

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 2019 and a work plan for the year 2020 and submitted them to the SAC at the end of December 2019 for its evaluation.

Proposed Action

The Meeting may take note of the report containing RCARO's work performance in 2019 and a work plan for 2020.

2019 Work Performance

	Objective	Activities	Timeline				Indicators	Status	
			QT 1	QT 2	QT 3	QT 4			
1	Increasing the awareness of the RCA	1.1 Increasing awareness of the RCA through promotional materials			■		1.1.1. Publication of RCA brochure	Done - Published the RCA brochure (2019 Edition)	
					■		1.1.2. Publication of the 7 th batch of RCA Success Stories	In Progress - Two Success Stories were decided to be published	
		1.2 Enhancing RCA information service through the RCA website	■					1.2.1. Updating data on the RCA and its projects	Done - Updated data on RCA meetings and projects
		1.3. Participation in regional/international events and support for the promotion of RCA activities	■		■		1.3.1. Presentation and exhibition on RCA/RCARO activities to target audiences	Done - Participated in two events for promotional activities	

						1.3.2. Supporting RCA experts for increasing awareness of the RCA	Done - Supported experts from MAL and NEP for their participation in international events
2	Expanding support for the GPs and development of RCA	2.1. RAS6083: Extended support for sustainability of the project				2.1.1. Holding expert meeting(s)	Done - Expert meeting was held on 24-26 April 2019 in ROK
						2.1.2. Development of E-learning materials	Done - Developed 30 modules on nuclear medicine
		2.2. RCARO Managed Project: Implementation of a Research Project				2.2.1. Conducting a research coordination meeting	Done - Coordination meeting held on 24-26 June 2019 in MON
		2.3. Supporting the IAEA for RCA administrative matters				2.3.1. Providing support for RCA policy meetings	Done - Assisted the IAEA in preparing for the 41st NRM and the 48th GCM and hosting the MTSC WG meeting

		2.4. Assisting the RCA Chair for coordination of activities	■	■	■	■	2.4.1. Providing support to the RCA Chair in performing his/her duties	Done - Assisted the RCA Chair in performing his duties
3	Enhancing and exploring partnerships with regional/ international organizations	3.1. Implementation of RCA/UNOSSC project on electron beam(EB) applications	■	■			3.1.1. Conducting a regional training course	Done - 16 participants from 12 countries trained in the course held on 10-14 Jun. 2019
							3.1.2. Implementing expert missions	Done - Expert Missions to VIE and BGD conducted in March and September
						■	3.1.3. Holding a final review meeting of RCA/UNOSSC project on EB applications	Done - Annual Review Meeting held on 4-7 Nov. 2019 in conjunction with a Technical Workshop
						■	3.1.4. Submission of progress/financial reports and publication	Done - Progress/financial reports submitted in due course

		3.2. Exploring partnerships with the ASEAN				—	of a final report 3.2.1. Implementation of a training course with the ASEANTOM	Done - 31 participants from 10 countries trained in the course held on 7-11 Oct. 2019	
		3.3. RCA/ARCCNM training workshop				—	3.3.1. Holding the RCA/ARCCNM training workshop	Done - Supported the training workshop held on 7-11 May 2019 in CPR	
		3.4. Participation in the 20 th FNCA Coordinators meeting				—	3.4.1. Participation in the 20 th FNCA Coordinators meeting	Done - Participated in the meeting on 6 Mar. 2019 in JPN	
4	Assisting the GPs in addressing regional and national needs	4.1. RCARO/KAIST Nuclear Engineering Master's Degree Course	—————					4.1.1. Supporting the RCARO/KAIST Master's Degree Course	Done - Supported 3 students from BGD, MAL and CPR
		4.2. RCA/KAERI training course					— 4.2.1. Holding the RCA/KAERI training course	Done - 17 participants from 11 countries were trained in the	

		4.3. IAEA/RCARO workshop			—	4.3.1. Implementing the IAEA/RCARO workshop	course held on 28 Oct. -8 Nov. 2019 Done - 13 participants from 10 countries attended the workshop held on 8-12 Jul. 2019
		4.4.RCA/iTRS training course			—	4.4.1. Implementing the RCA/iTRS training course	Done - 14 participants from 10 countries were trained in the course held on 1-5 Jul. 2019
5	Other activities	5.1. Selection and appointment of the next Director of the RCARO	—			5.1.1. Selection and appointment of the next Director of the RCARO	Done - Mr Pill Hwan PARK was appointed as the new Director of RCARO
		5.2. Participation in the RCA policy related meetings	—		—	5.2.1. Participation in the 41 st NRM and the 48 th GCM	Done - Participated in the 41st NRM and the 48th GCM
		5.3. RCARO Fellowship Programme	—			5.3.1. Inviting fellows from GPs to the RCARO	Done - 3 fellows were invited from

							MAL, SRL and CPR
		5.4. Update of the RRU information				5.4.1. Implementing a survey of the RRU	Done - Received PPFs and updated on the RCA website
		5.5. Provision of Extra-Budgetary(EB) contribution to the IAEA				5.5.1. Providing extra budget for RCA projects in financial needs	Done - Contributed US \$60,000 to RAS9092

1. Increasing the awareness of the RCA

1.1 Increasing awareness of the RCA through promotional materials

1.1.1 Publication of a RCA brochure

Since 2003, RCARO has been publishing the RCA brochures to promote the RCA and the brochures have been used by the RCARO and the Government Parties for promotional purposes.

As approved by the 41st NRM, RCARO drafted contents for a new brochure, including the update of the RCA and its activities, reflecting the inputs received from RCA experts. The draft contained the general information on the RCA and its achievements that contributed to the development of the region. The final version was circulated at the 29th SAC and the 48th GCM and published upon approval.

