



MALAYSIA STRATEGIES ON MANAGEMENT OF DSRS

ZUL HELMI BIN
GHAZALI

IAEA International Workshop on
“Sustainable Management of Disused
Sealed Radioactive Sources” Lisbon,
Portugal, 11 – 15 October 2010

Main Act

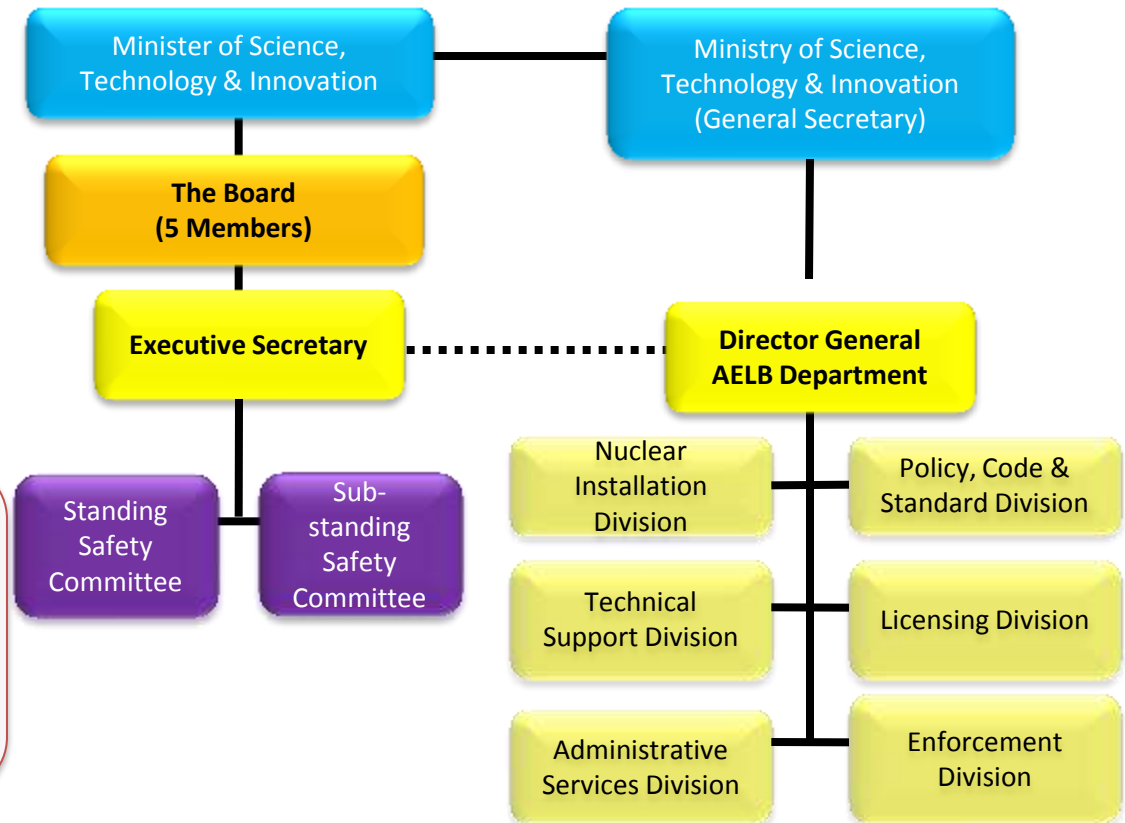
- To provide for the regulation and control of atomic energy;
- For the establishment of standards on liability for nuclear damage; and
- For matters connected therewith or related thereto.

Atomic Energy Licensing Act 1984 (Act 304)

Regulatory Body:

- Atomic Energy Licensing Board (AELB) was established under Section 3 of the Act. 304
- Ensuring safety, security and safeguarding peaceful Nuclear Activities

Atomic Energy Licensing Board (AELB)



MISSION

Encouraging innovation culture to ensure the Safe and Peaceful Uses of Radiation and Nuclear Technology

VISION

Remaining a relevant regulatory authority with credibility in radiation and nuclear safety, security and safeguarding its peaceful uses for national sustainable development

BOARD FUNCTIONS

TO ADVISE MINISTER AND GOVERNMENT OF MALAYSIA ON MATTERS RELATING TO THIS ACT

TO CONTROL AND SUPERVISION APPLICATION AND USE OF ATOMIC ENERGY AND MATTERS INCIDENTAL THERETO (AKTA 304)

