Report of the Director of the RCARO

Background

The procedure for evaluation of the performance of DIR-RCARO and an annual work plan stipulated in RCA Guidelines and Operating Rules (GOR) annex 4 is as follows:

(a) The DIR-RCARO should prepare a draft annual work plan based on the RCA GOR, addressing all aspects of his/her roles and responsibilities with targets, milestones and measurable performance indicators (PIs) for each aspect of activities, and submit it to the RCARO SAC by 1 January each year.
(b) The draft work plan should be negotiated and agreed between the members of SAC and the DIR-RCARO.
(c) An annual work plan should be agreed upon by 1 February with finalized PIs and targets/milestones for each aspect of activities therein.
(d) The annual work plan is subject to a mid-term review by the SAC. The DIR-RCARO should inform the SAC if there are major items with the potential to affect the implementation of the agreed annual work plan. The SAC should provide its reviews and agree on any adjustment to the annual work plan. The mid-term review may be done in the month of July or otherwise scheduled between the DIR-RCARO and SAC.
(e) The DIR-RCARO should prepare the report on his/her performance in fulfilling the agreed work plan, and submit it to the SAC by 1 January of the following year for evaluation.
(f) The SAC will assess the annual report through electronic interactions with the DIR-RCARO, and submit its report to the Regional NRM for consideration.

Actions taken

In accordance with the RCA GOR, the DIR-RCARO prepared the report on his performance in 2024 and a work plan for the year 2025 and submitted them to the SAC at the end of December 2024.

Proposed Action

The NRM may take note of the report on the RCARO′s work performance in 2024 and a work plan for 2025.

RCARO 2024 Work Performance

Highlights in RCARO's Activities in 2024

1. Host of the First RCA Side-Event during the 68th IAEA General Conference Meeting in September 2024

The first RCA side-event ever was held during the 68th IAEA General Conference Meeting in September 2024. This was a follow-up of the decision made at the 46th RCA NRM. With the efforts by the RCA Task Force coordinated by the RCARO, the event was successfully hosted under the title of "RCA: Advancing Sustainable Development in the Asia-Pacific Region", bringing together more than 100 delegates and experts to discuss and strategize on enhancing regional cooperation in nuclear science and technology across Asia and the Pacific.

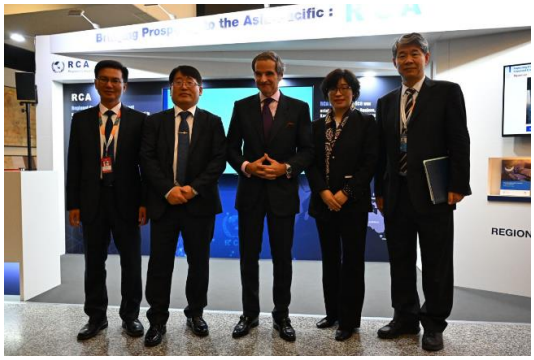
Keynote speeches were delivered by Mr Rafael Mariano Grossi, Director General of the IAEA, Mr Sang-Im YOO, Minister of Science and ICT, Republic of Korea, and Mr Jing LIU, Vice Chairman of China Atomic Energy Authority.

This side event served as a dynamic forum for RCA stakeholders to discuss and share ideas on the RCA's contributions to socio-economic development across the Asia-Pacific region. Key topics included the contribution of RCA to socio-economic development, creating synergies between the RCA programme and IAEA initiative, and strategies for future partnerships.

2. Increasing Visibility through Holding Special RCA Exhibition at the IAEA Ministerial Conference in November 2024

Under the theme "Brining Prosperity to the Asia-Pacific: RCA", RCARO facilitated the preparations for the RCA exhibition in cooperation with the IAEA and GPs to showcase the

achievements of the RCA over the last 52 years. RCA promotional videos were demonstrated at the RCA booth and various RCA publications were distributed to the visitors, such as RCA brochure, newsletter and issue brief, RCA history and socio-economic impact assessment report of the RCA Programme. In addition, experts from CPR, MAL and PAK provided their support in operation of the RCA booth and promotion of the RCA at the conference, supported by RCARO.



