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THE IMPROVEMENTS MADE ON THE DECOMMISSIONING SINCE THE START OF THE R2D2P AND ACTUAL STATUS IN TERMS OF DECOMMISSIONING OF THE DALAT NUCLEAR RESEARCH REACTOR

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Legal and Regulatory Framework in Vietnam regarding the Decommissioning of Nuclear Facilities (1/4)

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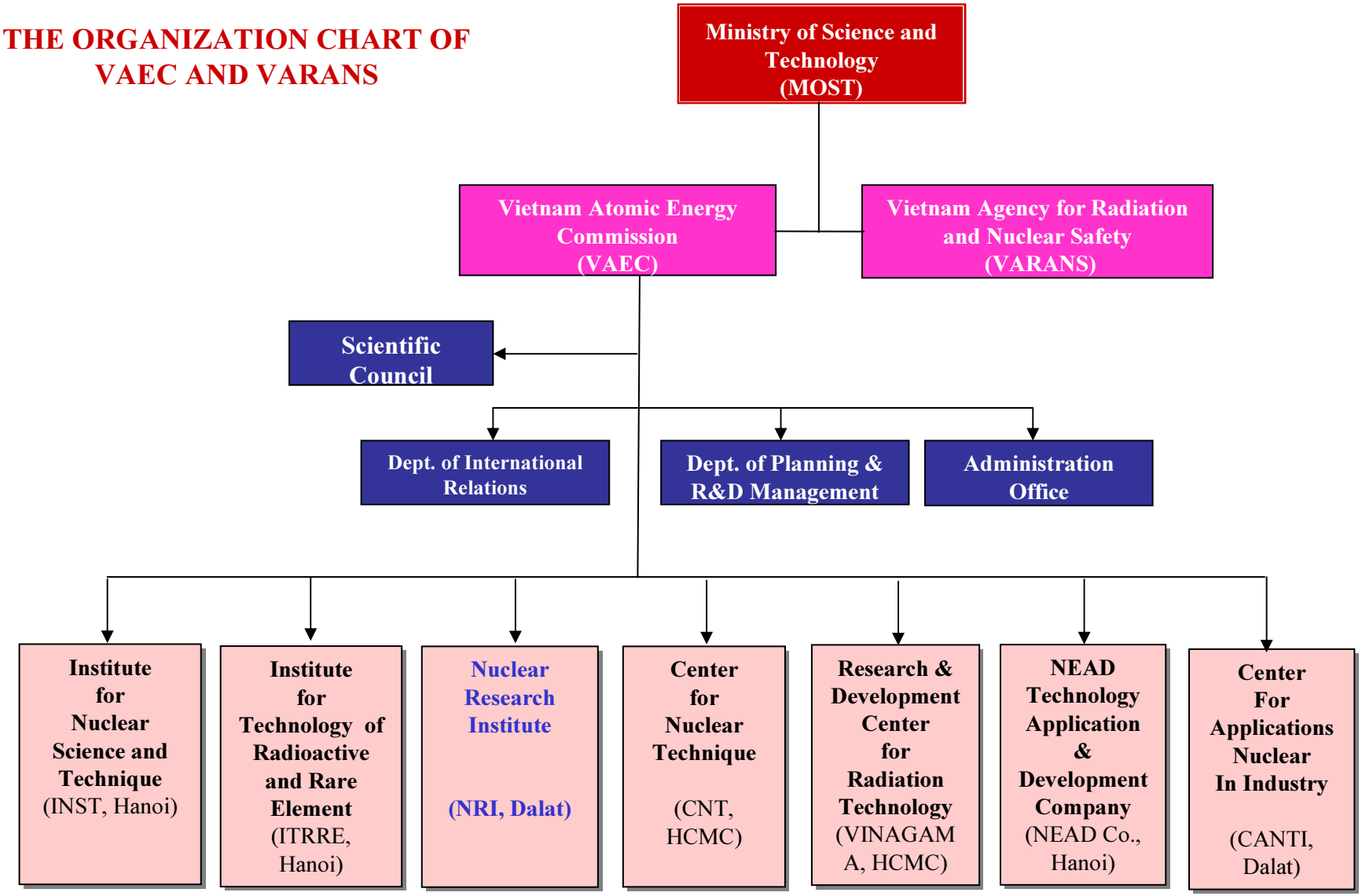

Legal and Regulatory Framework in Vietnam regarding the Decommissioning of Nuclear Facilities (2/4)

- Atomic Energy Law Approved by The National Assembly 12th Session, 3rd Meeting of the Socialist Republic of Vietnam on the 3rd day of June 2008.

- This Law entered into force on the 1st day of January 2009

Legal and Regulatory Framework in Vietnam regarding the Decommissioning of Nuclear Facilities (3/4)

Article 40. Decommissioning and decontamination of nuclear facilities, handling nuclear fuel, nuclear equipment, radioactive waste

- ☞ When a nuclear facility is planning to terminate its operation, the facility shall apply to the agency for radiation and nuclear safety for approval of the plan for decommissioning, decontamination, handling nuclear fuel, nuclear equipment, radioactive waste, and shall organise to execute the approved plan.
- ☞ The agency for radiation and nuclear safety shall organise to inspect the decommissioning, decontamination, handling of nuclear fuel, nuclear equipment and radioactive waste and shall certify that the nuclear facility is released from its responsibilities for ensuring safety.