The newly published brochure will be further handed out for promotional uses during regional and international events.

1.1.2. Publication of the 7th batch of RCA success stories

Since 2007, RCARO has published 6 batches of RCA success stories with the aim of showcasing the achievements of the RCA and promoting benefits/advantages of the nuclear science and technology in various fields.

RCARO submitted a plan to publish the 7th batch of RCA success stories among the RCA projects successfully completed in 2015-2018 and it was endorsed by the 41st NRM. In accordance with the mechanism and procedure approved by the 37th NRM, the SAC Chair circulated the list of candidate projects provided by the RCA-FP to the NRs for prioritization, and the result was submitted to the 29th SAC and the 48th GCM for the final selection. Two success stories – one on RAS7029 in the field for air pollution matter and the other on RAS6083 and RAS6071 combined in the field of nuclear medicine and radiotherapy – were decided to be published in leaflet form.

1.2 Enhancing RCA information service through the RCA Website

RCARO has continued its efforts to further enhance its website operation, with a view to making

it a hub for an information flow within the RCA community.

1.2.1 Updating data on the RCA and RCA projects

RCARO has been providing RCA information service through the RCA website for the GPs and related end-users. At the 41st NRM, it was recommended that LCCs of the completed RCA projects send the project documents to RCARO for uploading on the website and mechanisms for receiving and uploading of the documents were stipulated in the GOR.

In this regard, RCARO has upgraded the project platform on the RCA website to accommodate the project information and documents more effectively. The information includes the project duration, LC, contacts of the LCC and (A)NPCs, details of related RRUs and project documents such as achievement reports, training materials and so on.

1.2.2 Uploading of pre-project concepts for 2022-2023 RCA Programme

At the 41st NRM, it was recommended that the pre-project concepts for the 2022-2023 RCA Programme developed by the GPs be uploaded on the RCA website. RCARO created a new page on the website where GPs can download the template and upload the pre-project concepts by each RCA thematic sector. RCARO also provided resource documents to support the GPs with developing project concepts as well as updates on the status of uploaded pre-project concepts.

1.3 Participation in regional/international events and support for the promotion of RCA activities

RCARO continued its efforts to fulfill its mandate by promoting RCA to target audiences at appropriate occasions through presentations and exhibitions and providing support to RCA experts participating in such promotional activities.

1.3.1 Presentation and exhibition on RCA/RCARO activities to target audiences

Upon the approval of the 47th GCM, RCARO participated in the following events in 2019.

- 6th Asia-Pacific Forum on Sustainable Development (APFSD 2019), 27-29 March 2019, Thailand
- 13th Regional Conference on Nuclear Science and Technology (VINANST-13), 7-9 August 2019, Vietnam

At the 6th Asia-Pacific Forum on Sustainable Development, RCARO displayed panels on the RCA achievements related to the theme of the event, which emphasized the importance of personnel and equality for sustainable development. It also demonstrated the RCA video and distributed the brochure and success stories to the participants, contributing to the promotion of potential partnerships with other organisations, including the UN agencies.

RCARO also attended the 13th Regional Conference on Nuclear Science and Technology and set up a promotional desk, demonstrating posters on the general information of the RCA as well as videos on the RCA activities and on the RCA project, RAS5071, as an example of peaceful application of nuclear technology in Agriculture and the Environment. In addition, the RCA brochure and Success Stories were effective in increasing the interest of the delegates from the IAEA and international/local organisations especially on the achievements of the RCA and its Programme.

For the 2020 plan, RCARO conducted a survey of the NRs and collected information on six conferences to be held in 2020. At the 48th GCM, it was approved that RCARO participate in the following two events for its promotional activities.

- 10th International Conference on Isotopes (10ICI), 3-7 February 2020, Malaysia
- 15th International Congress of the International Radiation Protection Association (IRPA15), 11-15 May 2020, Korea

In consideration of its budget availability and schedule, RCARO will make necessary arrangements for its participation in the conferences listed above.

1.3.2 Supporting RCA experts for increasing awareness of the RCA

RCARO has provided its assistance to selected RCA experts for their participation in the regional/international events and their RCA promotional activities to enhance the awareness of

the RCA and its activities.

For the cycle of 2019, RCARO supported the selectees from MAL and NEP for their participation in the 19th International Meeting on Radiation Processing, held on 1-5 April 2019 in Strasbourg, France, and the 9th International Symposium on Naturally Occurring Radioactive Material, held on 23-27 September 2019 in Denver, USA, respectively (The other selectee from BGD withdrew her application due to personal reasons).

Based on her extensive experiences in the RCA, the selectee from MAL presented on Radiation Processing and related RCA activities through the poster and plenary sessions. The selectee from NEP made a presentation on Radiation Safety. In his presentation, he included the introduction of the RCA and its programme for the participants' reference.

For the next cycle, RCARO invited the GPs for nominations of appropriate RCA experts and received a total of 12 nominations from 5 GPs (BGD, INS, KAM, MAL and SRL). According to the guideline, RCARO selected 2 selectees from INS and MAL in consultation with SAC. RCARO will make necessary arrangements to support the selectees for their RCA promotional activities in 2020.

2. Expanding support for the benefit of the Government Parties and development of the RCA

2.1 RAS6083: Extended support for sustainability of the project

RCARO had carried out the RCA Project: RAS6083 on “Improving patient care and enhancing Government Parties capacity in nuclear medicine programmes in RCA region” as the LCC of the project from 2016 to 2018.

At the mid-term and final review meeting in 2018, it was suggested that the educational materials created under the project be transformed into e-learning modules for sustained educational support for the participating countries. And the final review meeting identified the areas and contents needed to be developed as e-learning modules.

