

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 Annex 4 of the GOR, the DIR-RCARO prepared the report on his performance in 2022 and a work plan for the year 2023 and submitted them to the SAC at the end of December 2022 for its evaluation.

Proposed Action

The Meeting may take note of the report on the RCARO's work performance in 2022 and a work plan for 2023.

RCARO 2022 Work Performance

Activity Highlights

The year 2022 was a year for the RCA Regional Office (RCARO) to fully demonstrate its capabilities and step up as an effective coordinator of cooperation both within and outside the RCA.

1. Supporting the Celebration of the 50th Anniversary of the RCA

- As a member of the Special Task Force (STF), RCARO was engaged in every aspect of the preparation for the celebration of the 50th Anniversary of the RCA. With the generous financial contribution by the Government of Republic of Korea, ceremonial activities were significantly successful in showcasing the remarkable achievements of the RCA.
- During the RCA Awards Ceremony, RCARO received a Special Award that acknowledges the dedicated contribution made by the RCARO over the past years to the development and expansion of the RCA.



<RCA Exhibition, 66th IAEA GC, Sep., >



<RCARO receiving the RCA Special Award>

2. Celebrating the 20th Anniversary of the RCA Regional Office

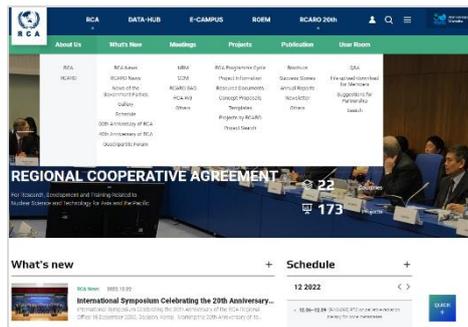
- RCARO hosted an International Symposium celebrating the 20th Anniversary in December in Korea. It was attended by more than 250 delegates, including Mr Rafael Mariano Grossi, Director General of the IAEA, Mr Oh Tae-seok, 1st Vice Minister of Science and ICT, Republic of Korea, Mr Tran Chi Thanh, the RCA Chair, and other renowned experts as speakers.



<International Symposium, Dec., Korea>

3. Vitalizing the Information and Data Sharing within the RCA

- RCARO launched the RCA Integrated Information System, comprising of the RCA website, RCA E-CAMPUS, RCARO E-Management (ROEM) and DATA-HUB, in July to provide integrated information of the RCA and nuclear science and technology status of the GPs.
- Initiated in April, RCARO published three issues of the RCA Newsletters.



<RCA Integrated Information System>



<RCA Newsletter>

4. Bridging the RCA to the International/Regional/National Partners

- RCARO initiated the second phase of the RCARO/ASEANTOM project, to be implemented for three years from this year, with the aim to scale up the EPR capabilities of RCA/ASEAN countries through building technical capacity in radiation monitoring and dose assessment and thus to ensure the radiation safety of the environment, the workers and the public during nuclear or radiological emergencies.
- RCARO was successful in finding the new partner, Office of Radiological Security of the US Department of Energy/National Nuclear Security Administration, to co-host a workshop on e-beam/X-ray technologies. The Workshop was held in November for one week and provided actionable information in adopting machine-based technologies to 130 participants from 22 countries.



<RCARO/ORS Workshop, Nov., Korea>

2022 Work Performance Details

1. Increasing the awareness of the RCA

1.1 Provision of RCA information through the RCA Website

1.1.1. Establishment of an integrated information system

The RCA Integrated Information System was developed and launched in July 2022. The system is composed of the renewed RCA website as a repository for overall information, documents and materials of the RCA, RCA E-CAMPUS for online education and training, ROEM for management of the RCARO projects/activities and DATA-HUB as an archive of information and data related to nuclear science and technology in the region. While the other platforms are in operation, the DATA-HUB is expected to initiate its operation in 2023 after consulting relevant institutes and facilities for efficient and effective provision of information.

1.1.2. Update data on the RCA and its projects on the RCA Website

RCARO has been operating a dedicated platform on the RCA website to serve as a repository of the information of the RCA projects, including details of LCCs, (A)NPCs and Regional Resource Units, as well as documents and materials generated under the projects. As for the projects commencing in 2022, RCARO updated the project information on the platform according to the Project Participation Forms received from the IAEA.

To support the RCA GPs and the PAC in preparation of project development, RCARO rearranged the project platform, adding new menus, where they could retrieve proposal documents from the past cycles as well as necessary resource documents for developing projects.

1.2. Publication of Newsletters

With a view to moving with the global trend of digitalization and enhancing the promotional effect, RCARO initiated publication of the RCA Newsletter in 2022. The Newsletter is intended to provide timely information of the RCA to the GPs and raise the RCA profile to other stakeholders. In order to maintain reliability and quality of the newsletters, the RCA Newsletter Committee was established comprising of the members of the RCARO SAC as Publishing Advisors, two RCA experts as Editorial Advisors and the RCARO. While the RCARO is in charge of the whole

process of publishing the newsletters, the Publishing and Editorial Advisors provide their expertise and review the drafts before the final publication.

Three issues of the RCA Newsletter were published in April, September and November respectively. The first issue contained congratulatory messages and featured articles from a number of RCA and IAEA experts, success stories of RCA projects and articles provided by two GPs, Malaysia and Viet Nam, on the impacts of the RCA Programme in their countries.

The second and third issues were prepared as special issues for the 50th Anniversary of the RCA. Being published right before the celebration of the RCA's 50th Anniversary, the second issue focused on the preparation and information of the ceremonial events, including the RCA Ministerial Conference and the RCA Exhibition held during the 66th IAEA General Conference in Vienna, Austria, to promote the interest and participation of the RCA GPs and stakeholders in the events. The first two issues of the RCA Newsletter were printed in hard copies and distributed to the participants at the ceremonial events as promotional materials.

