Public Version

REGIONAL COOPERATIVE AGREEMENT

ANNUAL REPORT 2016

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SECTION 1 - OVERVIEW OF THE RCA PROGRAMME IN 2016

1. Programme Summary 2016

There were 13active projects in 2016, which included 8projects from the previous cycle and 5 new projects with first year of implementation in 2016. Detailed information on all active projects is available on the IAEA web-based platform Programme Cycle Management Framework (PCMF) and basic information may be found on the RCA Website (www.rcaro.org).

During the years 2012 – 2015, the RCA projects were managed by different Programme Management Officers (PMOs) in the Division for Asia and the Pacific rather than by the RCA Focal Person (RCAFP) only as in past practice.

As of January 2016, almost all RCA projects have been reallocated to the RCAFP as PMO, with the exception of two projects, RAS1020 and RAS6076 which remain with Mr Gashaw Wolde and Mr Ho-seung Lee as PMOs, respectively.

The RCA FP continues to be responsible for the overall coordination of the RCA programme. For effective project implementation, it is important that Lead Country Coordinators (LCCs) and National Project Coordinators (NPCs) maintain continuous contact with their respective PMOs and coordinate closely on any issues that may arise.

List of RCA projects in 2016is shown in Annex 1

In 2016, ten (10) regional training courses (RTCs) were held with twenty-eight (28) experts recruited as lecturers, among whom eighteen (18) were from the region. Two hundred and sixty-three (263) persons were trained in these training courses. Twenty-one (21) meetings were held in 2016. These included project progress and final review meetings, project planning meetings, expert meetings and workshops. A total of three hundred and sixty-eight (368) participants, including thirty-three (33) experts, participated in these meetings. In addition to these project-related meetings, two policy level meetings were conducted, namely the 38th Meeting of National RCA Representatives and the 45th RCA General Conference Meeting.

In addition, in 2016, twenty-two (22) expert missions were conducted, which provided necessary technical assistance to some GPs for their effective participation in RCA projects. The total duration of the missions was one hundred and sixty-one (151) expert-days, and from the forty-one (41) experts recruited, thirty-seven(37) were from the RCA GPs. Eight (8) home-based assignments were implemented, among which five (5) assignments were carried out by experts from the RCA GPs and three(3)assignments by experts outside the region. The total duration of the home-based assignments is one hundred and twenty-three (123) expert-days.

2. Management and Implementation of the RCA Programme in 2016

2.1 Summary of Financial and In-Kind Contributions

The budget allotment from the TC Fund for 2016 was €1.42 million. The encumbrances and actual in 2016 was €1.26 million at an Implementation Rate of about 88.8 %.

The RCA GPs are encouraged to provide extra-budgetary contributions to the RCA programme as a means of contributing to the overall performance/implementation of the RCA programme and demonstrating the ownership of the programme. The initial projects and activities for which extra-budgetary funding is required is marked as footnote/ain the PCMF. Some GPs have utilized their reserve funds for this purpose. The National RCA Representatives (NRs) are requested to indicate the specific purposes for which their contributions are made when they provide the funding. The IAEA Secretariat could provide assistance in identifying the projects and related activities with financial requirements, if necessary. The total of the extra-budgetary contributions received in 2016 was €537,200.

Complementary implementation inputs in the form of "In-kind" contributions provided by the RCA GPs enhance the range, depth and sustainability of the RCA projects. "In-kind" contributions have been recognized since the RCA Agreement commenced in 1972 and the term is referred to in the 1987 RCA Agreement as well as the RCA Guidelines and Operating Rules (GORs). In line with TC practice, "In-kind" contributions are understood as cost-free goods and/or services provided by Party A (Donor) for the benefit of one or other Parties (Recipients) in the implementation of a specific project.

The RCA GPs have agreed that for reporting purposes, the financial contribution of each RCA GP to the RCA programme will be calculated based on an adopted and non-discriminatory measure of the "In-kind" contribution and presented in the RCA Annual Reports.

The total amount of "In-kind" contributions made by the RCA GPs was calculated as €882,000in 2016.

2.2 Regional Events

The implementation of the RCA activities focused mainly on regional training courses and regional meetings. Hosting RCA events is voluntary, and the RCA GPs have been very cooperative in this respect. By hosting events, the GPs not only contribute to the RCA programme but also have the opportunity to benefit from the regional events as more national participants can attend.

In 2016, eighteen (18) RCA GPs extended their cooperation and support to the RCA by hosting RCA regional events (meetings and training courses). It is expected that those GPs which have not had the opportunity to host RCA events will consider doing so in the future. This will be considered in the planning for the project implementation in 2017.

Indicative plan for RCA regional events in 2017 is given in Annex 2

2.3 Progress Monitoring

Progress monitoring of the projects under implementation was undertaken through the biannual Progress Reports was changed to annual report by NPCs and the consolidated Project Progress Assessment Reports (PPAR) submitted by the LCCs. In addition, project progress reviews were conducted at the 38th Meeting of the National RCA Representatives and the 45th RCA General Conference Meeting. These mechanisms have proved to be useful in the monitoring of projects and identification of challenges in project implementation, and will be continued.

