



Australian Government



Radiological Emergency Preparedness and Response Training and Capability Development in South East Asia

Presented by Andrew Popp
Regional Security of Radioactive Sources Project

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Regional Security of Radioactive Sources Project

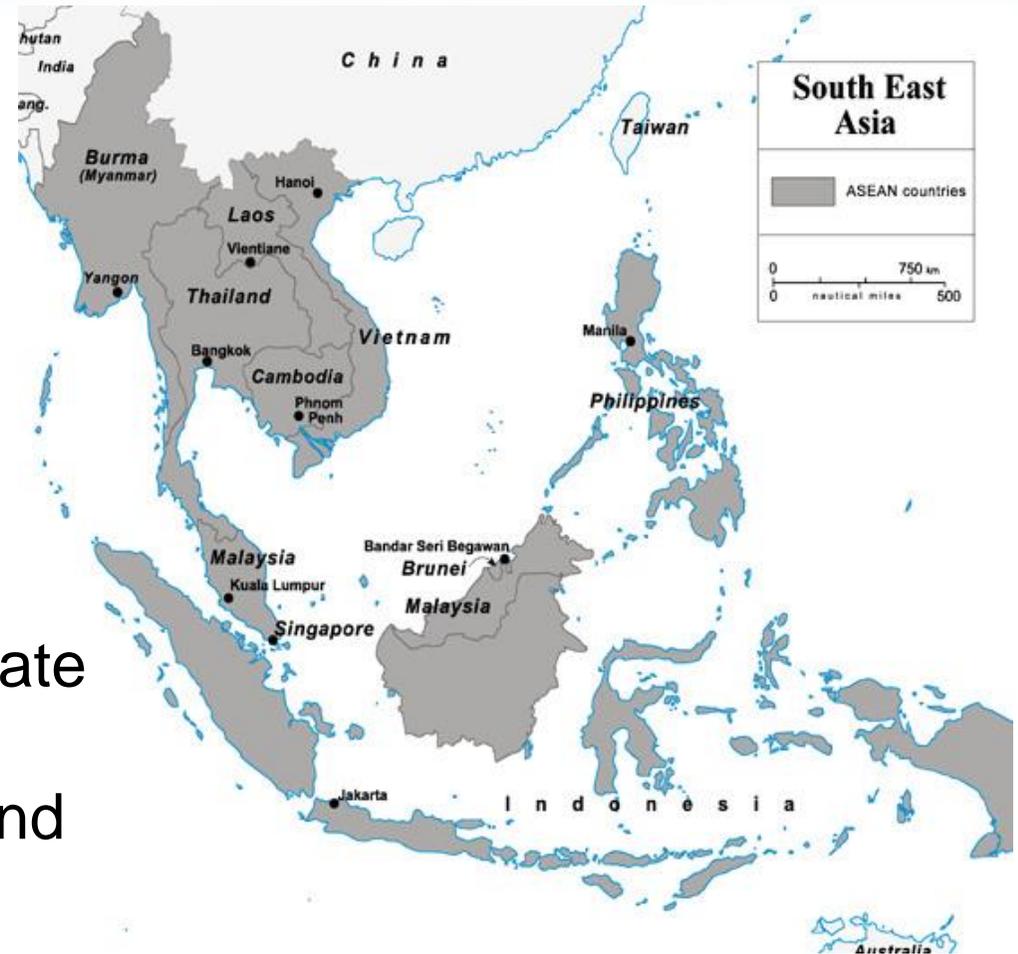
South East Asian EPR Cooperation

Countries

- Indonesia
- Malaysia
- Philippines
- Thailand

Objective

Ensure adequate and coordinated EPR with appropriate procedures, people and equipment to deal effectively and safely with malicious acts involving radioactive materials.