The third issue of the RCA Newsletter was published with the sketches and notable result of the events. An insightful article on the future directions of the RCA was also included in the third issue.

All three issues of the RCA Newsletter were distributed to around 700 subscribers from the RCA GPs, regional/international organizations and other stakeholders via email and uploaded on the RCA website for continual promotion of RCA activities.

2. Enhancing and exploring partnerships with regional/international organizations

2.1 Developing a partnership project/activity with relevant organizations

2.1.1 Development of a follow-up project/activity of the RCA/UNOSSC project on EBeam technology

Taking note of the recommendation of the 32nd RCARO SAC on seeking possibilities of a follow-up activity/project of the RCA/UNOSSC project for continued support to the region, RCARO has explored opportunities for partnerships with other institutes/organizations for development of a follow-up project on EBeam technology.

In this relation, RCARO, in collaboration with the Office of Radiological Security (ORS) of the US Department of Energy/National Nuclear Security Administration, organized a "Workshop on

Advancing the Adoption of e-Beam/X-ray technologies in Asia and the Pacific”, from 14 to 18 November 2022 in Daejeon, Korea. Around 130 participants from 22 countries attended the workshop, including researchers, scientists, decision-makers and representatives from the industry.

The workshop aimed to provide actionable information to potential end-users and other stakeholders interested in adopting machine-based technologies. In addition to detailed discussion of the underlying opportunities and technology specifics, this workshop focused on the economics of adoption in terms of capital costs, operating costs, choosing locations for building facilities and how to get an eBeam project off the ground.

The participants to the workshop actively participated in the discussions and presented their views on the challenges and opportunities for the adoption of eBeam/X-ray technologies. They expressed high satisfaction on the contents of the workshop, especially on the broad scope of information provided on the adoption of e-Beam/X-ray technologies.

2.2 Implementation of the RCARO/ASEANTOM project

RCARO has been implementing a partnership project with the ASEANTOM (ASEAN Network of Regulatory Bodies on Atomic Energy) titled “Enhancing emergency preparedness and response capabilities through building technical capacity in radiation monitoring and dose assessment following the nuclear and radiological emergencies” since 2020 (Phase 1: 2020-2021, Phase 2: 2022-2024).

*ASEAN: Association of Southeast Asian Nations, 10 member countries such as INS, KAM, LAO, MAL, MYA, PHI, SIN, THA, VIE, Brunei

2.2.1 Holding a project coordination meeting

Project Coordination Meeting was held virtually on 24-25 March 2022. The meeting was attended by Lead Country Coordinators (LCCs) and National Project Coordinators (NPCs) from 9 Government Parties - Cambodia, Indonesia, Korea, Malaysia, Myanmar, the Philippines, Singapore and Thailand - and the representatives from the Korea Institute of Radiological & Medical Sciences (KIRAMS), Korea Research Institute of Standards and Science (KRISS) and RCA Regional Office.

Being the first platform to offer the project stakeholders to get together under the project phase 2,

the meeting shared the achievements of the previous phase and overview of the phase 2. Country reports on the status of EPR arrangements were presented and details of the work plan were discussed and confirmed during the Meeting.

2.2.2 Development of Virtual Handbook

According to the work plan, RCARO, in close consultation with experts from KRISS and KIRAMS set up a plan for developing a handbook on radioactivity measurement to be used by the ASEAN countries in case of emergencies. Based on the survey and status reports, the handbook will comprise of two virtual materials and three paper-form manuals that explain detailed procedures for accurate and rapid measurement on-site, and will be completed in Q2, 2023.

2.3 Implementation of a joint workshop with the ARCCNM

Since 2008, RCARO has been supporting the RCA/ARCCNM workshop to educate nuclear medicine physicians and scientists in developing and less developed Asian countries and further foster collaborative activities on nuclear medicine in the region.

In collaboration with the ARCCNM, RCARO hosted the workshop from 31 October to 5 November 2022 and supported a total of 25 participants in their training.

*ARCCNM: Asian Regional Cooperative Council for Nuclear Medicine

2.4 Participation in the FNCA Coordinators meeting

On behalf of the RCA, RCARO participated in the 22nd FNCA Coordinators meeting held on 28 June 2022 virtually and presented the RCA activities and shared views on collaboration with the FNCA. It was agreed that cooperation on specific projects on mutation breeding, radiation oncology, radiation processing & polymer modification and food provenance should be encouraged for possible synergy between the RCA and the FNCA.

3. Expanding support for the benefit of the Government Parties

3.1 Implementation of RAS9092

RAS9092 on “strengthening the capacity to respond to radiological emergencies of category II

and III facilities in the Asia Pacific region” has been 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, extending one more year, as decided at the project coordination meeting in 2020 due to the difficulties in undertaking the planned activities resulted from the COVID-19 pandemic.

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

3.1.1 Implementation of regional training courses

According to the work plan, two regional training courses were held in Q4 2022.

Regional Training Course on Development and Use of Operational Intervention Levels (OILs) for Reactor Emergencies was held in Bangkok, Thailand, from 3 to 7 October 2022. A total of 26 participants from 10 RCA GPs and the IAEA participated in the course. This training course aimed to support RCA in establishing or enhancing adequate capabilities for protecting the public in the event of a severe reactor emergency or its spent fuel pool, by providing a detailed explanation on the use of IAEA’s default operational intervention levels (OILs). Regional Training Course on Developing a Protection Strategy for a Nuclear or Radiological Emergency was held in Hanoi, Viet Nam, from 31 October to 3 November 2022. A total of 22 participants from 9 RCA GPs and the IAEA participated in the course. This training course aimed to train personnel of relevant response organizations on how to develop, justify and optimize protection strategy for a nuclear/radiological emergency, as required in Requirement 5 of IAEA Safety Standards Series No. GSR Part 7.

