

**RAS/6/053**

**Improving Image Based Radiation Therapy  
for Common Cancers in the RCA Region**

**Progress Report in 2014**

Lead Country: Japan

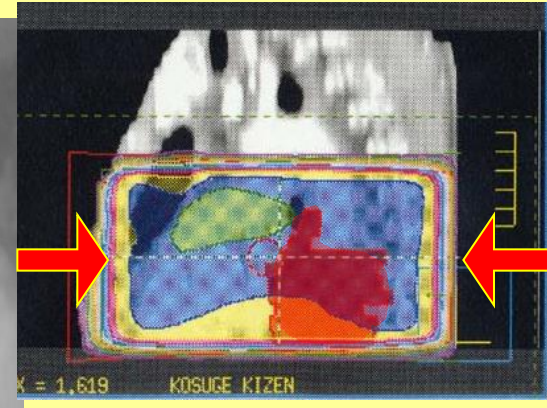
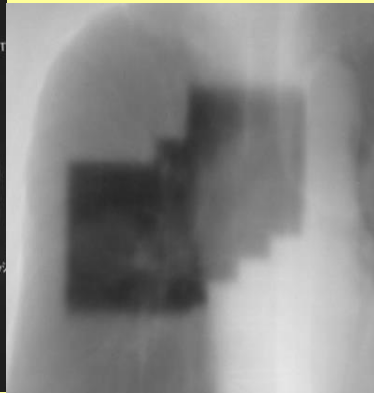
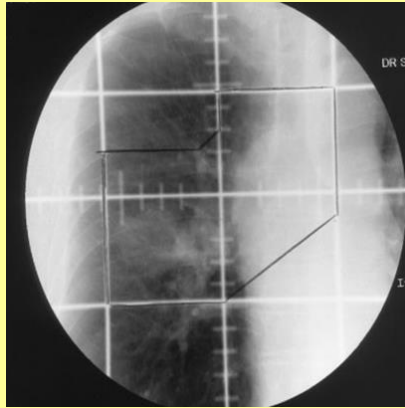
PLCC: Takashi Nakano (Gunma University)

# Background Information

- Project Title  
**Improving Image Based Radiation Therapy for Common Cancers in the RCA Region (RAS/6/053)**
- Project Duration: **2010-2014 (5 years)**
- Participating Member States: 16 Member States  
**Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam (Cambodia and Nepal)**
- Lead Country: **Japan**
- PLCC: **Prof. Takashi Nakano (Gunma University)**

# Conventional 2D RT to 3D CRT

## 2D RT



# Progress of Radiation Therapy



**Proton RT**



**Heavy ion RT**

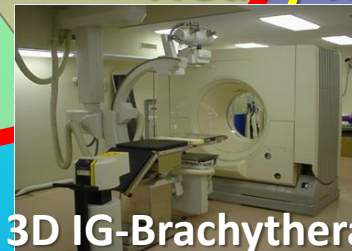
**High Precision RT**



**Stereo Tac. RT**



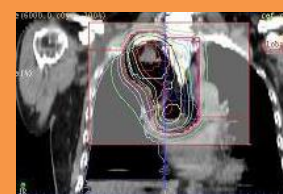
**IMRT**



**3D IG-Brachytherapy**



**3D IGRT**



**Linac**



**Brachytherapy**



**CO-60 γ-rays**

# Objective

- Objective

To improve radiation therapy practice in the RCA region by enhancing applications of evidence-based approaches and quality standards.

Specifically, to improve the application of 3D conformal radiotherapy in the region.

# Strategy of RAS 6053

Project Formulation Meeting

Radiation Oncologist

Medical Physicist

Regional Training Courses

Train trainers  
Provide training materials  
(Textbooks, educational CDs)

Technological  
transfer

Dissemination of tech.



National level

**National Project Team**

Country A

Country B

Country C

NTC

NTC

NTC

NTC

NTC

NTC

NTC

NTC

NTC

Academic Organization

NTC: National training course

# **Project Workplan: Regional Activities**

## **formulated at Project Planning Meeting , 2010, IAEA**

- ✓ **Project Planning Meeting: 18-21 January 2010, Vienna, IAEA**
- **Expert Steering Meeting: August 2010, Gunma JAPAN**
- **2 RTCs on Introduction to Image Based Radiotherapy  
(For Radiation Oncologists and Medical Physicists)**
  - RTC #1: 2011 Feb – Philippines
  - RTC #2: 2011 May – Indonesia
- **4 RTCs on Image Based Radiotherapy  
(Disease-specific courses)**
  - RTC #3: 2012 Feb – Japan (Uro-genital)
  - RTC #4: 2012 Sep – India (Head, Neck and Breast)
  - RTC #5: 2013 Jan – Thailand (Lung and GI)
  - RTC #6: 2013 Apr – New Zealand  
(CNS, pediatrics, lymphoma and sarcoma)
- **Midterm Review Meeting: November 2012, Kuala Lumpur, MALAYSIA**
- **Final Review Meeting: November 2014, Gunma JAPAN**



