

# International Decommissioning Network

A joint initiative of Nuclear Energy, Nuclear Safety and Security,  
and Technical Co-operation Departments

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*Atoms for Peace: The First Half Century*  
1957-2007

# International Decommissioning Network

## The Purpose of this Presentation

- Provide the vision, status and objectives of the IDN
- Outline priorities, initial activities and “modus operandi” of the IDN
- Suggest IDN “value added” for Research Reactor facilities, especially those facing shutdown & decommissioning
- Seek your engagement and active participation in the IDN

# International Decommissioning Network

## Current Status

- “Launched” at the IAEA General Conference in September 2007.
- Technical Meeting Oct 29-31 in Vienna attended by >40 representatives of 30 MS:
  - identified needs and capabilities of Participants
  - defined a work plan for the IDN for 2008-2010
  - finalized the Terms of Reference and
  - outlined steps to give the IDN “life and breath”

# “International Decommissioning Network”

## A Vision for the IDN:

**“ Prompt, open, and efficient worldwide sharing of practical and effective decommissioning experience leading to safe, economic and timely dismantlement of dis-used nuclear facilities”**

# International Decommissioning Network

## What is the Need?

- Worldwide some 100 power reactors, 250 research reactors, and many other fuel-cycle facilities are or will be decommissioned soon.
- Decommissioning has become a large “mature” industry in developed MS.
- “New build” highlights the need to resolve historical WM and Decommissioning issues.
- The IDN is the Agency’s response to Dec 2006 Athens Conf. message concerning need for an ongoing decommissioning forum.

# International Decommissioning Network (IDN)



# “International Decommissioning Network”

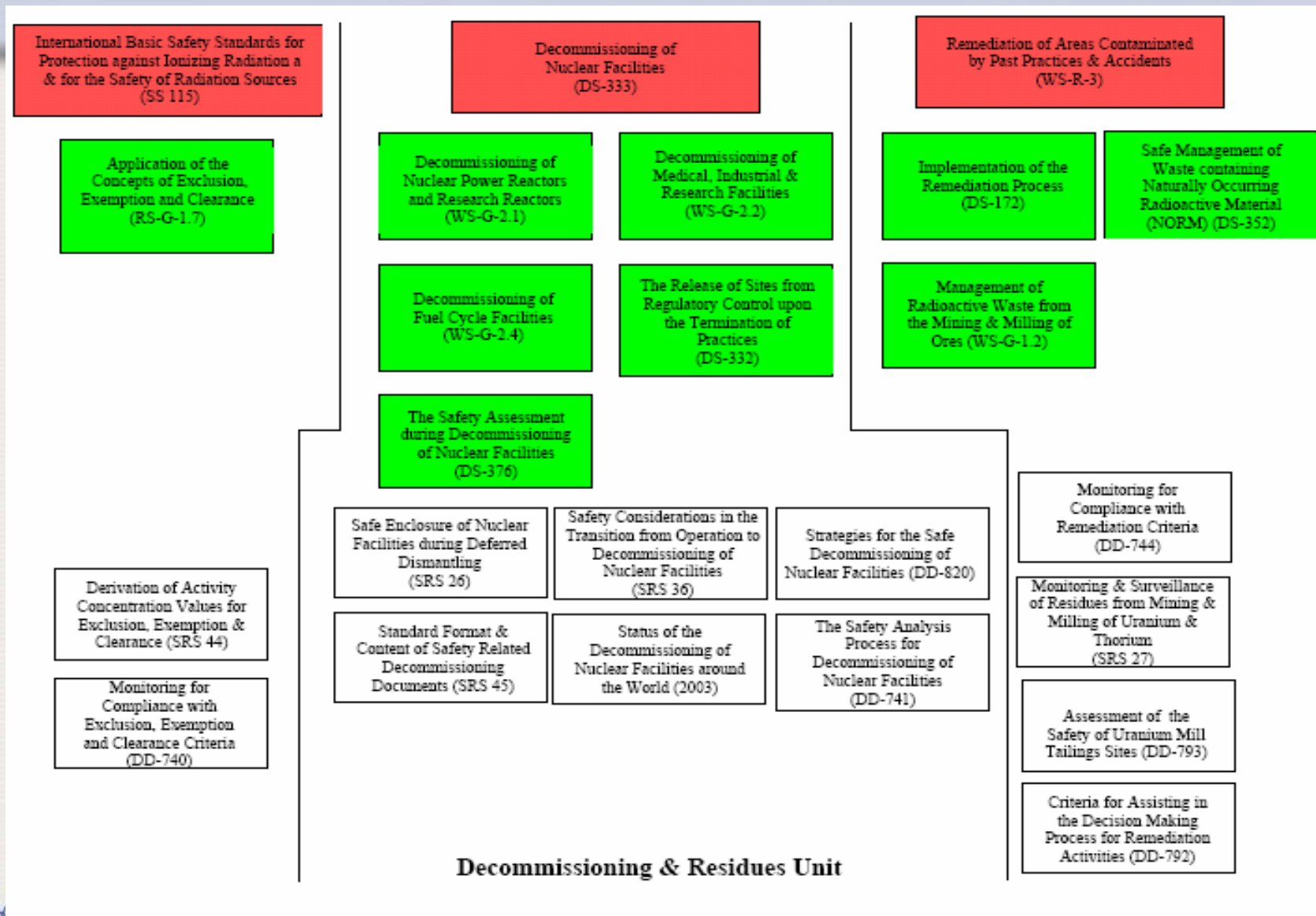
- The Network has been created in co-operation amongst NE, NS&S and TC.
- The Network will provide a focus for all IAEA activities in decommissioning
- It will Co-ordinate and extend Base and Technical Co-operation (TC) programmes
- Initial focus will be on smaller facilities, e.g. research reactors, fuel cycle labs, etc.
- “Crosscutting” and “Co-operative” it will foster links to other projects and networks
- Open to all MS organizations engaged in, or actively planning for, decommissioning.

