

VARANS
VIETNAM AGENCY FOR RADIATION AND NUCLEAR SAFETY

NRC's 26th Annual Regulatory Information Conference
March 11-13, 2014

VIETNAM'S EXPERIENCE - REGULATORY CHALLENGES WHEN EMBARKING ITS NUCLEAR POWER PROGRAM

PhD, Dang Thanh Luong and Luu Nam Hai
Vietnam Agency for Radiation and Nuclear Safety

1

VARANS
VIETNAM AGENCY FOR RADIATION AND NUCLEAR SAFETY

CONTENT

- I. Nuclear Energy master plan by 2030
- II. Nuclear safety infrastructure
- III. Conclusions

2

VARANS
VIETNAM AGENCY FOR RADIATION AND NUCLEAR SAFETY

CONTENT

- I. Nuclear Energy master plan by 2030
- II. Infrastructure for Radiation protection
- III. Radiation protection programme of Vietnam

3

VARANS

I.1 Overview of NPP Program in Vietnam

NPP Master Plan and 1st NPP Project

- Decision by Prime Minister on the approval of Master plan of National Electricity Development from 2011-2030 (Decision number 1208 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 (about 10.1% of total electricity production)
- The first two NPPs will be constructed in Ninh Thuan Province.

4

VARANS

I.3 Overview of NPP Program in Vietnam

Siting for 2 first NPPs

Vinh Hai
Capacity: 2 x 1000 MW
Counterpart: Japan

Phuoc Dinh
Capacity: 2 x 1000 MW
Counterpart: Rosatom, Russia
Technology: VVER-1000

Investor: Vietnam Electricity (EVN)

5

VARANS

Milestones Record

Year	Milestone
2004	Khởi lập Ủy ban nghiên cứu về an toàn hạt nhân (Establishment of Department nuclear research)
2004	Thành lập Ban an toàn hạt nhân (Establishment of nuclear safety)
2004	Pháp lệnh về bảo vệ môi trường (Ordinance on protection of environment)
2006	Chiến lược năng lượng quốc gia (National Energy Strategy)
2006	Chiến lược ứng dụng NPP và các công nghệ liên quan (Strategy on practical use of nuclear energy and related technologies)
2008	Luật NLT (Law on Atomic Energy)
2009	Nghị quyết quyết định công bố dự án điện hạt nhân Ninh Thuận (NA Resolution on investment plan of Ninh Thuan nuclear power project)
2013	Phê duyệt dự án EIS (Site and FS approvals)
2014	Cấp phép xây dựng (Construction Permit)
2030	Cấp phép vận hành (Operation License)

Subject to be changed

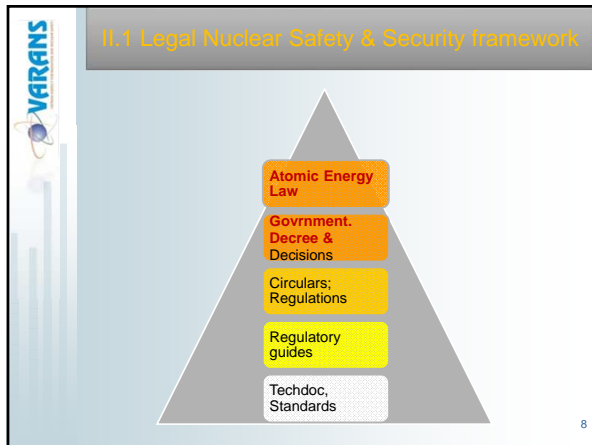
6

VARANS

CONTENT

- I. Development of Nuclear Energy Application in Vietnam
- II. Nuclear Safety Infrastructure**
- III. Projects and Cooperation in Security and SG

7



VARANS

II.1 Legal Nuclear Safety & Security framework

Legal documents updated by June 2013

Law on Atomic Energy (Atomic Law 2008)

- Passed by the National Assembly (Parliament) on June 3, 2008
- Came into force since January 1st 2009
- The Law regulates the safe, secured and peaceful use of atomic energy, including participation in and implementation of international treaties/conventions and strengthens the international cooperation

Governmental Decrees (3)

- Decree on Guidance of Implementing Several Articles of AE Law (No.07/2010/ND-CP issued on Jan 2010)
- Decree on Sanction against Administrative Violations in AE Field (No.111/2010/ND-CP issued on Dec 2009)
- Decree on Nuclear Power Plant (No.70/2010/ND-CP issued on June 2010)

9

VARANS

II.1 Legal Nuclear Safety & Security framework

Legal documents updated by June 2013

Prime Minister' Decisions (21)

- on master plan and detailed plans on peaceful use of atomic energy
- on nuclear security, safeguards
- on establishment of the State Steering Committee for NinhThuan NPP Project, the National Council for Nuclear Safety, ...

