Public Version

REGIONAL COOPERATIVE AGREEMENT

2014 ANNUAL REPORT

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RCA ANNUAL REPORT – 2014

Executive Summary

The RCA (Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology) is an inter-governmental agreement among countries in the Asia and the Pacific Region. The original RCA was adopted in 1972 under the auspices of the International Atomic Energy Agency (IAEA) to promote cooperation among the Government Parties (GPs) and the IAEA in the peaceful applications of nuclear science and technology. It was extended twice, one in 1977 and the other 1982. In 1987, a new RCA Agreement was adopted to replace the original one, and was in turn extended in 1992, 1997, 2002, 2007 and 2012. The present RCA extension - the 5th Extension Agreement - entered into force in June 2012 for a period of five years. Currently, twenty one governments are parties to the RCA, namely Australia, Bangladesh, Cambodia, China, Fiji, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Palau, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.

Since its establishment more than 40 years ago, the RCA programme has made significant contributions to sustainable social and economic development in the region through the application of nuclear science and technology.

The RCA programme in 2014 comprised 25 active projects, including one project on the RCA management; five projects on food and agriculture; eleven projects on human health; four projects on industrial applications; and four projects on water and the environment. The total budget provided for the RCA programme in 2014 was €1.634,434, among which there were €1.42 million from TC Fund and €214,434 from extrabudgetary contributions. The implementation rate for the whole programme in 2014 was 89.01%.

In 2014, a total of 325 participants enjoyed the benefits from attending in 16 regional training courses, and 355 experts and managers participated in 23 meetings for sharing knowledge, experience and skills. Furthermore, 22 expert missions and 15 home-based assignments were carried out mainly by experts recruited from the RCA region. The programme was considered to be successful.

In the field of human health, the learning platform - called DATOL and developed under the project RAS6064 - was officially launched at a side event to the 58th IAEA General Conference in September 2014. The launching of the DATOL platform is considered as an important milestone in human capacity building in the region, as it will make specialised training material accessible to all interested users. Also, a distance learning course on radiation oncology, which was developed under the project RAS6066, is available at the IAEA Cyber Learning Platform for Nuclear Education and Training.

For industrial application, an e-learning tool was developed under the project RAS1012 for radiation technology practitioners as part of a training and certification system. This is expected to be utilized worldwide to expand the use of radiotracers and sealed sources applications, improving industrial processes and efficiency in addition to reducing energy consumption.

In the field of marine environment, national capabilities in marine sampling, analysis and impact assessment have been significantly enhanced through the implementation of the project RAS7021. Countries have benefited not only from the technical support provided by the project, but also from the effective interaction between more advanced countries and less experienced ones. Furthermore, the volume of data in the Asia Pacific Marine Radioactivity Database (ASPAMARD) has increased

20-fold as a result of increased submissions from participating countries, significantly enhancing knowledge about the marine environment surrounding the participating countries.

The RCA Regional Office made good progress in 2014 by publicizing the activities of the RCA and establishing collaboration with other regional organizations with common interests. The activities of the RCA were disseminated through the RCA web-site, the participation in relevant regional conferences/seminars and the publication of a revised RCA brochure for the general public.

SECTION 1 - Overview of the RCA Programme in the Current Year

1. A brief summary of the status of the RCA programme in 2014

The RCA programme in 2014 was comprised by 25 active projects. These included: a) 15 projects which started in 2012; b) 8 new projects; and c) 2 continuing projects from the 2010-11 cycle, including a project on the Fukushima Marine Benchmark Studies (RAS7021), which was approved in June 2011. Basic project information may be found on the RCA Website and more detailed information on all projects is available on the IAEA web-based platform Programme Cycle Management Framework (PCMF).

Under the RCA programme, 16 regional training courses were held with 32 external experts recruited as lecturers from which 23 were from the region. During the courses, 325 people were trained, including 9 participants from non-RCA Government Parties. Furthemore, 23 meetings were held, including project progress and final review meetings, project planning meetings, and technical meetings. A total of 355 persons, including 4 participants from non-RCA Government Parties, and 18 external experts participated in these meetings. In addition to project- related meetings, two policy level meetings were conducted; namely the Regional Meeting of National RCA Representatives and the RCA General Conference Meeting.

Besides, 22 expert missions were conducted in the region by 24 experts, who provided technical assistance to the Government Parties to support their effective participation in RCA projects. The total duration of the missions was 118 working days. From the 24 experts recruited, 16 were from RCA Government Parties.

Likewise, experts were sought to undertake specific project tasks, which were carried out as home-based assignments. Fifteen home-based assignments were implemented with a total duration of 180 days. All of these assignments were carried out by experts from the RCA Government Parties.

Project progress monitoring was undertaken through biannual Progress Reports of the National Project Coordinators (NPCs) and the consolidated Project Progress Assessment Reports (PPAR) compiled and submitted by the Lead Country Coordinators (LCCs). In addition, project progress reviews were conducted at the National RCA Representatives Meeting and the RCA General Conference Meeting. These mechanisms have proved to be useful in the monitoring of projects, and will be continued.

The total budget provided for the RCA programme in 2014 was €1.634,434, among which there were €1.42 million from TC Fund and €214,434 from extrabudgetary contributions. The implementation rate for the whole programme in 2014 was 89.01%.

2. Implementation of the RCA Programme in 2014

Management of RCA Projects: Since 2012, RCA projects have been managed by different Programme Management Officers (PMOs) in the TC Asia and the Pacific Division, instead of solely managed by the RCA Focal Person (RCA-FP) as in the past. The RCA-FP continues to be responsible for the overall coordination of the RCA programme, and functions also as the PMO for some RCA projects. In order to guarantee effective project implementation, it is important that LCCs and NPCs maintain close contact and coordination with their respective PMOs.

Regarding implementation, all active projects conducted their activities in accordance with the work plans. The majority of the projects had an 85% delivery rate or higher in 2014.

Regional events: Implementation of RCA activities focused mainly on regional meetings and training courses. Hosting RCA events is voluntary and RCA Government Parties have

been very cooperative in this respect. By hosting events, the countries not only contribute to the RCA programme but also have the opportunity to benefit additionaly from regional events as more national participants can attend.

In 2014, 15 RCA Government Parties extended their support by hosting RCA regional events. It is expected that those Government Parties, which have not had the opportunity to host RCA events, will consider doing so in the future.

The Indicative Plan for RCA regional events in 2015, including the tentative schedules and potential host countries are given in Annex 6.

National nominations: Late submission of nominations or of unsuitable candidates- who often are not members of the National Project Teams- continues to be an issue. The cooperation of RCA NRs is sought to ensure that the people nominated for regional events: a) are actively involved in the project implementation,b) are members of the National Project Teams and c) have the required qualifications.

The IAEA/TC encourages the RCA National Representatives to make use of the In-Touch platform to facilitate the submission of nominations. Feedback from the Government Parties, that have used the platform, suggest that it is very convenient.

Progress monitoring: The implementation progress of RCA projects is monitored through biannual progress reports of the NPCs. The LCCs prepare a consolidated Project Progress Assessment Reports (PPARs), using the report template developed by TC, and upload them directly into the PCMF for further review and evaluation by the respective PMOs and Technical Officers (TOs). The historic record have showed that the submission of PPARs for some projects is either irregular or none. This is a matter of concern. The noncompliance of counterparts (CPs) may be due to the lack of knowledge and/or understanding of the requirements. The RCA NRs are requested to monitor and ensure timely submission of the progress reports of all active projects by mid of July and January each year.

Extra-budgetary contributions: The RCA GPs are encouraged to provide extra-budgetary contributions to the RCA programme as a means of demonstrating the ownership of it. The initial projects and activities for which extra-budgetary funding is required are marked as footnote a/ in the PCMF. I some cases, GPs have utilized their reserve funds for this purpose. The RCA NRs are requested to indicate specific purposes for which their contributions are made when they provide the funding. If necessary, the RCA-FP can provide assistance in identifying projects and related activities with financial requirements,

RCA project in response to the Fukushima accident: Following the Board of Governors' approval of the RCA project "Marine Benchmark Study On The Possible Impact Of The Fukushima Radioactive Release In The Asia-Pacific Region", the project implementation started immediately in July 2011. With the generous contributions of Australia, Japan, New Zealand, Republic of Korea and the USA, the project is well underway.

Twenty-four countries are participating in the project including six Pacific Small Island States. The 3rd Annual Project Review Meeting held in Korea in July 2014 highlighted progress in capacity building through the application of quality management systems, improved analytical capabilities, bilateral cooperation, external linkages and advances in radiological dose/risk assessment modelling, as well as expanded field sampling and radio ecological experiment activities in participating countries. The capabilities develoed or enhanced are of particular importance for countries which did not participate in previous RCA projects on marine environment monitoring. Further progress has been made by the Regional Data Center, ASPAMARD, which has developed an online data submission system increasing the efficiency and reducing the risks associated with manual transfer of data.

3. Summary of the actions of the RCA Regional Office (RCARO) related to promotional and other non-technical activities:

- Publicity activities for increasing RCA's awareness and enhancing RCA information service including publication of a revised RCA brochure; upgrading of the RCA website; and participation in regional/international events and support for the promotion of RCA activities.
- RCARO is in the process of preparing a working paper entitled "Review of the RCA web service and recommendations for improved access system" to improve RCA information service through the RCA website. The paper will be presented to the 37th NRM in 2015.
- RCARO is in the progress of updating the RCA promotional video, which will be presented to the 37th NRM in 2015.
- With assistance of temporary staff, RCARO has updated data of the GPs and relevantstakeholders on the RCA website.
- RCARO has participated in the following conferences for promotional purposes: 2nd International Conference on Radiation and Dosimetry in Various Fields of Research, 27-30 May, 2014 in Nis, Serbia; and 8th International Conference on Isotopes (ICI), 24-28 August, Chicago, USA.
- RCARO supported selected particpants from the PHI and BGD for their RCA promotional activities at the participating conferences which were held in October and December 2014, respectively.
- RCARO has carried out an RCA/UNDP partnership project entitled "Promoting and Accelerating Nuclear SPECT/PET Imaging Technologies in the Region" since December, 2010. Conforming to the UNDP rules and regulations, RCARO submitted the final progress and financial reports covering the period 2010-2013 to the UNDP and UNOPS summarizing 10 national progress reports received from the NPCs of the project.
- In cooperation with the Advanced Radiation Technology Institute (ARTI), KAERI, two RTCs were held in Jeongup, Korea:
- 1) RTC on Basic and Advanced Knowledge and Hands-on Experiment on EB Applications for Advanced Material for two weeks on 14 - 25 April, 2014
- 2) RTC on Basic and Advanced Knowledge and Hands-on Experiment on EB Applications for Food Products for one week on 16 – 20 June, 2014
- Regarding the RCARO/KAIST Nuclear Engineering Master's Degree Course; two students from INS and BGD are on the second year of the course and one from Myanmar was newly selected for the program starting from the spring semester in 2014.
- RCARO/ARCCNM training course has been held from 4 - 8 November in Osaka, Japan, in conjunction with the Japanese Society of Nuclear Medicine. The programme supported 33 trainees in 2014.
- Regarding the RCARO Fellowship Programme, three persons from MAL, BGD and THA were selected in 2014.
- During the NRM, a WG was established to consider the future role of the RCARO, including the issues raised in the Strategic Paper submitted by the RCARO's Director. It is composed of 8 members including Mr John Easey (Chair), RCARO's Director of and appointees from CPR, JPN, NZE, PAK, PHI and ROK, respectively.
- RCARO drafted a strategic paper on the potential increasing role of the RCARO.
- RCARO participated in RCA policy related meetings: the36th NRM in New Zealand and the 43rd GCM in Vienna, Austria.