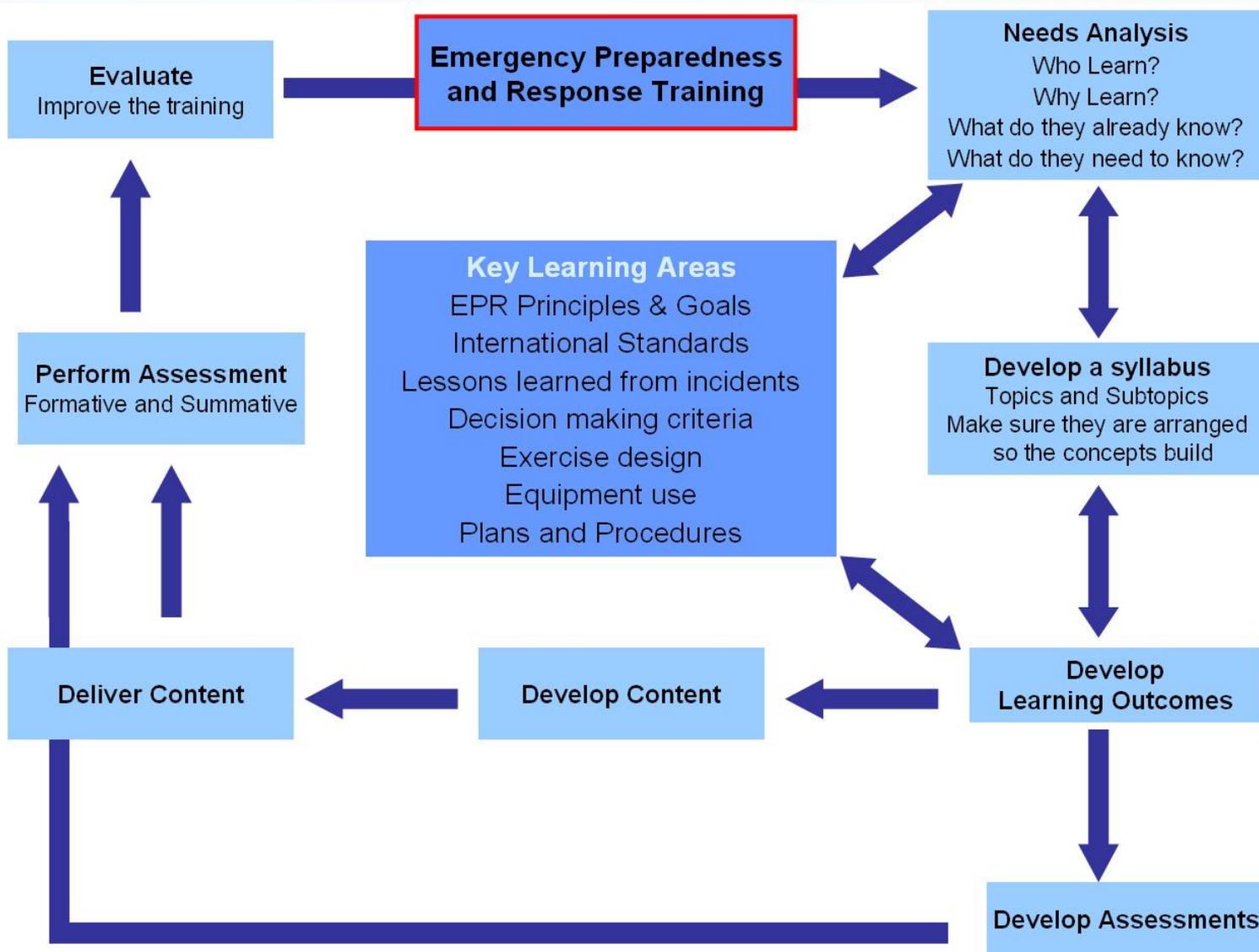


Methods

- a) needs analyses and development, including training courses and train-the-trainer workshops
- b) provision of radiation detection equipment, training and exercises using that equipment
- c) training for, and conducting, radioactive source search and recovery; and
- d) building radiological emergency preparedness and response capabilities to deal with dirty bomb or sabotage scenarios.