Considering the demands and needs for continued education on nuclear medicine, RCARO has decided to support the countries by developing e-learning modules in 2019-2020 as a follow up

of RAS6083.

2.1.1 Holding an expert meeting

RCARO organised an expert meeting for development of e-learning modules on nuclear medicine for the RCA on 24-26 April 2019 in Busan, Korea, inviting 14 experts including the alternate LCC, NPCs of RAS6083 and nuclear medicine experts from the region. The LCC of RAS6093 also participated in the meeting in order to avoid any duplication with the contents to be developed under the project.

The meeting reviewed and finalised the areas and contents, identified experts for each area and set up detailed plan for 2019-2020. For effective module development, the meeting also established guidelines on development procedures, structure and format of the module.

The meeting agreed to develop a total of 30 e-learning modules in 5 areas in 2019, namely Neurology, Oncology, Endocrinology, Cardiopulmonary and Physics. Ten experts agreed to develop the modules in cooperation with national experts and nuclear medicine societies and five of them were appointed as the experts responsible for initial review and consolidation of the modules of each area. For quality assurance purposes, the meeting established a Review Panel, consisting of experts from AUL, JPN, ROK and PHI for review of the draft particularly on the overall contents and flow of the modules. Further, the meeting also discussed the means for providing a certificate of completion to the users that could be acknowledged by the Asia Nuclear Medicine Board.

2.1.2 Development of E-learning materials

According to the decision of the expert meeting, a total of 30 modules in the 5 areas (5 in Neurology, 8 in Oncology, 8 in Endocrinology, 6 in Cardiopulmonary and 3 in Physics respectively) have been developed. After review of the modules by relevant experts and the Review Panel, the finalized modules will be uploaded on the e-learning platform on the RCA website.

RCARO is in the process of improving and upgrading the e-learning platform in a more user-

friendly manner for easy access and use of the modules (www.rcaro.org/elearning). Named as “RCA E-learning Campus”, the platform will provide an open access for public and experts to the online training on the various topics of nuclear medicine that are identified by the experts from the region.

2.2 RCARO Managed Project: Implementation of a Research Project

Aiming to supplement the RCA Programme and accommodate needs of the GPs, RCARO initiated a Research Project (RP) on “Air Quality and Environmental Impact Assessment of Industrial Activities in the Region” under the framework of the RCARO Managed Project.

The project is for three years from 2018 with the aim of supporting the improvement of quality of the environment through the provision of appropriate pollutant data to researchers and relevant stakeholders.

Including CPR and MYA, newly joined in 2019, twelve GPs participated in the RP: AUL, NZE, ROK as Agreement Holders and BGD, CPR, INS, MAL, MON, MYA, NEP, PHI and SRL as Contract Holders.

2.2.1 Conducting a research coordination meeting

With the support of the Mongolian Government, RCARO organized the research coordination meeting on 24-26 June 2019 in Ulaanbaatar, Mongolia, inviting 21 participants including Agreement and Contract Holders from 12 GPs, Technical Officer and Chair of the Research Review Committee (RRC). The meeting reviewed the project progress and confirmed work plans for 2019-2020. In conjunction with the meeting, a technical workshop was held to share experiences and enhance knowledge in the research on the applications of nuclear analytical technologies for alleviating air and environmental pollution.

The meeting noted a good progress of the project in accordance to the performance indicators. As of June 2019, most of participating countries collected and produced analytical results of air samples and identified industrial pollutants. In addition, participating countries trained 33 personnel on the nuclear analytical techniques and also actively carried out collaborative research

activities.

INS conducted a fellowship for NEP Chief Scientific Investigator (CSI), signed a MoU for sample analysis and agreed to provide a Gent sampler to NEP.

AUL, INS, PHI, SRL, ROK and MAL supported analysis and interpretation of the samples bilaterally.

CSIs also refined national work plans for 2019-2020, reflecting inputs at the meeting. With regard to the project implementation, the meeting emphasized that it is critical that CSIs submit annual progress reports in time and full for review by the RRC. The CSIs were requested to report the activities against work plans and provide revised work plans for any incomplete activities to the RRC who reviews the reports and gives advice on continued participation in the project.

The meeting also discussed the possibility of the 2nd phase of the project, noting strong needs by the participants on the extension of the project and expansion of research areas that include analysis and understanding of other pollutant sources such as water, soil and crops near the industrial area. A proposal for the 2nd phase of the project was drafted at the meeting and submitted to the 29th SAC and 48th GCM for consideration of the NRs. In accordance to the approval of the NRs on the extension of the project, RCARO will make further necessary arrangements to implement the 2nd phase of the project from 2021 to 2023.

After the meeting, 12 CSIs submitted annual progress reports detailing the progress of research activities carried out in 2019 against work plans for review by the RRC. Amongst the reports, the RRC assessed that the report from PHI was unsatisfactory due to inadequate information on the delay of APM sampling sites which led delay of essential research activities. Based on the feedback of the RRC, it was decided that PHI's participation in the project will be ended as of December 2019.

2.3 Supporting the IAEA for RCA administrative matters

Upon the decision of the 45th GCM on the RCARO's assist to the IAEA in its secretariat functions such as preparation of the RCA policy meetings and coordination of WG activities, RCARO assisted the IAEA in preparation for the 41st NRM and the 48th GCM, including preparation of agendas, background documents and 2018 RCA annual report.

Recommended by the 41st NRM, RCARO organized the 6th meeting of the Working Group on RCA MTS Coordination from 29 July to 1 August 2019 in Seoul, Korea. Chair and members of the WG and RCARO participated in the meeting.

2.4 Assisting the RCA Chair for coordination of activities

Decided by the 46th GCM on the RCARO's support to the RCA Chair, RCARO provided assistance to the RCA Chair in performing his duties required by the NRM.