# Safety and Security Perspective

## International Decommissioning Network

- Expected to support global nuclear safety objectives applied to decommissioning – application of the IAEA Safety Standards.
- Network should promote application of appropriate technologies in a safe, timely and effective manner.
- Complements safety and security initiatives such as disused source recovery.
- Management of real and potential “legacy issues” by having Decommissioning Plans in-place when needed.
- Improved understanding and consistent application of IAEA safety documents applicable to decommissioning

# Promoting Safety Standards of the IAEA



# IAEA “Action Plan” for Decommissioning

## The IDN will further this Agency Priority

- Evaluate the magnitude of decommissioning activities
- Develop safety standards on decommissioning
- Assistance to decommissioning of research reactors
- Management of decommissioning wastes ~ “special wastes”
- Information Exchange – Decomis. lessons learned
- Release and re-use of material, sites and buildings
- Long-term preservation of information
- Stakeholder management and social issues

# International Decommissioning Network

The Objectives of the IDN are to:

- Complement existing Agency activities with more *demonstration projects* giving practical *hands-on and user-oriented* experience
- Facilitate *sharing of experience*
- *Raise awareness of need and encourage decision-makers* to build a *funding framework*
- Attract *additional resources* to the field and *accelerate the pace* of decommissioning activities worldwide
- Act as a “*Network of Networks*” to increase visibility and leverage learning from *national and regional projects & existing networks*

# The IDN will seek to work seamlessly with existing Projects and Networks, e.g. R<sup>2</sup>D<sup>2</sup>P



## Research Reactor Decommissioning Demonstration Project (R<sup>2</sup>D<sup>2</sup>P)

- Many research reactors have been or will be shut down and are candidates for decommissioning.
- Most of the respective countries have neither a decommissioning policy nor expertise & funds to implement a decommissioning project.

# The DeSa Project – Decommissioning Safety Assessment

- To develop a harmonized approach for evaluating the safety of decommissioning activities.
- How to develop appropriate safety cases and meet both operational and regulatory needs.
- The application of the graded approach to development and review of decommissioning safety cases.
- Covers all types of facilities – NPPs, Research Reactors, Fuel Cycle Facilities, Research Labs. etc.

