



**FNCA 2009 workshop
ON HUMAN RESOURCE DEVELOPMENT**

REPORT OF VIETNAM

by

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I. Strategy and Implementation of Human Resource Development-1

Important Nuclear Events:

- 1. Strategy:** On 3 January 2006, the Prime Minister of Viet Nam approved the Strategy for Peaceful Utilization of Atomic Energy up to the year 2020.
- 2. Master Plan:** On 23 July 2007, the Prime Minister approved the Action Plan for Implementation of the Strategy for Peaceful Utilization of Atomic Energy up to the year 2020.



I. Strategy and Implementation of Human Resource Development-2

Important Nuclear Events:

3. Atomic Energy Law:

- Atomic Energy Law was approved by National Assembly on 3 June 2008;**
- The Atomic Energy Law has come in to effect on 1st January 2009;**



I. Strategy and Implementation of Human Resource Development-3

Nuclear-Related Organizations/Agencies

- ❖ Ministry of Science and Technology (MOST)
- ❖ Ministry of Industry and Trade (MOIT)
- ❖ Ministry of Natural Resources and Environment (MONRE)
- ❖ Ministry of Education and Training (MOET)
- ❖ Ministry of Agriculture and Rural Development (MARD)
- ❖ Ministry of Health (MOH)
- ❖ Ministry of Foreign Affairs (MOFA)
- ❖ Ministry of Defense
- ❖ Vietnamese Academy of Science and Technology (VAST)
- ❖ others



I. Strategy and Implementation of Human Resource Development-4

Nuclear HRD-Related Organizations/Agencies

- ❖ Ministry of Education and Training (MOET)
- ❖ Vietnamese Academy of Science and Technology (VAST)
- ❖ Hanoi University of Technology (HUT)
- ❖ Hanoi University of Science (HUS)
- ❖ University of Dalat (UDL)
- ❖ HoChiMinh City University of Science (HCMCUS)
- ❖ Vietnam Atomic Energy Commission (VAEC)



I. Strategy and Implementation of Human Resource Development-5

Master Plan and Nuclear HRD Program

The Master Plan consists of 23 projects, among which are some main projects as follows:

- *Project for Nuclear Power Development* aims at the construction and operation of the first nuclear power plant (NPP) by 2020 with two units of 1,000 MWe.
- *Project for the Development of Vietnam Atomic Energy Commission (VAEC)* aims at the building of a new advanced multi-purpose nuclear research reactor.
- *Project for Nuclear Human Resources Development* focuses on the education and training of man-power in nuclear field.



I. Strategy and Implementation of Human Resource Development-6

Master Plan and Nuclear HRD Program

- Among 23 Projects mentioned in the Master Plan, Human Resource Development is considered one of the key decision-making factors
- The Ministry of Education and Training (MOET) will be responsible for setting up and implementing the National Nuclear HRD Program, which covers both HRD for nuclear power and non-power application areas.
- Other ministries, especially the MOST and the MOIT must be deeply and efficiently involved in National HRD Program
- The National HRD Program has been formulated by MOET. It is now still under review and is expected to be approved by the end of 2009.



I. Strategy and Implementation of Human Resource Development-7

Status of the Nuclear HRD Program

- Historically, VAEC and EVN have a close cooperation with counterparts from Japan, France and Korea to prepare a nuclear HRD program for nuclear power in Vietnam;
- VAEC and EVN have already completed the program and submitted to the Government together with the Pre-FS report of the first NPP project. The Government is now considering to approve the program;
- Meanwhile, nuclear related organizations including utilities, regulatory bodies, technical supported organizations, nuclear R&D institutions, nuclear universities,...are actively preparing their nuclear human resources based on the guideline of the nuclear HRD program.