- On behalf of the RCA, RCARO participated in the FNCA meeting on 11-12 March in Tokyo, Japan and submitted a report on its result to the RCA-FP.
- RCARO made an extra-budgetary contribution of US$60,000 to support the pilot project on nuclear medicine in which RCARO will take the role of LCC.

SECTION 2 - Details of the Technical Programme

■ Others

1. Enhancing the Management of the Regional Agreement and Programme (RCA) (RAS/0/068)

Objectives: To enhance the regional ownership of the RCA programme through support for RCA management and coordination activities.

Expected impact: To effectively plan and manage the RCA programme.

1st Year of Approval: 2014
Duration: 2 years (2014 -2015)
Technical Officer: Mr Oscar E. Acuna
Programme Management Officer: Mr Sinh Van Hoang

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Korea, Republic of, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam

Project Activities in 2014
Regional events:

Title: RCA Working Groups Meeting

Purpose: To discuss RCA Guidelines and Operating procedures; RCA Strategic Priorities; and Monitoring Committee review of 2016-2017

Dates: 17 - 21 February, 2014
Venue: Vienna, Austria
Participation: 14 participants

Title: RCA Working Group on the Amendment of the RCA Agreement

Purpose: The Working Group will consider written proposals from the Republic of Korea and Australia which had been circulated prior to the meeting. No other proposals were made at the meeting.

Dates: 16 - 17 September 2014
Venue: Vienna, Austria
Participation: 14 participants

Title: Project Design Meeting (PDM) for projects being developed for submission to the 2016/2017 TC Cycle

Purpose: The objective of the meeting is to facilitate the preparation of quality draft project designs for inclusion in the RCA programme and for submission for support in the 2016/2017 TC cycle.

Dates: 21 - 28 November 2014
Venue: Vienna, Austria
Participation: 23 participants

■ Industry

2. Characterizing and Optimizing Process Dynamics in Complex Industrial Systems Using Radiotracer and Sealed Source Techniques (RAS/1/012)

Objectives: To enhance the efficiency of the regional industry through characterizing complex industrial processes, optimizing use of natural resources and energy, reducing pollution by using innovative radiotracers and sealed source techniques and transferring the established technologies to end-user industry for sustainable socio-economic development in the region.

Expected impact: Enhancement of capability of participating Government Parties in effectively using advanced nuclear techniques for industrial process characterization and visualization.

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officer: Mr Patrick Dominique M. Brisset
Programme Management Officer: Mr Ho-Seung Lee

Lead Country Coordinator: Mr Ghiyas-ud-Din (PAK)

Participating Countries: Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Regional Training Course on Industrial Radioactive Particle Tracking (RPT) and SPECT for Multi-phase Process Investigation

Purpose: The course will provide specific training in the basic theory and applications on radiation technologies for process investigation by RPT and SPECT methods.

Dates: 14 - 18 April, 2014
Venue: Bangi, Malaysia
Participation: 23 participants and 2 lecturers

Title: IAEA/RCA Mid-term Coordination Meeting

Purpose: The overall objectives of the meeting are:a) to discuss and review the details of the activities stipulated in the work plan, to be implemented under project RAS1012; b)to review the current status of radiotracer and sealed source techniques in RCA Government Parties and address their real needs for advanced nuclear techniques for industrial process characterization and visualization; c) to discuss and review the work plan of the project to finalize the activities to be implemented by the end of the project.

Dates: 26 - 30 May, 2014
Venue: Bali, Indonesia
Participation: 15 participants

Title: IAEA/RCA Expert Group to participate in 7th Intl. Radiotracer Conference and prepare Protocols on selected techniques for QA/QC

Purpose: To prepare protocols on selected techniques (RPT, Blockage detection, Gaseous Tracers) for QA/QC and participate 3 days on the 7th International Conference on Tracers and Tracing Methods.

Dates: 13 - 17 October, 2014
Venue: Marrakech, Morocco
Participation: 13 participants

3. Supporting Advanced Non-Destructive Examination for Enhanced Industrial Safety, Product Quality and Productivity. (RAS/1/013)

Objectives: To enhance capacities for effective applications of nuclear radiation based Advanced Non-Destructive Evaluation (NDE) technologies for enhancing industrial safety, product quality, productivity, extension of plant lives and services provided.

Expected impact: Effective application of advanced NDE technique to increase efficiency in the industries in the region.

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officer: Mr Patrick Dominique M. Brisset
Programme Management Officer: Mr Ho-Seung Lee
Lead Country Coordinator: Mr Gursharan Singh (IND)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Final Project Review Meeting

Purpose: Final project review of RAS1013 and to plan for RAS1020.

Dates: 18 - 22 August, 2014
Venue: Hanoi, Viet Nam
Participation: 22 participants and 1 expert.

4. Supporting Radiation Processing for the Development of Advanced Grafted Materials for Industrial Applications and Environmental Preservation (RAS/1/014)

Objectives: To produce advanced grafted products for industrial applications and for mitigating environmental pollution by using radiation processing. The specific objectives are: to mitigate environmental pollution by the removal of toxic elements and harmful compounds using radiation grafted products; and to produce advanced radiation grafted products for industrial applications in the form of membrane, gel, fiber, hybrid coating, etc.

Expected impact: Radiation grafted products developed for environmental and industrial applications.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officer: Ms Agnes Safrany / Mr Sunil Sabharwal
Programme Management Officer:
Mr Sinh Van Hoang
Lead Country Coordinator: Mr Kamarudin Hashim (MAL)

Participating Countries: Australia Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Myanmar, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Regional Training Course on Advanced Radiation Grafting of Polymeric Matrices for Environmental and Industrial Applications

Purpose: The purposes of the Regional training course are the following: a)to provide detailed information concerning all aspects of radiation grafting of polymeric material; b) to discuss the utilization of radiation grafting technology in industrial and environmental applications; and c) to demonstrate the grafting techniques (pre and post irradiation) and characterization on the products.

Dates: 14 - 18 April, 2014
Venue: Ho Chi Minh City, Viet Nam
Participation: 21 participants and 2 lecturers.

Title: Workshop on Harmonized Radiation Graft Protocol

Purpose: Radiation grafting of polymer materials in the form of membrane, fibres and resins with appropriate functional groups are receiving renewed interest. With the availability of low-cost, self-shielded low energy electron beam accelerators, this method is becoming more feasible for developing countries. The guidelines and protocols to be developed in this meeting will greatly enhance the knowledge and pave the way for more institutions in the region to develop such new value-added products.

Dates: 24 - 28 March, 2014
Venue: Vienna, Austria
Participation: 5 experts

Title: IAEA/RCA Project Review Meeting

Purpose: Present, review and evaluate the progress implementation and achievement of RAS/1/014 in the participating Government Parties with regards to radiation processing for the development of advanced grafted materials and products.

Dates: 23 - 27 June, 2014
Venue: Wellampitiya, Sri Lanka
Participation: 18 participants

- Agriculture

5. Improving Soil Fertility, Land Productivity and Land Degradation Mitigation (RAS/5/055)

Objectives: To assist Government Parties in the development and effective implementation of area-wide precision conservation to control the impact of land-use practices on land degradation through enhancing capacities in nuclear and isotopic techniques.

Expected impact: Enhancement of national and regional capacities in application of nuclear and isotopic techniques for increased land productivity and sustainable land use in the Asia-Pacific Region under a changing climate.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officer: Mr Mohammad Zaman/ Mr Gerd Dercon
Programme Management Officer:
Mr Mykola Kurylchyk
Lead Country Coordinator: Mr Hendrik Heijnis (AUL)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Sri Lanka, Thailand, Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Meeting to Agree on the Establishment and Maintenance of the Databases of Compound Specific Stable Isotopes (CSSI) and Fallout Radionuclides (FRN) Data of the Region.

Purpose: To formulate the establishment and maintenance of data base of compound specific stable isotopes (CSSI) and fallout radionuclides (FRN) data of the region.

Dates: 08 – 12 September, 2014
Venue: Kathmandu, Nepal
Participation: 19 participants and 2 IAEA staff/ experts

6. Supporting Mutation Breeding Approaches to Develop New Crop Varieties Adaptable to Climate Change (RAS/5/056)

Objectives: To enhance people's livelihood through the improvement of crop productivity and food security in use of the application of mutation technique and other nuclear and isotopic techniques under the driver of climate change and variability.

Expected impact: Enhancement of national and regional capacities of RCA Government Parties for application of mutation and other nuclear and isotopic techniques to develop and pilot test of new crop varieties adaptable to climate change

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officer: Mr Stephan Nielen/Mr Karuppan Sakadevan/Mr Pierre Jean Laurent Lagoda
Programme Management Officer:
Mr Ho-Seung Lee
Lead Country Coordinator: Mr Liu Luxiang (CPR)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: Regional Workshop on Application of Ion Beam Radiation Technology in Plant Mutation Breeding

Purpose: To report on and discuss efficient mutation induction methods, particularly ion beam radiation technology for plant mutation breeding.

Dates: 14 – 18 April, 2014
Venue: Jeongeup, Korea
Participation: 16 participants and 1 expert

Title: Regional Training Course on the Use of C-13 in Soil Organic Matter Studies and in Assessment of Plant Tolerance to Abiotic Stress (Drought and Salinity)

Purpose: To improve skills, knowledge and technical competency of scientific and technical personnel from Asia and the Pacific region in the application of C-13 stable isotope techniques for studying soil organic matter and carbon isotopic discrimination for evaluating plant tolerance to abiotic stresses (drought and salinity).

Dates: 04 – 08 August, 2014
Venue: Beijing, China
Participation: 25 participants and 1 lecturer

Title: IAEA/RCA Mid-Term Project Assessment Meeting

Purpose: a) to review the progress that has been made with regard to implementation of the individual country workplans and the expected outputs formulated in the first coordination meeting; b) to identify and address gaps and needs for advanced mutation breeding approaches and techniques to develop new crop varieties adaptable to climate change and for the application of integrated mutation/soil and water management technology packages to spread new crop varieties adaptable to climate change; c) to review and discuss the implementation of the project activities (technical meetings, workshops, training courses and national field studies) and evaluate the results achieved; and d) to refine/adjust country workplans as well as the RAS5056 workplan for activities remaining in the lifetime of the project.