# **Project Workplan: Regional Activities**

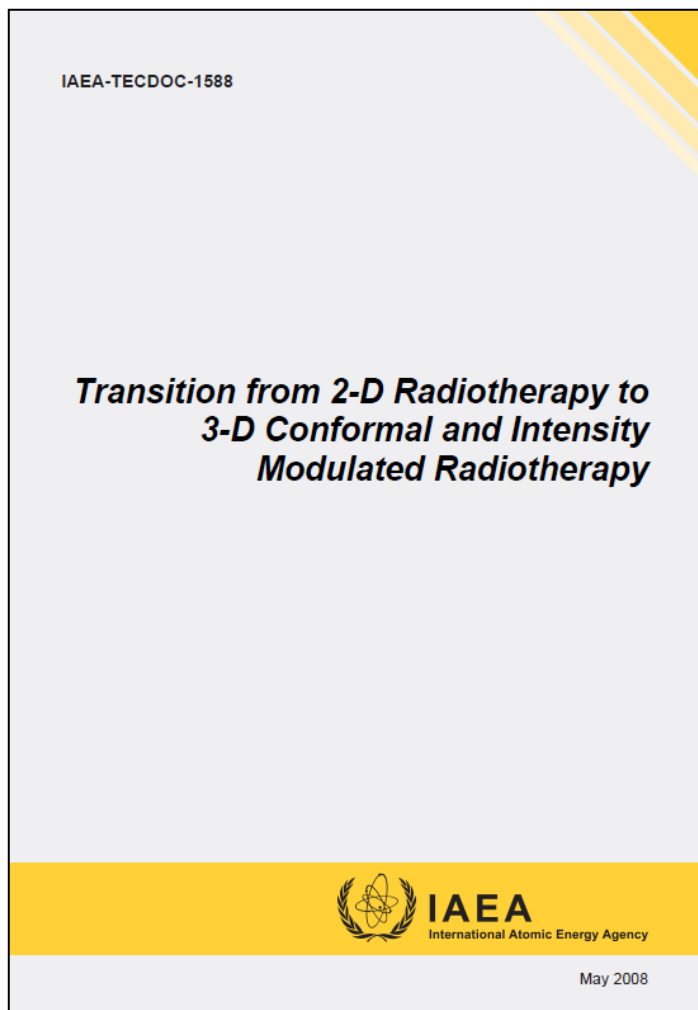
## **formulated at Project Planning Meeting , 2010, IAEA**

- ✓ **Project Planning Meeting: 18-21 January 2010, Vienna, IAEA**
- ✓ **Expert Steering Meeting: 23-27 August 2010, Gunma JAPAN**
- ✓ **2 RTCs on Introduction to Image Based Radiotherapy  
(For Radiation Oncologists and Medical Physicists)**
  - ✓ RTC #1: 22-26 Feb 2011 – Philippines
  - ✓ RTC #2: 23-27 May 2011 – Indonesia
- ✓ **4 RTCs on Image Based Radiotherapy  
(Disease-specific courses)**
  - ✓ RTC #3: 5-9 March 2012 – Japan (Uro-genital)
  - ✓ RTC #4: 1-5 October 2012 – India (Head, Neck and Breast)
  - ✓ RTC #5: 6-10 May 2013 – Thailand (Lung and GI)
  - ✓ RTC #6: 4-8 Nov 2013 – Malaysia (Overview of 3D CRT)
- ✓ **Midterm Review Meeting: 26-29 Nov. 2012, Kuala Lumpur, MALAYSIA**
- ✓ **Final Review Meeting: 16-19 December 2014, Gunma JAPAN**



# Project Workplan: Regional Training Courses

formulated at Project Planning Meeting , 2010, IAEA



- This project aimed to collaborate with the Consultants Meeting of the IAEA which is preparing training materials according to an IAEA-TECDOC-1588 “Transition from 2-D Radiotherapy to 3-D Conformal and Intensity Modulated Radiotherapy” to **provide qualified training materials to maintain high quality of RTCs.**

# **RAS/6/053 Project Planning Meeting**

18-21 January 2010, IAEA Headquarter



**M.A.Y. Ariyaratne**

**Chonlaket Khorprasert**

**Susilo Widodo**

**Miriam Calaguas**

**Prinath Dias**

**Graham Stevens**

**Anh Dung To**

**Yao Zhiming**

**Masooma Riaz**

**Eeva Salminen**

**Yoshiyuki Suzuki**

**Hafizur Ansary**

**Takashi Nakano**

**Fuad Ismail**

**Tomoaki Tamaki**

**Rajiv Sarin**

**Jacob Van Dyke**

The Project Plan of 5 years was devised in the Project Planning Meeting.

