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International Atomic Energy Agency

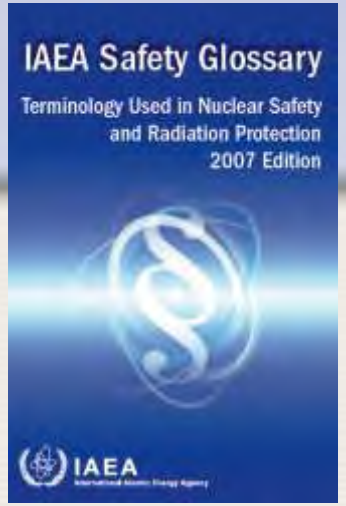
57th General Conference
Side Event

Strengthening Cradle-to-Grave Control of Radioactive Sources in the Mediterranean Region

Technical Cooperation Project INT/9/176

Ms Monika Kinker
(Technical Officer)

This project is conducted by the IAEA,
with funding by the European Union



DEFINITIONS (cont.)

disused source. A *radioactive source* that is no longer used, and is not intended to be used, for the *practice* for which an *authorization* has been granted. (From Ref. [11].)

ⓘ The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management [5] refers to "disused *sealed sources*", but does not define them. On the basis of this definition of *disused source* and the definition of *sealed source* (see below), a disused *sealed source* is a *radioactive source* comprising *radioactive material* that is permanently sealed in a capsule or closely bonded and in a solid form (excluding reactor *fuel elements*) that is no longer used, and is not intended to be used, for the *practice* for which an *authorization* has been granted.

! Note that a *disused source* may still represent a significant radiological hazard. It differs from a *spent source* in that it may still be capable of performing its function; it may be disused because it is no longer needed.

spent source. A *source* that is no longer suitable for its intended purpose as a result of *radioactive* decay.

! Note that a *spent source* may still represent a radiological hazard.

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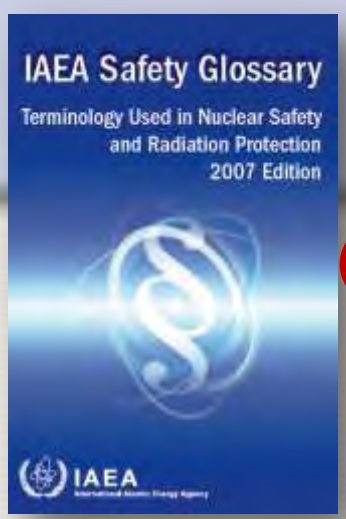

Life cycle "from cradle to grave"

cradle to grave approach

An approach in which all the stages in the *lifetime* of a *facility*, *activity* or product are taken into consideration.

- For example, the *cradle to grave approach* to the *safety* and *security of radioactive sources*.
- See *ageing management*.
- See *life cycle management*.