TO DO SUCH OTHER THINGS ARISING OUT OF OR CONSEQUENTIAL TO THE FUNCTIONS OF THE BOARD UNDER THIS ACT



TO ESTABLISH, MAINTAIN AND DEVELOP SCIENTIFIC AND TECHNICAL CO-OPERATION AT NATIONAL AND INTERNATIONAL LEVEL

TO PERFORM AN OBLIGATIONS ARISING FROM AGREEMENTS, CONVENTION OR TREATIES RELATING TO NUCLEAR MATTERS OR ATOMIC ENERGY



HISTORY OF ATOMIC ENERGY APPLICATION IN MALAYSIA

- 1897 – the earliest usage of atomic energy in Malaysia
- 1968 – Radioactive Substances Act
- 1984 – Atomic Energy Licensing Act (Act 304)
Radioactive Substances Act was repealed then

Hierarchy of Legal System

Atomic Energy Licensing Act 1984, ACT 304

Regulations

Orders and Conditions of License

Guidelines, Codes and Standards

- Act: provides the basic law concerning the development and utilization of atomic energy and safety regulations.
-

- Regulations: provides more detailed provisions entrusted by the Act.
-

- Provides additional requirement which not stated in the regulations or special matters related to provisions entrusted by the Act
-

- Provides guides, codes and standards to comply with and achieve goal impose in regulations

LEGISLATIVE FRAMEWORK

i. Main Legislation

Atomic Energy Licensing Act 1984 (Act 304)

ii. Regulations

- Atomic Energy Licensing (Basic Safety Radiation Protection) Regulations 2010
- Radiation Protection (Licensing) Regulations 1986
- Radiation Protection (Transportation) Regulations 1989
- Radiation Protection (Appeal) Regulations 1990
- Import & Export Guidance for Radioactive Material (Category 1 and 2) including online permits

Development of Legislation

LEGAL FRAMEWORK

	2007				2008				2009				2010			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Amendment of Act 304	Projected ACT 200_															
Revision of Current Regulations	Licensing Regulation 1986, Transport Regulation 1989															
Development of New Regulations	Waste Management Regulation, Security of Radioactive Sources Regulation, Safeguards Regulations															

RADIATION PROTECTION & SECURITY INFRASTRUCTURE

- Adoption of the Code of Conduct on Security of Radioactive Sources and the 3 Supporting documents :
 - 1st announcement to licensees on 10 December 2008
 - 2nd Announcement on the adoption of these documents to Person Responsible for the License (PRFL) & Radiation Protection Officer (RPO) on 30 June 2009.
 - Introductory inspection to licensees Category 1 and 2

- Source registry database systems

- eSpp
 - ✓ online application
 - ✓ less human's intervention, electronically control system



NATIONAL STRATEGIES

- **Provision Under Act 304 :**
- **Section 12 (1) b**
 - **No person shall deal in, possess or dispose of any radioactive material, nuclear material, prescribed substance or irradiating apparatus unless he is the holder of a valid license** issued by the appropriate authority for such purpose and as specified in the license.
- **Section 17 (1) and (2) – Condition of License**
 - Licensee shall seek an approval from the authority prior to deal such as using or dispose of any radioactive sources

NATIONAL STRATEGIES

Provision Under Act 304:-

Section 26 (1) and (2)