# DeSa

- Over 50 experts from over 30 countries: operators, safety experts and regulators.
- Outputs
  - 3 demonstration safety cases;
  - newsletters;
  - detailed reports and conclusions;
  - conference papers.



# International Decommissioning Network

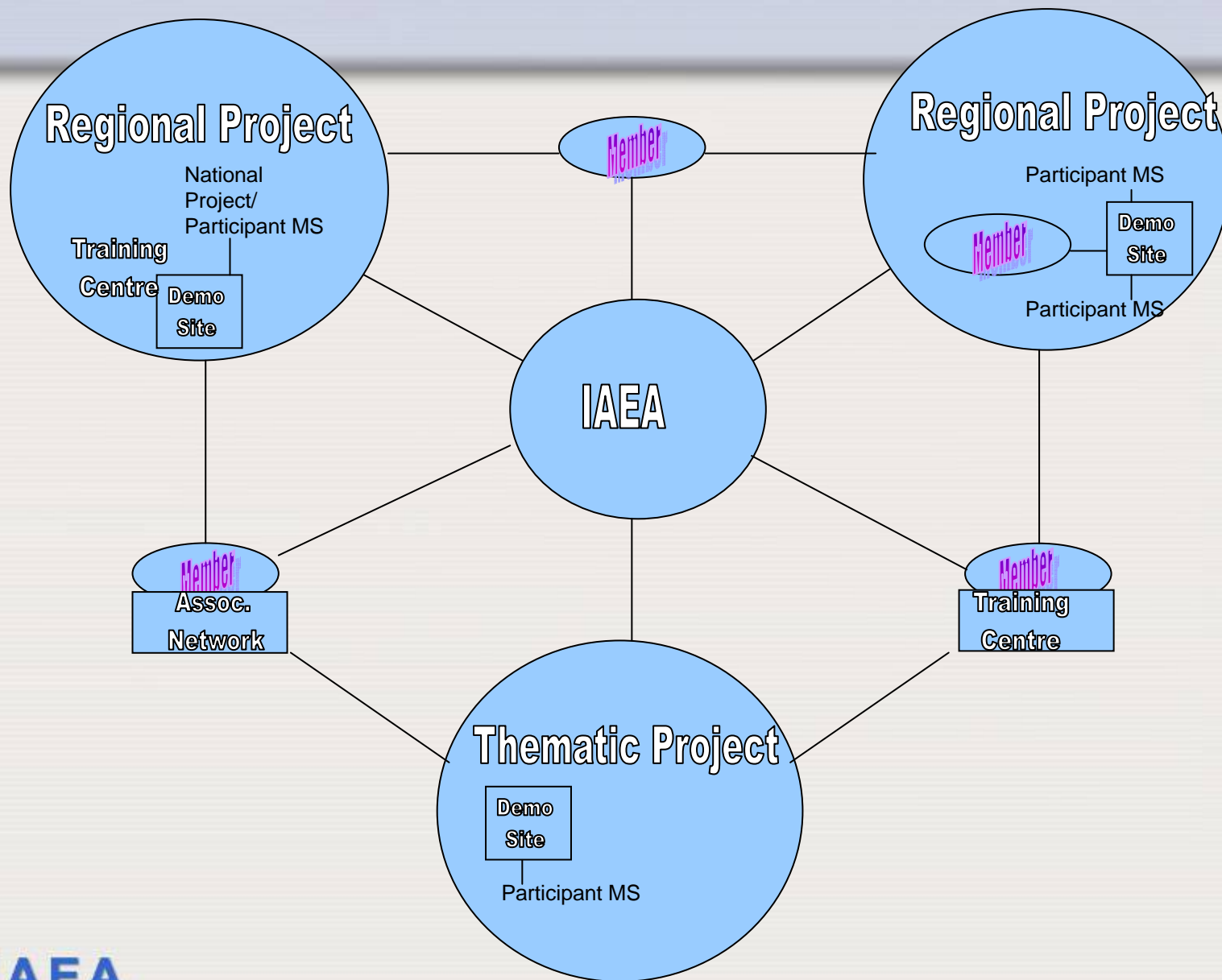
## Working Together

- IDN brings together those with relevant decommissioning knowledge and experience and those who need to apply it.
- Provides a means to build and sustain relationships through the sharing of knowledge
- The IDN builds on principles, and experience of the Network of Centres of Excellence for Underground Research Facilities
- Many MS organizations - leaders in the decommissioning field – have expressed willingness to share knowledge & experience.