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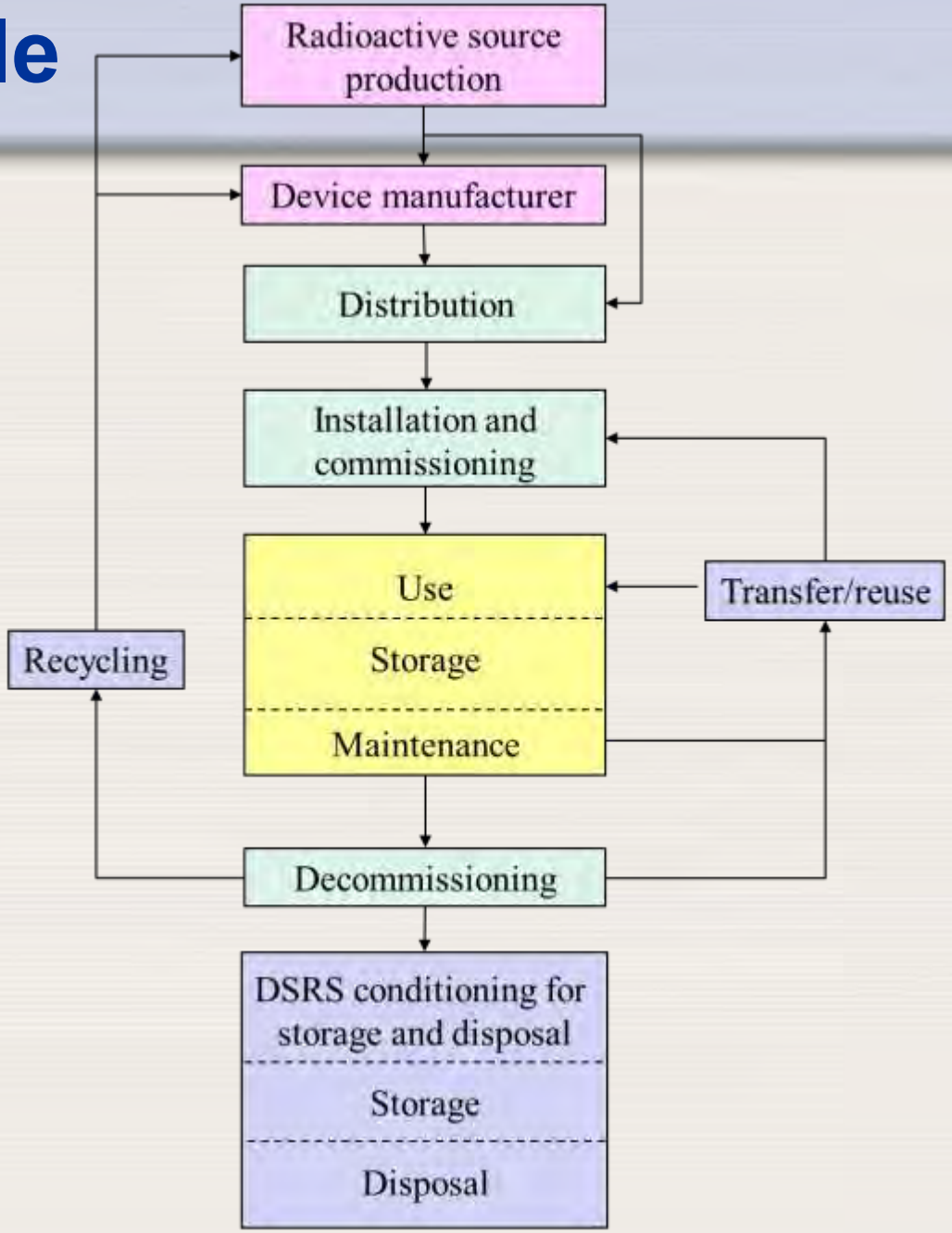
The Life Cycle



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DSRS Long Term Management Options

- Return to Commercial Suppliers
- Return to Country of Origin (Repatriation)
- Reuse/Recycle
- Storage at User Facility
- Storage in Dedicated ("Centralized") Facility
  - Decay to clearance levels iaw national regulations
  - Interim storage pending future actions
  - Long Term (between 50 and 100 yr)
- Disposal

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Sustainable Management

- **Requires**:
  - National Policy, Strategies, clear responsibilities
  - Adequate Legal and Regulatory Framework
  - Adequate Resources and Infrastructure (technical, human, financial)
  - Consideration of existing, future inventories
  - Consideration of the COMPLETE lifecycle

- **BUT**…
  - Lack of Political Will, Public Confidence
  - Absence of Necessary Laws, Regulations
  - Insufficient resources (funds, staff, equipment)

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Outputs

OUTPUT	DESCRIPTION
OUTPUT 1	Provide support to revise the **national policy and strategy** for DSRS management, including the preparation of an action plan for its implementation, in participating countries.
OUTPUT 2	Improving **DSRS source management systems** currently in operation in participating countries and supporting its licensing.
OUTPUT 3	Reinforcing **human capabilities and capacities** in managing DSRS
OUTPUT 4	Reinforcing capacities of national regulatory authorities to **license and exercise regulatory control** over facilities and activities, in view of the safe management of disused sealed sources
OUTPUT 5	Reinforcing the **safety of all components** of the management of DSRS and national regulatory framework in accordance with the IAEA safety standards.
OUTPUT 6	Improving the **technical support capacities** to fulfil the requirements of the Joint Convention and the provisions of the Code of Conduct
OUTPUT 7	Provide support to ensure **regional collaboration** and project coordination

Key Activities Implemented: Capacity Building

Workshops and Training

- Guidance for the Formulation of a National Policy for Cradle-to-Grave Control of Radioactive Sources
- Practical Aspects of Information and Records Management for the Control of DSRS (training)
- Elaborating and Implementing a Model System for DSRS Management
- Design and Application of Management Systems (Practices and Facilities) for Activities Relating to DSRS Management

National events

- Targeted support and assistance (P&S and predisposal management issues) in Lebanon, Morocco and Tunisia (2) and Egypt

Consultancy

- to Prepare the December Workshop on Regulatory Control for the Safe Management of DSRS

