

IAEA–KINS
Basic Professional Training Course on Nuclear Safety
19 - 30 September 2022

Viet Nam Country Presentation

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Contents

I. Introduction

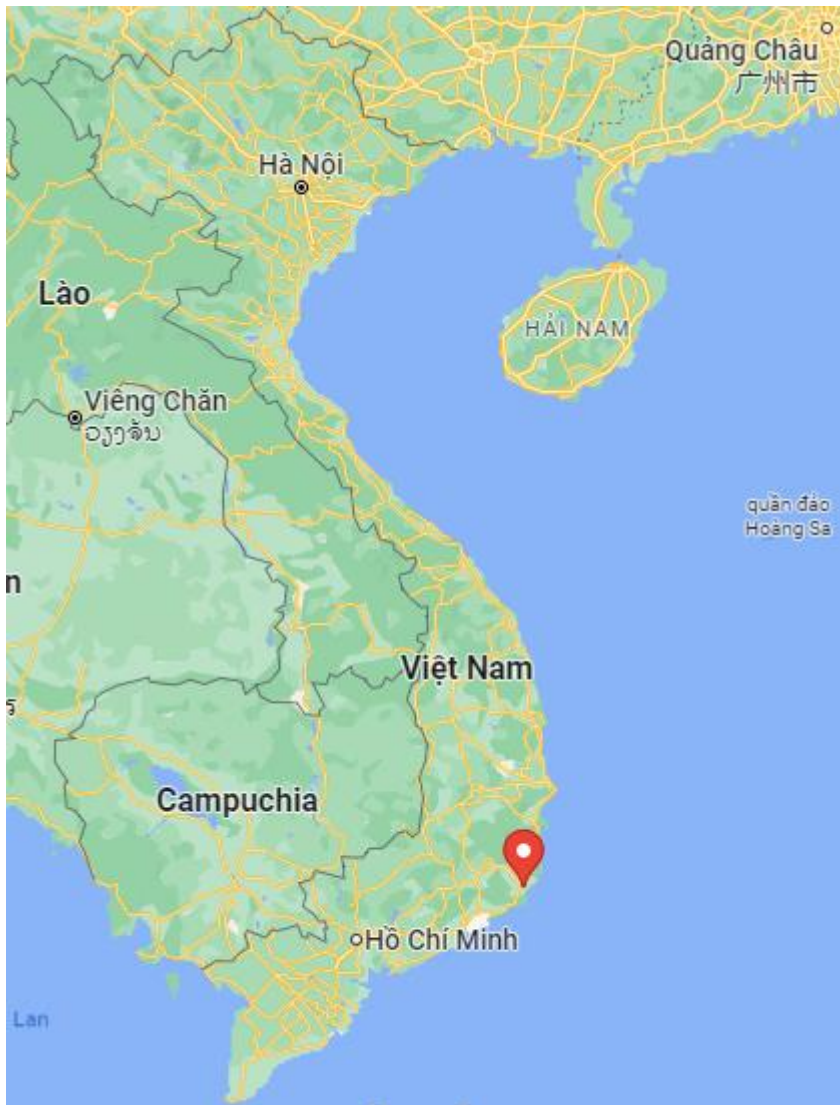
II. Regulatory Framework for new Research Reactor