# Expert Steering Meeting

23-27 August 2010, Gunma JAPAN



**Jacob Van Dyk**  
**Vicharn Lorvidhaya**  
**Rajiv Sarin**  
**Graham Stevens**



**Miriam Calaguas**  
**Masooma Riaz**  
**Gregorius Ben Prajogi**  
**Takashi Nakano**      **Tomoaki Tamaki**

The curriculum of the first 3 RTCs were devised in the Meeting.



# RTC #1: “Image-Based Radiotherapy for Common Cancers in the Region”

at St. Luke's Medical Center, Manila, PHILIPPINES  
February 22-26, 2011 (NPC:Prof. M.J.Calaguas)

The Philippine Radiation Oncology Society (PROS), in cooperation with the International Atomic Energy Agency (IAEA), the American Society for Therapeutic Radiation Oncology (ASTRO), and the Southeast Asian Radiation Oncology Group (SEAROG) hosted a successful regional training course on February 22-26, 2011 with **21 IAEA participants from 10 MSs +** local observers.



# RTC #2: “Image-Based Radiotherapy for Common Cancers in the Region”

at Cipto Mangunkusumo National General Hospital  
Jakarta, INDONESIA, May 23-27, 2011

**Course Director:** GONDHOWIARDJO, Soehartati

Principles of the transition from 2D radiotherapy to 3D conformal radiotherapy. The contents were similar to the RTC #1 but with a focus on situations with more limited resources. The RTC consisted of lectures and hands-on workshops to cover these topics.

Participants: **21 IAEA participants from 10 Member States**  
(SEAROG 6 participants, Domestic RO center 27, Others 8)





# RTC #3: The IAEA/RCA Training Course on Image Based Radiotherapy (Uro-Genital)

at Gunma University Graduate School of Medicine, JAPAN  
5-9 March 2012 (Course Director: Prof. T. Nakano)

The RTC focused on image-based radiotherapy for gynecological and urological cancer, mainly **uterine cervical cancer and prostate cancer**.

There were **22 RCA participants from 12 RCA Member States** and **2 local participants**. The lecturers included one IAEA lecturer, Ms. Chirapha Tannaonta (medical physicist) from Thailand, and the Japanese local lecturers.

The RTC consisted of review of previous RTCs, country presentations, lectures on image-based radiotherapy for uterine cervical cancer and prostate cancer, and practical hands-on sessions.



# RTC #4: The IAEA/RCA Training Course on Image Based Radiotherapy (Head & Neck cancers and Breast cancer)

at Tata Memorial Centre, INDIA

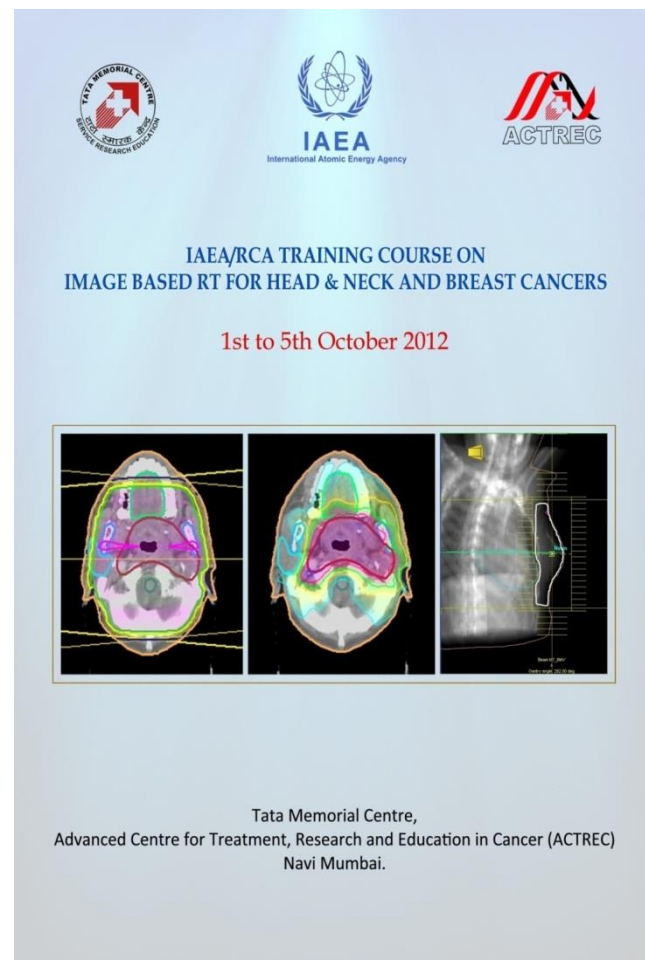
1-5 October 2012 (Course Director: Prof. R. Sarin)