2.4 Challenges in Implementation

Late and/or incomplete submissions and/or submission of nominations of candidates who are not members of the National Project Teams continue to be an issue. The cooperation of RCA NRs is sought to ensure that the persons nominated for regional events are those who are actively involved in the project implementation, are members of the National Project Teams, and have the required qualifications. RCA NRs are encouraged to consult and coordinate with their designated NPCs on the role and responsibility of the NPC in the identification of qualified candidates and the timely submission of nominations through the RCA NRs.

The IAEA/TC continues to encourage RCA NRs to make use of the In-Touch platform to facilitate the submission of nominations. Feedback from the GPs that have used the platform indicates that it is a convenient tool. Moreover, the submission of hand filled nomination forms has repeatedly caused delays and errors in implementation.

The record also shows that the submission of the PPAR from the NPCs to the LCCs for some projects is either irregular and/or incomplete or none. This is a crucial matter and several LCCs have raised their concerns regarding lack of submission of national reports from NPCs and consequently the inability to submit the project PPAR as required. The non-compliance might 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 by their NPCs of all active projects to the designated LCCs prior to the IAEA deadline of mid-January each year. RCA NRs are also encouraged to share the RCA Guidelines and Operating Rules (GORs) with their NPCs.

3. Summary of the RCA Regional Office (RCARO) Activities related to Promotional and other Non-technical Activities in 2016

TheRCARO continued its efforts in 2016to publicize the activities of the RCA and establish collaborations with other international/regional organizations with common interests.

The activities of the RCA were publicized through the publication of the RCA Success Stories, the RCA information service on the RCA website, participation in various relevant regional/international conferences and RCA expert support programmes. The RCARO also carried out RAS6083, the IAEA/RCA Project on Improving Patient Care and Enhancing

Government Parties Capacity in Nuclear Medicine Programs in RCA region and initiated the 1st RCARO Managed Project, the workshop for new RCA GPs on RCA Proramme and its Policy.

- The RCARO completed the draft of RCA Success Stories, one in industry (RAS1012) and another one in medical sector (RAS6064 & RAS6066), in cooperation with LCCs of the respective RCA projects. The full-designed version was circulated at the 38th RCA NRM.
- The RCARO updated the promotional video reflecting changes of some RCA NRs. The RCARO also produced a short video clip on recent RCA activities with the support of the the IAEA and RCA GPs. Both videos were demonstrated at the RCA exhibition on the occasion of the 60th Anniversary of the IAEA.
- According to the established guidelines for the enhancement of the RCA information service, RCARO uploaded the public version of RCA Annual Report and developed an "RWA corner" platform on the RCA website and a manual for RWAs. IDs and passwords together with the manual were distributed to RWAs for their access.
- The RCARO participated in the international conference on Pacific Basin (April, China) and nuclear science and technology (August, Thailand) and set up a booth displaying banners on RCA activities. RCA brochure, Success Stories and promotional video were used for promotional purposes. The RCARO also supported promotional activities of RCA GPs, by providing relevant materials for the meeting in New Zealand and conference in Viet Nam.
- According to the 38th RCA NRM recommendation, the RCARO participated in the 60th IAEA General Conference to celebrate its 60th Anniversary, by holding an exhibition showcasing RCA activities, success stories and partnerships.
- The RCARO supported RCA experts from Vietnam and Indonesia for their RCA promotional activities at international conferences held in 2016.
- The RCARO hosted the First Coordination Meeting for RAS6083 on 11-15 April 2016 in Gwangju, Korea, inviting 29 participants from 16 participating GPs, and PMO and TO from the IAEA. According to the work plan, three expert missions were implemented in 2016; CPR in October, MYA in November and PAK in December.
- The RCARO submitted a project proposal for a follow-up project of RCA/UNOSSC Project on Electron Beam Applications (2013-2015). Upon the approval by the UNOSSC, the follow-up project is expected to commence in 2017.[1]
- The RCARO held an Introductory Workshop for new RCA GPs on RCA programme and its policy as the first RCARO Managed Project on 23-25 November 2016, in Fiji, inviting 23 participants from new RCA GPs, RCA-FP, and representatives from Fiji.

[1] This project was implemented outside the framework of the RCA Agreement and strongly supported the RCA activities and enhanced regional partnership between the RCA and UNOSSC.