III. Safety Analysis for new Research Reactor

IV. Safety Analysis for NPPs and vn-ansn.org.vn

V. Conclusion

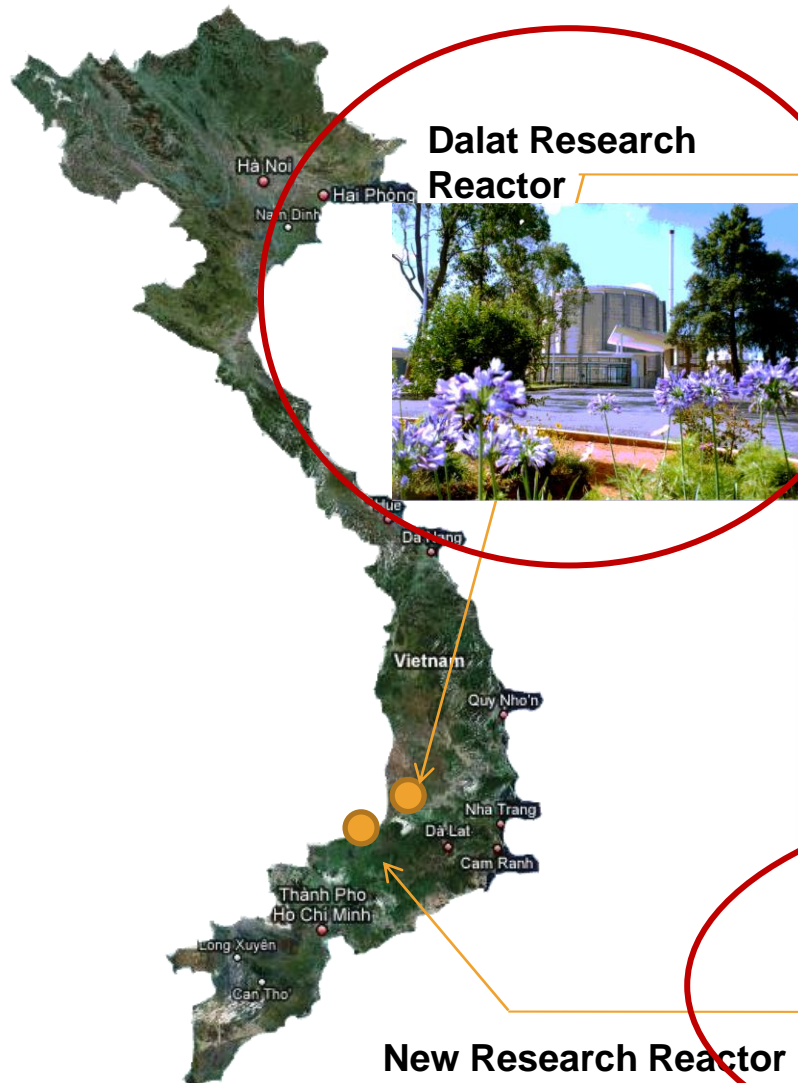
II. Introduction



- ✓ Planned to construct: Ninh Thuan I NPP with 2 units x 1000 Mwe; Ninh Thuan II NPP with 2 units x 1000 Mwe;
- ✓ Atomic Energy Law promulgated in 2008;
- ✓ Resolution No. 41/2009/QH12 of the Congress on the investment policy of the Ninh Thuan Nuclear Power Project;
- ✓ 03 Decrees on the instruction of Atomic Energy Law, administrative penalty, preferential policies; 11 Decisions of the Prime Minister; 16 Circulars.
- Postponed in 2016
- In 2022, Congress required local government and related ministries to review effectiveness of the NPP program
- MOIT proposed petition to PM to maintain the effect of Decisions related to site approval

I. Introduction

Sites for existing and new RR



Dalat Research Reactor

TRIGA MARK II, 500 kWt, built in 1963
It was modified and upgraded in 1980s
Its purposes include radioisotope production, sample irradiation, training, etc