The RTC focused on image-based radiotherapy for **head & neck cancers and breast cancer**.

There were **20 IAEA participants from 12 RCA Member States**. The lecturers included one IAEA lecturer, Shaleen Kumar, and the local lecturers.

In the RTC, 3D conformal radiotherapy for head and neck cancers and breast cancer has been covered with lectures, discussions, and hands-on sessions.

Educational materials were provided to all participants including power-point presentation of all lectures with the audio-visual recording in a DVD.





# Midterm Review Meeting

November 26-29 2012

Universiti Kebangsaan Malaysia Medical Centre, MALAYSIA

- Reviewed the regional and national activities of the project and formulate the curriculum for the RTC #5 and RTC #6.
- NPCs of 9 MSs (BGD, IND, JPN, MAL, PAK, ROK, SIN, THA, and VIE) and NPC alternates of 5 MSs (CPR, INS, MON, MYA, and PHI) participated the Meeting.
- All the regional activities had been implemented as originally planned.



# RTC #5: RTC on Image Based Radiotherapy and QA for Lung and Gastrointestinal Cancer at Chulalongkorn University Faculty of Medicine Bangkok, THAILAND, May 6-10, 2013

The RTC focused on image-based radiotherapy for **lung and gastrointestinal cancer**.

There were **23 IAEA participants from 13 RCA Member States** and **2 local participants**. The lecturers included two IAEA lecturer, Dr. Junichi Saito from Japan and Dr. Michael Wang from Singapore, and the Thai local lecturers.

The RTC consisted of country presentations, lectures, and practical hands-on sessions.





# RTC #6: RTC on Overview of 3D-CRT and Site Specific Radiotherapy Planning

at University of Malaysia Medical Centre  
Kuala Lumpur, MALAYSIA, November 4-8, 2013

There were **22 IAEA participants from 12 RCA Member States** and **4 local participants**. The lecturers included 3 IAEA lecturers and local lecturers. The RTC covered the **basic concepts and quality assurance of 3D conformal radiotherapy**.



# Final Review Meeting

16-19 December 2014

Gunma University Graduate School of Medicine, JAPAN

- Reviewed the overall activities/achievements of the project.
- All the regional activities have been implemented as planned, and the following national activities were implemented in each MS by the NPTs.



# Participation in Project Coordination Meetings / Expert Meeting

Country	Project Planning Meeting Jan. 2010	Midterm Review Meeting Nov. 2012	Final Review Meeting Dec. 2014	Expert Steering Meeting Aug. 2010
Bangladesh	participated	participated	participated	
Cambodia			participated	
China	participated	participated	participated	
India	participated	participated	participated	participated
Indonesia	participated	participated	participated	participated
Japan	participated	participated	participated	participated
Korea		participated	participated	
Malaysia	participated	participated	participated	
Mongolia		participated	participated	
Myanmar		participated		
Nepal				
New Zealand	participated			participated
Pakistan	participated	participated	participated	participated
Philippines	participated	participated	participated	participated
Singapore		participated	participated	
Sri Lanka	participated			
Thailand	participated	participated		participated
Vietnam	participated	participated	participated	

# Participation of Regional Training Courses

Country	RTC #1 PHI	RTC #2 INS	RTC #3 JPN	RTC #4 IND	RTC #5 THA	RTC #6 MAL	RTC Total
Bangladesh	2		2	1	2	1	8
Cambodia							0
China		2	1	1	2	2	8
India		2	1	2	2	2	9
Indonesia	2	5	2	2	2	2	15
Japan			2				2
Korea	1	1				2	4
Malaysia	2	2	2	2	2	4	14
Mongolia	2			1	2	1	6
Myanmar		2	2	2	2	2	10
Nepal					1	2	3
New Zealand							0
Pakistan	2	2	2		2	2	10
Philippines	4		2	2	2	2	12
Singapore		1	2	2	1	2	8
Sri Lanka	2		2	2	1	2	9
Thailand	2	2	2	1	2		9
Vietnam	2	2	2	2	2		10
All MSs	21	21	24	20	25	26	137