Dates: 06 – 10 October, 2014
Venue: Jakarta, Indonesia
Participation: 20 participants and 2 IAEA staff

7. Implementing Best Practices of Food Irradiation for Sanitary and Phytosanitary Purposes (RAS/5/057)

Objectives: To enhance the effective application of irradiation technologies with sanitary and phytosanitary purposes on agricultural products.

Expected impact: Enhancement of national and regional capacities in application of best practices of different irradiation processing techniques and technologies capacities in the Asia and Pacific Region

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officer: Mr Carl Michael Blackburn/Mr Yves Marie Alphonse Henon
Programme Management Officer: Mr Sinh Van Hoang
Lead Country Coordinator: Ms Gao Meixu (CPR)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: Meeting on the Production of an On-line Training Course for the dissemination of Good Food Irradiation Practices

Purpose: The experts were asked to help in designing and producing an extensive e-learning course on Good Food Irradiation Practices.

Dates: 07 – 11 July, 2014
Venue: Vienna, Austria
Participation: 3 experts

Title: IAEA/RCA Regional Training Course on Best Practices for the Use of Irradiation as a Phytosanitary Treatment

Purpose: To increase the awareness and knowledge of senior officials from National Plant Protection Organisations and policy makers in international food trade on the potential of Irradiation as a phytosanitary treatment and its growing international use.

Dates: 01 – 05 December, 2014
Venue: Manila, Philippines
Participation: 23 participants and 3 IAEA staff/experts.

- Human Health

8. Improving Image Based Radiation Therapy for Common Cancers in the RCA Region (RAS/6/053)

Objectives: To improve radiation therapy practice in the Regional Co-operative Agreement for Research, Development and Training related to Nuclear Science and Technology (RCA) region by enhancing applications of evidence-based approaches and quality standards.

Expected impact: The optimum and efficient use of image based radiotherapy and its QA through utilization of technical documents and standardized teaching materials. The capability of the Government Parties to conduct national training courses on image based radiotherapy and its QA. Increase in the number of radiotherapy facilities implementing QA/QC programmes for image based radiotherapy according to accepted protocols.

1st Year of Approval: 2009
Duration: 5 years (2010-2015)
Technical Officer: Mr Ahmed Meghzifene
Programme Management Officer: Mr Massoud Malek
Lead Country Coordinator: Mr Takashi Nakano (JPN)

Participating Countries: Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Final Project Meeting

Purpose: To review and assess the achievement of RAS6053 against the desired project outcomes and objectives, including national and regional activities.

Dates: 16 - 19 December, 2014
Venue: Maebashi, Japan
Participation: 14 participants and 1 expert

9. Improving Cancer Management with Hybrid Nuclear Medicine Imaging. (RAS/6/061)

Objective: To improve professional knowledge and reporting skills of nuclear medicine practitioners and to increase clinical impact of hybrid imaging.

Expected impact: To improve cancer management through better and more comprehensive reporting of PET/CT & SPECT/CT scans.

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officer: Mr Ravi Kashyap
Programme Management Officer: Mr Mykola Kurylchyk
Lead Country Coordinator: Mr Venkatesh Rangarajan (IND)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Japan, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Regional Training Course on Clinical Applications of PET/CT for Nuclear Medicine Physicians

Purpose: To integrate the knowledge of Cross-Sectional anatomy in the daily practice of PET/CT, improve the quality of PET/CT and SPECT/CT practices

Dates: 30 June – 04 July, 2014
Venue: Saitama, Japan
Participation: 22 Participants and 3 IAEA staff/lecturers

Title: IAEA/RCA Regional Training Course on Advanced Hybrid Nuclear Medicine Reporting in Oncology

Purpose: To train specialists in nuclear medicine from RCA Government Parties in reporting advanced clinical applications of PET/CT and SPECT/CT for clinical management of patients.

Dates: 08 – 12 September, 2014
Venue: Victoria, Australia
Participation: 20 participants and 1 lecturer.

Title: IAEA/RCA Regional Training Course on Essentials of Hybrid Nuclear Medicine Imaging

Purpose: To train specialists in nuclear medicine from RCA Government Parties in applying and reporting advanced clinical applications of PET/CT and SPECT/CT for clinical management of patients affected by cancer.

Dates: 08 – 12 December, 2014
Venue: Chiang Mai, Thailand
Participation: 26 participants and 3 lecturers

10. Supporting 3D Image-Guided BrachytherapyServices. (RAS/6/062)

Objective: To improve regional and national capacities for effective brachytherapy services by implementing 3D image-guided brachytherapy.

Expected impact: 3D image-guided brachytherapy implemented and practiced in RCA Government Parties.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officer: Ms Elena Fidarova/Mr Brendan James Healy
Programme Management Officer: Mr Massoud Malek
Lead Country Coordinator: Mr Shingo Kato (JPN)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Japan, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam.

Project Activities in 2014
Regional events:

Title: Workshop on Transitioning from 2D to 3D Image-Guided Brachytherapy Services

Purpose: The objectives of the workshop are: to review and discuss the draft of the document "Transitioning from 2D to 3D Brachytherapy"; to review and assess the progress and achievement of RAS6062, including implementation of related national activities, against the desired project outcomes and objectives; to review and update the project work plan as well as national and regional activities; and to endorse the draft document "Transitioning from 2D to 3D Brachytherapy."

Dates: 28 – 31 January, 2014
Venue: Melbourne, Australia
Participation: 15 participants and 3 IAEA staff/experts

Title: IAEA/RCA Regional Training Course on 3D Image-Guided Brachytherapy for Cervical Cancer

Purpose: To provide to radiation oncologists and medical physicists with a comprehensive understanding of the clinical and physics aspects of 3D IGBT of cervical cancer in order to enable safe and effective implementation or further development of a 3D IGBT program in their institutions.

Dates: 29 September – 03 October, 2014
Venue: Saitama, Japan
Participation: 22 Participants, 1 IAEA staff and 2 lecturers

11. Strengthening the Application of Nuclear Medicine in the Management of Cardiovascular Diseases (RAS/6/063)

Objective: To strengthen and improve the application of nuclear medicine in the Asian and Pacific region, mostly of SPECT, in the management of cardiovascular diseases.

Expected impact: Improved diagnosis and management of cardiovascular diseases in the Asia and Pacific region.

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officers: Mr Thomas Neil B. Pascual
Programme Management Officer: Mr Mykola Kurylchyk
Lead Country Coordinator: Mr Orestes P. Monzon (PHI)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014

Regional events:

Title: Improving Nuclear Cardiology Services in Evaluation of IHD and Left Ventricular Failure

Purpose: To review the different established and emerging imaging modalities and nuclear techniques in the evaluation of Ischaemic Heart Disease and Left Ventricular Heart Failure, to identify Basic use of SPECT and PET/CT in patient with ischaemic heart disease and heart failure, to differentiate and analyse the different protocols used in the in the evaluation of Ischaemic Heart Disease and Left Ventricular Heart Failure, and integrate the concepts on the use of imaging modalities in the Evaluation of IHD and Left Ventricular Failure.

Dates: 07 – 11 July, 2014
Venue: Colombo, Sri Lanka
Participation: 25 participants and 3 lecturers

Title: Final Coordinating Meeting Strengthening the Application of Nuclear Medicine in the Management of Cardiovascular Disease

Purpose: To review project achievements and make recommendations for future cooperation.

Dates: 03 – 07 November, 2014
Venue: Chiang Mai, Thailand
Participation: 15 participants, 1 IAEA staff and 1expert

12. Building Capacity with Distance Assisted Training for Nuclear Medicine Professionals (RAS/6/064)

Objective: To develop the competencies and capabilities of individuals, groups, or countries in the safe and efficient practice of nuclear medicine through a harmonized web-based distance learning programme that would support Continuing Professional Development of nuclear medicine technologists.

Expected impact: Harmonized web-based distance learning programme for nuclear medicine technologists have been developed and made available for interested RCA Government Parties.

1st Year of Approval: 2012
Duration: 3 years (2012-2014)
Technical Officers: Mr Ravi Kashyap
Programme Management Officer: Mr Gashaw Gebeyehu Wolde
Lead Country Coordinator: Ms Heather Elizabeth Patterson (AUL)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: Final Coordination Meeting

Purpose: Implementation of DATOL through Human Health Campus and discussion and final report on RAS 6064.

Dates: 07 – 09 April, 2014
Venue: Vienna, Austria
Participation: 2 experts

13. Strengthening the Application of Stereotactic Body Radiation Therapy to Improve Cancer Treatment (RAS/6/065)

Objective: To improve cancer treatment in the RCA region through strengthening the application of Stereotactic Body Radiation Therapy (SBRT).

Expected impact: Enhanced national and regional capacities on the application of SBRT for effective cancer treatment and establishment of SBRT regional training network infrastructure.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officers: Mr Rajiv Ranjan Prasad/Mr Brendan James Healy
Programme Management Officer: Mr Sinh Van Hoang
Lead Country Coordinator: Mr Chul-Koo Cho (ROK)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: Midterm Review Meeting.

Purpose: The meeting will review the progress of project RAS6065 including:
(1) Assessment of the progress of implementation and achievements of RAS6065 against the desired project outcomes and objectives.
(2) To review, revise and update project work plan, national and regional activities, as well as develop follow up action plan.
(3) To review the concept and strategy regarding regional training hubs.

Dates: 30 June – 04 July, 2014
Venue: Ulaanbaatar, Mongolia
Participation: 16 Participants and 1 IAEA staff

Title: IAEA/RCA Regional Training Course on Clinical Applications of Stereotactic Body Radiotherapy (SBRT) in Head and Neck,Spinal and Liver Cancers

Purpose: To provide radiation oncologists and medical physicists with a comprehensive understanding of the clinical aspects of SBRT in head and neck, spinal and liver cancer cases to enable safe and effective implementation or future development of a SBRT programme in their institutions; and to provide a basis for national training programmes so that those attending this course can organize and provide training in their home countries.

Dates: 20 – 24 October, 2014
Venue: Tokyo, Japan
Participation: 30 Participants and 3 lecturers

14. Improving Cancer Management Through Strengthening the

Computed Tomography Cancer Staging Process (RCA) (RAS/6/076)

Objective: To optimize cancer management through the improvement of professional knowledge in CT scanning and staging.

Expected impact: To enhance regional capacities for radiologists using CT scanning in cancer staging.

1st Year of Approval: 2014
Duration: 3 years (2014-2016)
Technical Officers: Mr Ravi Kashyap/Mr Charalampos Delis/Mr Thomas Neil B. Pascual
Programme Management Officer: Mr Ho-Seung Lee
Lead Country Coordinator: Mr Kie-Hwan Kim (ROK)

Participating Countries: Australia, Bangladesh, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Myanmar, Mongolia, Nepal, New Zealand, Pakistan, Singapore, Sri Lanka, Thailand, Viet Nam

Project Activities in 2014
Regional events:

Title: Regional Workshop on Resource and Training Materials for Computed Tomography Cancer Staging

Purpose: To develop the curriculum and identify or develop training material to be used for training radiologists and/or nuclear medicine physicians on using CT in cancer management and to review and discuss the project work plan and activities to be implemented.

