Regulatory issues related to new NPPs in Vietnam

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2. Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission and lessons learn from Fukushima Daiichi accident.
3. Conclusions.
CURRENT STATUS

Current status of regulator and TSO in Vietnam and human and organizational factors

VARANS
- established in 2005 as an agency under the Ministry of Science and Technology (MOST)
- main function is regulating radiation and nuclear safety, nuclear security and nuclear safeguards (3S)
- about 100 staffs working in 7 divisions and 2 centres
- internal TSO: Technical Support Centre for Radiation and Nuclear Safety and Emergency Response
- about 90% of staff is at the age of around 30 (active, well educated, but they need systematic trainings and practical experiences)
VARANS

- authorized to organize bidding for the Bidding package: Consulting services for assisting MOST and MONRE in evaluating Safety Analysis Report (SAR) and Environmental Impact Assessment Report (EIA) for Site and Feasibility Study (FS) approval of Ninh Thuan 1 NPP under Ninh Thuan Nuclear Power Project

- safety assessment process with assistance of international and national TSOs should be soon started to meet timing requirement of the Project Implementation
CURRENT STATUS

Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

VINATOM
- is a state research and development organization under MOST
- established in 1976 with the function of performing science researches, technology development, technical support for state management organisations and utilities, education and training in the field of atomic energy
- focuses on research and development and providing technical support for the nuclear power program implementation in Vietnam
- has about 800 staff members with 7 professors, 50 PhDs and 135 MScs
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

VINATOM has 9 sub-institutions

In Hanoi
- Institute for Nuclear Science and Techniques (INST)
- Institute for Technology of Radioactive and Rare Earth Elements (ITRRE)
- Irradiation Centre (Hanoi IC)
- Centre for Non-destructive Evaluation (NDE)
- Nuclear Training Centre (NTC)

Staff Numbers: 800 vs. 100
- Aver. Ages: 50 vs. 30
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

In Da Lat
- Nuclear Research Institute (NRI)
- Centre for Application of Nuclear Technique in Industry (CANTI)

In HCM City
- Centre for Nuclear Techniques (CNT)
- Research and Development Centre for Radiation (VINAGAMMA)

Projects for a new radiation Centre and new Research Reactor
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

VIGMR
- is a research institution under the Ministry of Natural Resources and Environment (MONRE)
- has function in conducting research and developing technology, mineral resources, geological resources, underground water resources, marine geology, environmental geology, urban geology, medical geology, and geotechnics;
- organize post graduate training on geology and mineral resources
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

VIGMR

- has 250 staffs, including 2 professors; 24 PhDs; 36 MScs and more than 100 experienced engineers-geologists and so on

All of them are in full power with enough skills for fulfilling assigned functions and tasks of VIGMR

- was responsible for appraisal of site for construction of nuclear power plants for review pre-FS report of Ninh Thuan NPP projects in 2009
CURRENT STATUS

Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

• According to the latest report, Vietnam can mobilize about 60 experts to support safety assessment for site and FS approval. They come mostly from VINATOM and VIGMR.

• There are also invited experts from other research institutes and universities.

• One weakness of Vietnam national human source is that they do not have enough practices with NPP.

• The delay in preparing human resource resulted in inadequate implementation of the Government established Education and Training Program 1558 at starting stage.
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

**FIG. 2.** Organizational structure in Nuclear Power Project evaluation for FS approval (according to the Law on Investment).
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

FIG. 3. Possibility of overlap in responsibilities of MOIT, MOST and MONRE.
Current status of regulator and TSO in Vietnam and human and organizational factors (cont’)

FIG. 4. Possibility of overlap in responsibilities of SCPI, NNSC and NEC: Each committee/council has almost the same members, only chairmen (leaders) and steering agencies are different.
Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission and lessons learn from Fukushima Daiichi accident

The IRRS Follow-up Mission: “While this Law (Law on Atomic Energy) prescribes the duties and responsibilities of VARANS, these are only limited to ‘assisting’ the MOST in carrying out regulatory functions such as inspections, licensing and enforcement. The Law also stipulates that the MOST is responsible for establishing the program for the development and application of atomic energy. For example, both VARANS and VINATOM, the operator of the research reactor, report to the same Minister who is therefore responsible for operation of the reactor and the chief regulator at the same time. This arrangement does not conform to the IAEA safety requirements for independence of the regulatory decision-making.”