# RAS/6/053 Outputs

- RTCs
  - RTCs have been completed successfully as planned.
  - A total of 137 professionals have been trained in the evidence-based approach of 3D CRT and comprehensive quality assurance in 6 RTCs.
  - Training slides from the RTCs have been provided to the participants of the RTCs to be used for the national training activities.
  - Training slides were uploaded into the Cyber Learning Platform for Nuclear Education and Training (CLP4NET) for sharing among the Project counterparts.

# RTC slides on CLP4NET (IAEA Learning Management System)

Screenshot of the IAEA Learning Management System (CLP4NET) interface showing the RAS6053 course page.

**Browser Address Bar:** <http://plms-nkm.iaea.org/m2/course/vii>

**Page Header:** IAEA Learning Management System

**Navigation Bar:** My home ▶ My courses ▶ Management and Cooperation ▶ Regional Cooperative Agreements ▶ RAS6053

**Left Sidebar:**

- Main menu**
  - RAS6053 Final Review Meeting: List of Participants
  - Meeting Report of RAS6053 Final Review Meeting December 2014
- Navigation**
  - My home
    - Site home
    - Site pages
    - My profile
  - Current course
    - RAS6053**
      - Participants
      - Badges
      - RAS6053 "Improving Image Based Radiation Therapy ...
      - RTC #1 Philippines
      - RTC #2 Indonesia
      - RTC #3 Japan

**Course Title:** RAS6053 "Improving Image Based Radiation Therapy for Common Cancers in the RCA Region (RCA)" Regional Training Courses

**Description:** This webpage is the compilation of the lecture slides of Regional Training Courses held under RAS6053.

**Text:** The materials have been distributed to the RTC participants so that they can be used for the purpose of National Training Courses.

**Text:** At this time, please use the materials ONLY for the purpose of training at the national levels.

**Image:** A group photo of participants and organizers at the RAS6053 Final Project Meeting. The photo shows a group of people standing and sitting in front of a banner that reads "Final Project Meeting of RAS/6/053 Improving Image Based Radiation Therapy for Common Cancers in the RCA Region".


**Right Sidebar:**

- Search forums**
  - Go
  - Advanced search
- Latest news**
  - Add a new topic...
  - Tamaki Tomo 9 Jan, 03:59
  - Meeting Report of RAS6053 Final Review Meeting
  - Older topics ...
- Upcoming events**
  - There are no upcoming events
  - Go to calendar...
  - New event...
- Recent activity**
  - Activity since Thursday, 12 March 2015, 11:25 PM

# RTC slides on CLP4NET (IAEA Learning Management System)

### RTC #1 Philippines


"Image-Based Radiotherapy for Common Cancers Center, Manila, Philippines"



- Summary Report of RTC #1 Philippines 5.1MB PDF document
- 01 Stevens - Radiation Therapy Principles 1.1MB PDF document
- 02 Lacanilao - Current Situation & Perspectives 1.1MB PDF document
- 03 Calaguas - Introduction of the Project & Objectives 1.1MB PDF document
- 04 Van Dyk - Evolution of RT from 2D to 3D 1.1MB PDF document
- 05 Stevens - Milestones 397.6KB PDF document
- 06 Van Dyk - Definition of Target Volumes & Organs at Risk 1.1MB PDF document
- 07 Stevens - Patient Setup & Immobilization 1.1MB PDF document
- 08 Van Dyk - Imaging for Target Volume Delineation 1.1MB PDF document
- 09 Stevens - Plan Evaluation 2.1MB PDF document
- 10 Van Dyk - Treatment Planning 11.8MB PDF document
- 11 Stevens - Treatment Planning Clinical Considerations 1.1MB PDF document
- 12 Van Dyk - QA Clinical Considerations 1.1MB PDF document
- 13 Hu - Hands-On Practicals 3.4MB PDF document
- 14 Komaki - Lung Cancer Clinical Updates 1.1MB PDF document
- 15 Palta - Lung Cancer Physics 3.1MB PDF document
- 16 Hu - Head & Neck Clinical Updates 6.7MB PDF document
- 17 Palta - Head & Neck Physics 6.3MB PDF document
- 18 Ting - Varian Presentation 14.2MB PDF document
- 19 Chang - Gastrointestinal Cancer Clinical Updates 1.1MB PDF document
- 20 Palta - Gastrointestinal Cancer Physics 3.1MB PDF document
- 21 Chang - Gastrointestinal Cancer Case Studies 1.1MB PDF document
- 22 Bellon - Breast Cancer Clinical Updates 1.2MB PDF document
- 23 Palta - Breast Cancer Physics 3.5MB PDF document
- 24 Bellon - Breast Cancer Case Discussion 26.5KB PDF document
- 25 Warde - Genitourinary Cancer Clinical Updates 4.4MB PDF document

