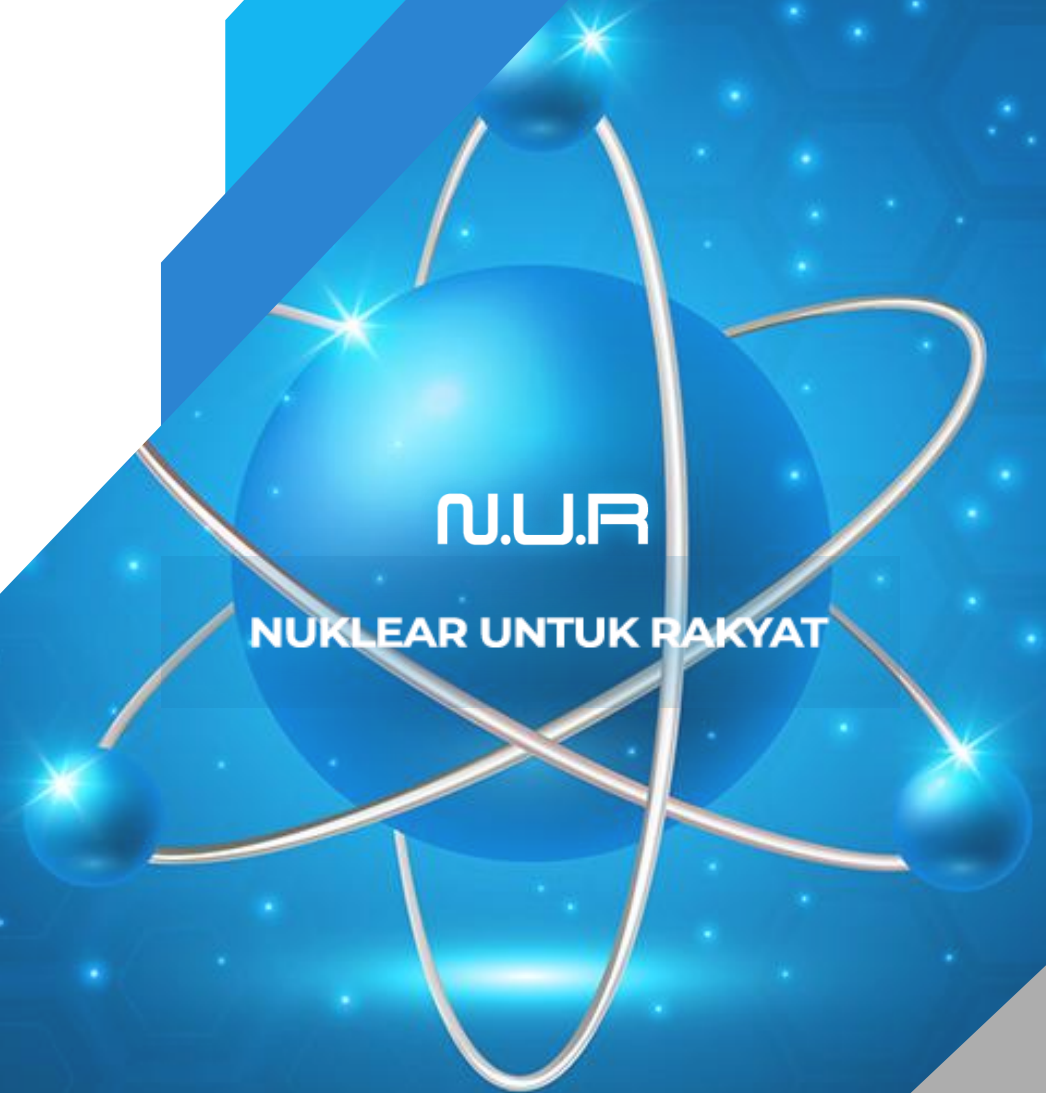




# REPORT ON THE RCA TECHNICAL COOPERATION PROGRAM - INDUSTRY

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National Representative  
Malaysia  
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**RAS1028**

