



COUNTRY REPORT AND APPLICATION OF NUCLEAR SCIENCE & TECHNOLOGY FOR PROTECTION OF ENVIRONMENT IN MALAYSIA

Presented by:

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on behalf of

Minister of Science, Technology & Innovation (MOSTI) of Malaysia

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Outlines

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Application for Environmental Protection in
Malaysia
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Introduction

- Malaysian Nuclear Agency, established in 1972
- Nucl Sci and Tech has gained strong recognition and acceptance in various economic sectors in Malaysia
- - agriculture, healthcare, industrial, environment and water resource management.
- Also actively involved in all major FNCA projects and has won 2 awards (2016) – Nucl. Outreach and Mutation Breeding.

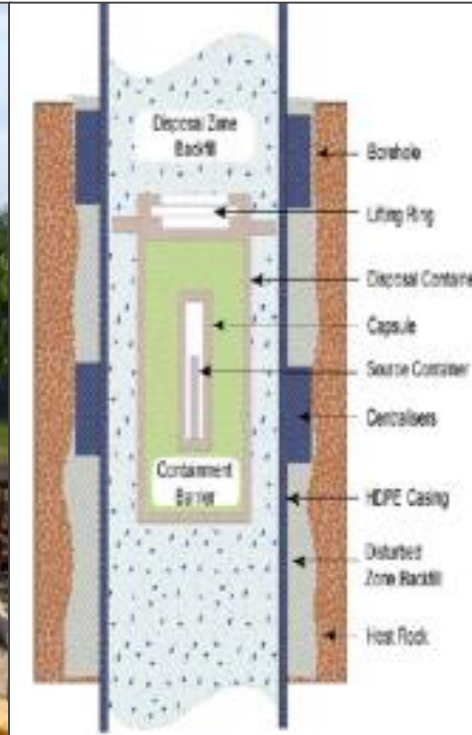


Current Activities of Nuclear Science & Technology Application for Environmental Protection in Malaysia

- Nuclear Malaysia serves as the national radioactive waste management centre since 1985 and is equipped with facilities for managing radioactive waste.
- Among the types of radioactive waste managed is Disused Sealed Radioactive Source (DSRS) which are received from all over the country.
- Nuclear Malaysia carries out research and development on innovative radioactive waste management, including borehole disposal facility and mobile hot cell.

Current Activities of Nuclear Science & Technology Application for Environmental Protection in Malaysia

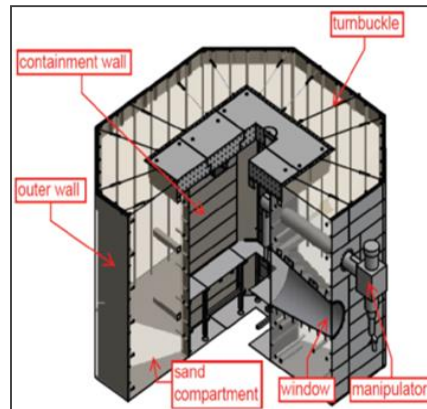
BOREHOLE DISPOSAL FACILITY OF DISUSED SEALED RADIOACTIVE SOURCES (BOSS)



- Malaysia is implementing this project through the IAEA Technical Cooperation Programme
- Develop disposal facility using borehole technology for future disposal of Disused Sealed Radioactive Sources (DSRS)
- Ensure DSRS is managed in a safe and secure manner to the people and environment

Current Activities of Nuclear Science & Technology Application for Environmental Protection in Malaysia

MOBILE HOTCELL FACILITY (MHC)



- Malaysia is also working together with the IAEA to develop a mobile hot cell facility for conditioning of high activity DSRS
- MHC is a mobile facility which can be used for nuclear material handling activities.
- Ensure safety of personnel handling high level radioactive sources at any remote location either due to emergency situation or other purposes
- Designed to be easily assembled and dismantled

Nuclear Malaysia Radioactive Waste Management Facilities (Interim Storage)



- Built in year 2000
- Area of 600m²
- Capacity of 2100 drums or 420m³

Current Activities of Nuclear Science & Technology Application for Environmental Protection in Malaysia

ENVIRONMENTAL ANALYSIS

- The Radiochemistry and Environment (RAS) Laboratory in Nuclear Malaysia is the only national laboratory approved by the Ministry of Health to conduct radioactivity contamination tests on imported food in case of a nuclear emergency.
- Radiochemical analyses are performed for alpha, beta and gamma emitting radionuclides from samples such as soil, sediment, sludge, water, food, fauna and flora.
- The Analytical Chemistry Laboratory in Nuclear Malaysia provides analytical requirements in elemental analysis and handles various samples including soil, sediments, water, air particulate, biological materials, geological materials, minerals and others.
- Under the FNCA project, Neutron Activation Analysis (NAA) is done for air particulate pollution.

RADIOCHEMISTRY & ENVIRONMENT LABORATORY

RAS MOSTI
NUKLEAR
MALAYSIA

**Radiochemistry and Environment Laboratory (RAS),
Malaysian Nuclear Agency provides radioanalytical services
for government and commercial needs.**

List of major equipment and analysis provided by the laboratory:

Gamma Spectrometry System

- Measurement of Cs-134 and Cs-137 in food
- Measurement of Ra-226, Ra-228 (or Ac-228), K-40 in environmental samples (sediment, soil, water, flora, fauna, etc.)
- Measurement of Am-241 in smoke detectors

Gross Alpha/Gross Beta Counting System

- Measurement of gross alpha/gross beta in mineral and drinking water
- Measurement of gross alpha/gross beta in air borne particulate, filter and smear test
- Measurement of gross alpha/gross beta in environmental samples
- Analysis of efficiency for water filter system
- Measurement of Sr-90 in environmental and food samples

Alpha Spectrometry System

- Measurement of Po-210 in environmental samples
- Measurement of U-234, U-235 and U-238 in environmental samples
- Measurement of Th-228, Th-230 and Th-232 in environmental samples
- Measurement of Pu-239+240 in environmental samples
- Measurement of Am-241 in environmental samples

Liquid Scintillation Counter

- Measurement of H-3 in urine, water, ice and environmental samples
- Measurement of C-14 environmental samples

For further information kindly contact:

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Summary

- Nuclear science and technology has been progressing well and positively contributed to socio-economic development in Malaysia.
- Malaysia believes that strong collaboration and effective coordination with all relevant stakeholders is a useful mechanism in the promotion of nuclear science and technology in the country. In this regards, FNCA is a good platform to further discuss on the strengthening of stakeholder involvement in respond to relevant developmental priorities in nuclear energy and nuclear science and applications and as such is still very much relevant to us.

THANK YOU FOR YOUR ATTENTION

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