The opening ceremony of the RCA exhibition was successfully held on 27th November with the participation of a big audience including IAEA Director General, RCA Chair, NRs and representatives of the RCA GPs, RCA experts and IAEA representatives. This event showed a strong engagement of the RCA GPs demonstrating a strong regional ownership and engagement and ensuring broader representation and reinforcing the collaborative spirit of the RCA. The exhibition surely increased the awareness and visibility of the RCA among the stakeholders and reconfirmed the role of the RCA in the regional prosperity and development.

3. Enhancing Regional Coordination through Introductory Workshop for the New RCA NRs

As recommended by the 45th RCA NRM, RCARO hosted “Introductory Workshop for New National RCA Representatives (NRs) on RCA Programme and Its Policy” on 22-25 July 2024 in Seoul, Korea, inviting 35 participants from 12 RCA GPs, the IAEA and RCA experts. The

workshop was successful in meeting its objective to support the newly appointed RCA NRs to enhance their understanding on the RCA Programme and its policy. The event was conducted hybrid to expand the participation of NRs and relevant experts.

The event served as a platform for knowledge exchange, strengthening regional collaboration. By familiarizing the new NRs with RCA policies and programmes, the workshop contributed to better alignment and coordination between RCA Government Parties, and is expected to contribute to facilitating smoother implementation of RCA projects and activities across the region.

4. Launching of Partnership Project with the US DOE "Project on Supporting the Adoption of eBeam Technology and its Applications in Areas of Food and Agriculture, Industry, Human Health and Environment Treatment"

A new partnership project on "Supporting the Adoption of eBeam Technology and its Applications in Areas of Food and Agriculture, Industry, Human Health and Environment Treatment" was successfully launched this year, under the partnership with the Office of Radiological Security (ORS), National Nuclear Security Administration of the US Department of Energy. This project spans the next five years with the objective of facilitating technology transfer, enhancing awareness, and promoting the adoption of eBeam technology in the Asia Pacific region as a safer alternative to radioactive isotope-based technologies, while improving industrial capabilities, environmental quality, and living conditions.

In 2024, the project was implemented according to the work plan set up in the Project Coordination Meeting held in December 2023. Two Expert Missions, one to Mongolia in October and the other to Cambodia in December, were carried out and two Hands-on Electron Beam Technical Workshops, one in April in Texas A&M and the other in December in Viet Nam were conducted, benefiting over 90 participants from the region.

The capacity building activities at national and regional level will serve as a crucial basis for the adoption and facilitation of the technology in the RCA.

2024 Work Performance Details

1. Increasing the Awareness of the RCA

1.1 Host of RCA Side-event during the 68th IAEA GC

At the 46th NRM, RCARO expressed its intention to host a side event during the 68th IAEA General Conference Meeting in September 2024. The Task Force comprising of PAK, KAM, INS, MAL, JPN, AUL, FIJ, MON, VIE, ROK, and CPR was formed to follow up.

As part of the 68th IAEA General Conference, the RCA side event was held on 17 September 2024, bringing together delegates and experts to discuss and strategize on enhancing regional cooperation in nuclear science and technology across Asia and the Pacific. This event, titled "RCA: Advancing Sustainable Development in the Asia-Pacific Region", gathered over 100 participants including the representatives from the RCA Government Parties, the IAEA, RCARO and other organizations and countries outside the region.

Keynote speeches were delivered by Mr Rafael Mariano Grossi, Director General of the IAEA, Mr Sang-Im YOO, Minister of Science and ICT, Republic of Korea, and Mr Jing LIU, Vice Chairman of China Atomc Energy Authority.

This side event served as a dynamic forum for RCA stakeholders to discuss and share ideas on the Regional Cooperative Agreement's (RCA) contributions to socio-economic development across the Asia-Pacific region. Key topics included the contribution of RCA to socio-economic development, creating synergies between the RCA programme and IAEA initiative, and strategies for future partnerships.

1.2 Host of RCA Special Exhibition at the IAEA Ministerial Conference 2024

At the request of the IAEA, RCARO drafted a plan to hold an RCA exhibition during the IAEA's Ministerial conference* scheduled in November and presented it to the 46th NRM. Upon approval of the meeting, RCARO finalized the exhibition concept including time/venue, exhibition theme, promotional contents, in consultation with the Task Force.