### RTC #2 Indonesia


"Regional Training Course on Introduction to Mangunkusumo National General Hospital, Jakarta, 28-30 May 2012"



- Summary Report of RTC #2 Indonesia 105.7KB PDF document
- RTC #2 Report - Indonesia 105.7KB PDF document
- 01 Introduction 348.9KB PDF document
- 02 Clinical Indication Outcomes 3MB PDF document
- 03 3DCRT with Teletherapy Cobalt 60 3MB PDF document
- 04a Evolution from 2D to 3D CRT 2.4MB PDF document
- 04b Patient Selection from 2D to 3D CRT 2.4MB PDF document
- 05 Patient Setup and Immobilization 3MB PDF document
- 06 Definition of Target and OAR 3MB PDF document
- 07 Target volume determination 23.1MB PDF document
- 08 Treatment Planning 2.3MB PDF document
- 09 Radiobiology Aspect 1.7MB PDF document
- 10 Plan Evaluation 4.5MB PDF document
- 11 Role of Record and Verify System 1.1MB PDF document
- 12 Treatment Hardware/Software for 3D CRT 1.1MB PDF document
- 13 QA and Treatment Verification 3MB PDF document
- 14 Uncertainties in RT - Defining Margins 1.1MB PDF document
- 15 Imaging for RT planning - Physics 1.1MB PDF document
- 16 H&N Nodal Delineation 2.2MB PDF document

### RTC #3 Japan


RAS6053 IAEA/RCA Regional Training Course on Image Based Radiotherapy (Uro-genital)  
Held in the Department of Radiation Oncology, Tata Memorial Hospital, Mumbai, India  
5 March to 9 March 2012



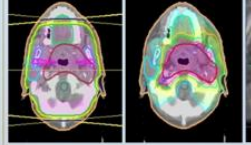
- News forum
- Summary Report of RTC #3 Japan 1.1MB PDF document
- 1-2-1 Brief Review from Previous RTC 1.1MB PDF document
- 1-2-2 Brief Review from Previous RTC 1.1MB PDF document
- 1-3 Diagnosis of Cervical Ca and Prostate Cancer 1.1MB PDF document
- 1-4 Introduction of IAEA ARBR 1.1MB PDF document
- 2-1 Principles of Radiation Therapy for Cervical and Prostate Cancer 1.1MB PDF document
- 2-2 Imaging for target volume and OAR 1.1MB PDF document
- 2-3 Target Delineation for cervical cancer 1.1MB PDF document
- 2-4 Treatment Planning for 3D CRT for Cervical and Prostate Cancer 1.1MB PDF document
- 2-5 Brachytherapy for cervical cancer 1.1MB PDF document
- 2-6 Treatment Planning for brachytherapy 1.1MB PDF document
- 2-7 Radiation therapy in Japan 13.2MB PDF document
- 3-1 Clinical background of Prostate Cancer 1.1MB PDF document
- 3-2 Radiobiology of Prostate Cancer 1.1MB PDF document
- 3-3 RT Principles for Prostate Ca 9.7MB PDF document
- 3-4 Definition of target volume, OAR, and危及器官 1.1MB PDF document
- 3-5 Treatment Planning for 3D CRT for Prostate Cancer 1.1MB PDF document
- 3-6 Overview of Treatment Strategy for Prostate Cancer 1.1MB PDF document

### RTC #4 India

"IAEA RCA Training Course on Image Based RT for Head & Neck and Breast Cancer", 1-5 October 2012, Tata Memorial Hospital, Mumbai, India.



IAEA/RCA TRAINING COURSE  
IMAGE BASED RT FOR HEAD & NECK AND BREAST CANCER  
1st to 5th October 2012




Tata Memorial Centre,  
Advanced Centre for Treatment, Research and Education  
Navi Mumbai.

