FNCA
Forum for Nuclear Cooperation in Asia

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COUNTRY REPORT OF VIETNAM

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OUTLINE

1. **Overview of policy on nuclear science & technology**
2. **Policies and current status of nuclear power**
3. **Policies and status of nuclear applications**

3.1. Agriculture

3.2. Human Health

3.3. Industry

3.4. Environment

4. **Conclusion**

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1. Overview of policy on nuclear science and technology

Strategy on Peaceful Use of Atomic Energy up to 2020 (by Prime Minister's Decision 3 Jan 2006)

Law on Atomic Energy (by National Assembly, 3 June 2008)

Master Plan for the Peaceful Development and Utilization of Atomic Energy up to 2020 (Decision No. 957/QĐ-TTg, dated 24 June 2010 **)**

Detailed Master Plan on Application Development of Ionizing Radiation in Agriculture up to 2020, (Prime Minister Decision No. 775/QD-TTg dated 2 June 2010);

Detailed Master Plan on Application Development of Ionizing Radiation in Industry and other Techno-Economic Sectors up to 2020 (Prime Minister Decision No. 127/2011/QD-TTg dated 20 January 2011)

Detailed Master Plan on Application Development of Ionizing Radiation in Meteorology, Hydrology, Geology, Minerals and Environment Protection up to 2020 (Prime Minister Decision No. 899/2011/QD-TTg dated 10 June 2011)

Detailed Master Plan on Application Development of Ionizing Radiation in Health Care up to 2020 (Prime Minister Decision No. 1958/2011/QD-TTg dated 04 November 2011)

National Programme on Education, Training and Development of Human Resource in the field of Atomic Energy (Prime Minister Decision No. 1558/QD-TTg dated 18 August 2010)

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2. Policies & current status of nuclear power

On 22 November 2016, National Assembly passed a resolution to postpone the construction of nuclear power plants due to economic conditions.

Deploying the Center for Nuclear Energy Science and Technology (CNEST) during 2018-2025

New research reactor with power 10 MW (upgradable 15MW) to be imported from Russia (planned to be located at Long Khanh, Dong Nai - 70km from HCM city).

Lay-out of CNEST

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3. Policies & status of nuclear applications

3.1. Agriculture

In 2010, the Prime Minister approved a Detailed Master Plan on Application Development of Ionizing Radiation in Agriculture up to 2020

General Objectives

To step up radiation application to contribute to sustainable agricultural development along the line of producing commodities with high productivity, quality, efficiency and competiveness and assuring food security

Principal Contents

- Selection and Creation of plant varieties and microorganisms
- Plant Protection
- Fertilizers and soils
- Husbandry and animal health
- Aquaculture
- Preservation and processing

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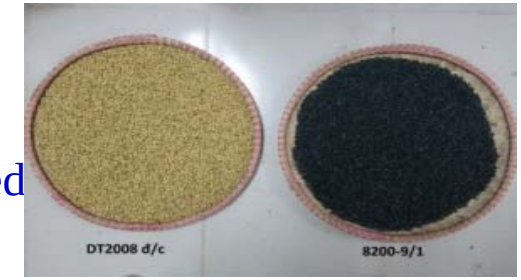
3. Policies & status of nuclear applications

3.1. Agriculture

Mutation breeding - a great potential for crop improvement in Viet Nam

Around 68 varieties of agricultural crops have been created and commercialized by mutation radiation methods



Gamma irradiation changing color of soy bean and improvement of beta carotene

Implementation of FNCA Project

- During 2008-2018, 11 new varieties have been developed, registered as new varieties and released to production.
- From ion beam irradiation obtained promising lines for further evaluation: 6 lines (M7); 6 lines (M6); 31 lines (M5) → More Researches in comparing effects of gamma irradiation and ion beam irradiation.
- Defined LD50 for carbon Ion beam 50 Gy, and Helium Ion Beam 25 Gy.

New Mutant Rice variety: DT 80

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3. Policies & status of nuclear applications

3.2. Human Health

In 2011, the Government approved the Detailed Master Plan for the Development of Ionizing Radiation in Health Care until 2020

- Viet Nam has 35 nuclear medicine facilities (targeted 65% by 2020) and 40 radiotherapy facilities (4 specialized cancer hospitals), with about 45 nuclear imaging equipment (approx. 0.5 units/1 million people), and over 70 radiotherapy equipment (approx. 0.78 units/1 million people).
- 5 cyclotron: Provide ~ 250Ci/year for 9 PET/CT system

PET/CT

RI products of NRI

3. Policies & status of nuclear applications

3.3. Industry

The Detailed Master Plan on Application Development of Ionizing Radiation in Industry and other Techno-Economic Sectors up to 2020 was approved in 2011.

- Research and radiation technology application has been implemented mainly in the fields of screening industrial systems; irradiation of seafood and agricultural products, food irradiation for export; sterilization of medical instruments; manufacture of materials by radiation treatment

Gamma Scanning for Pipe

3rd generation CT GORBIT

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3. Policies & status of nuclear applications

3.4. Environment

In June 2011, the Vietnam Prime Minister approved the Detailed Master Plan on Application Development of Ionizing Radiation in Meteorology, Hydrology, Geology, Minerals and Environment Protection up to 2020.

- Using nuclear analytical techniques to monitor the quality of air since the late 1990s.
- Using isotopes Cs-137 and Be-7 to monitor the speed of erosion and explore the hot spots of soil degrading
- Monitoring marine radioactivity in several sites along the coast of Vietnam

Studied areas of soil erosion

Collecting Sea water sample

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CONCLUSION

- Applications of nuclear science and technology have made significant contribution to the socio-economy development in Viet Nam. Towards sustainable development, these potential applications should be further enhanced at global scale.
- Viet Nam desires to strengthen cooperation with FNCA and other cooperation channels to promote peaceful applications of nuclear energy in Vietnam in line with the Strategic Orientation for Viet Nam's sustainable development – the Vietnam's agenda 21.

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THANK YOU

FOR YOUR ATTENTION