* Ministerial Conference on Nuclear Science, Technology and Applications and the Technical Cooperation Programme on 26-28 November 2024, Vienna Austria

Under the theme "Brining Prosperity to the Asia-Pacific: RCA", RCARO facilitated the

preparations for the RCA exhibition in cooperation with the IAEA and GPs to showcase the achievements of the RCA over 52 years. A total of 14 RCA GPs provided the RCA project activity information such as pictures and video clips to the RCARO for making RCA promotional materials. Based on the received materials, RCARO made two RCA promotional videos demonstrated at the RCA booth; RCA promotional video (revised from the RCA's 50th anniversary video) and RCA project activity video. RCARO also distributed various RCA publications to visitors, such as RCA brochure, newsletter, issue brief, RCA history and socio-economic impact assessment report of the RCA Programme. In addition, experts from CPR, MAL and PAK provided their support in operation of the RCA booth and promotion of the RCA at the conference, supported by RCARO.

The opening ceremony of the RCA exhibition was successfully held on 27th November with the participation of a big audience including IAEA Director General, RCA Chair, NRs and representatives of the RCA GPs, RCA experts and IAEA representatives.

1.3 Supporting RCA experts to outreach to the international community and forums

RCARO has provided support for RCA experts for their promotion of the RCA at regional/international events under the Expert Support Programme. Due to the Covid-19 pandemic, the participation of the MAL selectee has been postponed until 2024. After the release of the travel restrictions, RCARO supported the selectee's participation and his RCA promotional activities at the 20th World Conference on Non-Destructive Testing held in May in Korea.

For 2025, RCARO received a total of 14 applications from 7 GPs. According to the guideline of the Programme, RCARO made a shortlist of the applicants for review by the RCARO SAC. Upon approval of the RCARO SAC and 53rd GCM, RCARO finalised the 3 selectees from AUL, IND and INS. RCARO will make the necessary arrangements to support the selectees in due course.

1.4 Provision of RCA information through the RCA Integrated Information System

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

- **Provision of RCA Information**

At the 46th NRM, it was recommended that the RCA project information be archived at the IAEA PCMF while the other policy and RCARO managed project documents be stored at the RCA website. According to the recommendation, RCARO has continued collecting and providing information on the RCA policy related meetings and activities in cooperation with the IAEA, GPs and experts.

- **Development of Data-hub**

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 to receive comments. Reflecting comments received at the workshop on the contents of the Data-hub, RCARO will upload relevant information in cooperation with the NRs.

1.5 Publications

- **RCA Newsletters**

RCARO published the 7th and 8th issue of the RCA Newsletters in May and September respectively. The newsletters featured articles on key outcomes of the RCA Policy Meetings (46th NRM, 53rd GCM), and RCA Projects (RAS7028, RAS6093, RAS6100, RCARP03), insights of the RCA experts on RCA Programme, regional cooperation in human health sector, nuclear science and technology status/activities of RCA Government Parties (GPs) and IAEA/RCA events as well as RCARO activities.

- **RCA Annual Report**

To support the IAEA's role to publish the RCA annual report, RCARO provided assistance to the IAEA by preparing a draft annual report with the information received from the IAEA and the 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 statements from the RCA Chair and senior IAEA officials and submitted it to the 46th NRM for review and comments of the NRs. Upon the confirmation of the IAEA, final version will be shared with the RCA GPs and uploaded on the RCA website.

- **Other Publications: RCA Issue Brief**

RCARO has published the 'RCA Issue Brief', with the aim to provide expert analysis and 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 entitled as "Theranostics, a New Innovative Approach to Cancer Treatment" was published in September and uploaded on the RCA website. Co-authored by the 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. The Issue Brief was also distributed to the relevant stakeholders together with the RCA Newsletter to promote the RCA.

2. Addressing the needs of the Government Parties for development of the RCA

2.1 Introductory Workshop for the New 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 NRand 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.

The event served as a platform for knowledge exchange, strengthening regional collaboration. By familiarizing the new NRs with RCA policies and programmes, the workshop contributed to better alignment and coordination between RCA Government Parties, and is expected to contribute to facilitating smoother implementation of RCA projects and activities across the region.

2.2 [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.

- **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.

- **Expert Missions**

One Expert Mission to the Philippines was conducted by an expert facilitated by the IAEA. The mission is consisted of a five-day Home Based Assignment and a two-day virtual meeting to review and complete the draft National Radiation Emergency Plan prepared by the Philippines.