3. Enhancing and exploring partnerships with regional/international organizations

3.1. Implementation of RCA/UNOSSC project on electron beam(EB) applications

RCA/UNOSSC project on Electron Beam Applications for Value Addition to Food and Industrial Products and Degradation of Environmental Pollutants in the Asia Pacific region (Phase 1) was implemented from 2013 to 2015 in order to promote and disseminate the use of electron beam technology in the areas of agriculture, industry and environment treatment. Considering the continuous needs and demands of the participating countries for a follow-up project, a proposal for RCA/UNOSSC project (Phase 2) was submitted to the UNOSSC and was approved for implementation of three years, 2017-2019, with a total budget of US\$500,000. Fifteen (15) RCA GPs, ROK as the lead country, are participating in the project. (BGD, KAM, IND, INS, MAL, MON, MYA, NEP, NZE, PAK, PHI, SRL, THA, and VIE)

3.1.1. Conducting a regional training course

Regional Training Course on Advanced Knowledge and On-site Training on Electron Beam Applications for Advanced Materials was held from 10 to 14 June 2019, in Advanced Radiation Technology Institute (ARTI), Jeongeup, Korea, inviting 16 participants from 12 countries. The course provided advanced knowledge through lectures and experiments on the application of electron beam technologies for advanced materials by recognized experts. The topics included applications on the bio-materials, heavy metal absorbance and nano materials and radiation chemistry. By utilizing the newly built Electron Beam Process Demonstration Research Building

at ARTI, KAERI, the trainees participated in the practice and hands-on experiments for development of advanced materials. Results of satisfaction survey showed that trainees were highly satisfied with the course and gained scientific and technical benefits in understanding the overall principles of electron beam acceleration and its applications on the subject.

3.1.2. Implementing expert missions

Two Expert Missions were held in VIE and BGD in March and September 2019, respectively. Expert Mission to VIE involved 2 Korean experts and 42 national stakeholders from VINAGAMMA, local universities, and other related private sectors. The experts shared their know-hows and experiences through a national workshop, technical visits and on-site consultations, and meetings. The Mission was successful in providing evaluation on the possibility of the utilization of EB technology for treatment of textile wastewater and crosslinking of wire and cable and in providing a discussion on possible further collaboration between Vietnamese and Korean institutes.

Expert Mission to BGD involved 2 Korean experts and 71 participants of Bangladesh Atomic Energy Agency (BAEC) and private sectors through national seminars, facility visit, and meetings. Meetings with entrepreneurs as well as policy makers were conducted to introduce the feasibility of EB technology for various applications. It was reported that the Mission was successful in drawing attention of the policymakers especially on establishing an EB facility at AERE, BAEC.

3.1.3. Holding a final review meeting of RCA/UNOSSC project on EB applications

Annual Review Meeting in conjunction with Technical Workshop was held from 4 to 7 November 2019 in Jeonju, Korea, inviting 32 participants from participating countries, UNOSSC, and RCARO. During the Technical Workshop, lectures and on-site seminars were conducted at ARTI. At the Meeting, overview of project achievements in 2019 at regional and national level was presented and details of the work plan 2020 were discussed. The Meeting recommended for seeking possibilities for the extension of the project, noting the needs for further capacity building activities to support those countries in need of developing institutional and human resources in the field.

3.1.4. Submission of progress/financial reports and publication of a final report

Upon the rules and regulations of the UNOSSC, quarterly financial reports and semi-annual progress reports were submitted.

3.2. Exploring partnerships with the ASEAN

To fulfill its mission, “viability: to promote partnerships for RCA Program”, RCARO has put efforts on seeking partnerships with international and regional organizations. In line with these efforts, RCA-ASEAN Project on Capacity Building in Radiation Technology was implemented in 2016-2018 contributing to the capacity building of ASEAN countries in the medical area through training courses, specifically in the field of radiotherapy.

Aiming to expand the RCA-ASEAN partnership and considering that ASEAN’s one of the focused areas is enhancing nuclear safety and security, RCARO endeavoured to establish partnership with the ASEANTOM (ASEAN Network of Regulatory Bodies on Atomic Energy), a network of ASEAN regulatory bodies taking a leading role in enhancing regulatory activities and further strengthening nuclear safety and security. In addition ASEANTOM is the officially appointed point of contact of the IAEA.

3.2.1. Implementation of a training course with the ASEANTOM

Regional Training Course on Rapid Radiation Measurement and individual Dose Assessment following Nuclear & Radiological Emergency was held on 7 to 11 October 2019, in the Office of Atoms for Peace (OAP), Bangkok, Thailand. Thirty-one (31) participants from 10 countries were trained. Experts from Korea, Japan, Thailand and IAEA were invited to give lectures and hands-on training to the participants. The course was successful in providing advanced theoretical and practical training on the rapid radiation measurement and dose assessment after nuclear and radiological emergency, for protecting the environment and the people.

3.3 RCA/ARCCNM training workshop

Since 2008, RCARO has been supporting the RCA/ARCCNM training 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.

In 2019, RCARO continued to support the training course held on 7-11 May 2019 in Shanghai China.

3.4 Participation in the 20th FNCA Coordinators meeting

On behalf of the RCA, RCARO participated in the 20th FNCA Coordinators Meeting on 6 March 2019 in Tokyo, Japan. Representing the RCA, Director of RCARO delivered a presentation on the achievements of the RCA and its Programme in 2018.

Through the presentation and discussions, RCARO contributed to increasing the RCA awareness to the participants and sought for the means to enhance cooperation between the RCA and the FNCA.