3.1.2 Submission of progress report

Project Progress Assessment Report (PPAR) has been submitted to the IAEA in January 2023, integrating national progress reports received from the NPCs of the project.

3.2 Implementation of the RCARO Managed Project: Research Project RCARP02

RCARO has been implementing the 2nd phase of the RCA Research Project on “Air Quality and Environmental Impact Assessment of Industrial Activities in the Region (RCARP02)” as a

component of the RCARO Managed Projects under the RCA Programme for three years from 2021 to 2023. The project is to improve the quality of the environment through provision of appropriate pollutant data related to industrial activities for researchers and relevant stakeholders. Eleven (11) GPs participate in the project: AUL, NZE, ROK as Agreement Holders and CPR, INS, MAL, MON, NEP, PAK, THA, and VIE as Contract Holders

3.2.1 Conducting research coordination meeting(s)

Research coordination meeting was held on 13-14 January 2022 virtually, inviting the CSIs from 11 participating countries, Chair of the Research Review Committee (RRC) and the Technical Officer of the project. The meeting reviewed and assessed the project progress made in 2021 based on the work plan and performance indicators. The meeting also discussed challenges related to the COVID-19 pandemic and means to address them for successful implementation of the project.

A mid-year review meeting was suggested to share the difficulties and find remedial actions to support the CSIs in need of support in implementing activities due to the COVID-19 pandemic. Being a platform of collaboration among the CSIs, the meeting was held on 29 June 2022 virtually, finding appropriate actions to solve issues faced by some participating countries.

3.2.2. Review of progress reports

According to the work plan, all CSIs submitted annual progress reports on the research activities carried out in 2022 for review by the RRC. Based on the RRC's review, the RCARO has prepared the necessary financial contributions to the Research Contract Holders for their continued research.

3.3 Implementation of the RCARO Managed Project: Research Project RCARP03

RCARO has developed a new RCA Research Project on "Closing the Gap in Access to Radiotherapy in RCA Government Parties (RCARP03)" as a component of the RCARO Managed Projects under the RCA Programme. The research will be carried out for three years from 2022 to 2024 with the aim of improving cancer planning and scaling up radiotherapy services through provision of evidence-based information on radiotherapy services.

Eight (8) GPs participate in the project: AUL, PHI, ROK as Agreement Holders and INS, MAL,

MON, THA, and VIE as Contract Holders

3.3.1 Conducting a research coordination meeting

Research coordination meeting was held on 17-18 March 2022 virtually, inviting the CSIs from 8 participating countries, Chair of the Research Review Committee and the Technical Officer of the project. The meeting reviewed the current status of research activities, national research proposals and work plans for 2022-2024. The meeting also discussed overall parameters essential for project implementation and agreed to the research protocol/modality prepared by the Technical Officer and key stakeholders of the project.

Recommended by the research coordination meeting, RCARO organized two workshops to provide the CSIs with basic knowledge and expertise needed in implementing the activities of each phase.

The first workshop on estimating core investment required for radiotherapy was held on 12 May 2022 and the second one on calculating burden of cancer requiring radiation therapy on 24 May 2022 virtually, attended by all CSIs and team members.

3.3.2. Review of progress reports

According to the work plan, all CSIs submitted annual progress reports on the research activities carried out in 2022 for review by the RRC. Based on the RRC's review, the RCARO has prepared the necessary financial contributions to the Research Contract Holders for their continued research.

4. Assisting the Government Parties in human resource development

4.1. Capacity building through the Korean Institutes/Universities

4.1.1. Supporting the Master's Degree Programmes

RCARO continued its support for capacity building of the Government Parties by implementing two master's degree programmes.

For the Nuclear Engineering Master's Degree Course in the KAIST, three students from Indonesia (2) and the Philippines (1) were supported for their study at the KAIST.

For the KINGS Master's Degree Course on Energy Policy, 5 students from Bangladesh (1), Philippines (1), Indonesia (2), Pakistan (1) have been accepted to study at the KINGS, but 4 students were supported for their study. (Selectee from Pakistan is currently on leave due to personal issues.) Taking the opportunity of being in Korea, they were given the opportunity to work/experience various Korean institutes including RCARO during the summer vacation as an internship. Two from Indonesia successfully completed their internship in RCARO for one month in August 2022.

*KINGS: KEPCO International Nuclear Graduate School

KAIST: Korea Advanced Institute of Science and Technology

4.1.2. Implementing capacity building activities on radiation technology

In cooperation with the Korea Atomic Energy Research Institute (KAERI), RCARO hosted an online training course on radiation technology and its applications from 22 August to 2 September, inviting 27 participants from 6 RCA GPs. The objective of the course was to share technical and practical knowledge on radiation policy & safety, research reactor technology, radiation technology and its applications etc. to technical or managerial professionals from target countries who are directly involved in the field of radiation application technology in government authorities, R&D institutes, and regulatory bodies.

Among the participants to the above-mentioned online training course held from 2020 to 2022, 18 participants with excellent performance were invited to participate in Scientific Visit Programme in December, for one week. The Programme provided the participants with site-tour and visits to the renowned Korean institutes and laboratories.

Further, RCARO hosted an online training course on the radiation equipment and its applications in cooperation with KAERI on 22-26 August, attended by 31 participants from 7 RCA GPs. Lectures on appropriate use, maintenance and even development of radiation equipment were given.

4.2. Provision of online training through the RCA e-Learning Campus

Through the upgraded RCA E-CAMPUS, RCARO continued providing online training courses by developing 26 e-Learning modules on various topics on radiation technology, making a total of 196 modules uploaded on the Campus and hosting virtual events.