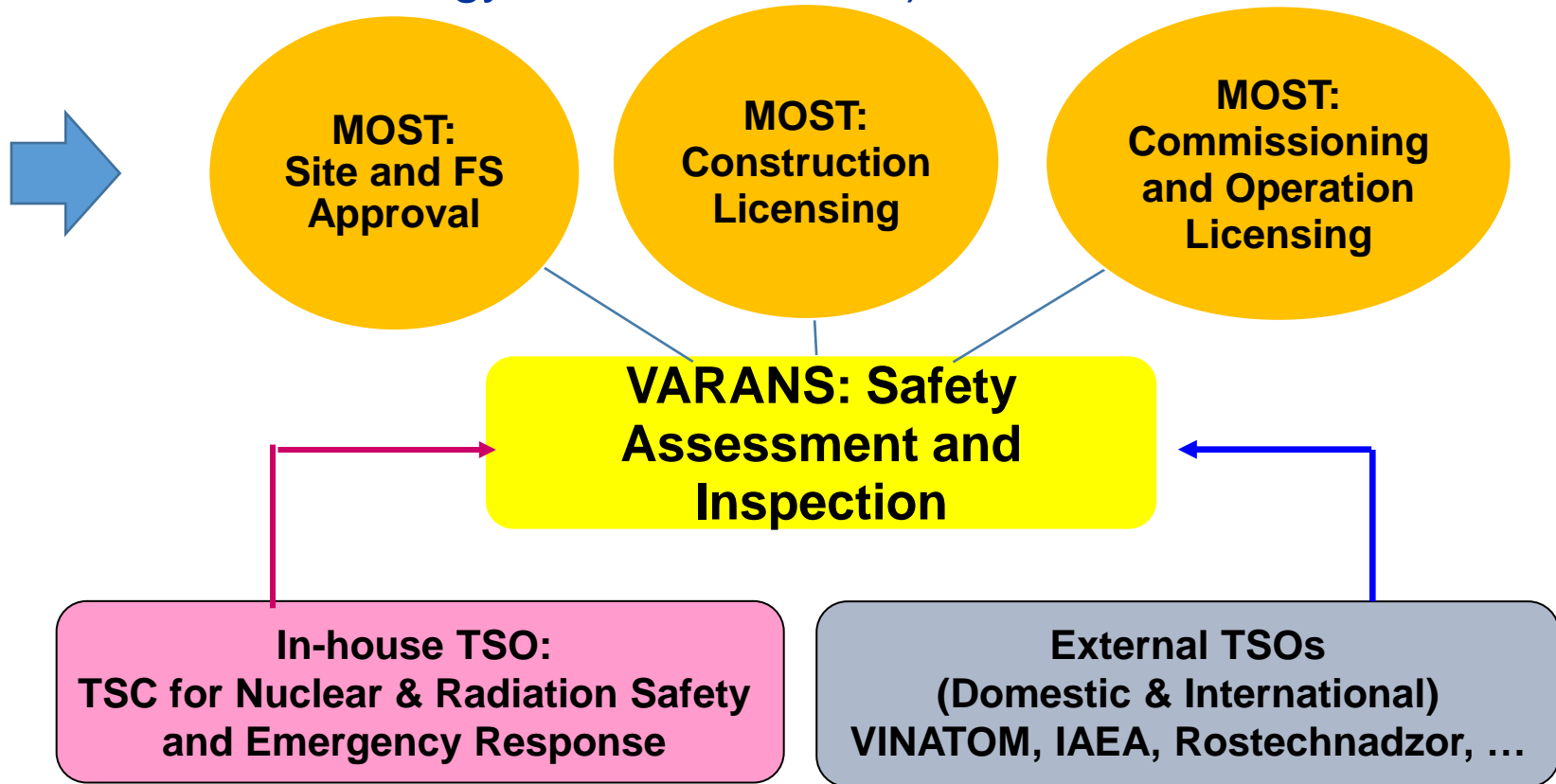


New Research Reactor

Russian Technology, 10-15 MWt
Multipurpose
Proposed Site in Dong Nai province
PreFS decided in 11/2018
Developing the dossiers for Site&FS approval