- **Control of disposal of radioactive waste**

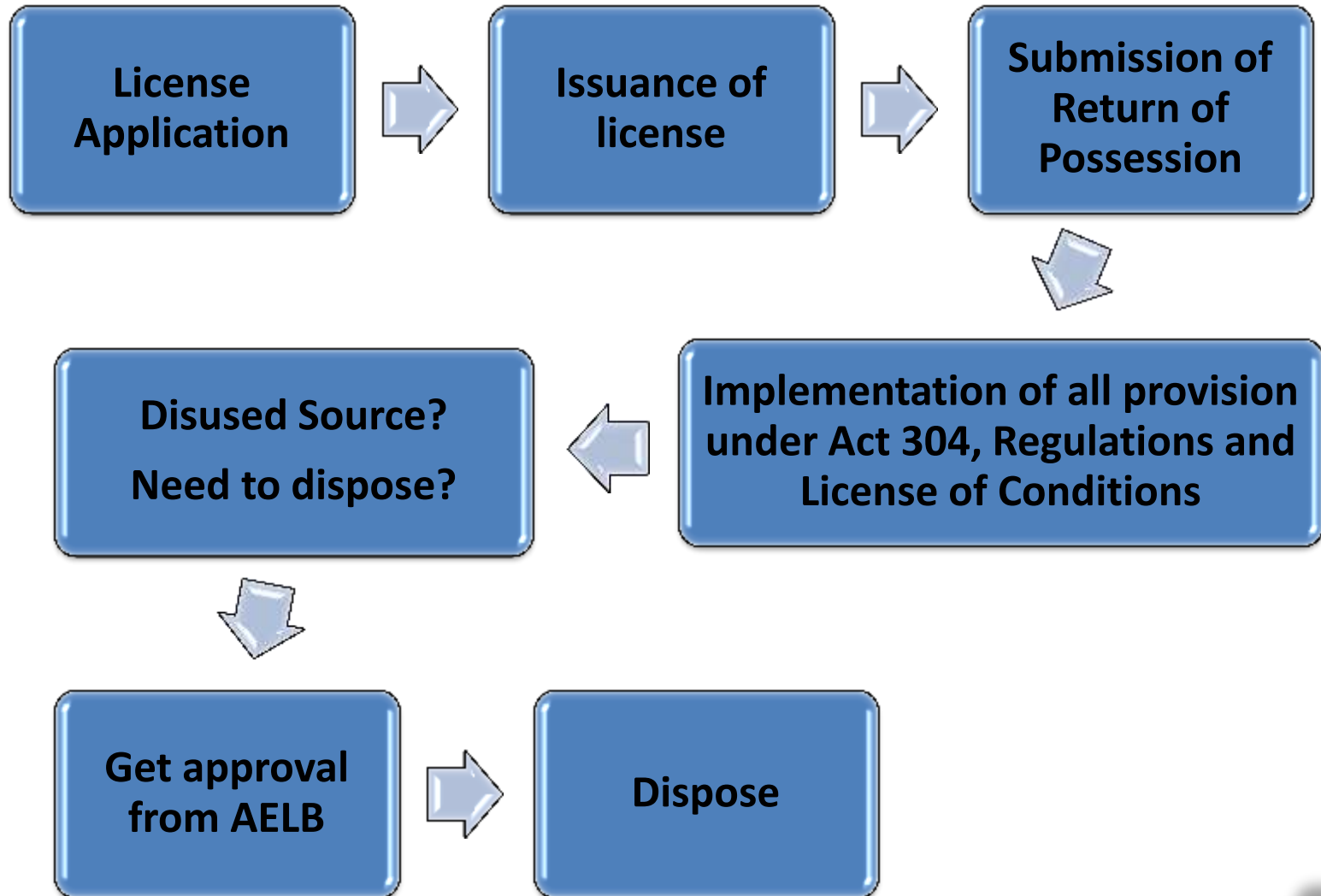
- No person shall dispose of or cause to be disposed any radioactive waste without the prior authorization in writing to Regulatory Body.

Section 27

- **Storage**

- Prior to the storage of a nuclear waste and radioactive waste, the licensee shall obtain the approval from the Regulatory Body.