- The RCARO held the 3rd Working Group Meeting on RCARO's Future Role on 19-21 January in Jeju, Korea, to discuss issues related to the RCARO's future role by taking consideration of advice from the Office of Legal Affairs of the IAEA regarding the IAEA's role in RCA. The meeting discussed the criteria and guidelines for Supplementary Projects (SP), Research Projects (RP) and Training Projects (TP), 2016 action plan, as well as IAEA's challenges in staffing related to the RCA administration.
- To assist the needs of the RCA GPs, the RCARO carried out the RCARO/KAIST Nuclear Engineering Master's Degree Course, RCARO/KAERI regional training workshop, IAEA/RCARO/KINS joint training course, and RCARO/ARCCNM Training Course.[2]

RCARO actions related to promotional and other non-technical activities in 2016 are given in Annex 4

[2] This cooperation was implemented outside the framework of the RCA Agreement and supported the RCA activities and strengthened the partnership between RCA, ARCCNM, KAIST, KAERI and KINS.

SECTION 2 - DETAILS OF THE TECHNICAL PROGRAMME IN 2016

- **Others**

RAS0074	**Enhancing the Management of the Regional Agreement and Programme**
Objective	**Enhancing the Management of the RCA Agreement and its Programme (RCA)**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Meeting	3rd Working Group Meeting of the RCARO's Future Role	To finalize mechanisms and guidelines for implementing RCARO Managed Projects and review IAEA's role in a legally manner in the process To discuss ways and means to overcome the challenges faced by the IAEA including staffing issues	19-22 Jan.	Korea
Meeting	Meeting of the RCA Working Group on the RCA MTS 2018-2023	To discuss and define the skills requirements and the terms of reference for members of the 3 Working Groups	13-15 May	Mongolia
Meeting	Preparatory and RCA 38th National RCA Representatives Meeting	Preparatory Meetings (RCA Chairs and 22nd SAC Meetings) and the 38th Meeting for the National RCA Representatives)	16-20 May	Mongolia
Meeting	RCA Project Design Review Meeting for 45th General Conference Meeting	To review the Preliminary RCA Project Designs in preparation for 45th RCA General Conference Meeting	19-23 Sep	Austria
Meeting	Participation to Scientific Forum in association with	To present the Japanese perspective and experience on nuclear applications in the field of health,	28-29 Sep	Austria

	the 60th IAEA GC	from prevention to palliation and radiation medicine, diagnosis and management of diseases		
Meeting	IAEA/RCA Project Design Meeting for the TC Cycle 2018-2019	To review, analyze and assess draft project design documents for TC Cycle 2018-2019	31 Oct–04 Nov	Austria
Meeting	Introductory Workshop for New RCA Government Parties on RCA Programme and its Policy	To strengthen new RCA GPs' understanding on the IAEA/RCA Programme, policy, procedures and related matters Training Project(TP) under RCARO Managed Projects	23-25 Nov.	Fiji
Meeting	Meeting with high level authorities of India	To discuss with high level authorities their support to the TC Programme though RCA; expanding cooperation in the region through the framework of the existing Practical Arrangement and to discuss the strategic capacity building approach in Asia & Pacific region in the framework of the existing PA	13-16 Dec.	India

Project highlights for 2016

The project enabled the policy meetings of the RCA; the 38th Meeting of the National RCA Representatives and the 45th General Conference Meeting; and several Working Group Meetings and Project Design Meeting for 2018-2019 RCA Programme aimed at enhancing the RCA programme and operational management. The38th NRM and 45th GCM endorsed the amended RCA Agreement which would take effect from June 2017. The composition of 3 Working Groups was also approved for execution of the RCA Medium Term Strategy 2018-2023; WG on Financial Gap Analysis and Resource Mobilization, WG on Human Resource Development, and WG on MTS 2018-2023 Coordination. The 38th Meeting of the National RCA Representatives adopted the required skills and terms of reference for the 3 WGs proposed by the WG on the RCA MTS 2018-2023. The WG on the future role of the RCARO finalized mechanisms to implement RCARO Managed Projects; Supplementary Projects (SPs), Research Projects (RPs) and Training Projects (TPs) and discussed the IAEA's legal roles in this aspect. It also discussed means to overcome the IAEA's challenge in staffing. The Project Design Meeting reviewed draft project designs approved for the 2018-2019 TC cycle for refinement of LCCs which would then be uploaded on the PCMF for IAEA's review. The meeting of RCA Programme Advisory

Committee was also held to discuss the development of the RCA Programme for 2018-2019 and identify lessons learnt from past cycles.

38th Meeting of National RCA Representatives, May 2016, Mongolia

45th General Conference Meeting, September 2016, IAEA

- **Industry**

RAS1014	**Supporting Radiation Processing for the Development of Advanced Grafted Materials for Industrial Applications and Environmental Preservation**
Objective	**To produce advanced grafted products for industrial applications and for mitigating environmental pollution by using radiation processing**

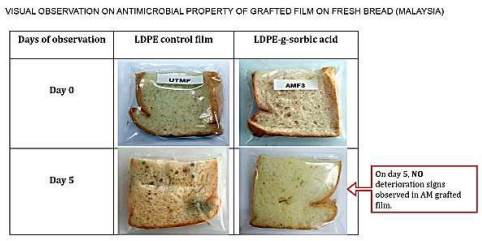
Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Training Course	RTC on Advanced Characterization Methods of Grafted Polymeric Matrices, Designing and Up-Scaling of Radiation Grafting for Environmental and Industrial Applications	To give theoretical lectures and practical advice on development and up-scaling of radiation grafting processes and pilot plant development as well as related commercialization	8-12 Aug.	Malaysia