- **Final Review Meeting**

A Final Review Meeting was held on 11-12 December virtually as a completion of the project. The opening ceremony featured remarks from Mr Dae Ki KIM, director of the RCA Regional Office, Ms Khemphone Phaokhamkeo, Programme Management Officer, and Mr. Mousa Alkaltham, Technical Officer of the project. The Meeting brought together 14 participants including the Lead Country Coordinator (LCC) and National Project Coordinators (NPCs) and members of the National Project Team from 11 Government Parties-Australia, Bangladesh, Indonesia, Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Pakistan, and Thailand.

Over the two-day sessions, participants reviewed the progress and achievements of the project, particularly in enhancing Emergency Preparedness and Response (EPR) capabilities in the region. Discussions also focused on identifying follow-up activities to address the remaining challenges of capacity-building efforts in the EPR field.

2.3 [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 (TO) 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. After incorporating the inputs of the CSIs, RCARO published two versions of the report; a detailed report with full information and short one with summary of key achievements. Both reports were uploaded on the RCA website for access by relevant experts and the public.

2.4 [RP03] Implementation of the Research Project 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 were requested to submit final reports for review by the relevant experts and Research Review Committee in December 2024. Incorporating the review by the experts/RRC, RCARO will make a final report of the project in early 2025.

2.5 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 was developed for GPs to submit proposals by the end of 2024.

Upon receipt of the proposals, RCARO will make the necessary arrangements for review and selection of the received proposals in consultation with the RCA PAC, relevant experts and NRs according to the relevant guidelines. 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.

3. Empowering next generation in Nuclear Science and Technology in the RCA

3.1 Fellowship Programme

RCARO received in total 15 applications from 10 GPs, which marked 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 FIJ, IND, INS, PHI and THA were selected based on the requirements needed for the programme, prior achievements and motivation of the applicants, giving consideration to national distribution.

Two fellows from IND and INS and the other two from FIJ and PHI have completed their fellowships for 2 months from June to July and October and November respectively. One fellow from THA will be invited for her fellowship from February to April 2025.

3.2 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 41 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. Since 2022, 4 students from 3 countries have received degrees. 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 (GFRIs) in Korea in 2004 to nurture future leaders in the fields of science and technology.

Among the 35 GFRIs 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

3.3 Expansion of capacity building activities

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 RCA GPs in capacity building by introducing postdoctoral fellowship and on-the-job training, engaging relevant experts and institutes. RCARO conducted a survey of relevant universities and discussions with nuclear research institutes in Korea to identify the needs and feasibility of the programme. Based on the result of the survey and discussions, RCARO will develop and implement HRD activities to support the RCA GPs.

4. Enlarging the horizon of the RCA Programme through establishing partnerships

4.1 [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 is implementing 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.

- **Participating at a Hands-on Electron Beam Technical Workshop in Texas A&M**

Thirteen(13) participants from the RCA GPs were invited to a hands-on workshop on the use of the eBeam technology which was held on 15-19 April at the National Center for Electron Beam Research (NCEBR) of Texas A&M University. 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.

- **Implementation of Expert Missions to Mongolia and Cambodia**

According to the work plan, two Expert Missions were carried out in 2024: One in October to Mongolia and the other in December to Cambodia. Prior to the missions, the experts and the countries discussed that there are needs at national level to enhance the awareness of the various stakeholders to adopt the technology. In line with this, the expert missions focused on the successful host of national awareness seminars and meetings with various stakeholders from different sectors.

- **Host of Hands-on Regional Workshop on eBeam Applications in Ho Chi Minh City, Viet Nam**

Hands-on Regional Workshop on eBeam Applications was held from December 2 to 6 2024, in Ho Chi Minh City, Vietnam. Co-hosted by the Vietnam Atomic Energy Institute (VINATOM), the event brought together over 80 participants from 19 countries and featured over 18 presentations under the topics ranging from foundational principles of the technology to applications on various sectors.

A highlight of the workshop was introductory session on PUFFIn simulation software and the hands-on training at VINAGAMMA, where participants gained practical experience in dose mapping and other essential techniques.