In conjunction with the planned online training courses, introductory courses were offered to the participants in order to be prepared for the events, utilizing the modules previously developed

4.3. RCARO Fellowship Programme

One fellow from Cambodia was invited to work in RCARO for two months from November to December. She has contributed to implementing various RCA/RCARO activities including the international symposium celebrating the 20th anniversary of the RCARO.

5. Facilitating the better implementation of the RCA Programme

5.1 Supporting the IAEA for the RCA secretariat functions

RCARO supported the IAEA in its RCA secretariat functions in terms of preparation and coordination of the policy meetings and coordination of WG activities.

RCARO assisted the IAEA in preparation for the 44th NRM, the 51st GCM and the Ministerial Level Meeting in terms of preparation of agendas, background documents and the 2021 RCA annual report.

For the activities of the WG on the RCA MTS 2018-2023 Coordination, RCARO supported the WG by hosting virtual meetings in March and August and sharing its views on the issues raised at the meetings.

5.2. Assisting the RCA Chair for coordination of activities

RCARO provided assistance to the RCA Chair in performing his/her duties for effective and efficient implementation of policy meetings and events including the ceremonial events for the 50th anniversary of the RCA. The Guide developed by RCARO has been sent to the Chair for their reference.

5.3. Providing support for celebration of the 50th anniversary of the RCA

As approved by the 50th GCM, RCARO supported preparations for the celebration of the 50th anniversary of the RCA. The activities included the organization of RCA exhibition during the 66th IAEA General Conference, production of a video and development of a dedicated website for the anniversary.

In addition, RCARO participated in the Special Task Force and RCA Awards Committee meetings

and shared opinions/views on several issues, as a member.

5.3.1 Holding of RCA exhibition

With the purpose of showcasing the achievements of the RCA over the past 50 years and presenting the future directions, RCARO held an exhibition during the 66th IAEA General Conference. In consultation with relevant experts and members of the Special Task Force, RCARO prepared the booth and banners to showcase successful outputs and outcomes of the RCA. Success Stories and the special publications on the RCA's socio-economic impact assessment were displayed. Congratulatory messages made by RCA stakeholders together with the 50th anniversary video were played.

The opening ceremony was successfully held on 26 September 2022 at the IAEA Headquarters, attended by a big audience, including the Ministers and representatives of the RCA Government Parties, Director General, Deputy Director Generals and delegates from the IAEA.

5.3.2 Production of a Video

RCA anniversary video has been produced, containing the overview and history of the RCA as well as its achievements. It's composed of motion graphics, interviews by RCA stakeholders, and messages collected from the GPs. Photos and videos taken during the RCA activities were also included to enrich the contents of the video.

In addition, RCARO updated the RCA promotional video, including the key numbers of the RCA over the 50 years. The videos have been uploaded on the website and played at the RCA exhibition booth and the Ministerial Level Meeting.

5.3.3 Development of a website

RCARO developed a dedicated website for providing overall information and messages related to the Anniversary. The website contains overview of the RCA and the main events including the RCA Ministerial Level Meeting and the exhibition. Congratulatory remarks by RCA stakeholders were displayed on the website. With the aim to encourage all GPs participate in the preparation and celebration of the anniversary and share ownership, RCARO invited the Government Parties to send recorded congratulatory messages. The website was presented at the 44th NRM and has been operated throughout the year of the RCA 50th Anniversary.

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

There has been no budget contribution to the RCA projects in 2022 due to the tight budgetary situation. RCARO will continue its efforts to make extra-budgetary contributions to support the projects in need of financial support.

6. Holding an International Symposium Celebrating the 20th Anniversary of the RCA Regional Office

Marking the 20th anniversary of its establishment this year, RCARO hosted the International Symposium on 15 December 2022 in Daejeon, sponsored by the Ministry of Science and ICT and other relevant institutes in Korea. Under the theme, “Cooperative Leadership in Nuclear Science & Technology and Sustainable Development in the Asia-Pacific Region: Future Vision of the RCARO,” the Symposium aimed to bring together diverse RCA stakeholders to share their valuable experience and insights on the regional cooperation with the RCA and RCARO and explore further collaborative opportunities for the benefits of the RCA GPs.

More than 250 delegates, including the Director General of the IAEA, the first Vice Minister of Science and ICT and Presidents and Directors of relevant Korean institutes, attended the event.

The symposium consisted of the opening ceremony, two sessions and a panel discussion. Two sessions comprised of seven presentations by renowned experts, both in the nuclear science and technology and RCA. At the panel discussion six panelists were invited to discuss the ways how the RCARO could enhance its roles and capabilities for facilitating cooperation in the RCA and the peaceful uses of nuclear science and technology to, ultimately, contribute to addressing regional and global challenges. To this end, the panelists shared their innovative insights and solutions on the future of the RCARO.

Through these sessions, RCARO’s achievements as well as the future visions and strategic directions were shared and discussed. The presenters and panelists raised the needs for the RCARO to expand its roles to facilitate the R&D activities in the RCA; to take the leading role as the think-tank of the region; and to vitalize the information and data sharing and analysis. They also emphasized the need for the RCARO to set up a concrete action plan for the follow-ups.

