NUCLEAR SAFETY AND SECURITY MANAGEMENT IN VIETNAM

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1. Applications of radioactive sources and nuclear power program in Vietnam
2. National policy on Nuclear Safety and Security
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Radioactive Sources

- 1.519 radioactive sources are in use (4% in health care, 66.8% in industry and 29.2% in other applications), 1.515 disused radioactive sources are in storages
- Sources of category 1: 29 sources in use, 3 in storage
Nuclear Research Reactor

- Pool-type research reactor (500 kW) for purposes:
  - Radioisotope production,
  - Neutron activation analysis,
  - Basic and applied research on nuclear physics,
  - Training

- 2007: Partial Conversion from HEU to LEU with IAEA, US and Russian support

- 7/2013: Completion of full conversion of Da Lat Research Reactor from HEU to LEU.
NP Program in Vietnam

Master Plan on development of nuclear power

- Prime Minister’s Decision on the approval of Master plan of National Electricity Development from 2011-2030 (Decision No. 1028 dated 21 July 2011)

- Orientation of nuclear power development:
  - 2020: the first Unit with capacity of 1,000 MW will be put into operation
  - 2030: total capacity of all NPPs will reach 10,700 MW (Accounted for 10.1% of total electricity productivity)

- The first two NPPs will be constructed in Ninh Thuan Province.
Siting for 2 first NPPs

Investor: Vietnam Electricity (EVN)

Electric grid of 550KV Voltage from the North to the South of Vietnam with the total length of 1488 km to support the new builds.

Capacity: 2 x 1000 MW
Counterpart: Japan
Project under discussion

Capacity: 2 x 1000 MW
Construction start: 2014
Commercial operation: 2020
Counterpart: ROSATOM (Russia)
Technology: VVER-1000
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Overal State Policy for Nuclear Safety and Security

- All activities using radioactive and nuclear materials conducted in Vietnam must ensure safety for people and environment
- All those activities must be managed by the state

<table>
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<th>Safety</th>
<th>Security</th>
<th>Non-proliferation</th>
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<tr>
<td>To protect people and environment from harmful influence of radiation</td>
<td>To prevent sabotage, unauthorized or malicious uses of radioactive and nuclear materials</td>
<td>To commit with obligations for non-proliferation</td>
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General commitment

Strongly oppose to terrorism, proliferation of weapon of mass destruction, illicit trafficking of nuclear materials and radioactive materials.

- At the Nuclear Security Summit in 2010 and 2012, Vietnam Prime Minister Nguyen Tan Dung, together with the leaders of the attending countries expressed:
  - Support the Global Initiative to Combat Nuclear Terrorism; and
  - Commit to implement safety and security measures and always consider the ensuring of radiation safety and nuclear security as the top priority during the development and utilization of nuclear energy for peaceful purposes
Implementation of policy

- Development of Legal framework and accession to international conventional and treaties
- Establishment of regulatory body on nuclear safety, security and safeguards
- Development of national technical infrastructure
- Enhancement of awareness and Knowledge on nuclear safety and security

- Ensuring safety and security of radioactive sources and nuclear facilities;
- Enhancing the awareness on nuclear safety and security;
- Creating nuclear safety and security culture
1. Atomic Energy Law

- June 3rd, 2008: The National Assembly adopted the Law on Atomic Energy;
- Jan 1st, 2009: the Law came into force

  - The Law regulates the safe, secured, and peaceful use of atomic energy, including participation in and implementation of international nuclear treaties and conventions and the international cooperation.
I. Legal Framework

2. **Circular on guiding to ensure the security of radioactive sources, No 23/2010/TT-BKHCN**
   issued by MOST in 29 December 2010

3. **National technical regulation on radiation protection - Categorization and classification of radioactive sources - QCVN 6: 2010/BKHCN;**
   issued by MOST in 29 December 2010

4. **Guidance on establishing security plan at radiation facilities;**
   issued by VARANS in September 2008

5. **Circular on requirements to ensure the security of nuclear material and nuclear facility, No 38/2011/TT-BKHCN**
   issued by MOST in 30 December 2011
Vietnam has acceded the following international convention and treaties