Meeting	IAEA/RCA Final Review Meeting of Extended RAS/1/014 Project	To review and assess the implementation of the project against project objectives and agree on follow-up activities	28 Nov.–02 Dec.	Japan

Project highlights for 2016

The project has successfully achieved its objectives and completed in 2016 through effective collaboration amongst participating countries. A total of 55 advanced radiation grafted materials, 19 related procedures, 27 patents and 84 publications were developed and produced under the project. Various grafted materials included absorbents, ion exchange membranes, catalysts, bioactive carriers, tissue scaffold, evaporator membranes and active packaging and some of them have already been commercialized or in the process of commercialization. A grafting protocol document was prepared by the project and published by the IAEA. More than 100 participants were trained and achieved expertise in the technology. At national level, regional training course participants actively shared the knowledge with local counterparts through meetings and technical reports. An executive meeting was also held for policy makers and end users to promote benefits and potential of the radiation grafted products.



Grafted film for food preservation, Malaysia

Final review meeting, Dec. 2016, Japan

RAS1020	**Building Capacity for Applications of Advanced Non-Destructive Evaluation Technologies for Enhancing Industrial Productivity**
Objective	**To develop a pool of trained technologists and technology practitioners in industrial digital radiography (DR) and computed tomography (CT) for applications in metal casting, rubber and plastic moulding, industrial prototyping, reverse engineering and routine non-destructive examination (NDE) of industrial components in the RCA region;to impart specialized training to key stakeholder members, who will in turn act as catalysts in their respective countriesfor technology propagation, and to provide for productivity enhancement in the industrial quality assurance (QA) processes through process automation**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Meeting	Mid-term Coordination Meeting	To identify priority areas and review country technical action plan for each GP To review country action plan and regional activities for 2016-17	27 Jun-01 July	Thailand
Training Course	RTC on X-ray and Gamma Ray Based DIR for Specialized NDT Requirement in Industry	To provide advanced training for qualified scientific and technical personnel with advanced radiography testing (RT) including digital industrial radiology (DIR) based non-destructive testing and evaluation technologies.	19-23 Sep	Sri Lanka
Meeting	Expert group meeting on computed tomography and digital radiography	To review the status of digital radiography and computed tomography in NDT and give lectures and provide guidance in the technology	7-11 Nov	Indonesia
Expert	Expert Mission	To evaluate the situation of NDT in Lao PDR and prepare future activities	5-9 Dec	Lao PDR
Expert	Home Based Assignment	To update document TCS17 on NDT for civil engineering	12-23 Dec	India

Project highlights for 2016

The project activities were successfully implemented in 2016 according to the work plan. A mid-term review meeting was held to identify needs and means to address them through the project. A regional training course on x-ray and gamma ray for NDT requirements was held at an advanced level for scientists and technical personnel. An expert group meeting and 4 expert missions to India, Indonesia, and Lao PDR were conducted for producing relevant technical documents for training and providing lectures and advice on the technology.

- **Agriculture**

RAS5070	**Developing Bioenergy Crops to Optimize Marginal Land Productivity through Mutation Breeding and Related Techniques**
Objective	**To cultivate improved varieties of bioenergy crops on marginal lands**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Meeting	Coordination Meeting on Activities on Soil and Water and Nutrient Management on Bioenergy Crops in Marginal Lands	To review and finalize the project work plan To review the current status of soil and water management practices on marginal land and identify the roles of nuclear and isotopic techniques	14-18 Mar	Austria
Expert	Expert Mission	Initiation of Cassava mutation breeding project and training staff	02-13May	Cambodia
Training Course	Regional Training Course on Applications of In-vitro Techniques in Mutation Breeding of Bioenergy Crops	To provide participants with theoretical and practical information on the application of in vitro techniques in mutation breeding including screening of target traits for bioenergy crops.	23-27 May	Indonesia
Training Course	Regional Training Course on Water and Nutrient Management for Marginal Land	To provide lectures and hands-on training course on enhancing nutrient and water use efficiencies using nuclear, isotopic and conventional techniques	11-22 Jul	Nepal

Project highlights for 2016

Two regional training courses were successfully held in 2016 on the applications of in-vito techniques in mutation breeding of bioenergy crops and on nutrient and water management

for bioenergy crops in marginal land in May and July respectively. Some countries conducted research on developing bioenergy crops; Indonesia released 3 sorghum mutant varieties and is in the process of the evaluation of a number of mutant lines and agronomic practices of sorghum; Bangladesh evaluated sugarcane mutant lines; Philippines identified new sugarcane mutants through coordination with a national project; India raised and analyzed new mutants and characterized their mutations.