# International Decommissioning Network Working Together



Fig. 1: Typical Relationships Amongst IDN Participants



# Method of Working

## International Decommissioning Network

- The anticipated relationships amongst IDN participants is shown in Figure 1.
- “*Member*” organizations, who will provide expertise and training capabilities
- Regional “hubs” centered around a real decommissioning demonstration project, offer a venue for “*Participant*” training and other forms of regional co-operation, while receiving assistance from “*Members*”
- “*Associated Networks*” whose participants may choose to take part indirectly in the IDN

# International Decommissioning Network Benefits

- IDN provides additional vehicle for strategic planning and co-ordination of all the Agency's decommissioning activities across all regions
- Provides a vehicle to focus "in-kind" efforts of decommissioning "Centres of Excellence"
- *Timely and efficient* use of the Agency's available "tools", with TC, e.g. Expert Missions, Fellowships, Scientific Visits, Training Courses, Workshops.
- Provides a means to compare, *measure* and improve quality of response to MS needs.

# Centres of Excellence

## International Decommissioning Network

Organizations (“**Participants**”) that possess a demonstrated breadth of decommissioning experience, a record of excellence in a wide range of areas, facilities suitable for demonstration or training and a willingness to share their experience through the IDN, will be identified as “**IDN Members**” and acknowledged as “**Centres of Excellence**” in Decommissioning.

# Terms of Reference

## International Decommissioning Network

- A Plenary session involving all members and participants at least once a year, using the format of a “Technical Meeting” to *review progress, revise work programs, and make specific plans and commitments.*
- A Steering Committee (SC), comprised of “Members”, representatives of the sponsoring IAEA Depts and the Scientific Secretary will meet as required provide strategic direction.
- An Annual Review will be prepared for the SC

# **IDN – Planning for the Future**

“Getting from where we are to where we want to be”

Paul J. C. Dinner

Scientific Secretary –

The International Decommissioning Network



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# Recent IAEA Technical Documents

## A Sampling for Decommissioning

- TRS to collect information on stakeholders' involvement in decommissioning projects with a focus on countries with limited resources
- TRS to collect information on social-economic impacts of decommissioning (in advanced preparation)
- TRS on long term preservation of information in deferred decommissioning projects (approved for publication)
- TRS on decommissioning of research reactors and other small nuclear facilities by making optimal use of limited resources (approved for publication)
- Updated data bank for all shutdown/decommissioning RRs attached as a CD-ROM to above TRS

# Typical Courses / Workshops Based on Previous IAEA Activities

- Decommissioning Basics
- Decommissioning for Research Reactors
- Practical Issues for Decommissioning NPPs
- Cost estimation for RR Decommissioning
- Preparation of Decommissioning Plans
- Characterization for Decommissioning
- Safety Requirements and Safety Assessment

# Potential Future “Offerings” Based on Previous IAEA Activities

- Planning for Transition to Decommissioning
- EM/ "Peer Review" of Cost Calculation
- Release/re-use of Materials and Sites
- Novel Technology for Decommissioning
- Difficult Technical Issues in Decommissioning.
- Social Impacts and Public Communications

# IDN 2008-2011 Programme Development

## Activity Planning Considerations

- Make full use of the Agency's available "tools", with TC, e.g. Expert Missions, Fellowships, Scientific Visits, Training Courses, Workshops.
- Build on experience with current assessment models (WATRP, OSART) offering added peer-review services via the Agency
- Assist the Agency to identify and respond to emerging issues, e.g.-

# IDN 2008-2011 Programme Development

## Identify / Respond to Emerging Needs

- Assistance to the Government of Iraq to decommission the former nuclear complex.