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

	Objectives	Activities	Timeline				Indicators	Status
			QT 1	QT 2	QT 3	QT 4		
1	Increasing the awareness of the RCA	1.1.Provision of RCA information through the RCA website 1.2. Publication of Newsletters	■ ■ ■				1.1.1. Establishment of an integrated information system 1.1.2. Update data on the RCA and its projects 1.2.1. Publication of Newsletters	In progress -To be completed in 2023 Done -Updated project information Done -Published three Newsletters
2	Enhancing and exploring partnerships with regional/ international organizations	2.1. Developing a partnership project/activity with relevant organizations 2.2. Implementation of RCARO/ASEANTOM project 2.3. Implementation of a joint workshop with ARCCNM	■ ■		■ ■	■	2.1.1. Development of a follow-up project/activity of RCA/UNOSSC project on EBeam technology 2.2.1. Holding a project coordination meeting 2.2.2. Development of a virtual handbook 2.3.1. Supporting experts for participation in the workshop	Done -Conducted a workshop on 14-18 November in Korea Done -Held on 24-25 March virtually In progress -To be completed in Q2 2023 Done -Supported 25 participants for workshop held from 31 Oct. to

		2.4. Participation in the FNCA coordinators meeting		■		2.4.1. Participation in the FNCA coordinators meeting	5 Nov. in Korea Done -participated in the virtual meeting on 28 June
3	Expanding support for the benefit of the GPs	3.1. Implementation of RAS9092			■	3.1.1. Implementation of regional training courses	Done -Two RTCs held in October, Thailand and in November, Viet Nam
		3.2. Implementation of RCARP02	■	■		3.1.2. Submission of progress report	Done
						3.2.1. Conducting research coordination meeting(s)	Done -Two meetings held virtually in January and June
					■	3.2.2 Review of progress reports	Done -RRC reviewed the reports submitted by all CSIs
		3.3. Implementation of RCARO03	■			3.3.1 Conducing a research coordination meeting	Done -Held on 17-18 March virtually

						3.3.2. Review of progress reports	Done -Reports reviewed by RRC
4	Assisting the GPs in human resource development	4.1. Capacity building through the Korean Institutes/Universities				4.1.1. Supporting the Master's Degree Programmes	Done -Supported three students for the KAIST and four for the KINGS programme
						4.1.2. Implementing capacity building activities on radiation technology	Done -Two RTCs held in August virtually
		4.2. Provision of online training through the RCA e-Learning Campus				4.2.1. Enhancement of the RCA e-Learning Campus	Done -E-Campus upgraded -Developed 26 e-modules
		4.3. RCARO Fellowship Programme				4.3.1. Inviting fellows from GPs to the RCARO	Done -One fellow from Cambodia
5	Facilitating the better implementation of the RCA Programme	5.1. Supporting the IAE for the RCA secretariat functions				5.1.1. Providing support for RCA policy meetings and WGs	Done -Assisted the IAEA in preparing for the 44 th NRM and the 51 st GCM
		5.2. Assisting the RCA Chair for coordination of				5.2.1. Providing support to the RCA Chair in performing	Done -Assisted the Chair in

	activities				his/her duties	performing relevant duties
	5.3. Providing support for the celebration of the 50 th anniversary	—————	—————	—————	5.3.1. Holding of RCA exhibition	Done -Organized an exhibition for the 50 th anniversary
		—————	—————	—————	5.3.2. Production of a video	Done -Produced two videos
		—————			5.3.3. Development of a website	Done -Website launched in April
	5.4. Provision of Extra Budgetary(EB) contribution to the IAEA			—————	5.4.1. Providing extra budget for RCA projects in financial needs	To be continued -No EB contribution in 2022

RCARO 2023 Work Plan

Highlights

In the year 2022, marking the 20th anniversary of its establishment, the RCARO set up future visions and strategic directions for the next 20 years and beyond to become a competitive organization leading sustainable, innovative but inclusive growth in the RCA;

- Enlarge the horizon of RCA stakeholders in the region and beyond
- Be Asia-Pacific Nuclear Think-tank for the RCA
- Build up the RCA Integrated Information Service Platform
- Support expansion of the R&D component in the RCA
- Take the lead of building nuclear capacity in the region

To this end, in 2023 entering upon a new phase of the RCARO, RCARO will undertake activities to move forward towards achieving the set visions, while fulfilling its mandate to increase the RCA awareness and promote partnerships with other regional and international organizations through various projects and activities.

1. Enlarging the Horizon of RCA Stakeholders through Strategic Partnerships

- RCARO will develop partnership projects and further explore a strategic and systematic approach to discover potential partners to effectively mobilize the resources and expand RCA's collaborative activities with other stakeholders.
- Through expanding the partnerships and diversifying cooperative activities, RCA will maximize the benefit of the nuclear science and technology and effectively tackle down global challenges with potential partners.

2. Leaping Forward to Become Asia-Pacific Nuclear Think-tank for the RCA

- RCARO, in close consultation with the IAEA and other RCA stakeholders, will investigate specific ways to move forward to become a competitive and sustainable organization functioning as an Asia-Pacific Nuclear Think-Tank for the RCA, with the aim to provide effective support to the IAEA and GPs for sustainable development of the RCA.

3. Strengthening the RCA Reservoir through Building up the RCA Integrated Information Service Platform

- RCARO will find specified ways and means for collecting relevant data including materials derived from RCA projects to facilitate the Integrated Information Service Platform function as the hub for the RCA data. Based on close collaboration with the IAEA and RCA GPs, the platform will benefit the RCA in information and knowledge sharing and developing cooperative activities.

4. Facilitating the R&D Component within the RCA

- In 2023, a new R&D programme will be initiated, aiming to contribute to introducing more integrated forms of joint research activities that meet the diverse emerging needs and tackle interconnected and complex issues in the RCA.

5. Take the lead of building nuclear capacity in the region

- As the COVID-19 situation is getting resolved, RCARO will strategically use both on and off-line methods to effectively provide capacity building activities to the region. Various educational activities are planned this year over a wide scope of themes, from developing virtual handbooks to on-site experimental activities.

2023 Work Plan Details

1. Increasing the awareness of the RCA

1.2 Provision of RCA information through the Integrated Information System

In 2022, RCARO has renewed the RCA website in order to provide more comprehensive data service to the RCA, establishing Integrated Information System that consists of the RCA Main Website, e-Campus, Data Hub, and RCARO E-Management System (ROEM).