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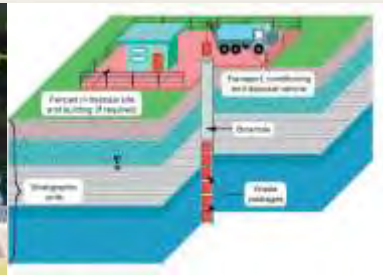
Key Activities Implemented: Tools and Means

- Feasibility study to **adapt the Mobile Hot Cell to the Borehole Disposal Concept** (already implemented).
- Implementation in SAFRAN Tool of a **Generic Safety Case and Safety Assessment of the Borehole Disposal Concept** (under implementation).
- Upgrade SAFRAN software to support **Safety Assessment for Predisposal Management** of DSRS (under implementation).
- Formulation and establishment of a **National Policy and Strategy** for DSRS management in selected countries (under implementation).
- Review and upgrade of **Training Materials on Safety Requirements and Safety Assessment** of Radioactive Waste Management Activities and Facilities, including DSRS (already implemented).



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Category 3-5 sources

- Technologies for conditioning and storage available
- Technology for disposal available at the concept level – BDC
- Technologies to prepare disposal package and transfer to disposal facility available
- Work is underway in 3 countries to implement this for Cat 3-5
- full scale implementation (site selection, site-specific safety assessment, construction, licencing, operation, closure) needed – INT9176

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Category 1-2 sources

- Technologies for conditioning and storage available
- Technology for disposal available at the concept level – BDC
- Technologies to prepare disposal package and transfer to disposal facility not available (concept exists) – INT9176
- full scale demonstration – INT9176

Mobile hot cell

Transfer technology
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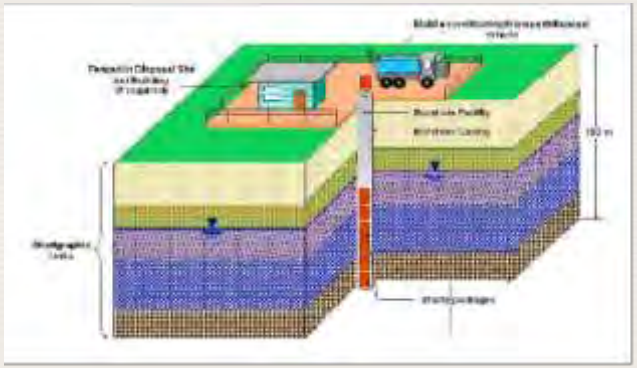

Borehole disposal

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Activity 2,3: Practical workshop

Hands-on experience is needed to work with radioactive sources!

CNESTEN, Rabat, Morocco, 25-28 June 2013

Observing and practicing real conditioning of Cat. 3-5 sources






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Activity 4:

Workshop on Transboundary Movement of Scrap Metal and Other Commodities that Inadvertently Contain Radioactive Material
Sliema, Malta; 10 to 14 June 2013

Assessment of the current situation and development of solutions

Activity 4: National Workshop on Searching for Orphan Sources Istanbul, Turkey; 10 to 13 December 2012

'Hands on' training on searching for orphan sources and handling sources that are found in a safe manner

Activity 5: SAFRAN Tool

- SAFRAN = **S**afety **A**ssessment **FRA**mework
- Developed within IAEA Safety Assessment Driving Radioactive Waste Management Solutions (SADRWMS) Project (2005 – 2010)
  - Applies Safety Assessment (SA) methodology to RWM
  - SAFRAN Tool, SADRWMS Methodology -> GSG-3
- Allows user to conduct the SA with clear documentation of methodology, assumptions, input data and models

SAFRAN User Interface

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Activity 5: Workshop on Regulatory Control for the Safe Management of DSRS: 9-19 Dec 2013

- Focussed on
  - upgrading and reinforcing regulatory control
  - strengthening national regulatory frameworks
  - awareness of Joint Convention, EU Directives and Code of Conduct
- Cover national policy & strategy; international conventions, codes and directives; legal and regulatory infrastructure; regulatory processes related to management of DSRS
- Contribute to
  - strengthening cradle-to-grave control of radioactive sources in the Mediterranean Region
  - enhancing national regulatory infrastructure and processes in compliance with IAEA safety standards
  - development of a harmonized regional approach.

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Conclusions

- Sustainable Management of DSRS requires
  - National Commitment, Infrastructure, & Resources
  - Integrated Approaches (interdependencies)
  - International cooperation

- IAEA framework for MSs to develop and implement strategies
  - Legal Instruments
  - Standards, technical guidance
  - Assistance, Resources

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Thank you for your attention