Dates: 28 Apr – 02 May, 2014
Venue: Jakarta, Indonesia
Participation: 23 Participants

Title: Regional Training Course on CT Cancer Staging for Abdomen and Urogenital System

Purpose: To enhance use of TNM classification in CT-based cancer staging; to train individuals will become national trainers; and to agree on action plan for dissemination of the knowledge at the national level by national trainers and NPC.

Dates: 06 – 10 October, 2014
Venue: Seoul, Korea
Participation: 27 Participants, 1 IAEA staff and 2 lecturers.

15. Strengthening the Effectiveness and Extent of Medical Physics Education and Training (RCA) (RAS/6/077)

Objective: To improve the quality of health care and patient safety in areas related to radiation medicine through the delivery of medical physics services.

Expected impact: Improved medical physics capability, capacity and recognition in the region.

1st Year of Approval: 2014
Duration: 4 years (2014-2017)
Technical Officers: Mr Brendan James Healy
Programme Management Officer: Mr Massoud Malek
Lead Country Coordinator: Mr Donald McLean (AUL)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Viet Nam

Project Activities in 2014
Regional events:

Title: Meeting on E-learning in the Education and Clinical Training of Medical Physicists

Purpose: To review the current status of medical physics education and clinical training schemes in the RCA Government Parties, review the current status of e-learning in the education and clinical training medical physicists, review audit

instruments for medical physics educations, training, and workforce being developed under RAS6077; and to review certification schemes for medical physicists in RCA members, develop plans for incorporating the principles of e-learning to the education, clinical training and certification of medical physicists and develop plans for the piloting of e-learing modules in clinical training programmes.

Dates: 14 – 16 May, 2014
Venue: Vienna, Austria
Participation: 15 participants and 3 experts

- Environment

16. Marine benchmark study on the possible impact of the Fukushima radioactive releases in the Asia-Pacific Region (RAS/7/021)

Objective: To enable RCA Government Parties to evaluate the extent and the possible impact of the releases of radioactivity from the Fukushima Daiichi nuclear power plant into the marine environment and make scientific assessments of the data.

Expected impact: Enhancement of regional mechanisms and competency of the RCA Government Parties in the monitoring and assessment of the possible impact and consequences of uncontrolled releases of radioactivity into the marine environment following the nuclear event.

1st Year of Approval: 2011
Duration: 5 years (2011-2015)
Technical Officers: Ms Iolanda Osvath/Mr Arend Victor Harms
Programme Management Officer: Mr Sinh Van Hoang
Lead Country Coordinator: Mr Ronald Szymczak (AUL)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Palau Philippines, Singapore, Sri Lanka, Thailand, Viet Nam, and additional non-RCA countries including Cambodia, Cook Islands, Kiribati, Marshall Islands, Fiji, Solomon Islands and Samoa

Project Activities in 2014
Regional events:

Title: IAEA/RCA 3rd Annual Project Review Meeting of RAS7021

Purpose: To assess the progress implementation and achievements of RAS7021 against the project milestones, desired outcomes and objectives; to review and update project work plan, national and regional activities, as well as develop follow up action plan; to review the results from the monitoring activities from different countries in relation to the radioactive contamination of the marine environment; and to discuss data submission and updated output of the ASPAMARD data base.

Dates: 07 – 11 July, 2014
Venue: Busan, Republic of Korea
Participation: 23 participants and 2 IAEA staff

Title: IAEA/RCA Regional Training Course on Monitoring the Radiological Impacts of Nuclear Discharges to Pacific Island Marine Ecosystems

Purpose: The training course provides participants with: a) Basic (plain/lay English) information on the behavior and impacts of radionuclides, with specific focus on the Pacific tropical marine ecosystems;b) basic training in sampling methods & initial sample preparation of seawater, sediment and marine biota samples for shipment to external radioanalytical laboratories; c) use of radiological risk analysis software (e.g. ERICA Tool) for assessing radiation impacts on tropical/marine (e.g.coral reef) organisms; and d) recommendations on protecting the marine environment from adverse effects of radiation and their use and application in the national/regional context.

Dates: 28 July – 01 August, 2014
Venue: Suva, Fiji

Participation: 12 participants and 1 lecturer.

Title: IAEA/RCA Regional Training Course on Establishment of Transfer Factors and Dose Assessment for Marine Organisms from Contaminants released from Nuclear Activities

Purpose: The course will provide specific training in the theoretical background, practical applications and interpretation of state-of-the-art radioecology techniques for determination of contaminant bioaccumulation potential in marine organisms, the subsequent transfer of contaminants to higher tropic levels in the food web and assessment of dose to these organisms. The course intends to enhance the regional capability to undertake risk assessments for the ingestion pathway of seafood by establishing dose responses and transfer factors that are specific and appropriate for marine biota found in the region.

Dates: 11 – 22 August, 2014
Venue: Bangi, Malaysia
Participation: 28 participants and 3 lecturers

17. Applying Isotope Techniques to Investigate Groundwater Dynamics and Recharge Rate for Sustainable Groundwater Resource Management (RAS/7/022)

Objective: To improve the capability for efficient and effective development and management of groundwater resources.

Expected impact: Enhancement of national and regional capacities for sustainable and effective management of groundwater resources on the basis of isotopic information.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officers: Mr Manzoor Ahmad Choudhry
Programme Management Officer: Mr Sinh Van Hoang
Lead Country Coordinator:
Mr Muhammad Azam Tasneem (PAK)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: IAEA/RCA Mid-term Progress Review Meeting of the RCA Project on Applying Isotope Techniques to Investigate Groundwater

Purpose: To review the progress made in line with the work plan and specific objectives of the project; to report and review results obtained up to date in project activities at the national and regional levels and to make recommendations on activities for the completion of the project; to share knowledge and experiences in the application of isotope techniques for investigations on groundwater dynamics and recharge rate though technical presentations and discussions; and to discuss other technical issues of significance related to the project implementation.

Dates: 30 June – 04 July, 2014
Venue: Quezon City, Philippines
Participation: 18 participants and 2 IAEA staff.

18. Supporting Sustainable Air Pollution Monitoring Using Nuclear Analytical Technology. (RAS/7/023)

Objectives: To enhance regional capabilities in source apportionment and fingerprinting of air particulate matter pollution in urban areas of RCA Government Parties through the use of nuclear analytical techniques (NATs).

Expected impact: Enhanced recognition of applicability and end-user use of nuclear analytical methods for air

particulate matter monitoring using source apportionment and fingerprinting techniques in urban areas.

1st Year of Approval: 2012
Duration: 4 years (2012-2015)
Technical Officers: Mr Andreas Germanos Karydas
Programme Management Officer: Mr Gashaw Gebeyehu Wolde
Lead Country Coordinator: Mr Andreas Markwitz (NZE)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional events:

Title: **Regional Workshop on Impact of APM Concentrations and Sources on Cultural Heritage Objects**

Purpose: To discuss, assess and increase awareness in the countries of the Asia-Pacific region on the influence of Air Particulate Matter and other atmospheric pollutants (APM, gaseous pollutants) in all types of Cultural Heritage (CH) assets, including outdoor/indoor monuments, archaeological sites, museum collections etc. The workshop will address major issues regarding the long term preservation of CH assets by analyzing reversible and irreversible damages that can deteriorate the original physicochemical state of monuments/artefacts.

Dates: 07 – 11 July, 2014
Venue: Colombo, Sri Lanka
Participation: 26 participants, 1 IAEA staff and 2 experts

Title: Regional Group Training on the Effective Utilization of XRF Spectrometers for an Optimized and Accurate Air Particulate Matter (APM) Analysis

Purpose: To provide basic and advanced information on the effective utilization of XRF spectrometers for the determination of the elemental composition of Air Particulate Matter (APM) samples. The Regional Group Training will provide understanding on data acquisition and generation of error and Minimum Detection Limit (MDL) matrices for Excel macros as required by PMF2-DOS software used for APM source apportionment. The training topics will include fundamental principles of XRF analysis and main elements of qualitative and quantitative analysis, specific features of the XRF laboratory instrumentation for APM analysis; More advanced topics regarding the optimization of the instrumental settings during the XRF measurements, the methodology for thin film calibration and determination of the spectrometer sensitivity per analysed condition, as well as QC/QA issues related to the generation of errors and minimum detection limits, will be also included and discussed extensively in the training programme sessions. The benefits and limitations of XRF analysis versus other Nuclear Analytical Techniques (NATs like PIXE, NAA) will be highlighted to improve the participants understanding on the analytical complementarity of different NATs.

Dates: 28 July – 01 August, 2014
Venue: Lower Hutt, New Zealand
Participation: 10 participants and 1 lecturer

Title: Regional Training Course on Quality Assurance of Fingerprint and Source Apportionment of Air Particulate Matter (APM)

Purpose: To evaluate and perform QA of all analytical data collected so far by the RCA Government Parties concerning elemental analyses of Air Particulate Matter samples by means of Nuclear Analytical Techniques. The course aims to assist participants how to utilize PMF2-DOS software package in a precise way understanding differences between US-EPA1, US-EPAPMF-3 and PMF2-

DOS.The course is designed for participants that have user skills of PMF2-DOS. It is expected that the course will provide to the participants the knowledge and capacity to perform independently fingerprint and pollution source identification and apportionment. The course will provide to the participants with expert tools for source apportionment required by the project RAS7023.

Dates: 22 – 26 September, 2014
Venue: Vienna, Austria
Participation: 18 participants and 2 lecturers

Title: Regional Group Training on the utilization of Synchrotron Radiation Techniques for Advanced Analytical Studies on Air Pollution

Purpose: To provide introductory knowledge and hands on experience and practice on the utilization of synchrotron radiation techniques for air pollution studies and in particular for the analytical characterization of Air Particulate Matter. The topics of the training course will include introduction to synchrotron radiation sources and instrumentation, Synchrotron Induced Micro-XRF analysis (SyMicro-XRF) and imaging and to X-ray Absorption Fine Structure Methodologies (XAFS). The training course will highlight the analytical capabilities and differences of SyMicro-XRF analysis with respect to laboratory XRF spectrometers and the unique possibilities for chemical speciation studies.

Dates: 04 – 07 November, 2014
Venue: Trieste, Italy
Participation: 12 participants, 1 IAEA staff and 2 lecturers.

19. Supporting Nuclear and Isotopic Techniques to Assess Climate Change for Sustainable Marine Ecosystem Management. (RAS/7/024)

Objectives: To use Nuclear and Isotopic Techniques to assess climate change for sustainable marine ecosystem management.

Expected impact: Improved understanding of the impact of climate change on marine organisms and their accumulation of essential elements and contaminants through effective utilization and application of nuclear techniques.