4. Assisting the Government Parties in addressing regional and national needs

4.1 RCARO/KAIST Nuclear Engineering Master's Degree Course

With the aim of assisting the Government Parties in capacity building related to nuclear science and technology, RCARO has been implementing the Nuclear Engineering Master's Degree Course in cooperation with the Korea Advanced Institute of Science and Technology (KAIST).

Since 2003, thirty five (35) students from the region have completed the course in the KAIST successfully.

This year, a total of 3 students have been supported by the programme, one each from BGD, MAL and CPR for their study at the KAIST.

4.2 RCA/KAERI training course

Since 2008, RCARO has been hosting a regional training course in cooperation with the Korea Atomic Energy Research Institute (KAERI). In 2019, an introductory training course on radiation

technology and its applications was held on 28 October - 8 November 2019, inviting 17 participants from 11 RCA GPs.

4.3 IAEA/RCARO Workshop

Since 2016, initiated by the IAEA, RCARO has been implementing training courses and workshops on radiation safety in cooperation with the IAEA and relevant institutes in Korea. In 2019, in consultation with the IAEA, RCARO hosted a regional workshop on Regulatory Body Communication and Consultation with Relevant National Stakeholders on 8-12 July 2019. The workshop was organized under the IAEA technical cooperation project RAS/9/089 on “Strengthening Radiation Safety Infrastructure” inviting 13 management and communication officers from 10 participating countries.

4.4 RCA/iTRS training course

Considering the importance of the safety in the application of radiation technology, RCARO hosted a training course on radiation safety on 1-5 July 2019 in Seoul, Korea, in cooperation with the Innovative Technology Center for Radiation Safety (iTRS) of Hanyang University, inviting 14 participants from 10 RCA GPs. The course provided lectures on the various topics of radiation safety, such as radiation safety management, medical/industrial radiation safety and control, transportation of radioactive materials and radiation safety culture.

5. Other activities

5.1 Selection and appointment of the next Director of the RCARO

Upon the approval of the 47th GCM on the plan and timeline for selection of the next Director of the RCARO, a Selection Committee (SC) was formed by three appointees from BGD, SRL and ROK, according to the guidelines on the selection and appointment of Director of the RCARO which had been approved at the 44th GCM in 2015.

Chaired by the appointee from BGD, the SC reviewed job description and made minor changes on the selection process of the Director. The modified job description was circulated to the NRs

for approval. Upon approval, vacancy notice was advertised through the RCA website and sent out to the NRs by the SAC Chair.

RCARO served as the secretariat of the SC and received one application from ROK within the deadline on 31 January 2019. The SC screened and finalized the assessment of the applicant for the position of the director of the RCARO.

The assessment was submitted to the SAC and the 41st NRM for its approval. The 41st NRM approved the appointment of Mr Pill Hwan PARK as the new director of the RCARO by acclamation.

5.2 Participation in the RCA policy related meetings

RCARO participated in the RCA policy related meetings including the 41st NRM in March and the 48th GCM in September and made presentations on the RCARO activities. RCARO also served as a secretariat for the RCARO SAC meetings prior to the meetings above.

5.3 RCARO Fellowship Programme

Three fellows from MAL, SRL and CPR were invited to work at the RCARO for two months each. All fellows had successfully completed the programme in May, July and October respectively. They have contributed to organizing regional meetings and events; updating RCA data on the RCA website; and exploring partnerships with other related organisations.

5.4 Update of the Regional Resource Unit (RRU) information

According to the work plan of the WG on the MTSC on the RRU information, RCARO updated the RRU information on the RCA website with the project participation forms provided by the RCA FP and Chair of the WG MTSC.

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

RCARO made an extra-budgetary contribution of US 60,000 to support RAS9092 in which the

RCARO takes the role of LCC.

*RAS9092: Strengthening the Capacity to Respond to Radiological Emergencies of Category II and III Facilities (RCA)

2020 Work Plan

	Objectives	Activities	Timeline				Indicators
			QT 1	QT 2	QT 3	QT 4	
1	Increasing the awareness of the RCA	1.1. Publication of success stories 1.2. Provision of RCA information service through the RCA website 1.3. Participation in regional/international events and support for the promotion of RCA activities					1.1.1. Publication of the 7 th batch of RCA success stories 1.2.1. Update data on the RCA and its projects 1.3.1. Exhibition on RCA/RCARO activities to target audiences 1.3.2. Supporting RCA experts for promotion of the RCA and its projects
2	Expanding support for the benefit of the GPs	2.1. Implementation of the follow-up project of RAS6083 2.2. Implementation of RAS9092 2.3. Implementation of the RCARO Managed Project: Research Project					2.1.1. Holding expert meeting(s) 2.1.2. Development of E-learning modules 2.2.1. Implementing a project coordination meeting 2.2.2. Conducting a regional training course 2.2.3. Submission of progress report 2.3.1. Implementing preparatory activities for the 2 nd phase of the project 2.3.2. Conducting a research coordination meeting

		2.4 Holding an introductory workshop for new NRs				2.4.1. Holding an introductory workshop for new NRs
3	Enhancing and exploring partnerships with regional/international organizations	3.1. Implementation of the RCA/UNOSSC project on electron beam(EB) applications				3.1.1. Implementing a Group Fellowship Programme 3.1.2. Implementing Expert Missions 3.1.3. Holding a final review meeting 3.1.4. Submission of progress/financial reports and publication of a final report
		3.2. Implementation of the RCARO-ASEANTOM project				3.2.1. Implementing a project coordination meeting 3.2.2. Conducting a regional training course 3.2.3. Holding a review meeting
		3.3. RCA/ARCCNM workshop				3.3.1. Supporting experts for participation in a RCA/ARCCNM workshop
		3.4. Participation in the FNCA coordinators meeting				3.4.1. Participation in the 21 st FNCA coordinators meeting
4	Assisting the GPs in human resource development	4.1. RCARO/KAIST Nuclear Engineering Master's Degree Programme				4.1.1. Supporting the RCARO/KAIST Master's Degree Programme
		4.2. RCA/KAERI training course				4.2.1. Holding a RCA/KAERI training course