10

VARANS

II.1 Legal Nuclear Safety & Security framework

Legal documents updated by June 2013

Ministerial Circulars (34)

- on Radiation Safety, nuclear safety requirements for NPP siting/design,
- SAR for siting/design, safe transport, emergency preparedness and response...

Technical Standards-TS (5) for site evaluation

- TCVN-ATHN 9644 :2013 on evaluation of seismic hazards for NPP
- TCVN-ATHN 9643 :2013 on evaluation of geotechnical aspects for site of NPP
- TCVN-ATHN 9645 :2013 on evaluation of meteorology for NPP
- TCVN-ATHN 9641 :2013 on evaluation of external human induced events for NPP
- TCVN-ATHN 9642 :2013 on evaluation of dispersion of radioactive material in air and water and consideration of population distribution for NPP

11

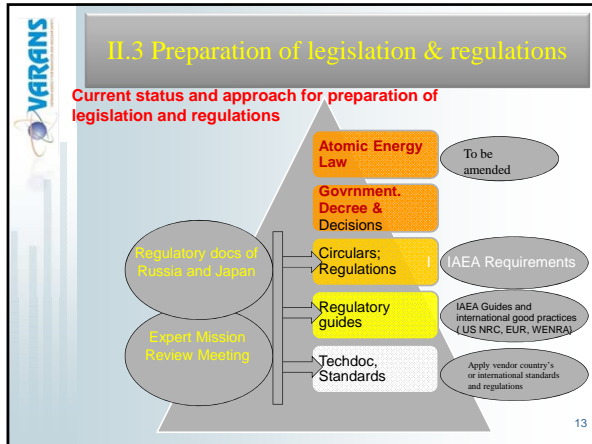
VARANS

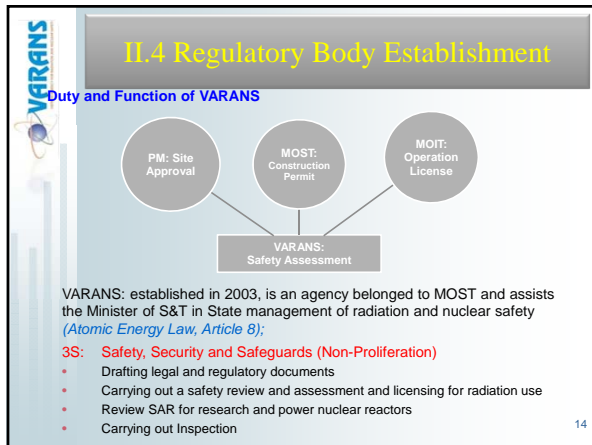
II.2 Global nuclear safety regime

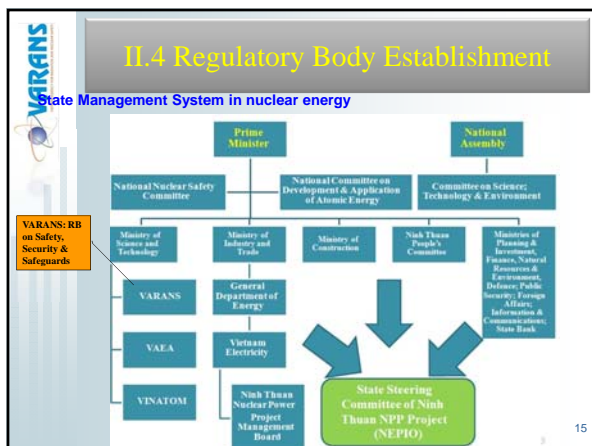
Vietnam is being a party to the following conventions and treaties:

1. Treaty on the Non-Proliferation of nuclear weapons
2. Comprehensive Nuclear-Test-Ban Treaty (CTBT)
3. The Treaty on Southeast Asia Nuclear Weapon – Free Zone
4. Agreements between Vietnam and IAEA for the application of Safeguards in connection with the Treaty on the Non-Proliferation of nuclear weapons
5. Additional Protocol to the Agreement(s) between State(s) and the IAEA on the application of safeguards (AP).
6. Convention on Early Notification of a Nuclear Accident
7. Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency
8. Convention on Nuclear Safety
9. Convention on Physical Protection for Nuclear Materials
10. Convention on the Safety of spent fuel Management and the Safety of Radioactive Waste management

12







VARANS

II.5 Licensing process - Challenges

The licensing process for NPP that was defined in the Atomic Law 2008 consists from 3 phases:

- Site approval by the Prime Minister
- Construction permit by the Ministry of Science and Technology
- Operation License by Ministry of Industry and Trade.