1st Year of Approval: 2012
Duration: 3 years (2012-2015)
Technical Officers: Mr Marc Metian
Programme Management Officer: Mr Massoud Malek
Lead Country Coordinator: Ms Adelina Dela Mines-Bulos (PHI)

Participating Countries: Australia, Bangladesh, China, India, Indonesia, Malaysia, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Sri Lanka, Thailand, and Viet Nam.

Project Activities in 2014
Regional Events:

Title: Workshop on integration of nuclear and isotopic data on climate change and marine ecosystem regional impacts

Purpose: To review and integrate data generated through the TC project RAS/7/024, and interpret the ecological implications in relation to climate change and ecosystem management, formulate conclusions in an easily understood product for non-scientist stakeholders concerning climate change impacts and management of marine ecosystems in the region, produce practical informational packages based on scientific findings and the outcome statement, discuss and identify a format and location for storage and maintenance of project data in a database for open access and review the implementation of the project and work plan activities for 2015 (if extension is requested and approved), given the availability of additional PUI extra-budgetary funds in support of this project.
Dates: 08 – 12 December, 2014
Venue: Monaco, Monaco
Participation: 17 participants

Annex 1: National RCA Representatives

Country	Name and Address	Contact Numbers
AUSTRALIA	**Mr Steven Mcintosh** Head International Relations ANSTO Private Mail Bag 1 Menai, Lucas Heights NSW 2234, Sydney	Tel: +61 29717 3699 E-mail: Steven.McIntosh@ansto.gov.au
BANGLADESH	**Mr Monirul Islam** Chairman Bangladesh Atomic Energy Commission, Dhaka-1 207	Tel: +88-02-8181766/806 Fax: +88-02-8181842/45 Private: +88-02-9897063 Mobile: +8801554330547 E-mail: engr.monir57@gmail.com
CAMBODIA	**Mr Chan Sodavath** Deputy Director General of Energy General Department of Energy Ministry of Mines and Energy Pasteur Street (51) Sangkat Phsar Thmey 3, Khan Daun Penh Phnom Penh	Tel: +855-12-895 454 +855-11-818 144 Email: sodavath@yahoo.com; sodavath@hotmail.com
CHINA	**Mr Yongde Liu** Director-General Department of International Cooperation China Atomic Energy Authority (CAEA) A8, Fuchenglu, Haidian District, Beijing, 100037	Tel: +86-10-8858 1230 Fax: +86-10-8858 1516 E-mail: ydliu@caea.gov.cn
FIJI	**Ms Setaita Tupua Kalou** Director of the UN Treaties &Americas/Africa/Middle East/Europe Ministry of Foreign Affairs and International Cooperation Level 1 & 2, Southwing Bose Levu Vakaturaga Complex, Government Buildings, 87 Queen Elizabeth Drive, Nasese	Tel: +67 93 309645 Fax: +67 93 311741 Email: setaitakalou@gmail.com

	PO Box 2200 Suva	
INDIA	**Ms Thyagarajan Sakuntala** International Collaboration & Planning Division Nuclear Control & Planning Wing (NCPW) Department of Atomic Energy OYC Building, CSM Marg Mumbai 400 001	Tel: +91-22-22040324 Fax: +91-22-23635962 E-mail:sakuntala@dae.gov.in sakrish09@gmail.com
INDONESIA	**Mr Ferhat Aziz** Deputy Chairman for Basic Research and Application National Nuclear Energy Agency of Indonesia (BATAN) Jl.K. H. Abdul Rohim, Kuningan Barat, Mampang Prapatan- Jakarta 12710	Tel: +62-21-5253703 (Direct) Fax: +62-21-5251110 E-mail: ferhat@batan.go.id
JAPAN	**Mr Kenichi Bessho** Director International Nuclear Energy Cooperation Division Disarmament, Non-proliferation and Science Department Foreign Policy Bureau Ministry of Foreign Affairs 2-2-1, Kasumigaseki, Chiyoda-ku, Tokyo, 100-8919	Tel: +81-3-5501-8000 Fax: +81-3-5501-8230 E-mail: kenichi.bessho@mofa.go.jp
KOREA, REP. OF	**Mr Seung-Ho Hong** Director Space, Nuclear and Big Science Cooperation Division Space & Nuclear Policy Bureau Ministry of Science, ICT and Future Planning 47, Gwanmun-ro, Gwacheon-si, Gyeonggi-do	Tel: +82 2 2110 2790 Fax: +82 2 2110 0220 Mobile: +8210 8615 9707 Email: shhong@msip.go.kr
MALAYSIA	**Mr Dahlan Mohd** Senior Director (Management), Malaysian Nuclear Agency Banji 43000 Kajang, Selangor	Tel: +603 89 252320 Fax: +603 89 253827 Private: +6019 380 0678 E-mail: dahlan@nuclearmalaysia.gov.my

MONGOLIA	**Mr Zuzaan Damdinsuren** Director Nuclear and Radiation Regulatory Department Nuclear Energy Agency Uildverchin Street 2, Khan Uul District P.O. Box 46/99A Ulaanbaatar 210646	Tel: +976 62263159 E-mail: z.damdinsuren@nea.gov.mn
MYANMAR	**Mr Khin Maung Latt** Deputy Director General Department of Atomic Energy Ministry of Science and Technology Building No. 21 Nay Pyi Taw	Tel: +95 67 404277 Fax: +95 67 404288 +95 67 404461 E-mail: most18@myanmar.com.mm sayarkyee9@gmail.com
NEPAL	**Mr Padam Raj Devkota** Senior Plant Protection Officer Ministry of Science and Technology Singha Durbar Kathmandu	Tel: +977 1 4211598 Fax: +977 1 4211954 Mobile: +977 9841940463 Email: devkotapr@hotmail.com
NEW ZEALAND	**Mr Christopher Daughney** Acting Director National Isotope Centre PO Box 31-312, Lower Hutt 5040	Tel: +64 4 570 1444 Fax: +64 4 570 4657 E-mail: c.daughney@gns.cri.nz rca-new-zealand@gns.cri.nz
PAKISTAN	**Mr Syed Shaukat Hasan** Director General Pakistan Atomic Energy Commission (PAEC), P.O. Box No. 1114, Islamabad	Tel: +92 51 920 1862 Fax: +92 51 920 4908 Mobile: +92 30 28500784 E-mail: shaukat_hasan@yahoo.com dg_iat@yahoo.com
PALAU	**Mr Jeffrey Antol** Director Bureau of Foreign Affairs Ministry of State 100 Capitol Building Melekeok, PO Box 1000 The National Capitol Koror 96940	Tel: +680 767 2509/2490 Fax:+680 7672443 /3680/2424 E-mail: foreignaffairs@palaumos.net minister@palaumos.net
PHILIPPINES	**Ms Alumanda De La Rosa** Director Philippine Nuclear Research Institute	Tel: +63 2 929 4719/8738 Fax: +63 2 9201646 +63 2 9294719

	Commonwealth Avenue P.O. Box 213, Diliman Quezon City 1101	E-mail: amdelarosa@pnri.dost.gov.ph
SINGAPORE	**Mr Kok Kiat Ang** Director National Environment Agency (NEA) Environment Building, 3rd Storey, Annex Block 40 Scotts Road	Tel: +65 6731 9675 Fax: +65 6731 9585 E-mail: ang_kok_kiat@nea.gov.sg
SRI LANKA	**Mr Cyril Kasige** Director of General Scientific Division Sri Lanka Atomic Energy Board (SLAEB) 60/460, Baseline Road, Orugodawatta Wellampitiya Colombo	Tel: +9411 2533427 Fax: +9411 253448 E-mail:ckasige@aea.gov.lk
THAILAND	**Ms Atchararat Chaimuanwong** General Secretary Office of Atoms for Peace (OAP) Ministry of Science and Technology (MOST) 16 Vibhavadi Rangsit Road 10900 Bangkok	Tel: 66259676001522 Fax: 66259676001522 E-mail: atchararat@oaep.go.th
VIET NAM	**Mr Vuong Huu Tan** Director General, Viet Nam Agency for Radiation and Nuclear Safety (VARANS) 14th Floor, 113 Tran Duy hung Hanoi	Fax: +84 4 38220298 Mobile.: +84 91 3249400 E-Mail: vhtan@varans.vn

Annex 2: List of RCA Projects in 2014

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
1.	RAS0068	Enhancing the Management of the Regional Agreement and Programme (RCA)	2014-2015	**N/A**	Mr Hoang	On-going
2.	RAS1012	Characterizing and Optimizing Process Dynamics in Complex Industrial Systems Using Radiotracer and Sealed Source Techniques	2012-2014	**Mr Ghiyas-ud-Din** PS, Industrial Application Group, IAD, PINSTECH, Islamabad PAKISTAN **Tel:** +92-51-2208031 **Fax:** +92-51-9248808 **E-mail:** ghiyas@pinstech.org.pk	Mr Lee	Closed in 2014
3.	RAS1013	Supporting Advanced Non-Destructive Examination for Enhanced Industrial Safety, Product Quality and Productivity	2012-2014	**Mr Gursharan Singh** Associate Director (I) Head, Isotope Application Division Isotope Applications Division (IAD) Department of Atomic Energy (DAE) Trombay MUMBAI, Maharashtra 400 085 INDIA **Tel:** +91 22 2559 3735 **Fax:** +91 22 2559 3299 **EMail:** gsingh@barc.gov.in gsingh@apsara.barc.ernet.in	Mr Lee	Closed in 2014

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
4.	RAS1014	Supporting Radiation Processing for the Development of Advanced Grafted Materials for Industrial Applications and Environmental Preservation	2012-2015	**Mr Kamarudin Bin Hashim** Division of Radiation Processing Technology Malaysian Nuclear Agency 43000 Kajang Selangor MALAYSIA **Tel:** +60 3 89282912 **Fax:** +60 3 89202968 **Email:** kbhashim@nuclearmalaysia.gov.my	Mr Hoang	On-going
5.	RAS1020	Building Capacity for Applications of Advanced Non-Destructive Evaluation Technologies for Enhancing Industrial Productivity (RCA)	2014-2017	**Mr Umesh Kumar** Head, Industrial Tomography & Instrumentation Section, Isotope Production & Applications Division, Radiochemistry Chemistry & Isotope Group, BARC, Trombay, Mumbai-400085. INDIA **Tel:** +91-22-25593966 (O) +91-22-25580763 (R) **Fax:** +91-22-25505151 **Email**: umeshkum@barc.gov.in	Mr Wolde	On-going
6.	RAS5055	Improving Soil Fertility, Land Productivity and Land Degradation Mitigation	2012-2015	**Mr Hendrik Heijnis** Senior Principal Research Scientist Environmental Radioactivity Measurement Centre, Institute for Environmental Research Australian Nuclear Science and Technology	Mr Kurylchyk	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
				Organisation (ANSTO), New Illawarra Road, Lucas Heights Nsw, Sydney AUSTRALIA **Tel:** +61 2 9717 9086 **Fax:** +61 (2)97179270 **E-mail:** hhx@ansto.gov.au henk.heijnis@ansto.gov.au hendrik.heijnis@gmail.com		
7.	RAS5056	Supporting Mutation Breeding Approaches to Develop New Crop Varieties Adaptable to Climate Change	2012-2015	**Mr Liu Luxiang** Institute of Crop Sciences, Chinese Academy of Agricultural Sciences 12, Zhongguancun South Street, Beijing, 100081 P.R.CHINA **Tel:** +86 10 62122719 **Fax:** +86 10 68975212 **E-mail:** luxiang@263.net.cn	Mr Lee	On-going
8.	RAS5057	Implementing Best Practices of Food Irradiation for Sanitary and Phytosanitary Purposes	2012-2014	**Ms Gao Meixu** Institute for Application of Atomic Energy, Chinese Academy of Agricultural Sciences (CAAS) 2, Yuanmingyuan West Road, P.O. Box 5109, Beijing, 100094 P.R.CHINA **Tel:** +86 10 62815961	Mr Hoang	Closed in 2014