I. Strategy and Implementation of Human Resource Development-8

Status of the Nuclear HRD Program

At present, the MOET has been assigned to set up a National HRD Program which covers all the nuclear HRD tasks:

- ❖ For the First NPP project: Vietnam Electricity (EVN) has prepared the HRD sub-program for the first NPP project (project management, procurement, construction, operation, maintenance,...);
- ❖ For Development of National Nuclear Infrastructures: VAEC has prepared the HRD sub-program for development of nuclear infrastructure, focusing on nuclear experts for regulatory bodies, technical support organizations, R&D activities, nuclear education and training organizations;
- ❖ For Development of Applications of Nuclear Techniques: VAEC in collaboration with related ministries takes part in training scientists/technicians to expand applications of nuclear techniques into socio-economic branches of the country



I. Strategy and Implementation of Human Resource Development-9

National Nuclear HRD Program- Key Projects

1. Setting up and implementing a plan for human resource development for the nuclear power program

Objectives:

To meet the requirements for manpower for nuclear power development program



I. Strategy and Implementation of Human Resource Development-10

National Nuclear HRD Program- Key Projects

2. Training and developing manpower on nuclear science and technology in service of research, application and management

Objectives:

- To ensure the provision of the contingent of experts, technicians and skilled workers so as to effectively meet the requirements for research, development and application of radiation energy, nuclear power-related technologies and assurance of radiation protection and nuclear safety



I. Strategy and Implementation of Human Resource Development-11

National Nuclear HRD Program- Key Projects

3. Consolidating and developing the Vietnam Atomic Energy Commission

Objectives:

To consolidate and develop the Vietnam Atomic Energy Commission into an advanced R&D institution in the field of atomic energy order to catch up with other advanced countries in the region.



I. Strategy and Implementation of Human Resource Development-12

Current Status of National Nuclear HRD Program

The National HRD Program is now under review by relevant ministries/agencies before approved by the Prime Minister, hopefully in the 4th quarter of 2009



I. Strategy and Implementation of Human Resource Development-9

Priority areas of Nuclear HRD

- **Research Reactor**
- **Nuclear Power Reactor**
- **Radiation and Isotope Applications (in Medicine, Agriculture, Industry etc..)**
- **Radiation Safety and Radioactive Waste Management**
- **Nuclear Administration**



II. Nuclear HRD activities in Vietnam

VAEC and its role in HRD

VAEC Organization-1

Recently, there have been reorganization in the VAEC, and as a result, so far the VAEC has consisted of the following subsidiaries:

a) Headquarter in Ha Noi

- Department of Administration and Personnel
- Department of Planning and R&D Management
- Department of International Cooperation



II. Nuclear HRD activities in Vietnam

VAEC and its role in HRD

VAEC Organization-2

Ha Noi Branches:

1. Institute for Nuclear Science and Technology (INST)
2. Institute for Technology of Radioactive and Rare Elements (ITRRE)
3. The Hanoi Irradiation Center (HIC)
4. The Center for Non-Destructive Evaluation (NDE)
5. Nuclear Energy Application and Development Company (NEAD)



II. Nuclear HRD activities in Vietnam

VAEC and its role in HRD

VAEC Organization-3

Ho Chi Minh City Branches:

1. Center for Nuclear Techniques (CNT)
2. Center for Research and Development of Radiation Technology (VINAGAMMA)



II. Nuclear HRD activities in Vietnam

VAEC and its role in HRD

VAEC Organization-3

Da Lat City Branches:

1. Nuclear Research Institute (NRI)
2. Center for Application of Nuclear Technique in Industry (CANTI)



II. Nuclear HRD activities in Vietnam

VAEC and its role in HRD

VAEC Man-Power:

As of 31 Dec. 2008, VAEC has 744 staffs:

- ❖ 7 Associate Professors and PhD;
- ❖ 55 staffs of PhD Degree;
- ❖ 85 staffs of Master Degree;
- ❖ 398 staffs of University Degree



II. Nuclear HRD activities in Vietnam

VAEC's role in HRD

7 ministries/institutions and universities which are involved in formulation and implementation of HRD Program:

- **The MOET: takes the key role in HRD**
- **Vietnam Atomic Energy Commission (VAEC)**
- **Vietnamese Academy of Science and Technology (VAST),**
- **Hanoi University Technology (HUT)**
- **Hanoi University of Science**
- **University of Dalat**
- **Ho Chi Minh University of Science**
- **Electricity Power University (EPU)**



II. Nuclear HRD activities in Vietnam

Nuclear HRD activities during 2007-2009

- Establishing a Nuclear Training Center (NTC) belonging to the VAEC: the facility for this NTC was built in 2008 and put in operation since then;
- The VAEC has a plan to invite foreign experts to give lectures and carry out training at the NTC in the near future;



II. Nuclear HRD activities in Vietnam

Nuclear HRD activities during 2007-2009

NTC will be used for:

- The training courses on basic knowledge on nuclear for those who will participate in the National Nuclear energy development Program;
- The Training Courses for updating nuclear knowledge for those who are working in the nuclear field;
- Professional Group Training on specific topics for experts who work on nuclear safety, radioactive waste management, radiation safety etc.;
- Short Training Courses on specific topics in nuclear fields.