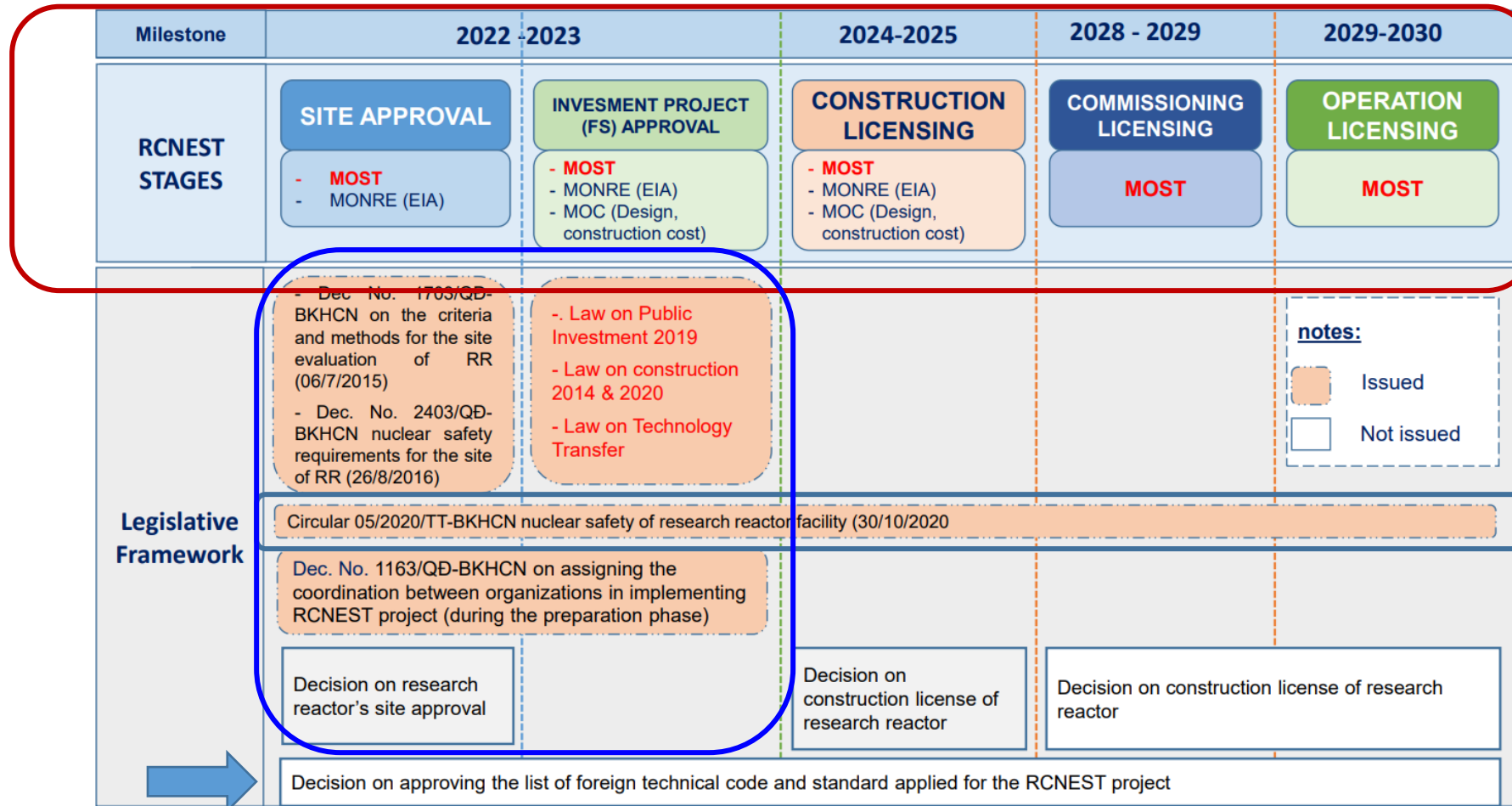
II. Regulatory Framework for new Research Reactor

For Research Reactor: VARANS under MOST has duty assessment and inspection in all stages (Article 8, 42 & 43 of the Atomic Energy Law of Viet Nam)