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
				Fax: +86 10 62895356 **E-mail:** meixugao@21cn.com		
9.	RAS5070	Developing Bioenergy Crops to Optimize Marginal Land Productivity through Mutation Breeding and Related Techniques (RCA)	2014-2017	**Mr Soeranto Human** Centre for Application of Isotopes and Radiation Technology (PATIR); National Nuclear Energy Agency (BATAN) P.O. Box 7002 Jalan Lebak Bulus Raya No.49 Jakarta Selatan, INDONESIA **Tel:** +62217690709 **Fax:** +62217691607 **Email:** ranto@batan.go.id	Mr Hoang	On-going
10.	RAS5071	Strengthening Adaptive Climate Change Strategies for Food Security through the use of Food Irradiation (RCA)	2014-2016	**Ms Zenaida M. De Guzman** Atomic Research Division, Philippine Nuclear Research Institute Diliman Quezon City PHILIPPINES **Fax:** +932-9259211 **Email:** zmdeguzman@pnri.dost.gov.ph	Mr Hoang	On-going
11.	RAS6053	Improving Image Based Radiation Therapy for Common Cancers in the RCA Region	2009-2015	**Mr Takashi Nakano** Professor, Department of Radiation Oncology, Gunma University Graduate School of Medicine JAPAN	Mr Malek	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
				Tel: +81-27-220-8380 **Fax**: +8127-220-8397 **E-mail**: tnakano@med.gunma-u.ac.jp		
12.	RAS6061	Improving Cancer Management with Hybrid Nuclear Medicine Imaging	2012-2014	**Mr Venkatesh Rangarajan** Head, Nuclear Medicine, Tata Memorial Hospital, Parel, Mumbai-400 012 INDIA **Tel**: +91-22 24177143 **Fax**: +91-22 24146937 **Mobile**:+91-9969014183 **Email**: drvrangarajan@hotmail.com	Mr Kurylchyk	Closed in 2014
13.	RAS6062	Supporting 3D Image-Guided Brachytherapy Services	2012-2015	**Mr Shingo Kato** Department of Radiation Oncology International Medical Center Saitama Medical University 1397-1, Yamane Hidaka, Saitama 350-1298 JAPAN **Tel:** +81 42 9844531 **Fax:** +81 42 9844741 **E-mail:** s_kato@saitama-med.ac.jp	Mr Malek	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
14.	RAS6063	Strengthening the Application of Nuclear Medicine in the Management of Cardiovascular Diseases	2012-2014	**Mr Orestes P. Monzon** Nuclear Medicine Department Philippine Heart Center East Avenue 1100 Quezon City PHILIPPINES **Tel:** +63 2 9252401 **Fax:** +63 2 9510159 **E-mail:**:voices4life@gmail.com	Mr Kurylchyk	Closed in 2014
15.	RAS6064	Building Capacity with Distance Assisted Training for Nuclear Medicine Professionals	2012-2014	**Ms Heather Elizabeth Patterson** Research Institute for Asia and the Pacific University of Sydney Room 205 Old Teachers College Manning Road Sydney, NSW 2006 AUSTRALIA **Tel:** +61 2 90365148 **Fax:** + 61 2 93518562 **Email:** heather.patterson@sydney.edu.au	Mr Wolde	Closed in 2014

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
16.	RAS6065	Strengthening the Application of Stereotactic Body Radiation Therapy to Improve Cancer Treatment	2012-2015	**Mr Chul-Koo Cho** Director General Division of Medical Services Korea Institute of Radiological and Medical Sciences (KIRAMS) 215-4 Gong Neung Dong, Nowon-Ku Seoul 139-706 KOREA, REPUBLIC OF **Tel:** +82-2-970-2007 +82 2 9701263 **Fax:** +82 2 9701360 **E-mail:** chcho@kirams.re.kr	Mr Hoang	On-going
17.	RAS6066	Reducing the Shortage of Oncology Professionals through an Applied Sciences of Oncology Course (ASOC)	2012-2014	**Mr Michael Barton** Liverpool Hospital Elizabeth Street Sydney, NSW 2170 AUSTRALIA **Tel**: +61 2 98286541 **Fax**: +61 2 98286670 **E-mail:** Michael.Barton@sswahs.nsw.gov.au	Mr Wolde	Closed in 2014
18.	RAS6071	Strengthening Radionuclide Therapy for High Impact Cancer Treatment Strategy in Member States of the Regional Cooperative Agreement (RCA)	2014-2016	**Mr Sudeep Gupta** Advanced Centre for Treatment, Research & Education in Cancer (ACTREC), Tata Memorial Centre PS-305, CRC Building, Sector 22, Kharghar	Mr Hoang	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
				Navi Mumbai - 4 Maharashtra Mumbai INDIA **Mobile:** + 9122 27405034 33 **E-mail:** Sudeep.gupta@actrec.gov.in		
19.	RAS6072	Strengthening Intensity Modulated Radiation Therapy Capability in the Region (RCA)	2014-2016	**Mr Takashi Nakano** Gunma University Graduate School of Medicine Department of Radiation Oncology 3-39-22 Showa-machi, Maebashi-shi, Gunnma, 371-8511, JAPAN **Tel:** +81-27-220-8380 **Fax:** +81-27-220-8397 **E-mail:** tnakano@gunma-u.ac.jp	Mr Hoang	On-going
20.	RAS6076	Improving Cancer Management Through Strengthening the Computed Tomography Cancer Staging Process (RCA)	2014-2016	**Mr Kie-Hwan Kim** Korea Cancer Center Hospital; Korea Institute of Radiological and Medical Sciences (KIRAMS) 215-4, Gongneung-Dong, Nowon-Ku Seoul 139-706 KOREA, REPUBLIC OF **Tel:** +82 2 9701252 **Fax:** +82 2 970 2433 **Mobile:** +82 10 5532 2862 **E-mail:** khkim@kirams.re.kr	Mr Lee	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
21.	RAS6077	Strengthening the Effectiveness and Extent of Medical Physics Education and Training (RCA)	2014-2017	**Mr Donald McLean** 10 Moodie Street, Farrer Canberra, ACT 2607 AUSTRALIA Fax: 61 26244 3819 EMail: Donald.McLean@act.gov.au	Mr Malek	On-going
22.	RAS7021	Marine benchmark study on the possible impact of the Fukushima radioactive releases in the Asia-Pacific Region	2011-2015	**Mr Ron Szymczak** Tradewinds, 205/4 Boorima Place Cronulla, NSW 2230 AUSTRALIA Tel: +61-405 630 425 Email: ron.szymczak@bigpond.com	Mr Hoang	On-going
23.	RAS7022	Applying Isotope Techniques to Investigate Groundwater Dynamics and Recharge Rate for Sustainable Groundwater Resource Management	2012-2015	**Mr Muhammad Azam Tasneem** Head IAD, PINSTECH, P.O. Nilore, Islamabad PAKISTAN **Tel**: +92-51-2208038 **Fax**: +92-51-9248808 **E-mail:** azamtasneem@pinstech.org.pk Azam_tasneem@yahoo.com	Mr Hoang	On-going
24.	RAS7023	Supporting Sustainable Air Pollution Monitoring Using Nuclear Analytical Technology	2012-2015	**Mr Andreas Markwitz** Principal Scientist National Isotope Centre	Mr Wolde	On-going

	Project Number	Project Title	Implementation Period	Lead Country Coordinator (LCC)	PMO	Status
				GNS Science 30 Gracefield Road P.O. Box 31-312 Lower Hutt 5040 NEW ZEALAND **Tel:** +64 4 570 4785 **Fax:** +64 4 570 4657 **Email:** a.markwitz@gns.ri.nz		
25.	RAS7024	Supporting Nuclear and Isotopic Techniques to Assess Climate Change for Sustainable Marine Ecosystem Management	2012-2015	**Ms Adelina De La Mines-Bulos** Philippine Nuclear Research Institute Quezon City PHILIPPINES **Tel**: +632 929 6011-19 ext. 225/240 **Email**: ambulos@pnri.dost.gov.ph	Mr Malek	On-going

Annex 3: Projects Closed in 2014

Project Number	Title
RAS1012	Characterizing and Optimizing Process Dynamics in Complex Industrial Systems Using Radiotracer and Sealed Source Techniques
RAS1013	Supporting Advanced Non-Destructive Examination for Enhanced Industrial Safety, Product Quality and Productivity
RAS5057	Implementing Best Practices of Food Irradiation for Sanitary and Phytosanitary Purposes
RAS6061	Improving Cancer Management with Hybrid Nuclear Medicine Imaging
RAS6063	Strengthening the Application of Nuclear Medicine in the Management of Cardiovascular Diseases
RAS6064	Building Capacity with Distance Assited Training for Nuclear Medicine Professionals
RAS6066	Reducing the Shortage of Oncology Professionals through an Applied Sciences of Oncology Course (ASOC)

Annex 4: Planned Regional Events under RCA Projects in 2015

Proposed Date	Project Number	Title	Proposed Host Country	PMO
19 – 22 Jan.	RAS6065	Regional Training Course: An update on advanced technologies in radiotherapy	Hiroshima, Japan	Mr Hoang
20 – 22 Jan.	RAS0068	Working Group Meeting for RCARO's Future Role	Jeju, Korea	Mr Hoang
21 – 23 Jan.	RAS6077	Meeting on Developing Standards for Accreditation of facilities for Medical Physics Clinical Training	Kuala Lumpur, Malaysia	Mr Malek
09 – 13 Feb.	RAS1014	Regional Training Course on Advanced Characterization Methods of Grafted Polymeric Matric	Kuala Lumpur, Malaysia	Mr Hoang
12 – 13 Feb.	RAS0068	Working Group on Proposed Amendments to the RCA Agreement	Sydney, Australia	Mr Hoang
16 – 20 Feb.	RAS0068	Expert Group Review on RCA Medium Term Strategy (MTS) and Strategic Priorities	Vienna, Austria	Mr Hoang
23 – 25 Feb.	RAS6077	Meeting on Developing E-learning Structure for Clinical Training of Medical Physicists in Nuclear Medicine	Bangkok, Thailand	Mr Malek
13 Mar.	RAS0068	RCA Programme Advisory Committee (PAC)	Seoul, Korea	Mr Hoang
16 – 19 Mar.	RAS0068	37th Regional Meeting of National RCA Representatives (NRM)	Islamabad, Pakistan	Mr Hoang
16 – 20 Mar.	RAS5071	First Meeting on Strengthening Adaptive Climate Change Strategies for Food Security through the Use of Food Irradiation	Bangkok, Thailand	Mr Hoang
23 – 27 Mar.	RAS5070	Workshop on Mutation Breeding and Supportive Techniques for Development of Bioenergy Crops	Vienna, Austria	Mr Hoang
23 – 27 Mar.	RAS6062	Regional Training Course Focused on the Implementation of Image-Guided Brachytherapy	Singapore	Mr Malek