II. Nuclear HRD activities in Vietnam

Nuclear HRD Activities during 2007-2009

- **02 nine-month training courses** at VAEC for 40 young staff and university-graduated students to be trained on basic nuclear science and technology. After completing the training courses, the participants were presented a certificates and could be employed to work in the VAEC's institutes (INST, ITRRE , NRI etc.)
- **NuTEC /JAEA Training Courses:** (6 FTCs at INST, 4 JTCs at NRI)
(FTCs on Radiation Measurement and Radiation Protection and 3 JTC on Application of Nuclear Techniques in Industry and 1 JTC on Reactor Engineering)



II. Nuclear HRD activities in Vietnam

Nuclear HRD Activities during 2007-2009

- **04 VAEC-HUT-TOSHIBA training courses on nuclear engineering since 2006**
 - **Duration: 5 weeks**
 - **Participants: 30 students/course from the HUT, VAEC, VARANS and EVN;**
 - **Lecturers: TOSHIBA, VAEC, HUT;**
 - **After finishing these courses, some excellent students have been sent to Japan for additional two month training in TOSHIBA.**



II. Nuclear HRD activities in Vietnam

Nuclear HRD Activities during 2007-2009

- **01 VAEC-EVN-TOSHIBA training courses on nuclear power in 2007**
 - **Participants: 34 (from the EVN);**
 - **Lecturers: TOSHIBA, VAEC, HUTs;**
 - **Duration: 8 weeks (7 weeks in Hanoi and 1 week in Dalat)**
 - **After finishing these courses, some excellent students have been sent to Japan for additional four-month training in TOSHIBA.**



III. Roles of International Cooperation for HRD in Vietnam

IAEA's Man-Power Development Project: the most important for nuclear HRD :

In 2008: Vietnamese persons have been trained through IAEA's channel

- **Short TC: 15 persons (<1 month)**
- **Long TC: 13 persons (1-5 months)**
- **Seminars, Meetings, Workshops: 49 persons**



III. Roles of International Cooperation for HRD in Vietnam

Regional Cooperative Agreement (RCA)

In 2008: 73 Vietnamese persons have been trained through RCA's channel

- **Short TC: 44 persons (<1 month)**
- **Long TC: 2 persons (1-6 months)**
- **Seminars, Meetings, Workshops: 27 persons**



III. Roles of International Cooperation for HRD in Vietnam

Forum for Nuclear Cooperation in Asia (FNCA)

Useful forum for member states to share knowledge and experiences in nuclear field

FNCA HRD tools:

- ❖ FNCA HRD Project
- ❖ FNCA Database on HRD
- ❖ ANTEP



III. Roles of International Cooperation for HRD in Vietnam

Bilateral cooperation on HRD

- **MEXT Nuclear Scientist Exchange Program: since 1996**
- **Annually 3-10 Vietnamese Scientists were accepted to be trained in nuclear institutions in Japan such as JAEA, NIRS and various universities;**
- **In JFY 2008, 06 researchers participated in MEXT Program**
- **In JFY 2009, 03 researchers have been accepted to participate MEXT Program;**
- **So far, MEXT has been considered one of the most effective channel for nuclear HRD besides IAEA**



III. Roles of International Cooperation for HRD in Vietnam

Bilateral cooperation on HRD

- **MEXT International Seminars on Nuclear Safety: they used to be RADA's Training Courses**
- **Annually 2-6 Vietnamese experts participated in such courses;**
- **In JFY 2008, 02 researchers participated in Plant Safety Courses;**
- **In JFY 2009, 02 researchers will be nominated to apply for Plant Safety Courses ;**
- **Since 2007, those courses have been managed by the JAEA.**



III. Roles of International Cooperation for HRD in Vietnam

Bilateral cooperation on HRD

- **NuTEC/JAEA: ITP Programs**
- **Annually some Vietnamese experts participated in this program;**
- **The Participants of ITP Courses have been working as lecturers/instructors for domestic training courses on specific topics in nuclear field.**