While continuing the role of providing overall information on the RCA Programme through the RCA Website, Data Hub, a separate platform to be launched in 2023, will serve as the repository of information on the RCA including human/institutional resources, technological status of the region in the nuclear science and technology by archiving the details and outputs of RCA projects. E-Campus has been upgraded to provide not only e-learnings but also to assist RCA GPs in conducting other online activities such as virtual meetings and training activities.

RCARO will promote the expanded website to facilitate the effective use of the website and access to a wide range of data and services.

In accordance with the recommendation of the 41st NRM to upload the RCA project documents on the RCA website, RCARO has been operating a dedicated platform for providing information and documents of the RCA projects.

Engaging various stakeholder including the IAEA, LCCs and RCA experts, RCARO has been trying to collect project materials, requesting the LCCs of on-going and recently completed projects to provide materials generated under the projects every year for uploading them on the platform. With the limited responses from them, the platform still lacks a wide range of valuable data and information.

To serve as the hub for RCA project information through the established Integrated Information System, RCARO will further investigate to find appropriate ways and means for collecting project related materials, in close consultation with the IAEA and the GPs.

1.2. Publication of Newsletters

The RCA Newsletter will be published on a quarterly basis, aiming to enhance information exchange among the GPs as well as promote the RCA to the other potential stakeholders and distributed via email and uploaded on the RCA website.

It will feature columns that would reflect diverse insights and perspectives on the RCA or issues related to nuclear science and technology. GPs will be invited to contribute to the publication of the Newsletter by providing articles on information of their national status, facilities and news related to NS&T.

A meeting of the Editorial Advisors and RCARO was held in January 2023 to identify topics and contents of the Newsletter to be published in 2023. A provisional plan was set for the 2023 issues and RCARO will produce them accordingly and further seek for ways to attend to the needs of the readers and expand the readers by utilizing technical functions on the RCA website.

1.3. Participation in regional/international events

RCARO will make further efforts to fulfill its mandate by promoting the RCA to target audiences at appropriate occasions through presentations and exhibitions. A survey will be conducted to identify possible events in which the RCARO can enhance awareness of the RCA and the benefits of nuclear science and technology. In consultation with the SAC, RCARO will decide 1-2 events for promotion of the RCA in 2023, subject to budget availability.

Due to the remaining restrictions imposed by the COVID-19 pandemic, however, RCARO will investigate the situation of relevant events and seek for the most efficient ways to maximize the effects of the promotional activities.

1.4. Implementation of a workshop to improve the promotion of the RCA

In efforts to fulfil its mandate to increase the awareness of the RCA, RCARO has implemented diverse promotional activities; participation in regional/international conferences, holding of RCA exhibitions at special occasions, RCA expert supporting programme, operation of the RCA website, publication of promotional materials (RCA brochure, success stories and newsletter) and production of RCA promotional videos.

While these activities contributed to increasing the RCA visibility over the years, RCARO notes the need of reviewing the effectiveness and impact of these activities and finding ways of implementing them in a more systemic manner and improving effectiveness of the promotional activities for the RCA.

Also, RCARO noted the need of the GPs for promoting the activities and achievements of the RCA in their nations in order to secure support of their decision makers and end-users to increase the impact of the RCA.

In order to implement the promotional activities in a more systemic manner and find ways of improving the effectiveness of the activities and to assist the GPs in promoting the RCA in their respective countries, RCARO plans to hold a strategic workshop in Q3/4, inviting relevant experts, to set a strategy/direction and formulate an appropriate mechanism for effective promotion of the RCA. To this end, RCARO will conduct interviews and surveys of NRs/IAEA/relevant stakeholders in Q2 to identify views/needs/issues related to the RCA promotional activities.

2. Enhancing and exploring partnerships with regional/international organizations

2.1 Developing a partnership project/activity with relevant organizations

RCARO will seek for partnerships with regional/international organizations in view of providing more benefits and opportunities to the GPs through developing partnership projects.

2.1.1 Development of a follow-up project/activity on EBeam technology

RCARO conducted a workshop on advancing the adoption of EBeam and X-ray technologies in Asia and the Pacific in November 2022 in Korea in cooperation with the Office of Radiological Security (ORS) of the US Department of Energy/National Nuclear Security Administration. It was identified that there are still continued demands and needs in the region for further support at every stage from the adoption of the technologies to the business plans for their sustainability. Recommended by the 33rd SAC on developing a project on EBeam technology using the fast-track mechanism and following up the result of this workshop, RCARO is exploring opportunities for partnerships with the ORS for development of a follow-up project on EBeam technology. Progress will be reported to the SAC and the NRM/GCM in due course.

2.2 Implementation of the RCARO/ASEANTOM project

RCARO has been implementing a partnership project with the ASEANTOM (ASEAN Network of Regulatory Bodies on Atomic Energy) titled “Enhancing emergency preparedness and response capabilities through building technical capacity in radiation monitoring and dose assessment following the nuclear and radiological emergencies” since 2020.

Led by the OAP(Office of Atoms for Peace) of Thailand and KRISS (Korea Research Institute of Standards and Science), 10 ASEAN countries participate in the project.

*ASEAN: Association of Southeast Asian Nations: INS, KAM, LAO, MAL, MYA, PHI, SIN, THA, VIE, Brunei

2.2.1 Development of Handbook

According to the work plan, RCARO will develop tutorials that explain the procedures step by step to help the ASEAN countries rapidly and accurately perform the radioactivity measurement in case of emergencies. They will be developed in both virtual and paper forms and shared with the participating countries in Q2 2023.

2.2.2 Conducting regional training courses

Two regional training courses will be conducted in 2023. An online training course was held in February 2023 via the RCA e-Campus, attended by 48 trainees from 6 countries and an on-site course on radiation monitoring will be organized in Q3 in cooperation with the KRISS. It will target workers at regulatory bodies, technical support organizations and/or relevant competent authorities from ASEAN countries. Handbooks developed through this project will be used as the tool of on-site training.