II. Regulatory Framework for new Research Reactor

Safety Regulations Issue Plan

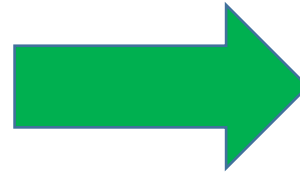


III. Safety Analysis for new Research Reactor

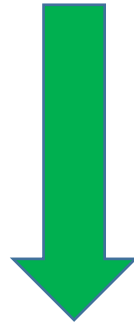
The main types of calculations performed in the analysis of accidents, as well as their purposes:

1. Neutronic, Thermal-Hydraulic calculations

- ☐ Time steps of the accident evolution
- ☐ Data for assessing radiation consequences
- ☐ Assessment of the accident scale



Development of guidelines and manuals determining personnel actions on ensuring safety under design and beyond design basis accidents



2. Radiation consequences

- ☐ Radiation doses to the public
- ☐ Radiation doses to personnel



Development of emergency plans

III. Safety Analysis for new RR

Calculation results carried out for new RR under National Research Project (Performed by Nuclear Research Institute in period of 2016-2019) as following:

- ❑ Calculating critical configuration with minimum mass of U-235.
- ❑ Designing core configurations and experimental channels for the new RR.
- ❑ Assessing neutronic, burn-up and thermal-hydraulic characteristics of core configurations proposed.
- ❑ Calculate and analyze the safety for core configurations that use IRT-4M and VVR-KN type fuel, suggest suitable core configuration and experimental channels.

IV. Safety Analysis for NPPs and Website vn-ansn.org.vn

In INST:

- ❑ Study on **Neutronics and Thermal-hydraulics** for NPPs (AP1000, VVER1000, VVER1200)
- ❑ Developing research team for the conceptual design of T-H systems and safety systems for SMR.

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Website vn-ansn.org.vn

Current status:

Server at INST: IBM server X3500 (Intel Xeon Quad Core 1.6GHz /1066MHz, 1GB DDRAM, 73GB HDD)


Component	Required Version
PHP	>= 5.0.0
PHP extension/module	
MySQL Database	>=5.0.0

vn-ansn.org.vn



ANSN
Asian Nuclear Safety Network

VIETNAM




Join-operated:
VINATOM (Vietnam Atomic Energy Institute)
VARANS (Vietnam Agency for Radiation And Nuclear Safety)

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Control Panel



Merak Bird

LE TRAN CHUNG
Logged in as Local User from
27.68.87.164

Control Panel

Main Menu My Profile Close

News and Page Administration

Adding/Updating Paragraph (News ID: 69)

Layout Position Text only

Design HTML

Order Number 1

Enter Cancel Reset

China : Indonesia : Japan : Korea : Malaysia : Philippines : Thailand : Vietnam France : Germany :
USA : ANSN : Pakistan

IV. Safety Analysis for NPPs and Website vn-ansn.org.vn

IV.2. Website vn-ansn.org.vn

Viet Nam website using PHP 5.6 source code: mysql_**

-> Unsupported

And now, the website's source code using:

PHP 7 or PHP 8: mysqlⁱ_**

We need support from IAEA to upgrade source code

□ **Plan (03/2023):** Intel(R) Xeon(R) Processor E3-1270 v5 (Quad Core HT 3.6Ghz, 4.0GHz), Intel® C236 Chipset, 16GB, 2TB 3.5inch SATA (7,200 Rpm)

V. Conclusions

- ❑ The development of regulatory framework and the enhancement of technical capability for new RR are identified as top priorities
- ❑ Limited qualified human, financial resources and limited review time (6 months for FS and site approval stage) are the challenges facing the current Viet Nam regulatory body
- ❑ Need more high quality manpower to develop SMR conceptual design team
- ❑ The support of IAEA and other organizations in training, expert missions and exchanging information are very necessary to Viet Nam

Thank You !