III. Roles of International Cooperation for HRD in Vietnam

Bilateral cooperation on HRD with other countries

- **Korea: KAERI, KINS, KIRAMS, KHNP**
- **France: CEA, IRSN**
- **Russia: ROSATOM**
- **etc**



IV. Progress and implementation of ANTEP

VAEC has been actively contributing to ANTEP :

- **Confirmation of the ANTEP needs for 2007**
- **Submission of the ANTEP needs for 2008-2009 to the FNCA**
- **Cooperation on data collection for FNCA HRD database to set up the ANTEP Database on HRD**
- **Distribution of the Information of the Database to nuclear institutions in Vietnam**



V. HRD for nuclear power

- **MOIT is in charge of the 1stNPP Project**
- **Under the MOIT, EVN and its subsidiaries (Nuclear and Renewable Energy Pre-Investment Board (NRPB) and Institute of Energy) take the responsibility for the preparations for the 1st NPP Project including HRD**

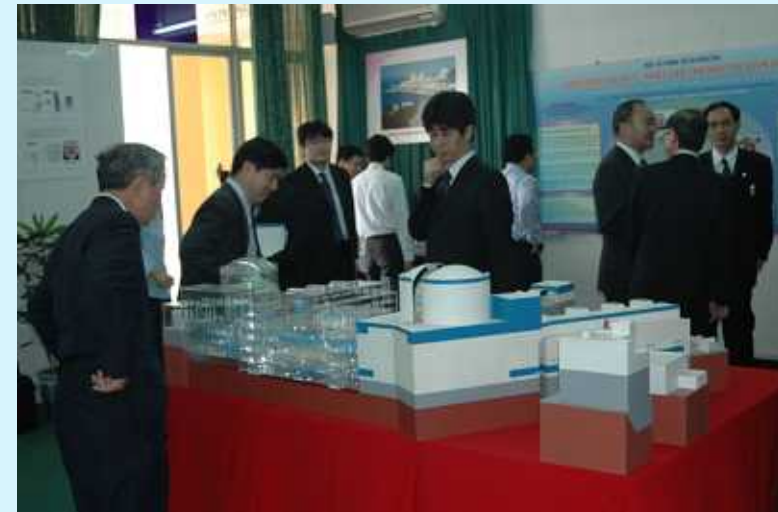


V. HRD for nuclear power

- Through international cooperation programs with Japan (JAIF, JAPC, METI) and Korea (KNHP/KEPCO), the training of manpower for Operation and Maintenance of NPP have been conducted
- About 60 staffs of EVN have been trained under MOIT/EVN-METI/JAIF so far
- EVN has close and long lasting cooperation with Japanese Nuclear Power Companies (TOSHIBA, MITSUBISHI, ..)
- HRD Program for Nuclear Power have been and will be strongly developed with the assistance from foreign partners.



The 2nd Training course on Nuclear power Technology for 30 EVN engineers





The 2nd Toshiba Training course on nuclear power plant technology

The training course was held from October to November 2007 for more than 30 trainees (HUT's students, young staffs from VAEC, VARANSAC, and EVN. 10 excellent trainees have been selected to receive scholarship from Toshiba with total amount of 2,500 USD.





The first training course on atomic energy for young staffs of the VAEC





VI. conclusions

- 1. In order to strengthen HRD for introduction of nuclear power in Vietnam, the formulation and implementation of a National Nuclear HRD Program is an urgent issue;**
- 2. International Cooperation play a very important role for the implementation of National Nuclear HRD Program in Vietnam. Within the framework of FNCA/ANTEP, the more practical and stronger possible support of FNCA member countries, which have experiences of introduction and operation of NPPs (especially Japan, Korea and China), should be strongly enhanced;**



V. conclusions

3. Active actions on HRD should be taken as soon as possible such as :

- Establish a nuclear training center and operate it in effective manner**
- Establish nuclear engineering at universities;**
- Improve the cooperation among national and international nuclear organizations on HRD**



9th FNCA Coordinator Meeting in Tokyo 2008





Open Symposium on strong linkage with Asia

The Role of Fukui Region for HRD in Asia





A good chance for me: 2009 FNCA WS on HRD in Tsuruga, Japan





**Thank you for your
attention!**