Workshop sessions were complemented by engaging discussions that shared lessons learned and good practices across different countries and industries. This blend of theoretical and

practical learning provided participants with actionable insights into adopting eBeam technology for socio-economic development.

4.2 [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)"

- **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.

- **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.

- **Participation in the 11th Annual Meeting of ASEANTOM**

RCARO participated in the 11th Annual Meeting of ASEANTOM held in August 2024 in Laos, and presented the progress of the project and a plan to have a follow-up project starting in 2025, accommodating the regional needs on the advanced technology on radiation monitoring.

4.3 [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.

In 2024, RCARO supported the trainees participating in the training on 1-2 November, in Korea and provided an opportunity for young professionals to present selected papers and receive training on the latest advances in nuclear medicine.

4.4 [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.

5. Facilitating the better implementation of the RCA Programme

5.1 Provision of support to the RCA Chair and policy meetings/activities

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 and the 53rd GCM, specifically on the preparations of the 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 Prorgamme, 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.

5.2 Provision of Extra-Budgetary(EB) contribution to the IAEA

RCARO provided an extra-budget of $70,000 to support the RCA activities implemented on the margins of 2024 IAEA General Conference and the Ministerial Conference and $50,000 to support the effective implementation of the RCA Programme and projects in need of financial support.

Annex. Table of Activities, Timelines and Indicators for RCARO Projects/Activities in 2024

#	Objectives	Activities	Timeline				Status
			Q1	Q2	Q3	Q4	
1	Increasing the awareness of the RCA	1.1 Host of RCA Side-event during the 68th IAEA GC					Completed • RCA Side-event hosted
		1.2 Host of RCA Special Exhibition at the IAEA Ministerial Conference 2024					Completed • Exhibition at the IAEA Conference hosted
		1.3 Supporting RCA experts to outreach to the international community and forums					Completed • Expert's participation to 20th World Conference on Non-Destructive Testing supported • Experts to be supported in 2025 selected
		1.4 Provision of RCA information through the RCA Integrated Information System					Completed • Roles of RCA website and PCMF for archiving RCA information confirmed • Comments of the NRs on the data hub reflected
		1.5 Publications					Completed • RCA Newsletters and RCA Issue Brief published • RCA Annual Report is being drafted and to be finalized after review by the IAEA/GPs

2	Addressing the needs of the Government Parties for development of the RCA	2.1 Introductory Workshop for the new RCA NRs					Completed • Workshop hosted in Korea
		2.2 [EB Project] Implementation of RAS9092					Completed • Regional Workshop on the Development of a National Radiation Emergency Plan (NREP) held
							Completed • Expert Mission to PHI conducted
							Completed • Online Final Review Meeting held
		2.3 [RP02] Implementation of the RP on Air Quality and Environmental Impact Assessment of Industrial Activities in the Region					Completed • Two versions of achievement report published
		2.4. [RP03] Implementation of the Research Project on Closing the Gap in Access to Radiotherapy in RCA					Completed • Online Research Training Course on outcome assessment held in February
							Completed • Online Research Coordination Meeting held in May

							• CSIs' final reports submitted for review by Research Review Committee
		2.5. Survey on research needs					Completed • Call for proposals conducted • Platform for proposals on the website developed
3	Empowering next generation in Nuclear Science and Technology in the RCA	3.1. Fellowship Programme					Completed • Five fellows (FIJ, IND, INS PHI, THA) selected for fellowships in the RCARO
		3.2 Scholarship Programme					Completed • Nine students granted scholarships
		3.3 Expansion of the capacity building activities					Completed • A survey and discussions with relevant universities and institutes in Korea conducted
4	Enlarging the horizon of the RCA Programme through establishing partnerships	4.1 [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"					Completed • Experts to the Hands-on Electron Beam Technical Workshop in Texas A&M invited
							Completed • Expert Missions to Mongolia and Cambodia implemented

							Completed • Hands-on Regional Workshop on eBeam Applications held in Ho Chi Minh City, Viet Nam held
		4.2 [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)"					Completed • Online Workshop for Beginner Countries hosted
							Completed • Regional Training Course held in Korea
							Completed • Participated in the 11th Annual Meeting of ASEANTOM
		4.3. [ARCCNM] Implementation of a Joint Workshop					Completed • Joint Workshop held in Korea
		4.4 [FNCA] Participation in FNCA Events					Completed • Participated in the FNCA Coordinators Meeting
5	Facilitating the better implementation of	5.1 Provision of support to the RCA Chair and policy meetings/activities					Completed • Supported the RCA Chairs' Committee, 46th NRM, 53rd GCM and other policy meetings

	the RCA Programme	5.2 Provision of Extra-Budgetary (EB) contribution to the IAEA					Completed • Contributed EB $120,000 to support the RCA Programme