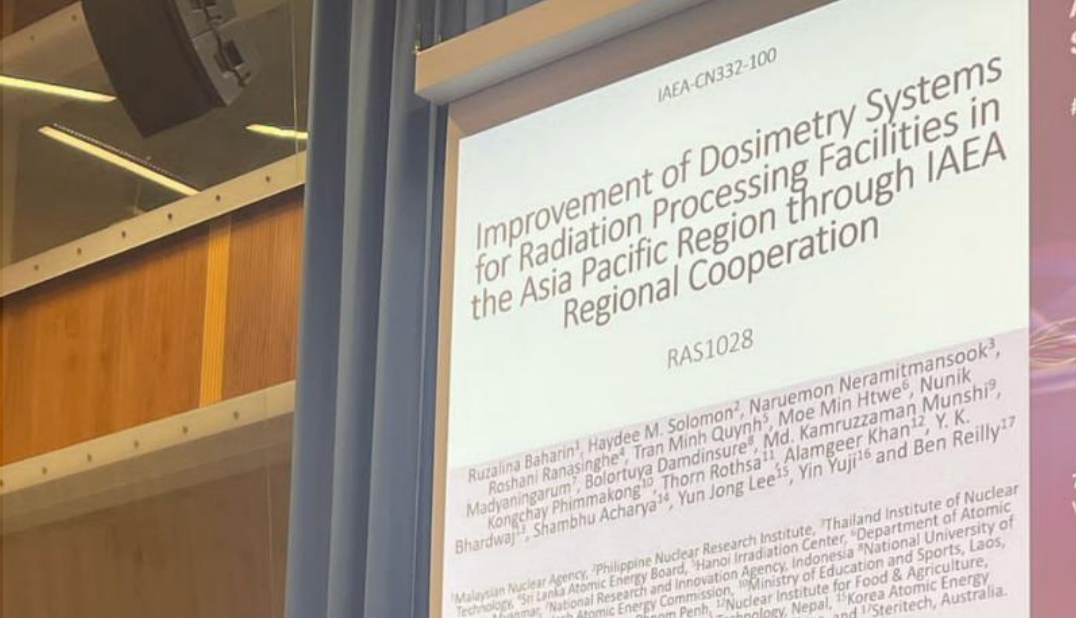


**IAEA**



**R C A**

**N.U.R.**  
NUKLEAR UNTUK RAKYAT



# BACKGROUND



## RAS1028



### TITLE

Improving the Quality Practices in Radiation Processing Facilities for Better Performance and Applications



### OBJECTIVE

To improve the level of competitiveness and customer satisfaction of radiation processing facilities of RCA GPs



### OUTCOME

QM practices conform to international established at irradiation facilities of the participating GPs



### APPROVED FUNDING

USD641,150



17 member states participated in the RAS1028 project with three types of member states according to the level of implementation of quality management practices for radiation processing facilities

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**Beginner countries**

Cambodia, Lao P.D.R,  
Mongolia, Myanmar,  
Nepal

**Resource/ Advanced countries**

Australia, China, Korea

**Intermediate countries**

Bangladesh, India, Indonesia,  
Malaysia, Pakistan, Philippines,  
Sri Lanka, Thailand, Vietnam





# RAS1028



## OUTPUT 1

Guidelines on conforming to the international standards relevant to the radiation processing facilities obtained and familiarised



## OUTPUT 2

Personnel trained in QM practices of radiation processing facilities



## OUTPUT 3

Laboratories are capable of carrying out calibrations and measurements required to conform to quality standards