 Regional Training Course, May 2016, Indonesia	 Regional Training Course, May 2016, Indonesia

RAS5071	**Strengthening Adaptive Climate Change Strategies for Food Security through the Use of Food Irradiation**
Objective	**To strengthen adaptive climate change strategies for food security through increased awareness and utilization of food irradiation**

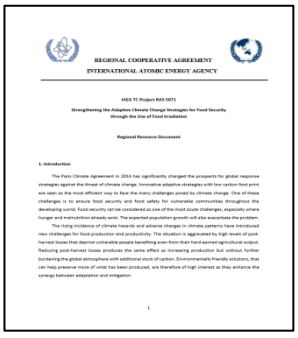
Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Meeting	Regional Coordination Meeting	To discuss adaptive climate change strategies for food security through the use of food irradiation. To review project progress, set up a work plan and develop draft regional resource document	22-26 August	Thailand

Project highlights for 2016

A regional meeting was held in Bangkok, Thailand, and participants reviewed progress in implementing the project and achieving its objectives and agreed on modified work plans for 2017. The meeting produced a draft "Regional Resource Document" on the use of future potential applications of food irradiation to reduce food security risks associated with climate change. The draft document (ten pages) will be finalized and distributed among participating countries for final comments and will be used as resource material during the Senior Executive Management Meeting in Q4 2017. Five countries (Thailand, Malaysia, Vietnam, Sri Lanka and India) conducted national seminars to strengthen the information needed by the climate change groups, policy makers and scientists on the potential use of the technology. Two countries (Bangladesh and Thailand) made information materials (brochures) on food irradiation and translated them into their national languages to be circulated to policy makers responsible for strengthening climate change strategies towards improving food security.

Regional Coordination Meeting, August 2016, Thailand



REGIONAL COOPERATIVE AGREEMENT
INTERNATIONAL ATOMIC ENERGY AGENCY

IAEA TC Project RAS 5071
Strengthening the Adaptive Climate Change Strategies for Food Security through the Use of Food Irradiation

Regional Resource Document

1. Introduction

The Paris Climate Agreement in 2015 has significantly changed the prospects for global response strategies against the threat of climate change. Innovative adaptive strategies with low carbon foot print are seen as the most efficient way to face the many challenges posed by climate change. One of these challenges is to ensure food security and food safety for vulnerable communities throughout the developing world. Food security can be considered as one of the most acute challenges, especially where hunger and malnutrition already exist. The expected population growth will also exacerbate the problem.

The rising incidence of climate hazards and adverse changes in climate patterns have introduced new challenges for food production and productivity. The situation is aggravated by high levels of post-harvest losses that deprive vulnerable people benefiting even from their hard-earned agricultural output. Reducing post-harvest losses produces the same effect as increasing production but without further burdening the global atmosphere with additional stock of carbon. Environmentally friendly solutions, that can help preserve more of what has been produced, are therefore of high interest as they enhance the synergy between adaptation and mitigation.

1

Draft Regional Resource Document on food irradiation

RAS6071	**Strengthening Radionuclide Therapy for High Impact Cancer Treatment Strategy in Member States of the Regional Cooperative Agreement**
Objective	**To reduce mortality and morbidity and improve the quality of life of cancer patients in the Member States of the region**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Training Course	Regional Training Course on Treatment of	To train experienced nuclear medicine physicians on advanced therapeutic	25-29 Apr	Thailand

	Lymphoma	nuclear medicine and enhance their skills in the use of radiopharmaceuticals for treatment of Lymphoma and other malignancies		
Meeting	Mid-term Review and Educational Meeting on Radionuclide Therapies	To review the project progress and conduct a training on finalizing the residue and no till (RNT) guidelines.	21-25 Nov	India

Project highlights for 2016

A regional training course was held in Bangkok, Thailand for 19 participants from participating countries. Two IAEA experts and 27 local experts delivered lectures focusing on lymphoma and neuroendocrine tumors. A project mid-term review meeting was held in India in conjunction with a training programme in theranostics. The meeting reviewed project progress and 2 international experts and 14 local experts delivered 22 lectures and discussed the guidelines of the radionuclide therapy.