- Practical assistance with the application of safety standards and appropriate planning and technology.

# IDN 2008-2011 Programme Development

## Build on Ongoing Activities

- Build on existing National, Regional Programs, especially RER 3/005
- Foster “ links” with existing Networks to improve event timing and availability
- Improve documentation as planned for:
  - Decommissioning Project Management (CRP)
  - Stakeholder Management (TRS) and
  - Innovative and Adaptive Technology (TECDOC)
- Update WEB and use of software tools

# IDN 2008-2011 Programme Development

## Summary of Technical Meeting Oct 2007 (I)

- Attended by 40 Participants from 32 Countries, plus representative from the EU.
- Listed and prioritized potential IDN work by facility and activity type
- 12 countries indicated their willingness to host specific events.
- An additional three offered use of training facilities
- Many others offered to contribute experts to events

# Questionnaire – Responses (I)

- Questionnaire for Oct TM asked TC-eligible participants to complete responses indicating:
  - Facility-types of major interest (Maximum of two) and
  - Topical areas of primary interest by
  - Types of assistance offered (e.g. Training, Sci. visits, Expert Missions...)
- Only TC-eligible countries asked to complete questionnaire:
  - Others asked to consider it as a "guide"
  - Use it to define what to offer and what to "ask for"

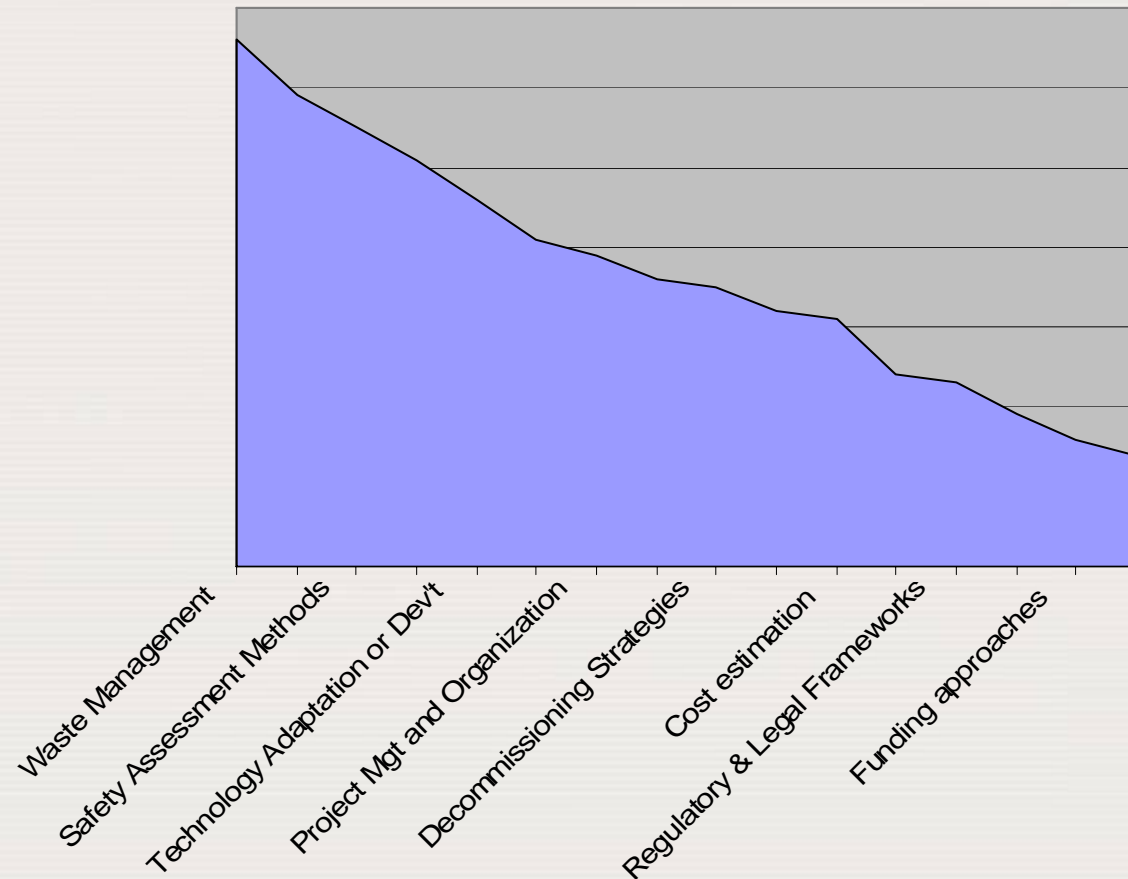
# Questionnaire – Responses (II)