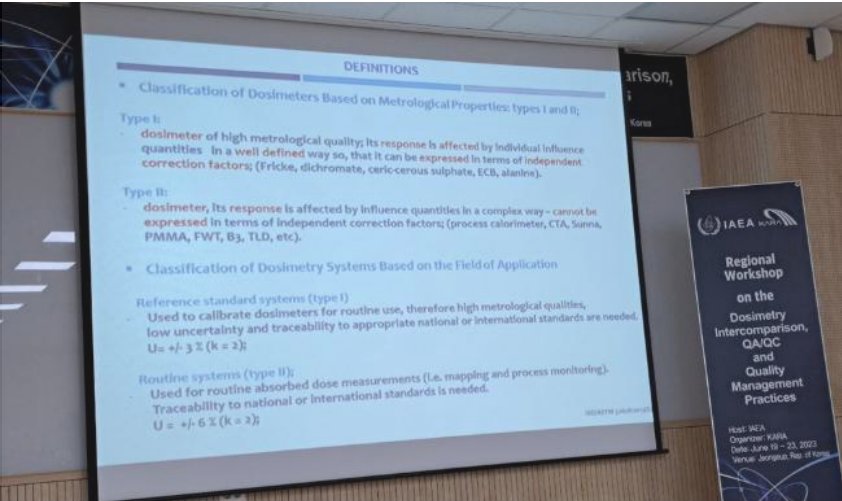


## OUTPUT 4

Documentation required to obtain certification of the QMSs from certification bodies of the participating GPs established

# OUTPUT 1

## Guidelines on conforming to the international standards relevant to the radiation processing facilities established



Procurement of  
**14** ISO standards

by the IAEA and distributed to all member countries for training use. During regional training courses and workshops, participants are exposed to the standard for **understanding and familiarization** through lectures, visits and mock audit activity.

My Drive > RAS1028 > Standards

Type People Modified

Name

ISO\_13004\_2022(en).pdf

ISO\_11137-2\_2013(en).pdf

ISO\_ASTM\_51707\_2015(en).pdf

ISO\_11137-1\_2006(en).pdf

ISO\_14470\_2011(en).pdf

ISO\_4832\_2006(en).pdf

ISO\_13485\_2016(en).pdf

ISO\_11137-3\_2017(en).pdf

ISO\_IEC\_17025\_2017(en).pdf

en-iso-11137-1-2015.pdf

ISO\_TS\_11137-4\_2020(en).pdf

ISO\_17994\_2014(en).pdf

ISO\_6222\_1999(en).pdf

en-iso-11137-2-2015.pdf

ISO\_4831\_2006(en).pdf

ISO\_9001\_2015(en).pdf





# OUTPUT 2

Personnel trained in QM practices in radiation processing facilities

300 Personnel trained by Q4/2025 from regional and national training courses

## 2022

**Kick-off Meeting** – 28-31 March, online via MS Teams

**RTC1** – Guidelines and Standards of Quality Management for Radiation Processing Facilities, 28 Nov-2 Dec, Putrajaya, Malaysia

## 2023

**RW** - Dosimetry Intercomparison, QA/QC and Quality Management Practices, 19-23 June, Jeongoup, Korea

**RTC2** – Significance and Importance of Dosimetry System and Associated Uncertainty for Radiation Processing Facilities, 13-17 Nov, Bangkok, Thailand

## 2024

**Mid-term Meeting** – 4-8 March, Suzhou, China

**RTC3** – Quality Assurance and Quality Control for Gamma Dosimetry Applications, 24-28 June, Philippines

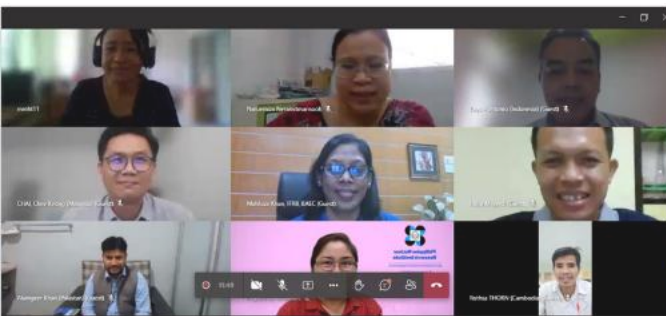
**RTC4** - Quality Assurance and Quality Control for EB Dosimetry Applications, 7-11 Oct, Ho Chi Minh City, Vietnam

## 2025

**RTC5** – QC Procedures Implementation of ISO 13485 with provision of ISO 11137 for Medical Device Industries, Q3, Sri Lanka

ICARST 2025, 7-11 Apr, Vienna

**Final Meeting** – Q4, Malaysia



# OUTPUT 3

Laboratories are capable of carrying out calibrations and measurements required to conform to quality standards

**1** Dosimetry intercomparison exercise to validate dose measurements at radiation processing facilities. The identified SSDL will validate the measurements and compare the results among the participants.