There are a lot of difficulties for current embarking states to follow the same human and organizational requirements that have been established in the nuclear currently developed states.
Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission (cont’)

Proposal

Need to understand deeper the IAEA safety requirements for independence of the regulatory decision-making:

‘Level’ of independence may depend on level of nuclear competence of a state

At early nuclear epochs, almost all states had only one leading body that was responsible for both promotion and regulatory activities.
Vietnam Government decided to develop the competence of the national ‘external’ TSOs:

- Relevant research institutes receive Government budget to carry out studies on NPP technology as well as site survey and investigation in Ninh Thuan province.

- On January 6, 2016, the Prime Minister issued Decision No. 30 to upgrade VINATOM from ‘department level’ to ‘general department level (special level)’ in Governmental administration system. Based on the Decision, VINATOM has been authorised at higher level to fulfil its functions and responsibilities.

- Practically, the Government supports greatly impact on human resource development and strengthens of competency of TSOs.
Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission and lessons learn from Fukushima Daiichi accident (cont’)

The IRRS Follow-up Mission: “The issues of independence of regulatory decision-making and coordination among involved entities become more complex with regard to the legal framework for regulating the proposed Nuclear Power Plants (NPP). According to the Law on Atomic Energy and Decree No. 70/2010/ND-CP, the Prime Minister approves the location of an NPP. MOST grants the construction licence after it has consulted MONRE and the National Nuclear Safety Council (NNSC).”

On these issues, the official report (2012) of the National Diet of Japan stated: “The laws and regulations governing Japan’s nuclear power industry at the time of the accident were out-dated relative to those of other countries and, in some cases, obsolete.”

Vietnam has the same problem with “out-dated” legal systems.
Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission and lessons learn from Fukushima Daiichi accident (cont’)

Lessons learn from Fukushima Daiichi accident

The IAEA report on the accident indicated:

“The complex arrangement of organizations at different levels within the Government of Japan appears to have hampered the effective regulation of safety. Many government ministries, agencies and quasigovernmental organizations played influential roles with regard to the utilization and regulation of nuclear energy in Japan. The NSC was an important body with both advisory and supervisory roles in the system of ‘subsequent regulation review’. In the opinion of the IRRS mission, the role of NISA as the regulatory body in relation to NSC was in need of clarification. Inspection activities, an important part of the functions and responsibilities of the regulatory body, were assigned by law partly to JNES. Consequently, NISA had to manage the interface with JNES with regard to its inspections.”

Vietnam has the same problem with “the complex arrangement of organizations at different levels”.

Discussion on some recommendations and suggestion of the IAEA IRSS follow-up mission and lessons learn from Fukushima Daiichi accident (cont’)

Regarding staffing and financial resources, the mission recommended:

“The Government should ensure that VARANS has adequate staffing and financial resources to discharge their assigned responsibilities, both now and in the future.”

and suggested:

“In those areas, in which VARANS is not entirely self-sufficient, mechanisms and resources should be provided for VARANS to use external services. Accordingly, they should develop criteria for authorization of external consultants and ensure their independence from the operator.”

It is important to recommend VARANS which responsibilities should be assigned to its internal TSO and for which ones it would be more optimal, both in staffing and financial resources mobilization, to invite external TSO for assisting. VARANS should carefully to design a policy in development of its own internal TSO.
Conclusions

In conclusions of the paper, the author would like to cite valuable observations and lessons learned from the Fukushima Daiichi accident:

1. Where several bodies have responsibilities for safety, the Government needs to effectively coordinate their regulatory functions to avoid omissions or duplications that may jeopardize safety.

In case of Vietnam, it is necessary to keep continuous and active activities of the Steering Committee on Ninh Thuan NPP project implementation (SCPI). It is advised to keep membership of the National Nuclear Safety Council (NNSC) at high level of technical competence.
Conclusions (cont’)

2. Regulatory independence, competence, strong legislative authority and adequate resources, including qualified personnel, are essential in order to perform the required regulatory functions.

It is recommended that VARANS and its principal TSO VINATOM closely cooperate in development of qualified personnel, integrate their efforts in improvement of the national legal and regulatory infrastructure.

3. The lesson learned for the international nuclear community is that the possibility of the unexpected needs to be integrated into the existing worldwide approach to nuclear safety.

Vietnam needs to have systematic approach in international cooperation that encourages Vietnam in learning and applying good practices in nuclear safety.
Conclusions (cont’)

4. The results of research on complex sociotechnical systems for safety need to be taken into account.

Vietnam does not have much research in this field, but it may get profit in bilateral and multilateral cooperation with developed countries in this matter.

5. The regulatory body needs to acknowledge its role within the national nuclear system and the potential for its impact on the nuclear industry’s safety culture.

It is especially important in case of Vietnam where the national nuclear system is too complex and roles and responsibilities of relevant bodies may be unclear in some cases.
REFERENCES


Thank you for attention!