		4.3. RCA/iTRS training course				4.3.1. Conducting a RCA/iTRS training course
		4.4. IAEA/RCARO training course				4.4.1. Holding an IAEA/RCARO training course
5	Facilitating the better implementation of the RCA Programme	5.1. Supporting the IAEA for RCA administrative matters				5.1.1. Providing support for RCA policy meetings and WG activities
		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. Participation in the activities of the Special Task Force (STF)				5.3.1. Participation in the STF meeting
		5.4. RCARO Fellowship Programme				5.4.1. Inviting fellows from GPs to the RCARO
		5.5. Provision of Extra-Budgetary(EB) contribution to the IAEA				5.5.1. Providing extra budget for RCA projects in financial needs

1. Increasing the awareness of the RCA

1.1 Publication of success stories

Since 2007, RCARO has published 6 batches of RCA success stories with the aim of showcasing the achievements of the RCA and promoting benefits/advantages of the nuclear science and technology in various fields: a total of twenty one (21) including 3 for agricultural area, 7 for environment, 4 each for health and industry, 2 for energy and 1 for radiation protection area.

1.1.1. Publication of the 7th batch of RCA success stories

Based on recommendation of the 29th SAC and approval by the 48th GCM, RCARO will publish two success stories in leaflet form: one on RAS7029 in the field of air pollution matter and the other on RAS6083 and RAS6071 combined in the field of nuclear medicine imaging and radionuclide therapy.

According to the mechanism and procedure approved by the 37th NRM in 2015, RCARO will prepare drafts in consultation with the LCCs of the selected projects, IAEA TO, RCA FP and relevant experts. Final drafts will be submitted to the 42nd NRM for comments and approval. Upon the approval by the NRs, RCARO will publish the 7th batch of RCA success stories.

They will be handed out to target audiences at regional/international events and other appropriate occasions for promotional purposes.

1.2 Provision of RCA information service through the RCA Website

RCARO provides RCA information service through the RCA website for the Government Parties and related end-users. Since its launch in 2011, RCARO continued its efforts to upgrade the website and update the data on RCA activities and projects to give maximum information available to users.

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

At the 41st NRM, it was recommended that LCCs of the completed RCA projects send the project documents to the RCARO for uploading on the website. As a follow-up of the recommendation, RCARO has upgraded the project platform on the website to accommodate the documents.

To facilitate the accumulation and uploading of project documents, LCCs and relevant bodies will be requested to send documents to the RCARO on a yearly basis.

The received documents will be classified based on the thematic areas and type of documents for ease of reference of the users.

Furthermore, aiming to being an information hub of the RCA, RCARO will look into the overall of the website to find ways in providing extended and integrated information service to the RCA community.

1.3 Participation in regional/international events and support for the promotion of RCA activities

RCARO will make further efforts to fulfill its mandate by promoting RCA to target audiences at appropriate occasions through presentations and exhibitions as well as providing support to RCA experts participating in such promotional activities.

1.3.1 Exhibition on RCA/RCARO activities to target audiences

RCARO will continue to promote the RCA/RCARO activities to target audiences by means of making presentations and exhibitions at some relevant occasions including RCA events in the region.

For the 2020 plan, according to the recommendation of the SAC, RCARO conducted a survey of NRs and the IAEA and collected information on 6 conferences. Amongst those, the 48th GCM approved the two conferences below for the RCARO's participation in 2020:

- The 10th International Conference on Isotopes (10ICI), 3-7 February 2020, Malaysia
- The 15th International Congress of the International Radiation Protection Association (IRPA15), 11-15 May 2020, Korea

In consideration of its budget availability and schedule, RCARO will make necessary arrangements for its participation to the conferences listed above and also conduct a new survey in preparation for possible conferences to be attended in 2021.

1.3.2 Supporting RCA experts for promotion of the RCA and its projects

RCARO will continue to provide its assistance to selected RCA experts for their participation in regional/international events and their RCA promotional activities.

For the cycle in 2020, RCARO selected two experts from INS and MAL in consultation with the SAC and the selectees will be supported accordingly for their promotional activities.

With regard to the next cycle, RCARO will invite the GPs for nominations of appropriate RCA experts and carry out the programme according to the guideline.

2. Expanding support for the benefit of the Government Parties

2.1 Implementation of the follow-up project of RAS6083

Upon approval of the 43rd GCM on developing a pilot project, RCARO, as the LCC of the project, developed a project entitled “Improving patient care and enhancing Government Parties capacity in nuclear medicine programs in RCA region”. Funded by the Korean Government, the project had been implemented for three years from 2016 to 2018, with the participation of 19 Government Parties in the region.

At the mid-term and final review meeting in 2018, it was suggested that the educational materials created under the project be transformed into e-learning modules for sustained educational support for the participating countries. Considering the demands and needs for continued education on nuclear medicine, RCARO has decided to support the countries by developing e-learning modules for two years in 2019-2020 as a follow-up of RAS6083.

2.1.1 Holding expert meeting(s)

An expert meeting will be held on 2-4 February in the Philippines in conjunction with the ARCCNM meeting, inviting the review panel, consisting of experts of the region and IAEA, NPCs and experts of RAS6083.

At the meeting, experts will review the modules developed in 2019 and identify the areas/contents to be created in 2020.

The modules developed in 2020 will also be reviewed by the review panel at an appropriate occasion, such as an expert meeting.