The above-mentioned licensing process might generate a potential risk in state safety management. Recognizing this situation, Government of Vietnam has decided to amend the Atomic Law 2008.

16

VARANS

II.6 Amending a licensing process

New approach will be considered in the amended Atomic law 2008:

One agency in cooperation with other ministries will be authorized to regulate facilities and activities that give rise to radiation risks. The Agency will be responsible for carrying out its required regulatory functions:

- The establishment of requirements and guides,
- The authorization and inspection of facilities and activities, and
- The enforcement of legislative and regulatory provisions

Using the existing expertise and resources in the country

17

VARANS

II.7. Challenge and opportunities in preparing legislation & regulations

- When a country embarks upon Nuclear power program, you have to learn how it will be effected by the traditional management and how it will impact on politic, economic and social life of the country before you start to develop a nuclear legislation even nowadays you have many guides and handbook;
- The conflict between safety culture and national traditional culture
- The traditional legislation making rules might lead you to confusing situation;
- The modern nuclear law bear a lot of international obligations that make a nuclear law less national than other laws;
- National nuclear legal framework need to be harmonized to international standards

18

VARANS

II.7. Challenge and opportunities in preparing legislation & regulations

Opportunities

- Support from Government
- Significant assistance from IAEA and partners countries (Japan, Russia, USA,...)
- Updated legal documents of advanced countries and international standards for reference and application

Challenges

- Lack of expertise in preparing safety and security regulations including regulatory guides and performing regulatory functions: review and inspection;
- Interaction between Nuclear law with other laws
- Complicated safety regulations due to the different technologies for 2 first NPPs (Russia and Japan technologies)
- How does RB approve the design modification beyond the standard basic design e.g. when the seismic scale of the site is higher than one in standard design basics.

19

VARANS

II.8 Review of and plan for Legal framework development

Objectives of Amending the Law on Atomic Energy 2008 are the followings:

- To meet International standards;
- In compliance with IAEA's (IRRS, INIR missions) recommendations;
- Main amendments will be focused on establishment of regulatory body, NPP licensing process, inspection and enforcement, emergency management, civil liability for nuclear damage, security and safeguards



IAEA legislative assistance mission to VARANS for the amendment of the Atomic Energy Law, 2012


20

VARANS

II.9 Man power development -Challenges and opportunities

- The expertise of Varans's staff is limited. However supplementary human resource for VARANS could be recruited from other ministries such as ministries of industry and trade, construction and, Natural Resources and environmental protection and other research institutes;
- For doing this, we need a special order/decision from government to allow Varans to recruit experts and to provide financial resource for recruitment;
- The government has allowed VARANS to invite international consultancy for reviewing the SAR for site, FS approvals and construction permit. By the way Varans's staff can be trained;
- Language might become a main barrier in knowledge and technology transfer;
- Brain leakage.


21



II.9 Man power development -Challenges and opportunities

- The prime Minister has approved a national project on "Education, training and manpower development in the atomic energy field" with total investment of 150 millions of US Dollar.
- The objectives of the Project is to train human resource in the atomic energy field to ensure enough in quality and quantity so that to meet a demand of development of atomic application and nuclear power as well; to meet safety and security requirements to application of nuclear energy and techniques into deferent economic and social branches and to strengthen capability of science and technology in Vietnam.
- Vietnam has intensively collaborated with vendor countries and IAEA, US NRC, EU and other partners for training its staff


22



II.9 Man power development -Challenges and opportunities

- Who will be trained, retrained or get additional training?
 - Young staff of VARANS; and
 - Experts, who have been working at different ministries or institution with no nuclear expertise and will work for VARANS.

23



Conclusion

- Development of nuclear power program require a global cooperation.
- By cooperation, Vietnam has an opportunity to access to worldwide treasure of knowledge and apply it into practice.
- During development of Nuclear power program, you may go over the conflicts between safety culture and national traditional culture
- International cooperation plays an important role in sharing experience and knowledge, that will help Vietnam to develop its competent Nuclear safety Regulatory Body – one of the most important elements in Safety infrastructure for sustainable development of nuclear power program.
- The safety could not itself come to you and you can not ask it for gift . For having it , You have to work hardly and carefully and day by day for safety development.
- By participating in all most international nuclear safety and security instruments and practical effort to develop a national safety and security infrastructure, Vietnam would like to express its policy on safe and secure nuclear power program development for peaceful use.

24



Thank you for your attention