23 – 27 Mar.	RAS6072	Workshop on Accidents in Radiotherapy and the Role of Audit (for radiation oncology and medical physicists)	Argonne, USA	Mr Hoang
13 – 17 Apr.	RAS1014	Regional Training Course on Application and Up Scaling of Radiation Grafting for Environmental and Industrial Applications	Beijing, China	Mr Hoang
13 – 17 Apr.	RAS6071	Regional Training Course on the Use of Nuclear Medicine Techniques in the treatment of Thyroid cancer, Bone Pain Palliation and Peptide Receptor Radioisotope Therapy for Neuro Endocrine Tumors	Quezon City, Philippines	Mr Hoang
13 – 17 Apr.	RAS6072	Expert Steering Meeting to Develop Training Course Materials and Methods in IMRT	Gunma, Japan	Mr Hoang
20 – 24 Apr.	RAS7021	Workshop to Review Implementation of QMS Programme	Quezon City, Philippines	Mr Hoang
25 – 29 May	RAS6077	Technical meeting on Moodle website development to support medical physics clinical training	Canberra, Australia	Mr Malek
26 – 29 May	RAS6076	Mid-Term Review Meeting	Kathmandu, Nepal	Mr Lee
25 May – 05 Jun.	RAS1020	Regional Training Course in DIR and Industrial CT for the Trainers for Participants from RCA MSs, who developed significant infrastructure and would be engaged in training programmes at their national level	Selangor, Malaysia	Mr Wolde
07 – 12 Jun.	RAS5055	Regional Training Course for Member States with Basic Knowledge of Fallout Radionuclides, Compound Specific Stable Isotopes and Greenhouse Gases	Kathmandu, Nepal	Mr Kurylchyk
08 – 12 Jun.	RAS7023	Workshop on Regional APM to Complete ADAP and ASFID (Australasian Source Fingerprint Identification Database) Databases	Daejeon, Korea	Mr Wolde
06 – 10 Jul.	RAS7021	Expert Meeting to review data and prepare reports for the Final Project Assessment Meeting	Monaco	Mr Hoang
20 – 24 Jul.	RAS6065	Regional Training Course on Clinical Application of SBRT in Prostate and Spinal Cancers.	Sydney, Australia	Mr Hoang
26 – 30 Jul.	RAS1020	Regional Training Course on Applications of DIR and CT for Metal, Non-metal & Composite Materials	Dhaka, Bangladesh	Mr Wolde
2 days Jul.-Nov.	RAS5055	Site demonstration visit for key stakeholders and decision makers [optional]	TBD	Mr Kurylchyk

03 – 07 Aug.	RAS6053	Regional Training Course on Improving Image Based Radiation Therapy for Common Cancers in the RCA Region (RCA)	Houston, USA	Mr Malek
24 – 28 Aug.	RAS5056	Final Project Assessment Meeting	Bangkok, Thailand	Mr Lee
24 – 28 Aug.	RAS5070	Regional Training Course on the Application of Mutation Breeding and Screening of Target Traits in Bioenergy Crops	Beijing, China	Mr Hoang
07 – 11 Sep.	RAS1014	Executive Meeting for end-user and policy makers meeting on Radiation Grafting for Industrial Applications and Environmental Preservation	Takasaki, Japan	Mr Hoang
07 – 11 Sep.	RAS6076	Regional Training Course on CT Staging in Cancer with Emphasis on Thorax and Musculoskeletal System	Beijing, China	Mr Lee
11 Sep.	RAS0068	44th General Conference Meeting of National RCA Representatives	Vienna, Austria	Mr Hoang
09 – 13 Sep.	RAS6072	Regional Training Course on Basics of IMRT	Melbourne, Australia	Mr Hoang
12 – 16 Oct.	RAS5055	Final Project Review Meeting	Perak, Malaysia	Mr Kurylchyk
19 – 23 Oct.	RAS7024	Final Project Progress Meeting	Malaysia	Mr Malek
02 – 06 Nov.	RAS7021	Final Project Assessment Meeting	Tokyo, Japan	Mr Hoang
09 – 13 Nov.	RAS6065	Final Project Assessment Meeting	Jeju, Korea	Mr Hoang
09 – 13 Nov.	RAS7023	Final Project Coordination Meeting	Lower Hutt, New Zealand	Mr Wolde
09 – 13 Nov.	RAS1020	Expert Group Meeting to Finalise the Document on Guidelines for Development of Lab-scale CT system. Syllabus for RTC on CT	Jakarta, Indonesia	Mr Wolde
16 – 20 Nov.	RAS5071	Regional Workshop on Strategy for Development and Dissemination of Information Material for Regional Stakeholders	Ho Chi Minh City, Viet Nam	Mr Hoang

16 – 20 Nov.	RAS6062	Final Progress Assessment Meeting	Japan	Mr Malek
23 – 27 Nov.	RAS6072	Regional Training Course on site-specific H&N and brain IMRT	Mumbai, India	Mr Hoang
23 – 27 Nov.	RAS7022	Final Review Meeting	Bali, Indonesia	Mr Hoang
30 Nov. – 04 Dec.	RAS1014	Final Project Meeting	Bangkok, Thailand	Mr Hoang

Annex 5: RCARO's Actions Related to Promotional and other Non-Technical Activities in 2014

1. Increasing the awareness of RCA

1.1 Publicity activities for increasing RCA's awareness

1.1.1 Publication of a RCA brochure for general public

Following the booklet prepared for decision makers in 2013, the leaflet for general public was prepared as a draft version by RCARO and presented to the 36th NRM. As advised at the meeting, comments from NZE, PHI and Mr John Easey were shared and reflected on the draft. With those comments reflected, RCARO finalized and published the RCA leaflet. Copies were distributed to the Government Parties (GPs) and relevant stakeholders, and handed out for the promotional uses on appropriate occasions to the general public.

1.1.2 Updating RCA promotional video

Since its production in 2011, the RCA promotional video has been used widely and effectively at the regional/international events to promote RCA and its activities and also in the GPs for their promotional uses at national level.
RCARO updated the video by reflecting any changes made from GPs, the National RCA Representatives and RCA projects. In order to meet the needs of short version of the video, RCARO is in the middle of preparation containing summarized information about the RCA. A draft version will be presented to the 37th NRM.

1.2 Enhanced RCA information service through the RCA Website

Recognizing the notable increase of daily hits of the RCA website, RCARO continued maintaining and updating the RCA website with information on RCA and its activities; policy meetings (NRM, GCM), projects and news for the GPs.

RCARO is in the process of preparing a working paper entitled "Review of the RCA web service and recommendations for improved access system". The paper will be submitted to the 37th NRM.

1.2.1 Updating data on RCA and RCA projects

With assistance of temporary staff, RCARO has updated data of the GPs and relevant stakeholders on the RCA website.

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

RCARO has made its efforts to promote RCA and its activities to target audiences in order to enhance awareness of RCA in the beneficial application of nuclear science and technology and build partnerships with regional and international organizations.

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

Upon approval of the 36th NRM, RCARO has participated in the following conferences. The RCA brochure, Success Stories and promotional video were disseminated for promotional purposes at the events below:

- 2nd International Conference on Radiation and Dosimetry in Various Fields of Research, 27- 30 May 2014 in Nis, Serbia
- 8th International Conference on Isotopes (ICI), 24-28 August, Chicago, USA

As for the participation in the South Pacific Environmental Radioactivity Conference held on 1- 4 September in Darwin, Australia, RCARO provided financial support to the expert from AUL with RCA promotional materials including RCA brochures, Success Stories and banners.

For the participation in the international/regional conferences to be held in 2015, the 18th SAC recommended RCARO to conduct a survey and present its results on possible conferences to be attended at the SAC meeting before the GCM in the year before the conferences to be held. By following the advice from the SAC, RCARO conducted a survey with a participation of NRs and IAEA, and then collected results on 13 conferences from CPR and NZE as shown below:

- International conference on Medical Physics, radiation Protection and radiobiology, 20-22 February 2015, Jaipur, India
- 10th International Conference of Methods and applications of Radioanalytical Chemistry, April 12 -17 2015, Honolulu, USA
- ASME Boiler & Pressure Vessel Code Week, Apr. 16-May 1, 2015, Colorado, USA
- International Symposium on Isotope Hydrology: Revisiting Foundations and Exploring Frontiers, 11 – 15 May 2015, Vienna, Austria
- ICNMB 2015: International Conference on Nuclear Medicine and Biology, May 14 – 15 2015, Amsterdam, The Netherlands
- 15th International Congress of Radiation Research, 25-29 May 2015, Kyoto, Japan
- Society of Nuclear Medicine and Molecular Imaging 2015 Annual Meeting, June 6-10 2015, Baltimore, USA
- 20th International Conference on Radionuclide Metrology and its Applications, June 8-11 2015 Vienna, Austria
- Isotopes 2015, June 21-26 2015, Jerusalem, Israel
- Applied Isotope Geochemistry Conference, 21- 25 September 2015, Orléans, France
- 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference, 30 October – 8 November 2015, San Diego, USA
- 28th Annual Congress of the European Association of Nuclear Medicine, 10 - 14October 2015, Hamburg, Germany
- International NDT Conference and Exhibition, 23-25 November 2015, Kuala Lumpur, Malaysia

Amongst above events, the 43rd GCM approved RCARO's participation to the below conferences in 2015:

- 15th International Congress of Radiation Research, 25-29 May 2015, Kyoto, Japan
- Applied Isotope Geochemistry Conference, 21- 25 September 2015, Orléans, France
- International NDT Conference and Exhibition, 23-25 November 2015, Kuala Lumpur, Malaysia

1.3.2 Support the RCA experts for increasing the awareness and promotion of RCA

RCARO supports RCA experts on their activities which could enhance awareness of the RCA and its activities.
For the programme cycle until the end of August 2014, RCARO successfully supported two selectees from AUL and PHI for their participation in the international conferences held in May and June 2014 expecting RCA promotional activities.

In consultation with SAC, RCARO established and finalized comprehensive guidelines for future programmes including timetable, a projected number of experts to be supported, budget, decision process.