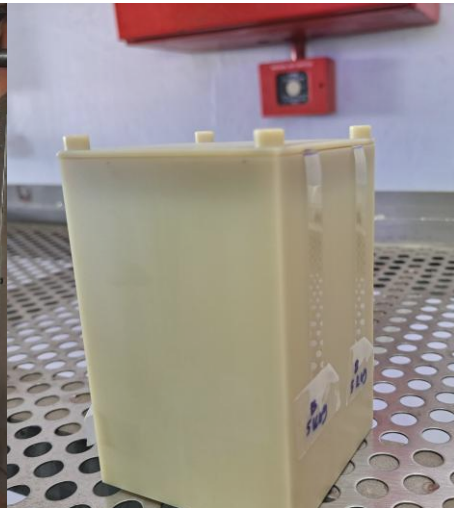
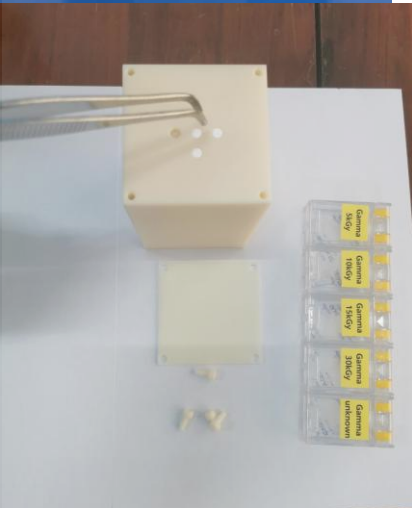
**Procurement of:**

**19** sets of alanine dosimeters and holders

for dosimetry intercomparison exercise for 19 radiation processing facilities (RFP) involved. This exercise is crucial for RFP to ensure the quality of their services.

**3** sets of dosimeters

(gamma calibration set, EB calibration set and EB calorimeter). It helps member states to develop laboratories with the capacity to carry out calibrations and measurements.





# OUTPUT 4

Documentation required to obtain certification of the QMSs from certification bodies of the participating GPs established



# HIGHLIGHTS



## GUIDELINES EXPOSURES AND FAMILIARISATION

- Procurement of 14 quality management procedures
- Guidelines familiarization throughout the training courses
- Mock audit activity



## 300 PERSONNEL TRAINED

- 5 Regional Training Course (RTC)
- 1 Regional Workshop (RW)
- 1 conference participation
- Expert mission to assist lab upgrade to meet the requirements of the quality manual



## CAPABLE LABORATORIES

- Procurements of gamma calibration set, EB calibration set and EB calorimeter
- Procurements of 19 sets of alanine dosimeters and holders for dosimetry-intercomparison exercise
- 1 dosimetry inter-comparison exercise participated by 19 radiation processing facilities

# RAS1028 Conclusion



IAEA



R C A

**“The RAS1028 project has progressed effectively by implementing all planned activities. The strong support from the IAEA and all member states has been invaluable.”**







# RAS1029



**IAEA**



**R C A**

**N.U.R.**  
NUKLEAR UNTUK RAKYAT

## PROJECT DURATION



2023 - 2026

## APPROVED FUNDING



EUR 660,625

## SCOPE



1. Advanced NDT
2. NDT for civil structures
3. NDT for composites

## OUTPUTS



- Output 1  
Personnel trained and competent in advanced NDT inspection
- Output 2  
Personnel trained and competent in NDT for civil structures
- Output 3  
Capabilities in advanced radiation-based NDT for composite inspection established