RCARO 2025 Work Plan

1. Increasing the Awareness of the RCA

1.1 Supporting RCA experts to outreach to the international community and forums

RCARO will make efforts to fulfil its mandate to promote the RCA, by enhancing the RCA representation at appropriate occasions through presentations and exhibitions.

Upon the endorsement of the 53rd GCM, RCARO will support the three selectees from Australia, Indonesia and India for their participation and promotion of the RCA in the selected events.

For the year 2025, RCARO will make the necessary arrangements for implementation of the Programme in due course.

Further, RCARO will also seek other opportunities, such as international conferences/forums, round table discussions with potential partners, to enhance the awareness of the RCA and promote the benefits of nuclear science and technology, engaging the RCA NRs and relevant experts.

1.2 Provision of RCA information through the RCA Integrated Information System

RCARO will continue collecting and providing data and information on the RCA policy and Programme through the RCA website, in cooperation with the IAEA, RCA GPs and relevant RCA experts. The information would include information related to policy meetings including the RCA NRM, GCM, RCARO activities, news and project concept papers to assist the GPs in project development. According to the decision of the 46th NRM, RCA project information will be archived at the IAEA PCMF.

To serve as a hub for RCA information through the Integrated Information System, RCARO will continue to enhance the system in a more user-friendly manner and investigate appropriate means and ways that would lead to effective use of and access to a wide range of data and services.

In addition, recommended by the 39th RCARO SAC on operating social media accounts, RCARO will seek feasibility on how we can proceed with best available platform to reach out to more RCA stakeholders and provide on-time information.

1.3 Enhancing the RCA awareness through publications

RCA News Letters will be published twice, one in the first and the other in the second half of 2025, aiming to promote and highlight the RCA's work and share information in the field of nuclear science and technology within and outside the RCA. They will feature information on the RCA policy and projects, insights and perspectives on the RCA or issues related to NS&T, prepared by the NRs, LCCs and relevant experts.

The 9th RCA Newsletter, published in May 2025, featured updates on RCA policy meetings and articles from experts from Myanmar, Philippines, and a message from the RCARO director. Recommended by the 39th RCARO SAC, information on the results of the completed projects and information on the upcoming activities of the RCA projects are included on the Newsletter for reference of the RCA stakeholders.

RCARO will also publish two Issue Briefs, informative and analytical materials focusing on the peaceful uses of the nuclear science and technology in the region. These publications, namely the RCARO Issue Series, aim to provide expert insights, timely analyses, and in-depth research to a wide range of audiences, including experts, policy-makers, and the general public in the field of nuclear science.

The 2nd Issue Brief was published in May titled "Mutation Breeding: A tool for crop improvement and agricultural sustainability" supported by experts from Fiji. It demonstrates how physical and chemical mutagens can enhance disease resistance, stress tolerance and yield in crops.
According to the procedure, publications will be issued with the review by the editorial committee and distributed via email to RCA stakeholders and target readers and uploaded on the RCA website.

2. Addressing the needs of the Government Parties for development of the RCA

2.1 Hosting a Workshop for women in nuclear field in the region

The 39th RCARO SAC recommended that RCARO consider hosting a regional event for women in nuclear in the RCA region to share their success stories.
With the approval of the 53rd GCM, RCARO has drafted a concept paper on hosting the event, outlining its background, objectives and expected outcomes, and shared with the SAC and the

GPs in February 2025 for their review and comments. Reflecting the feedback from them, RCARO is organizing an event on 24-26 June 2025 in Korea, inviting women in nuclear field in the Asia-Pacific to share their experiences and success stories.

The event will bring together women nuclear experts, policy makers to exchange their experiences and aspirations and to strengthen their network. This will be an occasion to meet with various community of women in nuclear field and explore opportunities to advance their careers.