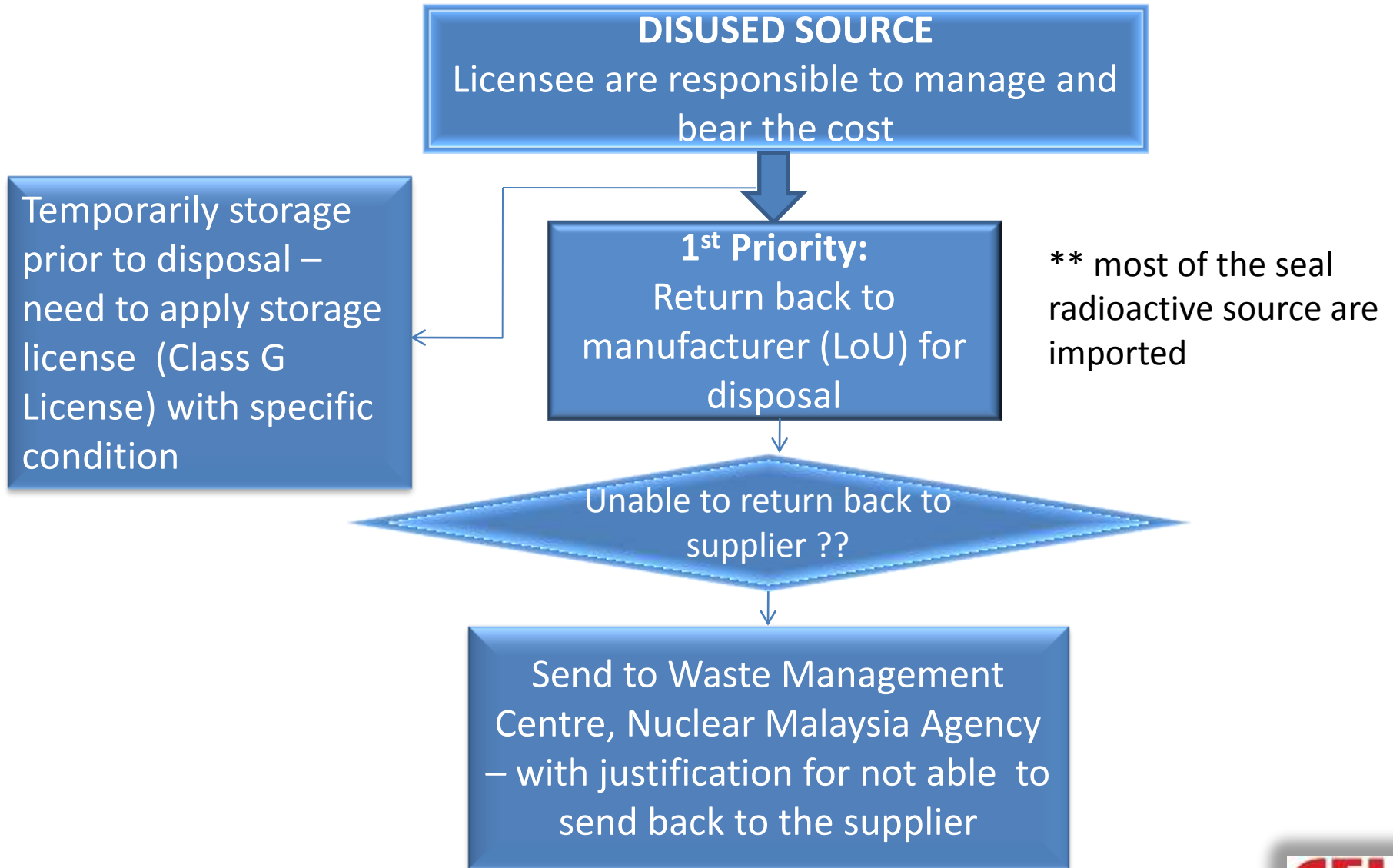
Generic Cycle of Radioactive Sources Usage



NATIONAL STRATEGIES

- Regulatory Body have **National Database System** for sources inventory
- Verification on the compliances to the Act 304, regulations and license condition
 - Carries out announced and unannounced **inspections**. The frequency of inspection are based on past performance and risk.
- Import/export – licensee shall obtain Approval Permit (AP)
 - Attach copy of certificate of compliance for packaging of radioactive material for transportation, copy of customs declaration for goods imported / exported, copy of Certified Approval Letter by Origin Authority

MANAGEMENT OF DISUSED SOURCES



RETURN OF DISUSED SOURCES TO SUPPLIER

- **Agreements regarding the return of disused sources to a supplier**
 - Licensing application requirement - the applicant shall submit Undertaking Letter from the manufacturer an agreement to receive back the disused source.
- **Difficulties**
 - High cost - small company
 - Manufacturer no longer exist (i.e: bankruptcy etc)
 - Legislative barrier from country of origin, reluctant to received back the disused sources

Reuse & Recycling of sources

- **Regulatory requirement**

- Subject to the existing disposal requirement – licensee (current owner) need to get approval for disposal of sources by transferring of ownership to second party (licensed future owner).
- Licensed future owner shall submit Return of Possession to Regulatory Body upon received of sources.

- **Existing experience**

- A few cases – mostly industrial donated to research institute , government higher education.

LONG-TERM STORAGE / DISPOSAL

- At the moment, Malaysia only have Waste Management Centre (interim storage) manage by government research institute (Nuclear Malaysia Agency).
- Plan to have National Radioactive Waste Repository – still at the early stage – site survey, technology assesment etc.