Legal and Regulatory Framework in Vietnam regarding the Decommissioning of Nuclear Facilities (4/4)

- Nuclear facilities shall bear all the cost associated with dismantlement, storage and handling of radioactive waste resulted from decommissioning process

- Decommissioning, decontamination, handling of nuclear fuel, nuclear equipment and radioactive waste shall be complied with national technical standards.

- The Ministry of Science and Technology shall specify procedures, formalities of verification and approval of plan for decommissioning, decontamination, handling of nuclear fuel, nuclear equipment and radioactive waste.

- Is an independent regulatory body in place?

  Yes

Preparation for a Decommissioning Plan of the Dalat Nuclear Research Reactor (DNRR) (1/4)

- Participating in R2D2 Project and Co-ordinated Project: Planning, Management and Organizational Aspects in Decommissioning of Nuclear Facilities has been stimulating and helping the work for DP for DNRR
- Top Management has supported preparing the DP
- The preliminary Decommissioning plan for Dalat Nuclear Research reactor has been preparing by NRI staff and will be complete in 2011
- The preliminary decommissioning plan for Dalat Nuclear Research Reactor based on the guidance of IAEA (Safety Report Series No. 45)

Preparation for a Decommissioning Plan of the Dalat Nuclear Research Reactor (DNRR) (2/4)

The major topics of the decommissioning plan for DNRR:

1. Introduction to the name and address of the reactor and licensee's name and address.
2. Facility description, including:
   - site location and description,
   - building and system description,
   - current radiological status, and
   - facility operating history
3. Decommissioning strategy:
   - alternatives considered (immediate decommissioning or deferred dismantling or entombment)
   - rationale for chosen strategy

Preparation for a Decommissioning Plan of the Dalat Nuclear Research Reactor (DNRR) (3/4)

The major topics of the decommissioning plan (con't):

4. Project management:
   - legal and regulatory requirements
   - project management organization and responsibilities
   - Task management organization and responsibilities
   - Safety culture
   - Training
   - Schedules
5. Proposed decommissioning activities (contaminated structures, contaminated systems and equipment, soil, surface and groundwater)
6. Waste management (solid radioactive waste, liquid radioactive waste, and waste containing both radionuclides and other hazardous material)

Preparation for a Decommissioning Plan of the Dalat Nuclear Research Reactor (DNRR) (4/4)

The major topics of the decommissioning plan (con't):

7. Safety assessment
8. Cost estimate and funding mechanisms
9. Environmental assessment (background data, environmental protection programme, effluent monitoring programme, effluent control programme)
10. Health and safety (Radiation protection programme, nuclear criticality safety, dose estimation and optimization for major task, clearance criteria, etc…)
11. Quality assurance
12. Emergency planning
13. Physical security and safeguards

Transition from Operation to Decommissioning of the DNRR

- In the 2010 the full core conversion of Dalat Nuclear Research Reactor from HEU to LEU fuel will be implemented
- A new research reactor for Vietnam is in preparing process
- A new research reactor is planning to put in to operation in 2018
- In the future, with new reaearch reactor, DNRR will be operated with modified function
- The permanent shutdown plan of Dalat Nuclear Research Reactor will be implemented in 2029
- Transition from operation to decommissioning of DNRR is still in the process of discussion

Characterization survey of the DNRR

Radionuclide inventory assessment and characterization in the main structures of DNRR (reactor pool, reflectors, concrete structure, etc…)

- Collecting of documents
- Calculating the neutron distribution within structures, systems and equipment of the reactor (such as beryllium and graphite reflectors, alluminium tank, concrete structure…) using MCNP computer code
- Determining the activation activity of radionuclides (maximum and average levels) present in the structures, systems and equipment of the reactor based on the reactor operating history and using ORIGEN2 computer code
- Carrying out the sampling when necessary

Cost estimates

- ☞ Cost estimate for decommissioning of the DNRR is still in the process
- Establishment of the cost estimation methodology and list items (reference to the guidance documents of IAEA and reports published by expert groups)
- Preliminary cost estimate for decommissioning of the DNRR is still in the process of analysis from the reference to a decommissioning costs of TRIGA reactor facilities and similar nuclear research reactor.

☞ Funs may be available from government when needed.

Decommissioning technologies

- The technologies for decommissioning of DNRR are still in the process of discussion

- The co-operation with other countries, hiring contractors and renting equipments for decommissioning of the DNRR have still not considered. They will be expected in the final decommissioning plan.

SUMMARY

- The Decommissioning of Nuclear Facilities is included in the national legal and regulatory framework

- Decommissioning plan for Dalat Nuclear Research reactor has prepared by NRI staff and will complete in 2011.

Thank you for your attention!