To ensure broader accessibility, the event will be conducted in a hybrid format, allowing participation from NRs and any RCA stakeholders interested in the workshop.

2.2 Implementation of the Research Project on Closing the Gap in Access to Radiotherapy in RCA(RP03)

To improve cancer planning and scale up radiotherapy services by providing evidence-based information on the radiotherapy services, the project has been implemented from 2022 to 2024, participated by 6 GPs: AUL and PHI as Agreement Holders and INS, MAL, MON, THA as Contract Holders.

Upon the completion of the project, an Achievement Report will be prepared highlighting the results and outcomes of the project.

2.3 Development of a new RCARO Managed Project

Aiming to meet the emerging reginal needs of the RCA as well as supplementing the RCA Programme in responding to ad-hoc needs, RCARO has been implementing the RCARO Managed Projects including the RCA RP 01-03 since 2016. In order to identify the specific needs and priorities of the region, RCARO conducted a survey in 2024 on possible collaborative activities and the result has been shared with the GPs for their information.

Based on the result of the survey and subject to the budget availability, RCARO will develop a new RCARO Managed Project to help address the regional issues/problems in forms of Research Project, Supplementary Project and Training project, aligning it with IAEA TC projects to ensure complementarity and synergies and avoid duplications.

3. Empowering next generation in Nuclear Science and Technology in the RCA

3.1 Fellowship Programme

RCARO will continue implementing the Fellowship Programme, inviting fellows from the GPs to provide opportunity for them to gain experience and knowledge on the RCA and the RCARO. This year, RCARO received 12 applications from 6 countries and selected 4 applicants from Fiji, Malaysia, Pakistan and Sri Lanka based on the programme requirements, their prior achievements, motivation, and balanced national representation.

Their duties will include collecting and analysing the information on the status and needs of their countries in the field of nuclear science and technology; updating stakeholder/end-user database; and assisting in the implementation of diverse RCARO activities. Fellows will have opportunities to visit nuclear related facilities in Korea.

3.2 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. In 2025, two students from Indonesia and Malaysia will be supported.

- **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 2025, five students from Indonesia, Myanmar, Philippines, Thailand and Viet Nam will be sponsored to study at the 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 (GFRIs) in Korea in 2004 to nurture future leaders in the fields of science and technology.

It operates a differentiated education that fosters theoretical knowledge and experience and know-how in the research field by combining common competency education, major (basic/in-depth) education with specialized field education of each campus.

Among thirty-five GFRIs which currently provide support functioning as Campus, this Programme cooperates with two campuses, 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 2025, one student from Pakistan was selected for the spring semester and the process for the fall semester is being conducted to recruit students from the region accordingly for their study at the UST.

* KAERI: Korea Atomic Energy Research Institute

KIRAMS: Korea Institute of Radiological & Medical Sciences

3.3 Regional Training Programme on Nuclear Science and Technology

Since 2008, RCARO has organized regional training courses in collaboration with Korean institutions to enhance technical expertise and practical skills in areas of nuclear science and technology. RCARO plans to continue this effort through a Regional Training Programme on nuclear science and technology to provide training focusing on the acquisition of practical and

professional skills, engaging relevant experts and institutions.

This year, in cooperation with KAERI, RCARO is organizing a "4-week course on Research Reactor Utilization", in September in Korea. Featuring both online and onsite training, this training will provide participants with hands-on experience and theoretical knowledge to strengthen their capabilities in adopting and utilizing the research reactor.

4. Enlarging the horizon of the RCA Programme through establishing partnerships

4.1 [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 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, participated by a total of twenty-one (21) RCA GPs.

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

- **Implementation of Expert Missions**

According to the work plan confirmed at the Project Coordination Meeting, three expert missions will be carried out in 2025; two missions in July to Malaysia and the Philippines and one in Q3 2025 to Indonesia. 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.

- **Hosting a Hands-on Electron Beam Technical Workshop**

A regional workshop on eBeam technology and its applications will be held in Q4, 2025 in Korea, inviting various regional stakeholders to enhance the understanding of principles of the technology and its applications.

4.2 [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 "

- **Implementation of a Project Coordination Meeting**

Project Coordination Meeting to kick off a follow-up project was held virtually on 19-20 February 2025, hand in hand with the Final Review Meeting of the previous project (Phase 2, 2022-2024). This virtual event featured achievements made over the past years and discussed the plans for the follow up project.