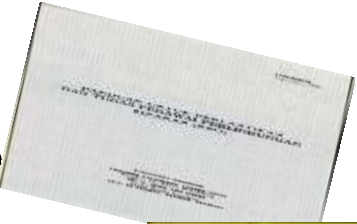
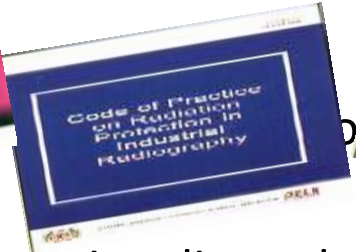
PLAN

- **Main plans**

- Current Act and Regulations on disused sources;
- Licensee are fully responsible for managing disused sources (management, financing etc) – as specified in the License Code

- **Main needs**

- Current needs – finalized Act and Regulations, regulation on scrap metal.



Challenges & Issues

- **Regaining control over orphan sources**
- **Further strengthening the infrastructure for safe & secure DSRS management**
- **Providing for sustainable, safe and secure long-term management solutions**



ORPHAN SOURCES

- **Provision under Act 304 on Recovery of Orphan Sources and Radioactive Material**
 - Any person **shall report to the Regulatory Body immediately** for any loss of control over radioactive material or any other situation or incident that can result to significant risk to the safety and security of the public and environment.
 - The Regulatory Body shall ensure the **return of the orphan sources to the rightful owner** in the case of reported of theft, robbery or other unlawful taking of the orphan source or credible threat thereof.
 - The **Regulatory Body shall coordinate with the relevant authorities** and approved by the Government of Malaysia in **developing a national strategy** for immediately gaining or regaining control over the orphan sources.

Detection of Orphan Sources at Borders

• National strategy

- Installation of portal monitor at point of entry in Malaysia (airport, seaport and borders)
- coordination with relevant agencies (Customs Department, Police, port/airport authority, National Security Council)
- Conduct training and awareness program to Customs Officers
- Distribution of brochure on orphan sources - awareness program



RADIATION PORTAL MONITOR

- National radioactive and nuclear detection system (portal monitor)
 - To prevent illicit trafficking/illegal movement of radioactive and nuclear material.
 - Installation at the border of Malaysia, airport, seaport, Research Reactor Facility (Nuclear Malaysia) and AELB - expected complete by 2010.
 - Data from all site will be transmitted and monitored at AELB control centre – real time monitoring system.



RADIATION PORTAL MONITOR

Detection at AELB



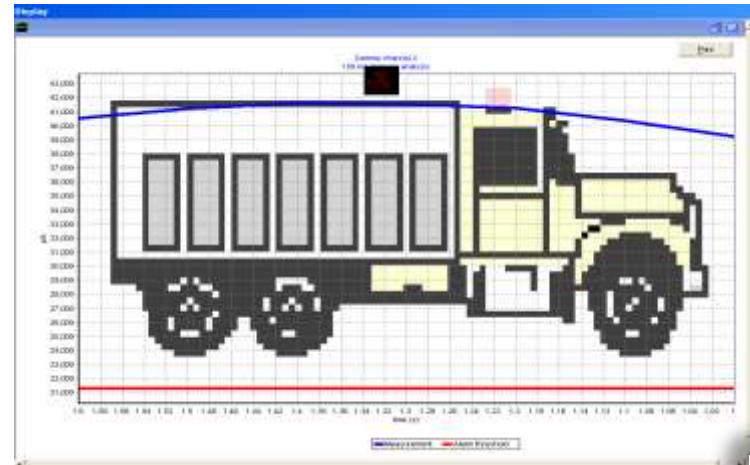
Alarm triggered at AELB entrance



Verify the source by using hand held detector



Data received from the system



Identifying location of the source

Regaining Control over Orphan Sources

- “Cradle to Grave” approach used
- Establish a national registry on sealed radioactive sources
- Maintain radiation monitoring systems
- Maintain technical capabilities in recovering, conditioning, safely/securely storing and/or repatriating high activity orphan sources



Conclusions – The way forward

- Clear national policy is needed to manage DSRS safely and securely
- Disposal options must be considered and implemented soon
- Improve the international harmonisation in the management of DSRS



THANK YOU

**Atomic Energy Licensing Board(AELB) of Malaysia,
24th Miles, Dengkil,
43800 Sepang, Selangor,
Malaysia**