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EPR Training – A Systematic Approach



Key Learning Areas

- goals, roles and responsibilities of EPR
- scope of a response structure needed for a malicious incident involving nuclear or radiological materials
- effective use of radiation detection equipment in such incidents
- relevant international guidance, decision-making criteria, and procedures
- training and exercise techniques

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EPR Training – A Systematic Approach

Fundamentals

- | | |
|---|--|
| a) Goals of emergency response | i) First Responder decontamination monitoring of people and equipment |
| b) Expected phases of a response (including relevance to on- and off-site operations) | j) Emergency medical and field triage of casualties Basic plume modelling and calculations |
| c) Lessons learned in radiological incidents | k) ERAIMS: Plume modelling software and the ANSTO experience |
| d) Overview of the IAEA First Responder Manual | l) Monitoring team deployment principles (airborne I-131 as an example) |
| e) Overview of roles of First Responders | m) Exercise Planning |
| f) Role of Incident Commander (what the radiological assessor can expect) | n) RANET – a benchmark |
| g) Role of Radiological Assessor (on- and off-site) | |
| h) Radiation monitoring and air sampling instrumentation | |

Criteria and Procedures

- | | |
|---|---|
| a) Generic and Operational Intervention Levels (GILs and OILs) | e) Source recovery / removal: Procedure D1 from TECDOC 1162 |
| b) EPR Plans | f) Decontamination of people and equipment: Procedure D2 from TECDOC 1162 |
| c) Introduction to dose assessment (Section E of TECDOC 1162 as an assessment resource) | g) Removal of radioactive wastes: Procedure D3 from TECDOC 1162 |
| d) Managing radiological response: Procedure D0 from TECDOC 1162 | h) Tutorials for each of the above criteria and procedures sessions |

Train-the-Trainer

- a) Learning Outcomes
- b) Structure & Assessment
- c) Exercise Planning: review of target audience and competencies
- d) Competency review and propose outline of classroom and exercise training (Who? What? How? Why?)
- e) Devise an exercise (practical or tabletop) for a future workshop
- f) How to evaluate an exercise

Exercises

- a) Radiological exposure device (RED) search and recovery practical exercise
- b) Airborne radioiodine release from reactor sabotage practical exercise
- c) Radiological dispersal device (RDD or “dirty bomb”) incident practical exercise
- d) Interoperability between radiological assessors and response agencies tabletop exercise
- e) Debrief and a review of learning outcomes following each exercise

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EPR Training – A Systematic Approach

Practical

- radiological exposure device search and recovery
- airborne radioiodine release from reactor sabotage
- radiological dispersal device or “dirty bomb” incident

Tabletop

- interoperability between radiological assessors and response agencies



EPR Cooperative Activities Indonesia

July 2011
BATAN
radiological
assessors
conducting
practical
exercises for
security-related
radiological
incidents



EPR Cooperative Activities Indonesia



November 2011
BATAN field assistance teams conducting a RDD incident practical exercise



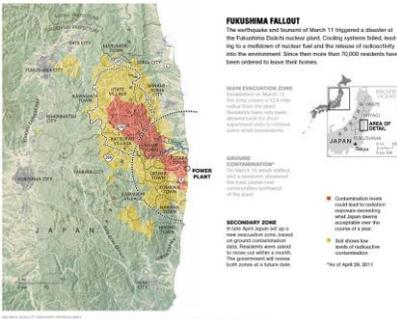
EPR Cooperative Activities Malaysia



Simulated Airborne Monitoring Exercise

February 2010 and March 2011

- Atomic Energy Licensing Board
- Nuclear Malaysia
- Royal Malaysia Police
- Department of Health
- Chief Government Safety/Security Office



EPR Cooperative Activities Thailand & Philippines

July and August 2010

Train-the-Trainer Workshops

- Thailand Institute of Nuclear Technology
- Thailand Office of Atoms for Peace
- Philippines Nuclear Research Institute