# RAS1029



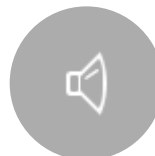
### TITLE

Enhancing Regional Capabilities in Advanced Non-Destructive Testing Techniques for Improved Safety and Inspection Performance in Industries (RCA)



### OBJECTIVE

To establish regional advancement in NDT to fulfil the requirements set by global standards for self-reliance and sustainable NDT systems of GPs



### OUTCOME

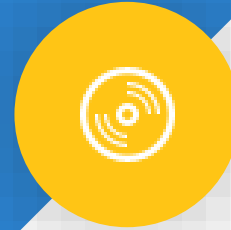
Strengthened regional capabilities in advanced NDT techniques and applications for sustainable industrial development



21

Participating Member States in the RCA NDT project

# RAS1029 Activities



## OUTPUT 1

Personnel trained and competent  
in advanced NDT inspection



## OUTPUT 2

Personnel trained and competent in  
NDT for civil structures



## OUTPUT 3

Capabilities in advanced radiation-  
based NDT for composite inspection  
established



IAEA



R C A

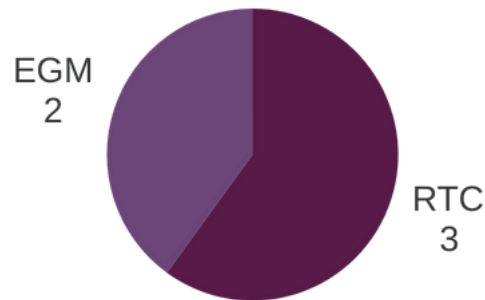


## OUTPUT 1

Personnel trained and competent in advanced NDT inspection

### ACTIVITY

- Establishing capabilities in Radiographic Testing-Digital (RT-D) technique
- Developing capabilities in Phased Array Ultrasonic Testing (PAUT) technique



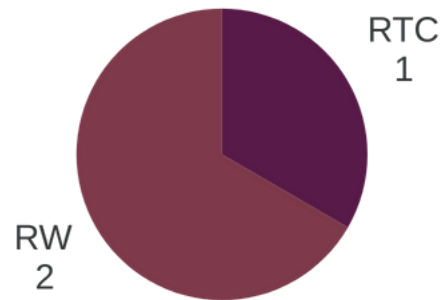
## OUTPUT 2

Personnel trained and competent in NDT for civil structures

### ACTIVITY

- Establishing capabilities in NDT inspection for civil structures

## Inputs

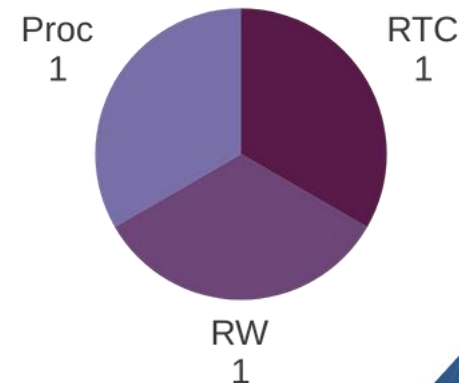


## OUTPUT 3

Capabilities in advanced radiation-based NDT for composite inspection established

### ACTIVITY

- Instituting NDT application for composite inspection





# RAS1029 Implementation

RAS1029 | IMPLEMENTATION



2023



## MALAYSIA

Train the trainers on RT-D Level 2  
with certification (15 May - 1 June)

## INDONESIA

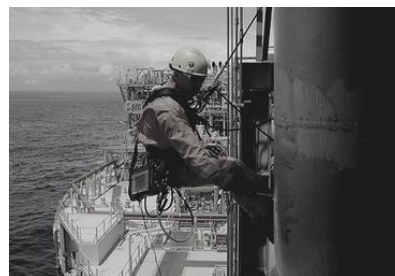
Meeting on Harmonization of National  
Programs for Development and  
Application of NDT Techniques in line with  
the Objectives of RAS1029 (21 - 25 Aug)

## SOUTH KOREA

RTC on PAUT with ISO 9712 Level  
2 certification (16 Oct - 8 Nov)

## IAEA

Procurement of some NDT essential  
items of equipment for  
participating countries.