- **Hosting a Regional Training Course**

A regional training course to provide hands-on training for strengthening EPR capacity will be held in July in Korea in cooperation with KAERI, KRISS and KIRAMS. This training will provide various measurements that can be undertaken to assess rapidly the dose in the environment, utilizing high-tech equipment.

4.3 Development of a partnership project/activity with regional/international organizations

Mandated by the RCA, RCARO has been making efforts to mobilize additional resources to overcome limitations of the RCA Programme and to bring in external expertise to diversify the RCA activities.

In 2025, RCARO will continue put its best efforts into identifying potential partners for the RCA. Recognizing that the importance of collective efforts for mobilizing resources and expanding partnerships, RCARO will invite the NRs to roundtable discussions with potential donor partners as appropriate. A concept note on outreach and future partnership activities will be prepared by RCARO for discussions, recommended by the 39th RCARO SAC.

4.4 Participation in the FNCA coordinators meeting

On behalf of the RCA, RCARO participated in the 25th FNCA Coordinators Meeting held on 26 February 2025 in Japan and presented achievements of the RCA and discussed possible collaborations between the RCA and the FNCA to enhance the efficiency of cooperative activities.

5. Facilitating the better implementation of the RCA Programme

5.1 Provision of support to the RCA Chair and policy meetings/activities

RCARO will support the IAEA in its RCA secretariat functions and the RCA Chair in performing his/her duties for coordination of various RCA activities. In 2025, RCARO will assist the RCA Chair and the IAEA in the preparation of the 47th RCA NRM and the 54th RCA GCM, specifically on the preparations of meeting agenda, report and background documents. In cooperation with the IAEA and the GPs, RCARO will prepare the 2024 RCA Annual Report providing information on the implementation of the RCA Prorgamme, key decisions of policy meetings including NRM and GCM and achievements of the non-technical activities.

5.2 Provision of Extra-Budgetary (EB) contribution to the IAEA

EB contribution will continue in 2025 to support the effective implementation of the RCA Programme and RCA projects in need of financial support, subject to the budget availability of the RCARO.

Annex. Table of Activities, Timelines and Indicators for RCARO Projects/Activities in 2025

#	Objectives	Activities	Timeline				Indicators
			Q1	Q2	Q3	Q4	
1	Increasing the awareness of the RCA	1.1 Supporting RCA experts to outreach to the international community and forums					• Provision of support to RCA experts for promotion of the RCA
		1.2 Provision of RCA information through the RCA Integrated Information System					• Update of RCA information on the RCA website • Uploading results and achievements of RCA projects
		1.3 Enhancing the RCA awareness through publications					• Publication of promotional materials including newsletters and issue briefs
2	Addressing the needs of the Government Parties for development of the RCA	2.1 Hosting a workshop for women in nuclear field in the region					• Hosting a workshop
		2.2 Implementation of the Research Project on closing the gap in access to radiotherapy in the RCA(RP03)					• Drafting a final progress report
		2.3 Development of a new RCARO Managed Project					• Identifying needs of the GPs
3	Empowering next generation in Nuclear Science and Technology in the RCA	3.1 Fellowship Programme					• Fellows invited to RCARO for fellowship
		3.2 Scholarship Programme					• Granting scholarships to selected students
		3.3 Regional Training Programme					• Developing a training programme

4	Enlarging the horizon of the RCA Programme through establishing partnerships	4.1 Implementation of the DOE project					• Implementation of Expert Missions
							• Hosting a hands-on technical workshop
		4.2. Implementation of the ASEANTOM project					• Implementation of a project coordination meeting
							• Hosting a regional training course
		4.3 Development of a partnership project/activity with regional/international organizations					• Drafting a concept note on outreach and future partnership activities • Identifying potential partner organizations for developing a project/activity
		4.4 Participation in the FNCA coordinators meeting					• Participating in the meeting
5	Facilitating the better implementation of the RCA Programme	5.1 Provision of secretarial support to the IAEA/RCA and the RCA Chair					• Providing support for implementation of RCA policy meetings/activities • Providing assistance to the RCA Chair in performing his/her duties
		5.2 Provision of EB contribution to the IAEA/RCA					• EB contribution to the IAEA/RCA