- Responses received from all TC-eligible countries
- NPP, Fuel Cycle and “Other”, e.g. Medical and Lab. Interest ~20% of responses (each)
- Level of interest in Research Reactor related topics 2x this, viz 40%
- Topical interest highest in “Waste Management + Managing V-LLW”
- Next highest topical interest in “Facility Characterization + Safety Assessment Methods”
- “Training + Hands on Demonstrations” are the types of assistance most preferred

# Questionnaire-Interest by Topical Area

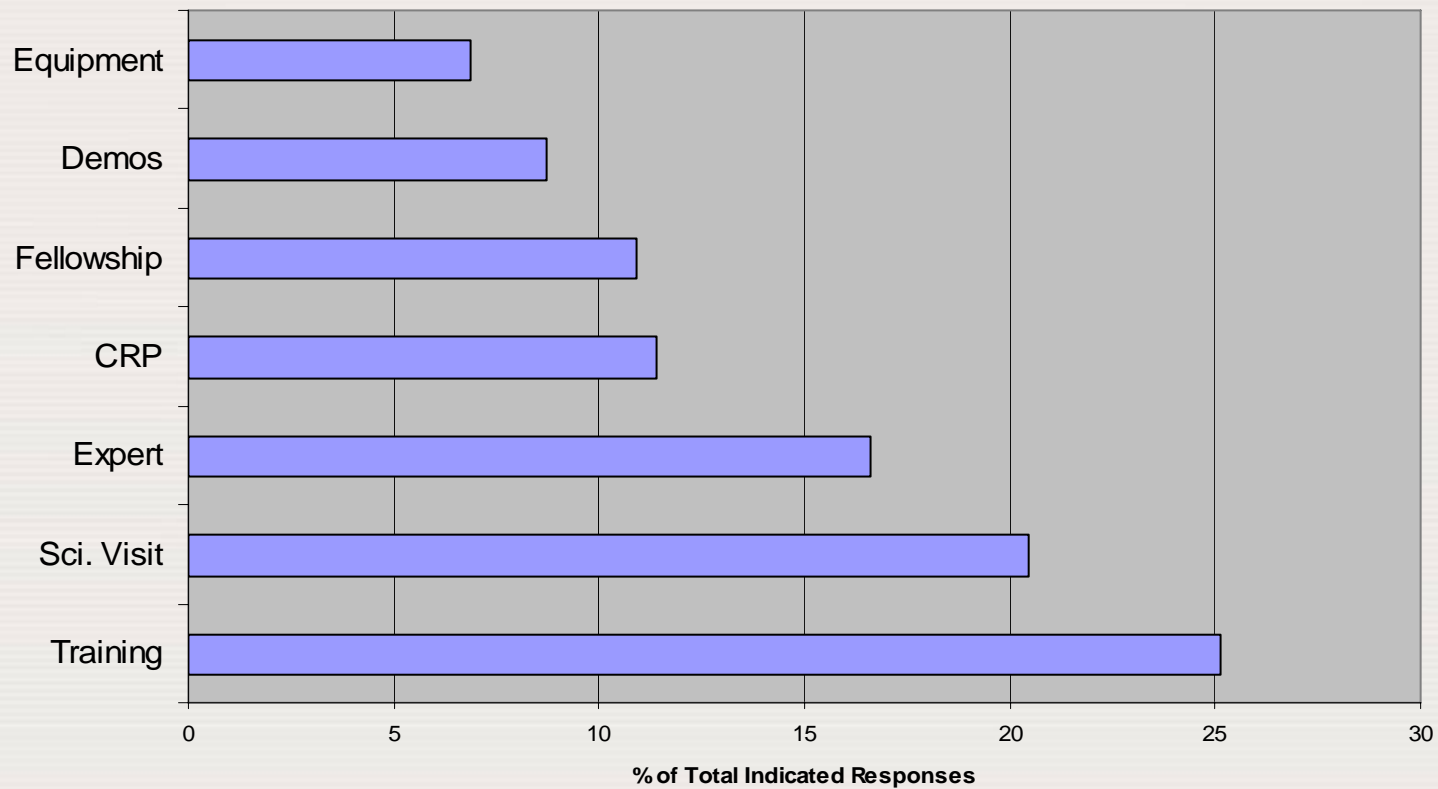
TC-eligible  
Questionnaire  
Responses

Relative level of  
interest by Topic



# Questionnaire-Type of Assistance Desired

Overall Level of Interest by Type of Assistance (all topics)



# IDN 2008-2010 Programme Development

## Balance the Needs and Interests

- Balance of activities based on interests expressed:
  - Emphasis on “Hands on” training and demos
  - Highest interest in decommissioning of smaller facilities such as Research Reactors, Fuel Cycle facilities
  - Over time, develop activities addressing the particular issues of smaller facilities such as med. or research labs
  - Focus on topical areas reflecting input received (TM)
- Focus on regions with greatest expressed interest:
  - Europe + Asia.
  - “Seed” activities in South Africa, South America.

# IDN 2008-2011 Programme Development

## Summary of TM Oct 2007 (II) + Path Forward

- Participants expressed interest in a web-based decommis. forum to support experience exchange
- Participants accepted the IDN Terms of Reference
- A Parallel Consultants Meeting developed outlines for 5 of the highest-priority courses/workshops and proposed ways to make the Network more “self-sustaining” amongst the participants.
- Next steps: formalization of course/workshop arrangements, establishing a framework with TC, and organizing the IDNs administrative support

# Participants Priorities – TM Oct 2007

## Courses and Workshops “Top 5”

1. Demonstrations on use of characterization techniques and equipment (workshop/course)