2.1.2 Development of E-learning modules

Based on the decision of the expert meeting on the areas/contents, modules will be drafted by experts assigned to the specific areas/contents.

Drafts will be reviewed by relevant experts through electronic communication or a technical meeting, when needed.

The finalized modules will be reviewed by the review panel and upon its approval, modules will be uploaded on the e-learning platform on the RCA website.

2.2 Implementation of RAS9092

A project 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, as the LCC, under the IAEA TC Programme.

The project is approved as RAS9092 and 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 four years from 2020 to 2023.

2.2.1 Implementing a project coordination meeting

A project coordination meeting will be held on 11-15 May 2020 in Thailand to discuss and finalize the details of the activities stipulated in the work plan to be implemented under the project RAS9092.

The meeting will also review and assess the current status of strategies and procedures on emergency preparedness and response for radiation facilities in the participating countries.

2.2.2 Conducting a regional training course

A regional training course on Operational Intervention Levels (OILs) for radiological emergencies will be carried out on 20-24 July in Hanoi, Viet Nam, based on the work plan and decision of the project coordination meeting.

2.2.3 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.

2.3 Implementation of the RCARO Managed Project: Research Project

Aiming to supplement the RCA Programme and accommodate the needs of the GPs, RCARO has initiated a new framework of the RCARO Managed Projects under the RCA Programme. One of which is to implement research projects to address region-specific needs on research in the application of nuclear science and technology.

Decided by the 46th GCM in 2017 on the theme of the research project, RCARO is implementing a research project on air pollution, entitled “Air Quality and Environmental Impact Assessment of Industrial Activities in the Region”, proposed by Indonesia.

The project has been initially approved for three years from 2018 to 2020 with the aim of supporting the improvement of quality of environment through the provision of appropriate pollutant data to researchers and relevant stakeholders.

In 2020, excluding PHI which ended its contract in 2019, eleven GPs will participate in the project, namely AUL, NZE, ROK as Agreement Holders and BGD, CPR, INS, MAL, MON, MYA, NEP and SRL as Contract Holders.

2.3.1 Implementing preparatory activities for the 2nd phase of the project

At the research coordination meeting in 2019, the meeting discussed the possibility of the 2nd phase of the project, noting strong needs by the participants on the extension of the project and the expansion of research areas that include the analysis of pollutant sources not only in the air but also in other environmental samples such as water, soil and crops near industrial area.

Based on the discussion at the meeting, a proposal was drafted for the 2nd phase of the project for approval by the NRs and the 48th GCM approved the extension of the project for another three years from 2021 to 2023 as its 2nd phase.

According to the work plan and procedure, RCARO will invite the GPs for submission of proposals in the first quarter of 2020 and the received proposals will be reviewed by the research review committee and the technical officer.

The review result will be presented to the 30th SAC and the 49th GCM for approval of NRs.

2.3.2 Conducting a research coordination meeting

According to the decision of the research coordination meeting in 2019, a review meeting will be held in November 2020, (venue to be decided), inviting agreement/contract holders, technical officer and members of the research review committee.

Research activities against the national/regional work plans and performance indicators will be reviewed and shared among the participants.

The meeting will also devote some time in reviewing and refining the activities and work plans of the 2nd phase of the project.

2.4 Holding an introductory workshop for new NRs

The 41st NRM noted the challenges in the implementation of the RCA Programme due to the high turnover of the NRs viewed by the Chair of the RCA PAC and recommended that adequate support structure be set up to enable proper carriage of duties by the NRs.

Providing an introductory workshop was recommended as a way of solving issues on new NRs.

In line with this and recommendation of the 24th RCARO SAC on providing training for new RCA GPs and newly appointed NRs, RCARO will hold an introductory workshop in June 2020 (venue to be decided) to provide information on the RCA Programme, policy, procedures and related matters, inviting newly appointed NRs, Chair of RCAPAC and RCA FP.

3. Enhancing and exploring partnerships with regional/international organizations

3.1 Implementation of the RCA/UNOSSC project on Electron Beam (EB) applications

RCA/UNOSSC project on Electron Beam applications for value addition to food and industrial products and degradation of environmental pollutants in the Asia Pacific region has been implemented from 2013 to 2019, divided into two phases (phase 1: 2013-2015, phase 2: 2017-2019), in order to promote and disseminate the use of EB technology in the areas of agriculture, industry and environment treatment.

In 2018, twelve participating countries submitted project extension requests and UNOSSC suggested having one year extended in the view of responding to those needs.

Based on this, a project extension proposal was submitted by the RCARO in February 2019 to the UNOSSC and the latter approved one year extension until 2020.

3.1.1 Implementing a Group Fellowship Programme

Group Fellowship Programme, a new initiative, will be implemented in cooperation with the Advanced Radiation Technology Institute (ARTI) of KAERI in responding to needs on long term training by the participating countries.

At the review meeting in 2019, the meeting discussed the details of the programme and agreed on the timeline and the details of the programme including qualification of applicants.

According to the decision of the review meeting on selection process, RCARO will select and

invite a group of fellows, maximum three, at once for the duration of up to six months to the ARTI.

Prior to the start of the programme, a report that outlines a situational analysis of each applicant's country and individual area of interest will be collected to meet twofold needs and demands-individual and national.

Based on this, customized and individualized training will be provided to each individual in the pre-identified area of interest and an Action Plan that includes the national human resource development plans will be set to facilitate dissemination of the knowledge and know-how gained through the programme.

3.1.2 Implementing Expert Missions

Expert missions will be carried out to the selected countries, subject to the budget availability.

The recipient countries of the missions will be selected based on the request forms submitted by the participating countries.

3.1.3 Holding a final review meeting

A project review meeting will be carried out in September (venue to be decided), inviting the NPCs and representatives of the UNOSSC.