For the next cycle from September 2014 to August 2015, RCARO invited the RCA GPs for the nominations of appropriate RCA experts, and received a total of 13 nominations from 6 GPs (CPR, BGD, INS, MON, PAK and PHI). Based on the guidelines of the programme and budget availability of the RCARO, RCARO selected a total of 4 nominees from CPR, BGD, INS, and PHI. RCARO supported selectees from PHI and BGD for their RCA promotional activities at the participating conferences which were held in October and December 2014 respectively.

2. Implementation of RCA/ UNDP partnership project on nuclear imaging technology

2.1 Publication of the final report

Upon completion of the project, RCARO published a final report on the activities, outcomes and achievements of the project in cooperation with LCC and NPCs of participating GPs. The report was distributed to the relevant stakeholders including the RCA GPs, UNDP, IAEA, etc.

2.2 Monitoring and submission of progress reports

As recommended by the 17th SAC to monitor the impact and sustainability after its completion, RCARO received progress reports from the NPCs and submitted the summary to the 43rd GCM.

According to the progress reports submitted, 10 participating GPs conducted 45 activities in a national scale such as national training courses, meetings with total of 6,375 local participants (female-3,508, male-2,442, not specified-425) and more than 92,836 patients (male-57,302, female- 25,536, children- 2887, not specified-7,111) were diagnosed or treated by applying with the gained knowledge and skills gained from the project. There were also some success stories on exact diagnosis of a 65 year old patient and treatment of a haemophilic patient in Bangladesh and the Philippines.

3. Implementation of RCA/UNDP partnership project on Electron Beam (EB) applications

Since November 2012, RCARO has been carrying out the RCA/UNDP project on electron beam applications for value addition to food and industrial products and degradation of environmental pollutants in the Asia Pacific region.

3.1 Conducting Regional Training Courses (RTCs)

According to the decision at the 2013 annual review meeting, two separate RTCs for the field of advanced material were combined to one RTC consisting of two weeks and two persons from each participating country. The goal of the RTC was to train beginners with basic knowledge to the person with advanced knowledge on EB technology.

In cooperation with the LCC, two regional training courses (RTCs) were held in Advanced Radiation Technology Institute (ARTI), Korea as follows:
RTC on basic and advanced knowledge and hands-on experiment on EB application for advanced material for two weeks on 14-25 April 2014
RTC on basic and advanced knowledge and hands-on experiment on EB application for food products for one week on 16-20 June 2014

A total of 33 participants coming from 11 countries participated in the RTCs and got trained with knowledge on basic and advanced level covering EB irradiation and its applications by conducting experiments at the radiation facilities in ARTI.

3.2 Monitoring and submission of the progress/annual and financial reports

A "satisfaction survey" on the RTCs was conducted after the completion of the courses and turned out with positive results addressing that the courses reached their goals in terms of training programme, information sharing, training material and quality and content of lectures. Around 80% of participants were satisfied with the courses.
Out of 16 participating countries, 14 national progress reports were received from the NPCs of the project. Involving around 1,937 participants, the participating countries conducted activities in a national scale covering R&D activities, training courses, workshops, seminars, exhibition, and meetings to disseminate the gained knowledge and skills to their local institutions and industries.
By following the instruction listed in the UNDP programming manual, progress and financial reports of the project were submitted to the UNDP and UNOPS, accordingly in the early July and December.

3.3 Annual review meeting and evaluation of the project

The annual review meeting was held on 19-20 November in Yangon, Myanmar, with a total of 17 participants including LCC, NPCs and nominated experts from 12 participating countries, RCARO and observers from the Ministry of Science and Technology of Myanmar.

The meeting reviewed the achievements/outcomes of the project in 2014 and set up a detailed work plan for 2015 and concluded as follows:

- As decided in the 2013 annual review meeting, two RTCs of one week each are to be combined to one RTC program consisting of two weeks and two persons from each participating country.
- RTC on environmental remediation will be held on 11-22 May 2015 in ARTI, Korea
- Content of the training material will contain knowledge covering from basic to advanced technology and experimental work. It will also include overall concepts of the project with basic concepts and its application for policy makers/end users/private sector
- Qualification of the participants of the training course will be same as those in 2014 and the course will be open to the policy makers/end users/private sector
- A final review meeting was proposed to be held on 28-29 Oct. 2015 in Siem Reap, Cambodia, or China as an alternative option which will be subject to Government approval.

The meeting also recommended the followings:

- All participating countries are requested to implement all aspects of respective work plans and timely submit precise progress reports to the RCARO.
- It is requested that the UNDP and the RCARO consider extending the project in view of the increasing demand for distribution and sharing of EB technology from the GPs such as Cambodia, Myanmar, Mongolia, Pakistan, Philippines, Sri Lanka considering increased establishment of EB facility in the next few years.

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

4.1 RCARO/KAIST Nuclear Engineering Master's Degree Course

RCARO supported 3 students in 2014: two students from INS and BGD are having the second year of the course and one from MYA was selected for the course in 2014

4.2 RCARO/ARCCNM training course

It was held on 4-8 November in Osaka, Japan, in conjunction with the Japanese Society of Nuclear Medicine, and a total of 33 trainees were supported by the programme.

4.3 RCARO/KAERI regional training workshop

With the support of the NRs of 12 GPs for nominating participants of the workshop, RCARO hosted a regional training workshop in cooperation with the KAERI for 14 participants from 11 GPs on radiation application technology on 13-24 October in Daejeon, Korea.

5. Increased interaction between the Government Parties and the RCARO

5.1 RCARO Fellowship Programme

Recommended by the NRs for the RCARO Fellowship Programme, three persons from MAL, BGD and THA were selected in 2014. They contributed to implementing the RCA/UNDP partnership project on Electron Beam applications; collecting data on RCA projects; collecting information on regional and international events; and updating stakeholder/end-user database on the RCA website.

5.2 Holding a workshop on enhancing RCARO interactions with the Government Parties

As decided by the 36th NRM, a WG was established to consider the future role of the RCARO, including the issues raised in the Strategic Paper reported by the Director RCARO. It is composed of 8 members including Mr John Easey (Chair), Director of RCARO and appointees from CPR, JPN, NZE, PAK, PHI and ROK, respectively.

As recommended at the 18th SAC meeting, RCARO's annual workshop was replaced by a WG meeting to facilitate the WG's review of the issues raised in the Strategic Paper by the Director of RCARO.

The WG meeting entitled "the RCARO's Future Role" was held on 10-12 June 2014 in Jeju, Korea with a total number of 22 participants from eight WG members and relevant stakeholders from ROK, host country of the RCARO. It consisted of three sessions as follows:

Session I: Perspective of the GPs on the RCARO
Session II: The RCARO's Future Role based on the Strategic Paper by the RCARO
Session III: Tasks and Challenges for Implementation of Plans for the RCARO's Future Role

Brief summary of each session including conclusions and recommendations are as follows: During the session I, the NRs of PHI and PAK gave short presentations on their perspectives on the RCARO and concluded that:

- The meeting noted the successful operations and achievements of the RCARO over the past years which had been undertaken with limited resources.
- The contributions of all the GPs to the RCA Programme, including the contribution of ROK to the RCARO, need to have greater emphasis and should be fully documented in all relevant RCA documentation, especially that submitted to the IAEA Technical Cooperation Department.
- The regional nature of the RCARO and its operations should be emphasized.
- The future roles and functions of the RCARO should be fully reflected in its mandate, with due regard to the resources that could be made available.

During the session II, Director of RCARO and Mr Easey provided presentations on five discussion points based on the issues in the Strategic Paper and the importance of taking a needs-based approach to the issues was emphasized, making use of problem/objective trees of relevant discussion point. The discussion points were:

1. Implementation of Supplementary Projects
2. Support of the Research Projects
3. Supporting Training/Education Programmes
4. Coordination of the RCA Working Groups and ad hoc Committees
5. Proposal of the Pilot Project and Recruitment of a Senior Staff Member

The meeting concluded that the above-mentioned initiatives would be beneficial to the overall RCA programme and that the RCARO could support and implement the initiatives if approved by the GPs and adequate funds provided.

It was recommended that the GPs and the IAEA seek ways and consider committing resources to support those activities. It was also recommended that the mandate of the RCARO be adjusted appropriately to be consistent with the increased roles and functions and the WG develop relevant guidelines, procedures and criteria for undertaking those activities.
For discussion point V on recruitment of a senior staff member, the meeting took note of the importance of adequate staffing levels and competencies for the RCARO to be able to implement the projected increased future roles, as well as maintaining its existing functions.

In line with the recommendations of the session II, the session III set up an action plan with timeline and future activities of the WG to further develop the initiatives. The report is uploaded on the RCA website and also reported to the 43rd GCM for NR's consideration and discussion.

6. Other Activities

6.1 Submission of a strategic paper on potential increasing role of the RCARO

As decided at the 42nd GCM on preparing a Strategic Paper on potential increasing role of the RCARO for discussion at the next NRM, RCARO conducted a questionnaire survey to obtain views of the GPs till the end of 2013 as the groundwork for the paper.
Reflecting views and suggestions from the GPs, RCARO drafted a Strategic Paper and submitted to the 18th SAC and the 36th NRM for further discussion.

With respect to the Strategic Paper of the Director of RCARO, the 36th NRM noted the proposal for a pilot project to be fully funded by an extra-budgetary contribution from ROK and in which the RCARO would take the role of LCC and the meeting also agreed that two project concepts for this project would be further developed and forwarded to the RCA Chair. The two project concepts submitted are: one in medical sector using nuclear imaging technology and the other in radiation processing for removing drug toxicity.

In this regard, RCARO prepared two project concepts for a pilot project and submitted to the RCA Chair through the NR of ROK. With positive feedback by the IAEA and approval by the 43rd GCM, the concept proposal on nuclear imaging technology was forwarded to a project design stage and will be further developed according to the given project cycle.

6.2 Participation in the RCA policy related meetings

RCARO participated in the RCA policy related meetings: the 36th NRM in New Zealand and the 43rd GCM in Vienna, Austria. The Director of RCARO made presentation on its activities. In addition, RCARO served as a secretariat for the SAC meetings prior to the meetings above.

6.3 Participation in the RCA Working Groups Meeting

As decided at the 42nd GCM in September 2013 on organizing a meeting of three Working Groups (WGs), including: 1) WG-1 Meeting on evaluating new project concepts for 2016-2017; 2) WG-2 Meeting on updating the RCA GOR; and 3) WG-3 Meeting on developing Medium- Term Strategy (MTS) and Strategic Priorities (SP), a meeting for the above-mentioned WGs was held on 17-21 February in Vienna, Austria. Director RCARO participated in this meeting on 19-21 February as a member of WG-2.

6.4 Participation in the 15th FNCA Coordinators Meeting

On behalf of the RCA, RCARO participated in the FNCA meeting on 11-12 March in Tokyo, Japan and presented current cooperation activities with the FNCA and possible projects for future collaboration.

6.5 Extra-Budgetary (EB) contribution of the RCARO to the IAEA

RCARO made an extra-budgetary contribution of US$60,000 to support the pilot project on nuclear medicine in which RCARO will take the role of LCC.