2.2.3 Holding a project review meeting

RCARO will hold a mid-term review meeting in Q4 2023, inviting the NPCs of the project. In conjunction with the meeting, a technical workshop will be held to share technical expertise and issues/trends on radiation monitoring and dose assessment.

2.3 Implementation of a joint workshop with the ARCCNM

Since 2008, RCARO has been supporting the RCA/ARCCNM workshop to educate nuclear medicine physicians and scientists in developing and less developed Asian countries and further to foster regional cooperation to promote nuclear medicine in those countries.

RCARO will continue its support for a workshop to be held in Q3 2023.

2.4 Participation in the FNCA Coordinators meeting

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 will present the achievements of RCA and cooperative activities with the FNCA in 2022.

3. Expanding support for the benefit of the Government Parties

3.1 Implementation of RAS9092

RAS9092 on “strengthening the capacity to respond to radiological emergencies of category II and III facilities in the Asia Pacific region” has been 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, extending one more year, as decided at the project coordination meeting in 2020 due to the difficulties in undertaking the planned activities resulted from the COVID-19 pandemic.

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

3.1.1 Implementation of a mid-term review meeting

The meeting was held in Malaysia in February 2023 to report on and review the progress made under the project at the national and regional level and discuss and agree on follow-up and future activities. It was attended by the LCC and NPCs from 14 countries and experts from the IAEA and noted that despite the Covid-19 pandemic situation and its impact on the work plan, the project is well in progress.

3.1.2 Submission of progress report

Project Progress Assessment Report (PPAR) will be submitted to the IAEA in due time, integrating national reports received from the NPCs of the project.

3.2 Implementation of Research Projects

3.2.1. Implementation of RCARP02 on Air Quality and Environmental Impact Assessment of Industrial Activities in the Region

The 2nd phase of the project is being implemented, aiming to improve the quality of the environment through provision of appropriate pollutant data to researchers and relevant stakeholders. Eleven (11) GPs participate in the project: AUL, NZE, ROK as Agreement Holders and CPR, INS, MAL, MON, NEP, PAK, THA and VIE as Contract Holders.

According to the work plan, research coordination meeting will be held in May of 2023 in Indonesia, inviting the CSIs, technical officer, members of the Research Review Committee (RRC) and relevant experts.

The meeting will review and discuss the research progress made by the participating countries in 2022 against performance indicators and review and refine the details of research activities and work plan for 2023.

CSIs will be requested to submit annual/final progress reports for review by the RRC in Q4 2023. Achievement report will be prepared by integrating the result/output of the project at national and regional level.

3.2.2. Implementation of RCARP03 on Closing the Gap in Access to Radiotherapy in RCA Government Parties

With the aim of improving cancer planning and scaling up radiotherapy services through provision of evidence based information on the radiotherapy services, the project was launched in 2022 and is to be implemented for three years till 2024.

Eight (8) GPs participate in the project: AUL, PHI, ROK as Agreement Holders and INS, MAL, MON, THA and VIE as Contract Holders.

Research coordination meeting will be held in May 2023 in Indonesia, inviting the CSIs, technical officer, members of the Research Review Committee (RRC) and relevant experts.

The meeting will review the status/progress of relevant research activities in the participating countries against the research protocol/methodology and discuss details of work plan at national and regional level for implementation of the project.

CSIs will be requested to submit annual progress reports for review by the RRC in Q4 2023. Based on the RRC's review, RCARO will make necessary financial arrangements for continued research of the participating countries in due course.

3.2.3. Initiate a new R&D programme

The RCA programme has been supporting technology transfer in the region through technical cooperation projects. There have been significant increases in knowledge, skills and competency in nuclear science and technology across the majority of the RCA GPs. With the technological development, there have been a range of indications that the region requires inputs of new knowledge and technology generated by regional research, in contrast to the transfer of existing knowledge through capacity building activities. A number of project concepts being submitted by the GPs substantially contain research components and few elements focused on upgrading of knowledge and skills through regional training.

Aiming to accommodate the needs of the GPs on the R&D to address regional problems through nuclear science and technology and supplement the RCA Programme, RCARO has been implementing research projects since 2018. Through implementation of research projects, RCARO has found a strong demand of the region in the field of collaborative R&D, thus made an effort to find ways to expand research component in the RCA.

As part of an effort to increase the scale of research component, RCARO has submitted a proposal to the Government of Korea in 2022 and secured additional funding for further widening the R&D in the use of nuclear technology.

The new R&D programme will be commenced in 2023 with two R&D projects for two years as an initial stage. According to the rules and regulations of the Korean Research Foundation, Korean institutes were invited to submit research proposals following the specified theme and scope of the programme. Completing the selection process in May, two R&D projects will be implemented by the selected institutes in collaboration with the RCA GPs.

4. Assisting the Government Parties in human resource development

4.1. Capacity building through the Korean Institutes/Universities

4.1.1. Supporting the Master's Degree Programmes

With the aim of assisting the Government Parties in capacity building related to nuclear science and technology, RCARO has been implementing the Master's Degree Programmes.

Under the Nuclear Engineering Master's Degree Course in the KAIST, one student from Sri Lanka has been newly granted with scholarships.

For the KINGS Master's Degree Course in Energy Policy, five selectees from Mongolia, Thailand, Indonesia(2) and the Philippines will be supported by the Programme for their study in the KINGS. Further, they'll be given the opportunity to work/experience various Korean institutes including the RCARO during summer vacation as an internship. Application process will continue in October for the year 2024.

In addition, aiming to assist the GPs in capacity building in nuclear science and technology, RCARO plans to implement a new degree course in various fields of nuclear science and technology in cooperation with the University of Science and Technology (UST), a university of several national research institutes in Korea, commencing from the spring semester of 2024. It will be a master and doctoral degree course and maximum ten will benefit from the course, subject to the budget availability. The GPs will be invited to recommend appropriate candidates to the course.

