge and guidelines for the research to carry out in 2024, following the workshop held in February 2024.

CSIs will be requested to submit final reports for review by the Research Review Committee in November 2024. An achievement report of the project will be prepared, highlighting the results and outcomes of the project in cooperation with the Technical Officer, CSIs and relevant experts in early 2025.

3.3 Survey on Research Needs

As the RCARP03 is to be completed in 2024, RCARO reported to the 38th RCARO SAC and the 46th NRM its plan to launch new projects which will address the needs of the GPs under the framework of the RCARO Managed Projects. Upon the endorsement of the 46th NRM, RCARO called for proposals for new projects in early August. A dedicated online platform is under construction and will be open soon for submission of proposals. As recommended by the 46th NRM, projects will be developed taking into consideration of the ways to link them with the IAEA initiatives and the UN SDGs.

4. Provision of RCA Information Service and Conducting Promotional Activities

4.1 RCA Integrated Information System

With the aim of providing a more comprehensive data service to the RCA, the RCARO established the Integrated Information System consisting of the RCA Main Website, E-Campus, Data Hub, and RCARO E-Management System (ROEM).

RCARO will continue collecting and providing data and information on the RCA policy and Programme, in cooperation with the IAEA, RCA GPs and relevant RCA experts. The information includes data related to the RCA Programme, policy related meetings and activities.

A “Data-Hub” is being developed to contribute to archive and provide diverse data related to the

nuclear science and technology, such as policies, institutions/organizations, trends and news of the region. All the information will be retrieved from open sources, i.e., media, promotional websites, journals, etc. Progress of developing the platform was presented at the New NR Workshop in July 2024 to receive comments. RCARO will make improvement of the platform, reflecting comments received at the workshop.

4.2 Publications

4.2.1 RCA Newsletters

RCARO published the 7th RCA Newsletter in May 2024 and sent out to over 720 subscribers and uploaded on the RCA website for RCA stakeholders and the public. It featured articles on RCA projects (RAS7028, RAS6093, RAS6100), RCA Programme achievement, activities of the Asia Regional Cooperative Council for Nuclear Medicine (ARCCNM), also articles from Singapore and Thailand as well as a message of the Director of the RCARO.

The 8th RCA Newsletter is being drafted with the articles on RCA related meetings, events, projects and insight from RCA experts, as well as articles from GPs on nuclear science and technology related matters. Further it will also publicize the RCA side event scheduled during the 68th IAEA General Conference in September and special exhibition during the IAEA Ministerial Conference in November 2024 for promotion of these events.

4.2.2 RCA Annual Report

In line with its responsibility to support the IAEA's secretariat functions, RCARO has been drafting the RCA Annual Report in cooperation with the IAEA and the RCA GPs. It contains information on the implementation of the RCA Programme, key policy decisions of the NR Meetings and achievements of the non-technical activities.

At the 45th NRM and 52nd GCM, there have been discussions on how to improve the RCA Annual Report as a valuable reference document for the RCA stakeholders, potential partners, and the public. RCARO prepared a draft of 2023 RCA Annual Report with enhancements suggested by the 52nd GCM, including revision of the structure, addition of graphical representations and data as well as welcoming statements from the RCA Chair and senior IAEA officials and submitted it to the 46th NRM for review and comments. Final version of the report will be shared with the RCA GPs and uploaded on the RCA website.

4.2.3 Other Publications

RCARO plans to publish other publications such Issue Brief, aiming to provide expert insights on topics that are relevant to the RCA and nuclear science and technology, to a wide audience including policy makers, experts and the general public.

The first Issue Brief was published entitled "Theranostics, a New Innovative Approach to Cancer Treatment", co-authored by a former Chair of ARCCNM(Asian Regional Cooperative Council for Nuclear Medicine) and an expert of KIRAMS. It focuses on theranostics which has made significant advance in precision medicine, particularly in the field of oncology. It covers diagnostic imaging and targeted therapy to treat diseases such as cancer with high specificity and efficacy.