Regional Coordination Meeting, November 2016, India

- **Human Health**

RAS6072	**Strengthening Intensity Modulated Radiation Therapy Capability in the Region**
Objective	**To strengthen the practice of radiotherapy by adding the capability and safe practices of intensity modulated radiation therapy (IMRT) in the RCA region**

Project Activities in 2016

Event	**Title**	**Summary of Purpose**	**Dates**	**Host Country**
Meeting	Midterm Review Meeting	To review the project progress and update work plan	18-22 Apr	Austria
Expert	Expert Mission	To support national training course on IMRT for head and neck cancers	29-31 Jul	Malaysia
Training Course	IAEA/RCA 2nd RTC on the Basics of Intensity Modulated Radiotherapy	To enable radiation oncologists and medical physicists to implement Intensity Modulated Radiation Therapy (IMRT) effectively and safely in the clinic To provide the participants with a basis for organizing similar national training courses in their home countries	07-11 Mar	Indonesia
Training Course	RTC on Intensity Modulated Radiation Therapy for Prostate Cancer and other Urological Cancers	To provide lectures and participate in practical exercises on medical and clinical physics aspects of IMRT	06-10 Sep	Philippines

Project highlights for 2016

The year 2016 was the second year of this 3-year project. The Midterm Review Meeting reviewed the first three completed RTCs and determined the contents of the last four upcoming RTCs. The Midterm Review Meeting concluded that the first three RTCs have been implemented as planned and the follow-up National Training Courses have been either implemented or planned in the Member States. In 2016, two RTCs were successfully held. The one which focused on "IMRT basics 2" was held in Indonesia with 28 participants. The other which focused on "Genitourinary cancers" was held in the Philippines with 37 participants. National Training Courses were held in Indonesia, Mongolia, Myanmar, Nepal, the Philippines, and Singapore during this year and the number of participants totaled 724. The technique of IMRT was effectively disseminated through these activities in each Governmental Parties.

Regional Training Course on the Basics of Intensity Modulated Radiotherapy March 2016, Indonesia

Mid-Term Review Meeting, April 2016, Austria

RAS6076	**Improving Cancer Management Through Strengthening the Computed Tomography Cancer Staging Process**
Objective	**To optimize cancer management through the improvement of professional knowledge in CT scanning and staging**

Project Activities in 2016

Event	**Title**	**Summary of Purpose**	**Dates**	**Host Country**
Expert	Expert Mission	To provide lectures at National Radiology Conference in Singapore	19-21 Feb	Singapore
Expert	Expert Mission	Expert Mission on TNM staging of head and neck, abdomen and chest malignancies	14-16 Apr	Philippines

Expert	Expert Mission	Expert mission on dissemination appropriateness in cancer staging with CT-scan examination	18-21 May	Indonesia
Expert	Home Based Assignment	To develop a smart phone application on FIGO staging for gynecologic cancers	01 Jun-21 Aug	India
Training Course	Regional Training Course on Cancer Staging for Head and Neck	To train radiologists on CT in Cancer Staging for Head and Neck	04-08 Jul	Myanmar
Expert	Expert Mission	To train CT/MR technologies in Neuro-Oncology in Sri Lanka	25-27 Jul	Sri Lanka
Expert	Home Based Assignment	To finalize contents/software for smart phone application on FIGO staging for gynecologic cancers	22 Aug-18 Sep	India
Expert	Expert Mission	To provide national training in CT for Cancer Staging (Abdomen) in Mongolia	15-17 Sep	Mongolia
Expert	Expert Mission	To present and release FIGO staging smart phone app (GC 60)	26-28 Sep	Austria
Expert Mission	Expert Mission	To conduct a national training on CT for Cancer Staging (Genito-urinary) in Bangladesh	27-29 Oct	Bangladesh
Meeting	Final Project Review Meeting	Review and assess project achievements against objectives and work plan	21-25 Nov	Thailand

Project highlights for 2016

The 3rd Regional Training Course was successfully held in Yangon General Hospital in Myanmar from July 4 to 8, focusing on TNM staging for Head & Neck cancer. 32 radiologists and Nuclear Medicine physicians, including 6 local experts were trained. Six Expert Missions were implemented in conjunction with training events at national level in order to outreach local experts and disseminate expertise. A Smartphone application on FIGO staging for gynaecologic cancers was developed by IND through a home based assignment. It was introduced at the side event of the 60th General Conference of the IAEA in which experts and delegation members of Member States showed interest. The Final Project Review Meeting was held in Chiangmai, Thailand, from Nov 21 to 25. It was agreed by the meeting participants that this project has effectively contributed to the distribution of expertise on CT cancer diagnosis in the Region.

Expert Mission in conjunction with the 21st Annual Meeting of Mongolian Congress of Radiology, Sep 2016, Mongolia

Final Project Review Meeting, Nov 2016, Thailand

RAS6077	**Strengthening the Effectiveness and Extent of Medical Physics Education and Training**
Objective	**To improve the quality of health care and patient safety in areas related to radiation medicine through the delivery of medical physics services**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Expert	Expert Mission	To initiate pilot clinical training in medical physics using AMPLE e-learning software	24-26 Feb	Thailand
Meeting	Mid-term review meeting on Strengthening the Effectiveness and Extent of Medical Physics Education and Training	To review the progress for the work plan and monitor outcomes of the project	21-25 Mar	India
Expert	Home Based Assignment	For management of the AMPLE e-learning environment	11-22 Apr	Australia
Expert	Expert Mission	To initiate Philippines pilot clinical training in medical physics using AMPLE e-learning software	22-24 Jun	Philippines