RAS1029 | IMPLEMENTATION



2024



## NEW ZEALAND

EGM to develop a draft document and question banks on PAUT (15 - 19 Apr)



## BANGLADESH (MOVED TO VIENNA)

EGM to develop question banks on RT-D (1 - 5 July) (postponed to 14 - 18 Oct)



## SINGAPORE

RW on NDT techniques for quality control in civil engineering (9 - 13 Sept)



## THAILAND

Mid-Term Review Meeting for NPCs to review the project progress and discussion on gaps and strategy for successful implementation (7 - 11 Oct)



RAS1029 | IMPLEMENTATION



2025



## MALAYSIA

RTC on RT-D Level 3 for  
personnel involve in the NDT  
qualification and certification  
scheme (7 – 16 July)

## NEW ZEALAND

RW on ISO 9712 qualification and  
certification requirements in NDT  
for civil structures (8 – 12 Sept)

## SOUTH KOREA

Refresher course and qualification  
examination on PAUT Level 2  
(27 – 31 Oct)

RAS1029 | IMPLEMENTATION



2026



## SINGAPORE

RTC on NDT for civil structures for certification as per ISO 9712

(13 – 24 April)

## SOUTH KOREA

RW on practical applications of CT and 3D volumetric for composite NDT inspection (7 – 16 Sept)

## VIET NAM

Final review meeting to assess the achievements and planning of future project. (30 Nov – 4 Dec)





NUKLEAR  
MALAYSIA



# RAS1029 Highlight 2024



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# RAS1029

To Develop a Draft Document and Question Banks on PAUT

## EXPERT GROUP MEETING



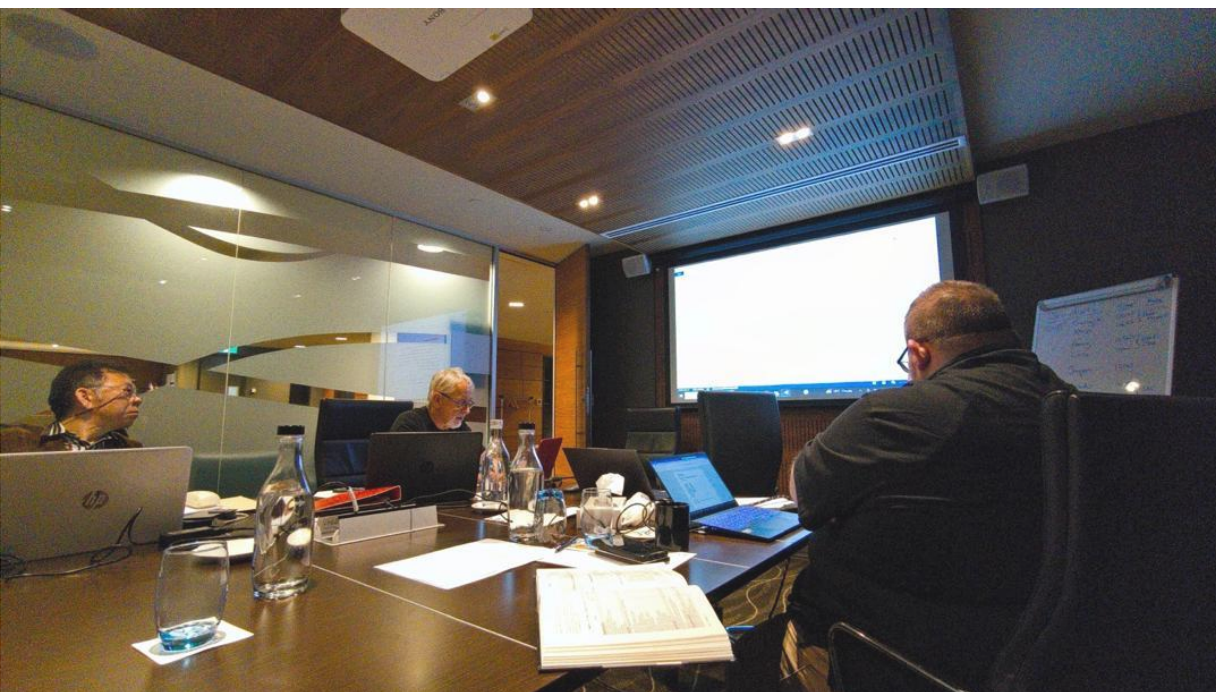
Christchurch, New Zealand.