The meeting will review the progress of the project at national and regional level and discuss future activities for continued capacity building in the application of EB technology.

3.1.4 Submission of progress/financial reports and publication of a final report

Upon the rules and regulations of the UNOSSC, progress and financial reports will be submitted to the latter accordingly and a final report will be published, integrating achievements of the project at national and regional level.

3.2 Implementation of the RCARO-ASEANTOM project

To fulfil its mission, "viability: to promote partnerships for RCA Program", RCARO has put efforts on seeking partnerships with international and regional organizations. In line with these efforts, RCA-ASEAN Project on Capacity Building in Radiation Technology was implemented in 2016-2018, contributing to the capacity building of ASEAN countries in the medical area

through training courses, specifically in the field of radiotherapy.

Aiming to expand the RCA-ASEAN partnership and considering that ASEAN's one of the focused areas is enhancing nuclear safety and security, RCARO endeavoured to establish partnership with the ASEANTOM (ASEAN Network of Regulatory Bodies on Atomic Energy).

With discussions on possible collaborative activities with the ASEANTOM and taking consideration of existing projects in the ASEANTOM with the IAEA and the EU, it was agreed to implement a project on "enhancing emergency preparedness and response capabilities through building technical capacity in radiation monitoring and dose assessment following the nuclear and radiological emergencies".

Co-lead by the OAP, Thailand and the KIRAMS, Korea, the project is to be implemented for two years from 2020 to 2021 and will be supported by experts from Japan and IAEA acting as technology providers and lecturers.

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

3.2.1 Implementing a project coordination meeting

A project coordination meeting will be held in the first quarter of the year in Korea, inviting members of the ASEANTOM and experts from Korea. The meeting will review the current status on radiation monitoring and dose assessment in the ASEAN countries and set up detailed activities to be implemented under the project.

3.2.2 Conducting a regional training course

According to the work plan, a regional training course will be held in July in the OAP, subject to the confirmation of the NR of Thailand.

To make the best use of the opportunity in capacity building on radiation monitoring and dose assessment, the training course will be held in conjunction with an IAEA TC project under which the IAEA provides training sessions on radiation safety.

3.2.3 Holding a review meeting

According to the work plan set in the project coordination meeting, a review meeting will be held in the fourth quarter in Japan (provisional) to review the progress in 2020 and set the 2021 work plan.

The meeting will be combined with a technical workshop, with the support of the Asia Radiation Dosimetry Group (ARADOS), a network of institutions established for enhancement

and harmonization of radiation dosimetry capabilities in Asian countries. This will provide the participants with an opportunity for learning and exchanging the up-to-date technologies in dosimetry.

3.3 Supporting the RCA/ARCCNM workshop

Since 2008, RCARO has been supporting the RCA/ARCCNM training 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 the workshop on 1 – 2 February 2020 in the Philippines.

3.4 Participation in the FNCA Coordinators meeting

On behalf of RCA, RCARO will participate in the 21st FNCA Coordinators Meeting to be held in 2020 in Japan to discuss cooperative matters between RCA and FNCA.

Representing the RCA, Director of RCARO will present the achievements of RCA and cooperative activities with the FNCA in 2019.

4. Assisting the Government Parties in human resource development

4.1 Implementation of the RCARO/KAIST Nuclear Engineering Master's Degree Programme

With the aim of assisting the Government Parties in capacity building related to nuclear science and technology, RCARO has been implementing the Nuclear Engineering Master's Degree Course in cooperation with the Korea Advanced Institute of Science and Technology (KAIST). As carried out in the past years, RCARO will continue to recruit students from the Government Parties in 2020.

4.2 Implementation of the RCA/KAERI training course

RCARO will host a regional training course on radiation applications technology in October 2020 in cooperation with the Korea Atomic Energy Research Institute (KAERI). The Government Parties will be requested to recommend appropriate candidates for the training course.

4.3 Implementation of the RCA/iTRS training course

Considering the importance of the radiation safety in the application of the nuclear technology in various areas, RCARO will host a training course in June in Korea, in cooperation with the Innovative Technology Center for Radiation Safety (iTRS) of Hanyang University.

4.4 Implementation of the IAEA/RCARO training course

A joint training course will be held in July in connection with the training course implemented under the RCARO/ASEANTOM project on “enhancing emergency preparedness and response capabilities in the ASEAN region through building technical capacity in radiation monitoring and dose assessment following the nuclear and radiological emergencies”.

5. Facilitating the better implementation of the RCA Programme

5.1 Supporting the IAEA for RCA administrative matters

RCARO will support the IAEA in its RCA secretariat functions in terms of preparation and coordination of the 42nd NRM and the 49th GCM.

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

In supporting the activities of the WG on MTSC, RCARO will continue to provide assistance to the WG as the coordinator and conduct activities directed by the WG.

5.2 Assisting the RCA Chair for coordination of activities

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

5.3 Participation in the activities of the Special Task Force (STF)

In preparation for the 50th anniversary of the RCA, the 48th GCM established a Special Task Force (STF), consisting of the NRs of the next RCA Chairs from 2020 to 2023 and representatives of China, Japan, Korea, IAEA and RCARO.

As a member, RCARO will participate in the STF meeting to be held on 24-28 February 2020 in Malaysia and share opinions/views on the matters to be discussed.

5.4 RCARO Fellowship Programme

RCARO will select three fellows from the Government Parties to work in the RCARO for two months each. Their duties will include assisting in updating stakeholder/end-user database; collecting information on regional and international events; and implementing projects to be undertaken by the RCARO.

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

The contribution will continue in 2020 to support RCA projects in need of financial support, subject to the budget availability of the RCARO.