Expert	Home Based Assignment	For coordination of clinical training pilots	20-30 Jul	Australia
Expert	Expert Mission	To initiate Bangladesh pilot clinical training in medical physics using AMPLE e-learning software	28-30 Jul	Bangladesh
Expert	Expert Mission	To review academic medical physics program at Chulalongkorn University and medical physics residents	05-08 Aug	Thailand
Expert	Expert Mission	To initiate Indonesia pilot clinical training in medical physics using AMPLE e-learning software	05-08 Sep	Indonesia
Expert	Expert Mission	To initiate the editorial board of the AMPLE e-learning course for medical physics clinical training	19-21 Dec	Viet Nam

Project Highlights for 2016

The main highlight for the project has been the implementation of the e-learning platform for clinical training for medical physicists called AMPLE (Advanced Medical Physics Learning Platform).The platform has been developed on the IAEA Moodle site through the use of contracts to specialist designers. It is now being piloted in Thailand, India, Philippines, Bangladesh and Indonesia to evaluate the training program. There was an orientation and training program undertaken in each of these countries prior to the launch of the pilots.

At the mid-term regional meeting in Mumbai in 2016 it was decided that an editorial board from medical physicists within the Government Parties should be formed to oversee the quality of resource content uploaded onto the AMPLE site and to recommend any changes to the platform to aid in effective and relevant training for medical physicists.

Launch and orientation for the AMPLE clinical training platform, June 2016, Philippines

Site visit to Tata Memorial Hospital to review AMPLE site, March 2016, India

RAS6083	**Improving Patient Care and Enhancing Government Parties Capacity in Nuclear Medicine programmes in the RCA Region (RCA)**
Objective	**To improve health in non-communicable diseases in the RCA region**

Project Activities in 2016

Event	**Title**	**Summary of Purpose**	**Dates**	**Host Country**
Meeting	IAEA/RCA Initial Project Planning Meeting	To review current status of nuclear medicine in participating GPs and set up a detailed work plan	11-15 Apr	Korea
Expert	Expert Mission	To provide national training course on Nuclear Medicine techniques in Thyroid Diseases	18-23 Sep	China
Expert	Expert Mission	To provide National training course in diagnostic imaging for cardiology, oncology and neurology	28 Nov-02 Dec	Myanmar
Expert	Expert Mission	To provide National Training Course on Nuclear Medicine Techniques in Thyroid Diseases	12-16 Dec	Pakistan

Project highlights for 2016

The project has successfully implemented the activities in 2016 according to the work plan. It's in good progress by satisfying the performance indicators. A total of 30,179 nuclear medicine procedures were applied for diagnosis/treatment of oncologic, cardiovascular and neurologic patients and around 400 Nuclear Medicine professionals were trained through the project. Three Expert Missions were conducted to CPR, MYA and PAK according to the work plan with the aim to train and promote diagnostic and therapeutic nuclear medicine procedures for both nuclear medicine physicians and referring doctors. During the expert missions, responses of referring physicians (cardiologists, oncologists, neurologists, surgeons and endocrinologists) were significantly huge. More active engagement with referring doctors is to be encouraged to share the benefit of advanced nuclear medicine technologies.

Expert mission to Myanmar, November2016

Expert mission to Pakistan, December 2016

RAS6085	**Enhancing Stereotactic Body Radiation Therapy for Frequent Cancers in the RCA Region (RCA)**
Objective	**To improve clinical outcomes in cancer patients treated with Stereotactic Body Radiation Therapy (SBRT)**

Project Activities in 2016

Event	**Title**	**Summary of Purpose**	**Dates**	**Host Country**
Training Course	Regional Training Course on Clinical Applications of Stereotactic	To enhance understanding of the clinical aspects of Stereotactic Body Radiotherapy (SBRT) in oligometastasis, pancreatic cancer, and recurrent cancers needing re-irradiation	14-18 Nov	Singapore

	Body Radiotherapy (SBRT) in Oligometastasis, Pancreatic, and Recurrent cancers needing Re-irradiation	To provide roadmap for a safe and effective implementation of SBRT programme To provide a basis for initiating similar national training programmes in their home countries		

Project highlights for 2016

The 1st Regional Training Course was successfully held at the National Cancer Center of Singapore from Nov 14 to 18. The technical focus was the clinical aspects of Stereotactic Body Radiation Therapy (SBRT) in oligometastasis, pancreatic cancer, and recurrent cancers requiring re-irradiation. 35 radiation oncologists and medical physicists successfully completed the course and brought back a basis for initiating similar national training programmes in their home countries. The warm hospitality of the SIN host institute and their dedication to support other Member States as one of the Regional Training Hubs were appreciated by the participants. As a supplementary project focusing on the needs of the ASEAN countries, the lead institute of ROK also developed a new technical cooperation project co-funded by the ASEAN and RCARO. A Training Course of the ASEAN cooperation project was held in Seoul, Korea from Dec 5 to 9 for 14 radiotherapy experts and shared lectures and practices on SBRT.