- Summary Report of RTC #4 India 2.2MB PDF document
- 1. Introduction IAEA\_RCA\_6053\_Mumbai Document 1.1MB PDF document
- 2. Principles of moving from 2D RT to 3D CRT 1.1MB PDF document
- 3. Basics of Target volume delineation ICRU 1.1MB PDF document
- 4. Immobilisation & image acquisition in Breast Cancer 1.1MB PDF document
- 5. Principles of treatment planning - Ms. SV. 1.1MB PDF document
- 6. Quality Assurance in a Radiotherapy department 1.1MB PDF document
- 7. Overview of H&N cancers in the developing world 1.1MB PDF document
- 8. Head & Neck Anatomy for Radiation Oncology 1.1MB PDF document

### RTC #5 Thailand

"Image Based Radiotherapy and QA for Lung and Gastrointestinal Cancer", 6-10 May 2013, Chulalongkorn University, Bangkok, Thailand.



- Summary Report of RTC #5 Thailand 3.2MB Powerpoint presentation
- RAS6053 RTC #5 Thailand Program 6-10 May 2013 38.5KB PDF document
- 1 Principle of image based radiation therapy 12.3MB PDF document
- 2 Fractionation in lung cancer 3.7MB PDF document
- 3 QA in image based radiation therapy 6.1MB PDF document
- 4 Imaging of lung cancer Nifra 7.7MB PDF document
- 5 Patient setup in lung cancer 8.8MB PDF document
- 6 Definitive radiotherapy for locally advanced NSCLC 7.9MB PDF document
- 7 Palliative radiotherapy for advanced lung cancer 9.3MB PDF document
- 8 Definition and delineation of target volumes and OAR in lung 8.7MB PDF document
- 9 Imaging for esophageal biliary and pancreatic 5.7MB PDF document
- 10 Patient setup for esophageal cancer 8.5MB PDF document
- 11 Radiotherapy for esophageal cancer 2MB PDF document
- 12 Radiotherapy for biliary pancreatic 3.6MB PDF document
- 13 Definition and delineation of target volumes and OAR in esophageal cancer 3.2MB PDF document
- 14 Imaging of rectal cancer 2.8MB PDF document
- 15 Patient setup for anorectal cancer 5.3MB PDF document
- 16 Radiotherapy for anorectal cancer 6.1MB PDF document
- 17 Definition and delineation of rectum 5MB PDF document
- 17 Definition and delineation of rectum 5MB PDF document
- 18 Patient setup for moving target radiotherapy 2.6MB PDF document

# Status of Project Outputs (1)

Outputs	Indicators	Results
Output 1: Project management structure	Successful implementation of national and regional work plans	<input checked="" type="checkbox"/> Completed All the planned regional activities have been implemented successfully as planned, and all the national work plans were implemented.
Output 2: <b>Technical documents</b> suitable for establishing QA programme for clinical application of image based radiotherapy for RCA MSs	Availability of technical documents	<input checked="" type="checkbox"/> Completed <b>All the lecture slides and the relevant IAEA documents</b> have been provided to the participants of RTCs and the NPCs.
Output 3: <b>Standardized teaching materials</b> for clinical application of image based radiotherapy for RCA Member States	Availability of standardized teaching materials	<input checked="" type="checkbox"/> Completed <b>Teaching materials from the RTCs</b> including lecture slides and <b>the teaching materials of TECDOC1588</b> are available and provided to the participants of RTCs and the NPCs.

# Status of Project Outputs (2)

Outputs	Indicators	Results
Output 4: <b>Personnel trained</b> on clinical application of imaging based radiotherapy	Number of member States developing the capability of applying the technical documents	<input checked="" type="checkbox"/> Completed All the participating Member States have formed the National Project Teams to conduct national training activities. <b>137 professionals have been trained in the 6 RTCs held in this project</b> , and the professionals have <b>conducted the national training activities</b> in all the participating MSs.

# Status of Project Outcomes (1)

Outcome Statement	Outcome Indicator(s)	Status
1. The optimum and efficient <b>use of image based radiotherapy and its QA through utilization of technical documents and</b> standardized teaching materials.	Number of Member States effectively using the documents or standardized teaching materials.	<input checked="" type="checkbox"/> Achieved <b>All the 16 MSs</b> are using the IAEA technical documents and standardized teaching materials.
2. The capability of the <b>Member States to conduct national training courses</b> on image based radiotherapy and its QA.	2.1. Number of national training course on image based radiotherapy and QA implemented in MSs 2.2 Number of MSs where national training course on image based radiotherapy was implemented	<input checked="" type="checkbox"/> Achieved The <b>National Project Teams</b> of all the MSs have conducted the national training courses on image-based radiotherapy. <b>At least 40 NTCs</b> were conducted in the project.