15 – 19 April 2024





# HIGHLIGHTS



- 01. 7 subject matter experts were involved in the development of question banks for PAUT Level 2 and Level 3, aligned with ISO 9712 and ISO/TS 25107.
- 02. The question banks are designed to support standardized and competency-based certification in accordance with international requirements
- 03. These question banks will be shared with GPs to assist in expanding their existing certification schemes to include PAUT.



# RAS1029

NDT Techniques for Quality Control in Civil Engineering

## REGIONAL WORKSHOP



Singapore.

9 – 13 September 2024



# HIGHLIGHTS



01. A total of 21 participants from 15 GPs attended the workshop.
02. The course was designed to offer comprehensive technical insights into NDT techniques applied in civil engineering.
03. Participants were introduced to relevant practices, guidelines, and standards to support effective implementation of NDT in the civil engineering sector.



# RAS1029

To Review the Project Progress and Discussion on Gaps and Strategy for Successful Implementation

## Mid-Term Review Meeting



Bangkok, Thailand.

7 – 11 October 2024





# HIGHLIGHTS



01. The meeting focused on assessing the progress of Project RAS1029 against its defined goals and milestones, while evaluating the effectiveness of current strategies.
02. Key challenges and areas requiring further attention were identified to ensure continued alignment with project objectives.
03. Participants reached a strong consensus on the planned activities for 2025 and 2026, establishing a clear roadmap to support ongoing regional development in NDT.

# RAS1029

To Develop Question Banks on RT – D

## EXPERT GROUP MEETING



Vienna, Austria.

14 – 18 October 2024





# HIGHLIGHTS



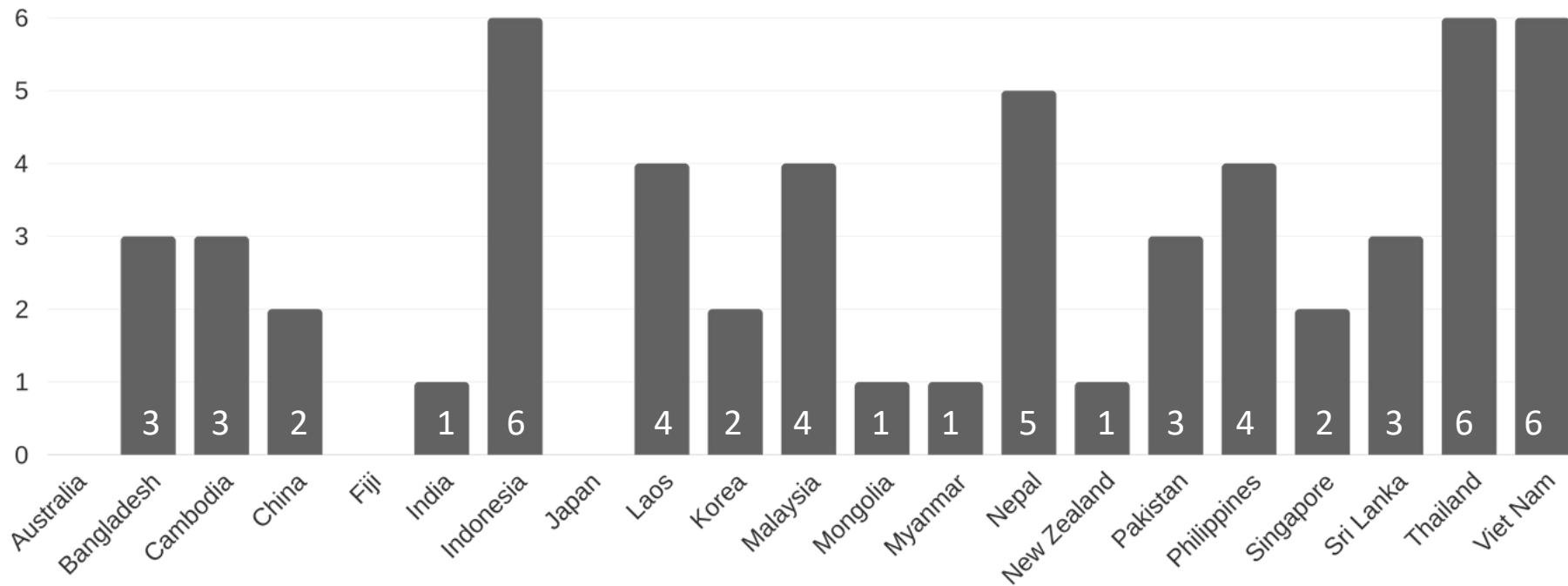
- 01.** 5 subject matter experts were involved in the development of question banks for RT-D Level 2 and Level 3, aligned with ISO 9712 and ISO/TS 25107.
- 02.** The question banks are designed to support standardized and competency-based certification in accordance with international requirements
- 03.** These question banks will be shared with GPs to assist in expanding their existing certification schemes to include RT-D.