4.3 Other Promotional Activities

RCARO has been providing support for RCA experts for their promotion of the RCA at regional/international events under the Expert Support Programme.

A call for application was sent out to the NRs in June 2024 to receive requests. According to the guideline, RCARO will select appropriate experts in consultation with the SAC to support their promotion of the RCA in the selected events.

5. Supporting HRD Activities

5.1 RCARO Scholarship Programme

Since 2003, RCARO has provided scholarships to support students from the RCA GPs in order to nurture the next generation of nuclear professionals in the RCA and to support the technical development of the region. Students participating in this programme are granted with scholarships for their Master's or Ph.D. studies, and opportunities to participate in national R&D projects to develop research competence, network with subject matter experts and gain hands-on experience at various Korean institutes/universities, such as KAIST, KINGS and UST.

* KAIST: Korea Advanced Institute of Science and Technology

KINGS: KEPCO(Korea Electric Power Corporation) International Nuclear Graduate School

UST: University of Science and Technology

● KAIST Master's Degree Programme

KAIST is the first and top science and technology university in Korea, established in 1971 by the Korean Government to educate scientists and engineers.

The programme supports students for master's degree in Nuclear and Quantum Engineering for two years. Since 2003, a total of 40 students from 11 countries have received degrees. In 2024, three students are supported for their study in KAIST.

● KINGS Master's Degree Programme

KINGS is an educational institute specializing in Nuclear Power and Energy, established in 2012 to foster energy policy decision makers to respond to energy industry transformation and climate change. The programme is designed to produce energy policy makers and leaders who understand both theory and practice through lectures, practical training and exchange of experiences with fellow students from a variety of backgrounds including power companies and institutions.

It is a two-year programme for master's degree in Energy Policy and Engineering, under which the first year is spent studying in the KINGS and the second year for writing a thesis in applicant's home country. In 2024, three students are sponsored to study at KINGS.

● UST Doctoral Degree or Integrated/ Master's Degree Programme

UST is a science and technology graduate school jointly established by the Government-Funded Research Institutes (GFRI) in Korea in 2004 to nurture future leaders in the fields of science and technology.

Among the 35 GFRI which currently provide support functioning as Campus, this Programme cooperates with two campuses, namely, KAERI and KIRAMS, and its majors include Nuclear

Science and Technology, Radiation Science, Nuclear and Radiation Safety, Artificial Intelligence, and Radiological & Medico-Oncological Sciences.

In 2024, one student was selected to study at UST in the spring semester and two students for the autumn semester.

* KAERI: Korea Atomic Energy Research Institute

KIRAMS: Korea Institute of Radiological & Medical Sciences

5.2 RCA Campus (title is still tentative)

RCARO plans to expand the RCA Campus to provide integrated and systemized HRD support for the GPs to meet the RCA's various nuclear science and technology needs, and provide systemized on/off-line training programmes.

RCARO reported to the 38th RCARO SAC and the 46th RCA NRM its plan to expand the HRD Programme to provide more effective and systematic support to the GPs in capacity building by introducing postdoctoral fellowship, on-the-job training, expert support, engaging relevant experts and institutes. A survey was suggested to identify the needs of the GPs. RCARO will conduct a survey and based on the survey results, RCARO will cooperate with relevant institutes in Korea and the GPs will be invited to nominate appropriate experts to the programmes.

5.3 RCARO Fellowship Programme

RCARO received in total 15 applications from 10 GPs, which mark a greater number of applications compared to the previous years. Responding to great interests and needs of the GPs, RCARO decided to expand the programme, selecting 5 applications instead of 2 which RCARO originally planned for the year 2024.

The applicants from Fiji, India, Indonesia, Philippines and Thailand were selected based on the requirements needed for the programme, prior achievements and motivation of the applicants, giving consideration to national distribution.

Two from India and Indonesia has completed their fellowships for 2 months from June to July and 2 from Fiji and Philippines are to be invited for their fellowships from October to November accordingly.