# Status of Project Outcomes (2)

Outcome Statement	Outcome Indicator(s)	Status
<b>3. Increase in the number of radiotherapy facilities implementing QA /QC programmes for image based radiotherapy according to accepted protocols</b>	Number of facilities Implementing QA /QC programmes for image based radiotherapy.	<input checked="" type="checkbox"/> Achieved The number of radiotherapy facilities implementing QA/QC programmes for image based radiotherapy has <b>increased</b> , as reported by the NPCs. The substantial increase has been reported: the exact numbers of such facilities have been reported by some NPCs; <b>For example, Indonesia – from 9 centers (2009) to 20 centers (2014).</b>



# Status of Project Outcomes (3)

Outcome Statement	Outcome Indicator(s)	Status
<p>4. Establishment of formal <b>relationships between IAEA/RCA, national Rad. Oncology Associations.</b></p>	<p>Number of participated national Rad. Oncologists. Number of Rad. Oncology Association assisting National Training Course</p>	<p>☑ Achieved</p> <p>Cooperation with national Radiation Oncology societies have been achieved. National professional societies such as <b>BSRO</b> (Bangladesh), <b>CSRO</b> (China), <b>AROI/AMPI</b> (India), <b>IROS</b> (Indonesia), <b>MOS</b> (Malaysia), <b>CRS/SRS</b> (Singapore), <b>KOSRO/KSMP</b> (Korea), <b>PROS/POMP</b> (Philippines), <b>VSC</b> (Vietnam), <b>THASTRO</b> (Thailand), and <b>SEAROG</b> (South East Asia) have assisted in the implementation of National Training Courses and propagating the objectives of the project. These societies and other societies such as <b>JASTRO</b> (Japan) and <b>ASTRO</b> (USA) have assisted the implementation of Regional Training Courses.</p>

# Status of Project Outcomes (4)

Outcome Statement	Outcome Indicator(s)	Status
5. Increase in the <b>cooperation between IAEA/RCA, FNCA</b> and other regional bodies.	Number of lectures /Contents of the cooperation among IAEA/RCA, FNCA and other regional bodies.	<input checked="" type="checkbox"/> Achieved Cooperation with FNCA has been achieved through the <b>participation of RCA experts in the FNCA workshop</b> in Radiation Oncology.

# Status of Project Outcomes (5)

Outcome Statement	Outcome Indicator(s)	Status
6. Contribution to the regional Rad. Oncology and evidence based radiotherapy.	Number of participating Rad. Oncologists/lectures in activities of this project.	<p>☑ Achieved</p> <p>Cooperation with national Radiation Oncology societies have been achieved. National professional societies such as <b>BSRO</b> (Bangladesh), <b>CSRO</b> (China), <b>AROI/AMPI</b> (India), <b>IROS</b> (Indonesia), <b>MOS</b> (Malaysia), <b>CRS/SRS</b> (Singapore), <b>KOSRO/KSMP</b> (Korea), <b>PROS/POMP</b> (Philippines), <b>VSC</b> (Vietnam), <b>THASTRO</b> (Thailand), and <b>SEAROG</b> (South East Asia) have assisted in the implementation of National Training Courses and propagating the objectives of the project. These societies and other societies such as <b>JASTRO</b> (Japan) and <b>ASTRO</b> (USA) have assisted the implementation of Regional Training Courses.</p>

# Status of Project Outcomes (6)

Outcome Statement	Outcome Indicator(s)	Status
7. Capability of applying the technical documents for clinical application of image based radiotherapy	Number of member States developing the capability of applying the technical documents.	<p>☒ Achieved</p> <p>The number of radiotherapy facilities implementing image based radiotherapy has increased, as reported by the NPCs. <b>The substantial increase</b> has been reported: the exact numbers of such facilities have been reported by some NPCs; submitted in the final report of Final Review Meeting.</p>
8. Sustainability of progress in image based radiation therapy	<p>Organization or systems which provide sustainable progress in image based radiation therapy</p> <p>Number of centres applying image based radiotherapy</p>	<p>☒ To be achieved as planned (on schedule)</p> <p>Activities of <b>NPTs</b> and the cooperation with <b>national professional societies</b> are formalized and will continue in the future for sustainability of project outcomes. The sustainability is expected to be strengthened with <b>the implementation of a future RCA project</b> in radiation oncology field.</p>

# Conclusions

- RAS/6/053 activities have been implemented successfully.
- All the outputs and almost all outcomes were achieved successfully.
- Further efforts will be continued by the NPTs, also through RAS/6/072 (Intensity Modulated Radiation Therapy project).