Regional Training Course, Singapore, November 2016

ASEAN training course, ROK, December 2016

- **Environment**

RAS7029	**Assessing the Impact of Urban Air Particulate Matter on Air Quality (RCA)**
Objective	**To enhance capacity using Nuclear Analytical Techniques in assessing the impact of fine particulate matter on human health, visibility and historic monuments.**

Project Activities in 2016

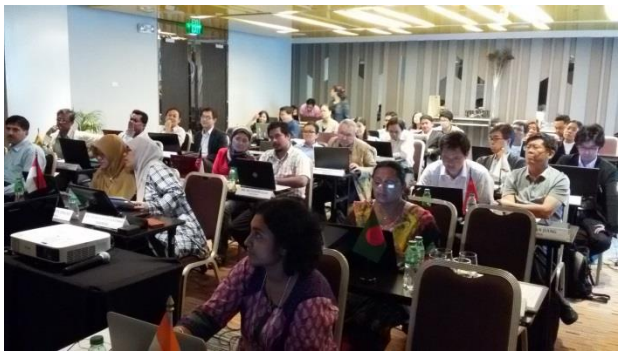
Event	Title	Summary of Purpose	Dates	Host Country
Expert	Home Based Assignment	To compile, evaluate and assess analytical results on gaseous pollutants from GPs Cultural Heritage sites	25-26 Jan	Belgium
Expert	Expert Mission	To contribute in National workshop to demonstrate the use of PXRF analysis in Cultural Heritage studies	21-24 Mar	Sri Lanka
Expert	Home Based Assignment	To review of the X-ray Fluorescence Technical Manual	18-26 Apr	New Zealand
Meeting	Regional Workshop on Identifying Trans-boundary Air Pollution Events across Asia-Pacific	To provide technical input on identification of trans boundary Air Pollution events and evaluate the results obtained from the experimental activities	27 Jun-01 Jul	Philippines
Expert	Expert Mission	To participate in the World Clean Air Congress and Better Air Quality Conference	29 Aug-02 Sep	Korea
Meeting	Workshop for Supporting Operational Procedures and Developing Capability for New Participating GPs to expand the	To assist the capacity building for APM monitoring in new Member States	05-09 Sep	Indonesia

	regional sampling network			

Project highlights for 2016

For assessment of impacts of urban Ambient Particulate Matter (APM), the project compiled and established the world-first databases spanning 15 years of measurements of fine and coarse particulate matter in 14 countries in the Asia-Pacific. The first database, 'Asia-Pacific Aerosol Database (APAD) contains the elemental concentration and associated error and minimum detectable limits (MDL) for 14,106 APM samples collected between 2002 and 2015. The second database, 'Asia-Pacific Source Fingerprint Database (ASFID)', contains receptor source fingerprints and source apportionment solutions obtained by each country from their APAD dataset using positive matrix factorization (PMF) methods.LCC and National Project Coordinators of the project published a paper on the project outcomes on establishing the two new aerosol databases in the journal of Air Quality and Climate Change (Volume 50 No.3. August/November 2016: 41 – 49).

A workshop was held for new RCA GPs to introduce the operating procedure and develop capability for the regional sampling network. Representatives from Cambodia, Fiji, Indonesia, Laos, Nepal, Palau and Thailand participated in the workshop and identified possible works in air pollution research, data, mitigation strategies and sustainability.



Regional Workshop on Identifying Trans-boundary Air Pollution Events across Asia-Pacific, June 2016, Philippines

Workshop for Supporting Operational Procedures and Developing Capability for New Participating GPs, September 2016, Indonesia

RAS7030	**Assessing Deep Groundwater Resources for Sustainable Management through the Utilization of Isotopic Techniques (RCA)**
Objective	**To improve the capability for efficient and effective planning for sustainable management of deeper groundwater resources.**

Project Activities in 2016

Event	Title	Summary of Purpose	Dates	Host Country
Meeting	First Project Coordination Meeting	To discuss and finalize the activities of the work plan and review the capabilities of the GPs for application of isotope techniques in water resource assessment	06-10 Jun	Viet Nam
Training Course	Regional Training Course on the Assessment of Groundwater by Using Isotope and Related Techniques	To train the use of isotope and related techniques in the assessment of hydrogeological problems including groundwater dynamics	14-25 Nov	China

Project highlights 2016

The year of 2016 was the first year of RAS7030. The project was successfully implemented according to the work plan. The initial project planning meeting discussed and finalized the details of the regional and national activities. Each country defined project teams and set up national work plans. The first regional training course was held for 25 participants to equip them with the knowledge on the assessment of groundwater by using isotope and related techniques. According to the national work plans, water samples were collected for analysis to determine various parameters such as physio-chemical parameters and isotopic composition. The supporting data such as hydro-geological have also been collected from qualified departments.

 Over flow from a water reservoir, Palau	 Collection of water sample from a hand pump, Thailand