EPR Cooperative Activities Sustainability

January 2011 and February 2012

EPR Workshops for PNRI Radiological Emergency Monitoring and Control Teams

June 2011

Thailand National Radiation Emergency Exercise

Outcomes

- Implementing the Systematic Approach to Training
- Tested the effectiveness of manuals and lessons learned incorporated
- Demonstrating self-sufficiency and sustainability



Bataan, Philippines January 2011

*Give a man a fish and you feed him for a day
Teach him how to fish and you feed him for a lifetime*
- Lao Tzu 老子

Regional Security of Radioactive Sources Project

Philippines Testimonial

“We wish to express our deep appreciation to the RSRS Project for all the technical assistance provided, for without which, the PNRI would not have responded as well to the Fukushima nuclear accident”,

Dr Alumunda Dela Rosa,
Director PNRI



Republic of the Philippines
Department of Science and Technology
PHILIPPINE NUCLEAR RESEARCH INSTITUTE
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Telephone Nos. 929-8010 to 19 Fax No. 920-1646

1 July 2011

Dr. Adi Paterson
Chief Executive Officer
Australian Nuclear Science and Technology Organization
New South Wales, Australia

Dear Dr. Paterson,

This pertains to the Regional Project on Security of Radioactive Sources which is currently implemented in the country through the Philippine Nuclear Research Institute. The project is primarily supported by the Australian Nuclear Science & Technology Organization in cooperation with the US Department of Energy NNSA Program and the International Atomic Energy Agency. The ANSTO project, over a period of more than five years have provided expert services, training opportunities for both the regulatory staff of the PNRI as well as users of high risks radioactive sources in the country. The project has immensely contributed to the strengthening of our radiation safety and security infrastructure through the development of appropriate rules and regulatory guides, training of inspectors for compliance monitoring and in building up the necessary response capabilities in cases of accidents and security incidents. Radiation detection and monitoring instruments have also been provided as well as hands on training on the proper use of these instruments. These have all been integrated into our national radiological emergency preparedness and response program.

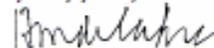
The conduct of all the activities held under the auspices of the ANSTO has always been undertaken efficiently and effectively through its technical experts and a strong administrative management staff in terms of logistical arrangements and related matters. These activities would not have been successfully concluded without the technical expertise and without such excellent staff support.

In the recent past, the unfortunate Fukushima reactor accident posed an even bigger challenge to the region, including the Philippines. Public health and related reactor safety and security issues have brought a lot of media attention to the role PNRI is expected to fulfill in such incidents. We wish therefore to express our deep appreciation to the Regional Project Management staff through your organization, the Australian Nuclear Science & Technology Organization for all the technical assistance provided above, for without which, the PNRI would not have responded well to this seemingly public health crisis.

We look forward to the forthcoming Regional Project Review Meeting to be hosted in the Philippines early next year where we shall be pleased to report on our achievements as well as our expression of gratitude relative to the way the Philippines responded to the Fukushima incident.

Thank you and best regards.

Very truly yours,



ALUMANDA M. DELA ROSA, Ph.D.
Director

Radiological EPR Training and Capability Development in South East Asia

Conclusions

- a) enhanced the relevant regional, national and local agencies' relationships,
- b) improved expertise on radiation detection equipment for a range of potential emergency situations,
- c) provided for better identification, development and implementation of emergency response roles, responsibilities and procedures including appropriate decision-making criteria, and
- d) improved integration of the radiological response into an all hazards approach and related inter-agency interoperability.

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Further Conclusions

- e) increased the local maintenance, development and self-sustainability of resources and expertise,
- f) enabled national needs identification and development of appropriate local training courses and exercises, and development of related materials and techniques to address those needs,
- g) improved testing of the effectiveness of EPR manuals and procedures, and
- h) enabled systematic assessment and review, with lessons learned incorporated to ensure continuous improvement of agencies' EPR capabilities.