- Nuclear Nonproliferation Treaty (1982);
- Safeguards Agreement (1989);
- Convention on Early Notification of a Nuclear Accident (1987);
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1987);
- Comprehensive Test Ban Treaty (signed 1996, ratified 2006);
- Bangkok Treaty (1997);
- Regional Cooperative Agreements;
- Code of Conduct and Supplementary Guidance on Import and Export of Radioactive Sources (2006);
- Convention on Nuclear Safety (4/2010);
- Convention on the Physical Protection of Nuclear Material and its Amendment (come into effect in Nov 2012)
I. Legal Framework

General principles for nuclear safety and security management

- Prime responsibilities for nuclear safety and security rest on licensees
- Government applies state management on all radiation and nuclear activities through the licensing and inspection and enforcement
- Regulatory Authority is established to implement state management
VARANS: established in 2003, is an agency belonging to MOST and assists the Minister of S&T in State management of radiation and nuclear safety (*Atomic Energy Law, Article 8*);

- VARANS performs 3 “S” functions
Functions of VARANS

VARANS’s functions are specified in the law *(Atomic Energy Law, Article 8)*:

- On behalf of Minister of MOST, to implement duties of state management in safety and security of radioactive materials, nuclear materials and nuclear facilities.
- To issue regulations on nuclear safety, security, nonproliferation.
- To review a safety analysis report of applicants and issue a license for conducting a radiation /nuclear activity.
- To conduct inspections for checking compliance with regulatory requirements on safety and security and take enforcement
- To develop national infrastructure for ensuring nuclear safety and security and fulfillment of obligations for nonproliferation
III. Development of technical infrastructure

Installation of security equipment
Under the Megaport Initiative

- Goal: to deter, detect and interdict the illicit trafficking of special nuclear materials and other radioactive sources through seaports of Vietnam;
- Current status: 12 radiation portal monitors (RPM) and related systems have been installed at 3 ports of Cai Mep – Thi Vai, Ba Ria – Vung Tau. The system is on trial operation.
III. Development of technical infrastructure

Under the IAEA – EU Joint Action Project

Goals: strengthening national infrastructure for radiation monitoring at border gates through the provision of radiation detection equipments

A portal radiation portal monitor installed at Noi Bai International Airport
Vietnam signed the Basic Order Agreement (BOA) under the framework of the Radiological Threat Reduction (RTR), a program of GTRI with the Battelle Memorial Institute, DOE to enhance the security at radiation facilities with sources of radioactivity $\geq 1000$ Ci: the security systems have been installed at 24 facilities.
IV. Awareness Enhancement

Activities under the IAEA – EU Joint Action Project

Provide TOT for front line officers (September 2012)
IV. Awareness Enhancement

Cooperating with international organizations in training personnel of radiation facilities on security of radioactive sources, security culture and security management

Training courses on security of radioactive sources in cooperation with ANSTO and NNSA
Other activities...

- Full conversion of a highly enriched uranium to low enriched uranium for research reactor;
- Cooperating with Korea on the establishment of the RADLOT system (Radioactive Source Location Tracking) to track the radioactive sources. The project is still on initial steps;
- Developed and submitted the Integrated Nuclear Security Support Plan (INSSP) to IAEA (2012)

Workshop on INSSP, 2011  Da Lat Research Reactor  Meeting to discuss the development of RADLOT system, Hanoi, Feb 2012
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Summary

- Vietnam has a clear and strong commitment on development of radiation applications and NPP and ensuring nuclear safety and security, nonproliferation of weapon of mass destruction, combating to illicit trafficking of nuclear and radioactive materials;
- Basic infrastructure for nuclear safety and security has been established;
- With the existing technical and legal infrastructure, Vietnam has been implementing effectively the ensuring of nuclear safety and security in accordance with international best practices and guidance; Its efforts are also highly recognized in the region;
- Vietnam strongly appreciate international co-operations to enhance nuclear safety and security for the peaceful utilization of nuclear energy.
Thank You for your attention!

Halong Bay - Viet Nam