# RAS1029 Performance



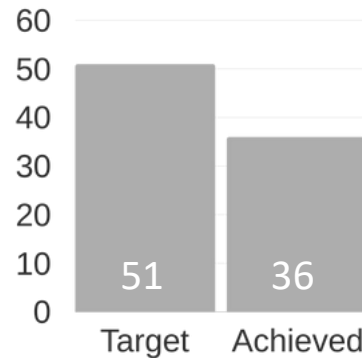
## Participation analysis - RAS1029 (2023 - 2024)



Total 57 Participants

# Performance Indicators - RAS1029

3 RTC

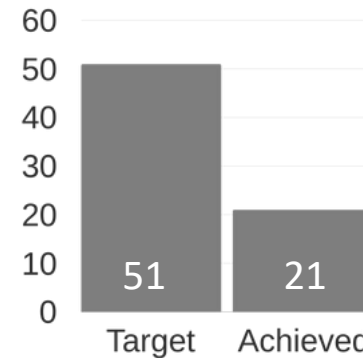


## ADVANCED NDT

51 trained personnel in advanced NDT techniques

At least 17 national training events on RT-D and PAUT with local trainers involved by Q4 2026 (1 national training event per each Target GP).

1 RTC, 2 RW

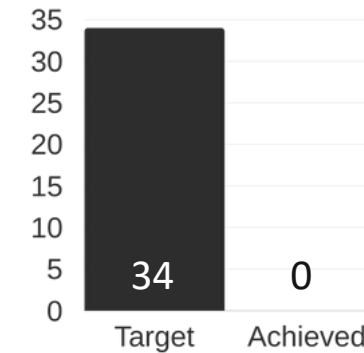


## CIVIL STRUCTURES

51 trained personnel in NDT for civil structures

At least 17 national training events on NDT for civil structures with local trainers involved by Q4 2026 (1 national training event per each Target GP).

1 RTC, 1 RW



## COMPOSITE

34 trained personnel in advanced radiation-based NDT for composite inspection

At least 17 national training events on advanced radiation-based NDT for composite with local trainers involved by Q4 2026 (1 national training event per each Target GP).



# RAS1029

## Conclusion



# RAS1029

## Conclusion

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The project is progressing well with great support and cooperation received from the IAEA and National Project Coordinators (NPC) in the planning and implementation of activities



# Thank you

**DR. ROSLI DARMAWAN**

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Malaysian Nuclear Agency  
Ministry of Science, Technology and Innovation

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