2. Demonstrations of use of cutting and decontam. techniques and tools (workshop/course)
3. Course on management and clearance of decommissioning wastes
4. Agency “Co-sponsored” training course on “Fundamentals of Decommissioning”
5. Cost-estimation for small facilities (workshop/course)

# IDN – Potential “Value added” by/for Research Reactor Operators

- Provide technical, managerial and *personal* support to managers and staff of facilities engaged in the transition to shutdown/decommissioning
- By facilitating *direct* sharing of information, provide timely access to information and expertise *focussed* on the job at hand.
- *Link* those engaged in decommissioning with operators of existing facilities in the process of renewal/replacement of these facilities
- Contribute to the effort to train qualified staff

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Promoting Safeguards & Verification

Promoting Safety & Security

Promoting Science & Technology

## Pillars of Nuclear Cooperation



The IAEA works for the safe, secure and peaceful uses of nuclear science and technology. Its key roles contribute to international peace and security, and to the World's Millennium Goals for social, economic and environmental development.

Three main pillars - or areas of work - underpin the mission:

### Safeguards & Verification



The IAEA is the world's nuclear inspectorate, with more than four decades of verification experience. Inspectors work to verify that safeguarded nuclear material and activities are not used for military purposes. The Agency is additionally responsible for the nuclear file in Iraq as mandated by the UN Security Council. [More >](#)

### Safety and Security



The IAEA helps countries to upgrade nuclear safety and security, and to prepare for and respond to emergencies. Work is keyed to international conventions, standards and expert guidance. The main aim is to protect people and the environment from harmful radiation exposure. [More >](#)

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