*KINGS: KEPCO International Nuclear Graduate School

KAIST: Korea Advanced Institute of Science and Technology

4.1.2. Implementing capacity building activities on radiation technology

RCARO has been implementing regional training courses in cooperation with Korean institutes in various fields of radiation technology. RCARO will continue providing training courses covering the radiation application in thematic areas, radiation safety and equipment, engaging Korean institutes such as KAERI, KIRAMS, KINS and other relevant institutes.

An integrated training course will be conducted in Q4 2023, providing lectures and site visit for hands-on experience.

Further, RCARO hosted a workshop on Enhancing Capacity for Developing, Using and Maintaining Radiation Equipment, in March 2023, inviting 12 participants from 6 countries. The workshop provided knowledge and know-how on the utilizing and maintaining various radiation equipment and facilities.

4.2. Provision of online training through the RCA E-Campus

RCARO has been operating a platform for e-Learning on the RCA website and developing a number of e-Learning modules to provide extended learning opportunities to RCA stakeholders. In 2022, with the significant increase of virtual activities and demand for expansion of the platform, RCARO has upgraded the platform to be the RCA E-CAMPUS not only to provide free

learning opportunities to the professionals in the nuclear science and technology but also offer a platform for conducting online courses for selected participants and virtual events such as real-time lectures and meetings/workshops.

Engaging experts from relevant institutes and universities, modules in various fields and levels will be developed to contribute to strengthening professional human resources in the RCA.

4.3. RCARO Fellowship Programme

The RCARO Fellowship Programme was postponed due to the COVID-19 pandemic in 2020 and 2021. As the situation has been resolved, fellows from Cambodia and Pakistan were invited for two months respectively from November 2022, and contributed to implementing various cooperative activities of the RCARO. A fellow from Laos is expected to participate in the Programme from May 2023.

5. Facilitating the better implementation of the RCA Programme

5.1 Supporting the IAEA for the RCA secretariat functions

RCARO will support the IAEA in its RCA secretariat functions in terms of preparation and coordination of policy meetings including the 45th NRM and the 52nd GCM.

In close consultation with the IAEA, RCA Chair and Government Parties, RCARO will carry out relevant duties for effective and efficient operation of the meetings.

In supporting the activities of the WGs on the MTS, RCARO will continue to provide assistance to the WG on MTSC 2018-2023 as the coordinator and participate in the discussions of the WG on drafting the MTS 2024-2029, recommended by the 51st GCM.

In addition, taking the lead role as the Think-tank, RCARO will make its efforts to provide better and effective service for development of the RCA programme especially activities of Committees and WGs of the RCA in developing/identifying modalities and strategies by conducting NS&T trend analysis and analyzing the RCA status to identify regional needs and issues.

5.2. Assisting the RCA Chair for coordination of activities

Decided by the 46th GCM on the RCARO's support to RCA Chair, RCARO will provide assistance to the Chair in performing his/her duties as appropriate.

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

EB contribution will continue in 2023 to support RCA projects in need of financial support, subject to budget availability of the RCARO.

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

	Objectives	Activities	Timeline				Indicators
			QT 1	QT 2	QT 3	QT 4	
1	Increasing the awareness of the RCA	<p>1.1. Provision of RCA information through the Integrated Information System</p> <p>1.2. Publication of Newsletters</p> <p>1.3. Participation in regional/international events</p> <p>1.4. Implementation of a workshop to improve the promotion of the RCA</p>					<p>1.1.1. Update data on the RCA Programme and information on the nuclear science and technology in the region</p> <p>1.2.1. Publication of Newsletters</p> <p>1.3.1. Presentation and exhibition on RCA and its activities to target audiences</p> <p>1.4.1. Holding a workshop to improve the promotion of the RCA</p>
2	Enhancing and exploring partnerships with regional/international organizations	<p>2.1. Developing a partnership project/activity with relevant organizations</p> <p>2.2. Implementation of the RCARO-ASEANTOM project</p>					<p>2.1.1. Development of a follow-up project/activity on EBeam technology</p> <p>2.2.1. Development of handbook</p> <p>2.2.2. Conducting a regional training course</p> <p>2.2.3. Holding a project review meeting</p>

		2.3. Implementation of a joint workshop with ARCCNM			■	2.3.1. Supporting experts for participation in the workshop
		2.4. Participation in the FNCA coordinators meeting	■			2.4.1. Participation in the FNCA coordinators meeting
3	Expanding support for the benefit of the GPs	3.1. Implementation of RAS9092	■			3.1.1. Implementation of a Project Mid-term Review Meeting ■ 3.1.2. Submission of progress report
		3.2. Implementation of Research Projects	■	■	■	3.2.1. Implementation of RCARP02 3.2.2. Implementation of RCARP03 3.2.3. Initiate a new R&D programme
4	Assisting the GPs in human resource development	4.1. Capacity building through the Korean Institutes/Universities	■	■	■	4.1.1. Implementation of the Master's Degree Programmes 4.1.2. Implementing capacity building activities on radiation technology
		4.2. Provision of online training through the RCA e-Learning Campus	■	■	■	4.2.1. Enhancement of the RCA e-Learning Campus

		4.3. RCARO Fellowship Programme					4.3.1. Inviting fellows from GPs to the RCARO
5	Facilitating the better implementation of the RCA Programme	5.1. Supporting the IAEA for the RCA secretariat functions					5.1.1. Providing support for RCA policy meetings and WGs
		5.2. Assisting the RCA Chair for coordination of activities					5.2.1. Providing support to the RCA Chair in performing his /her duties
		5.3. Provision of Extra-Budgetary(EB) contribution to the IAEA					5.3.1. Providing extra budget for RCA projects in financial needs