

Human Resource Development for Nuclear Power in Vietnam: Case of HUST

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ROUND TABLE

“Global Collaboration in the Area of
Personal Training and Education
for Nuclear Industry”



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- 1. Strategy of HRD for Nuclear Power in Vietnam**
- 2. HRD at HUST in Nuclear Power Engineering**
- 3. Proposals of Cooperation with Russia**
- 4. Cross Cultural Issues for Cooperation**



1. Strategy of HRD for Nuclear Power in Vietnam

Why nuclear power for Vietnam

- ☞ Vietnam: A developing country in the Southeast Asia,
- ◆ population: about 92 mil. (the 14th most populous on the planet) and 70% of that lives in rural areas;
- ◆ gross domestic product (GDP): about US\$140 billion, with a nominal GDP per capita of \$1,527;
- ◆ development rate: between 5-7 % per year during the last time ⇒ among the best countries of economic development;
- ◆ emerged as an important oil and natural gas producer in region;
- ◆ heading to be an industrialization one. (International sources: IMF, WB,).¹

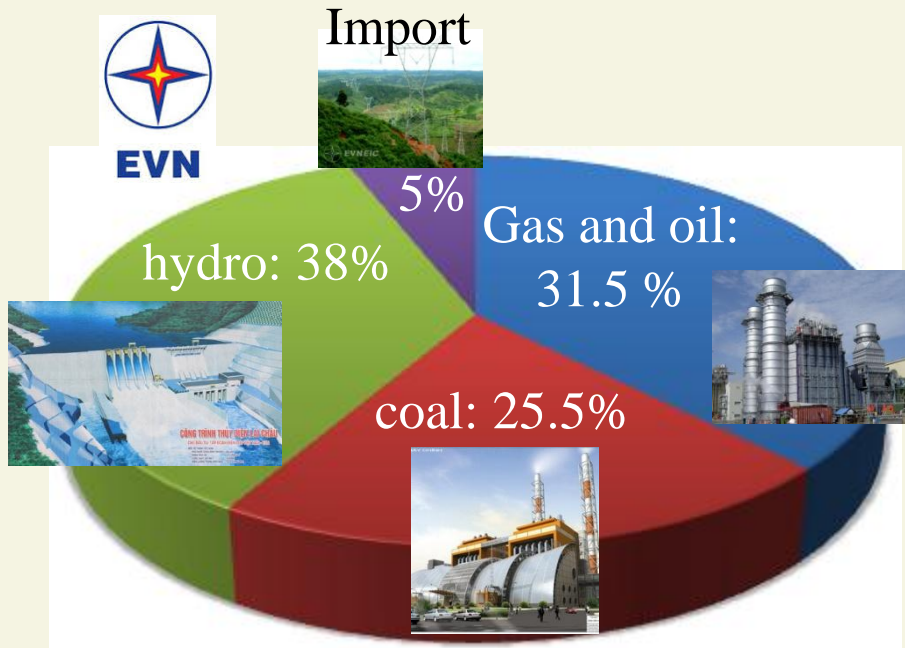


1. Strategy of HRD for Nuclear Power in Vietnam

Why nuclear power for Vietnam

☞ Current power production

◆ 124.6 billion kWh gross from 32 GWe of plant (at year end of 2013):



☞ Estimation of power demands in forthcoming time: 16% per year, (forecast of EVN), namely:

- ◆ 194 TWh, 35.8 GWe, in 2015;
- ◆ 320 TWh, 52.0 GWe, in 2020;
- ◆ 490 TWh, 77.0 GWe in 2025;
- ◆ 695 TWh, 110.2 GWe, in 2030.

☞ Vietnam's energy policy objective (issued by government in 2007): seeks to ensure energy supply security for the country's rapidly growing domestic demand ⇒ nuclear power proposals.



1. Strategy of HRD for Nuclear Power in Vietnam

Status and objectives of HRD

☞ Standpoints of HRD:

- ◆ Key role and meaning because NPP is the world's most complex industry.
- ◆ Although takes time and effort but must be planned in advance.

☞ Current status of nuclear manpower in Vietnam (data of VAEA in 2013)

◆ Number of personnel: 585 including over 400 of graduated degree and about 20 to 30 of PhD degree;

◆ Very few persons have the experiences and competences concerning to the nuclear reactor engineering.

☞ Expected personnel up to 2020 (data of VAEA in 2013):

◆ Over 1000 personnel in research and management works;

◆ 2400 of BSc/Engineers, about 1000 technicians, 350 masters and PhDs as workforce for NPPs.



1. Strategy of HRD for Nuclear Power in Vietnam

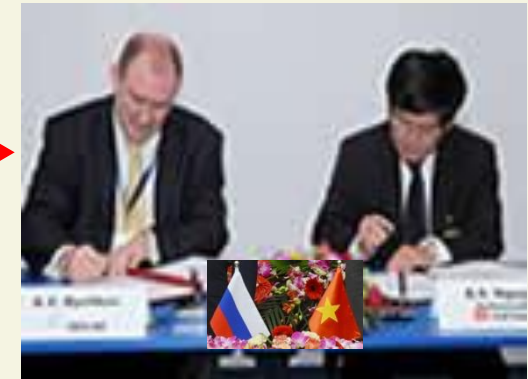
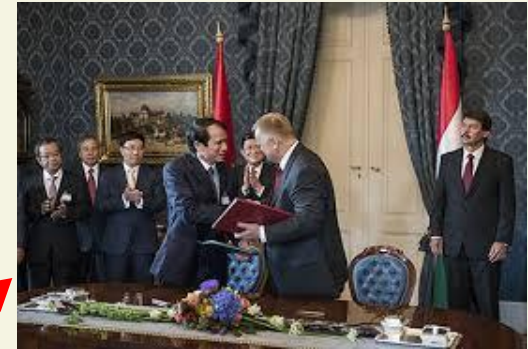
Legal and regulatory framework for HRD

☞ Government's issues

- ◆ Decree 07 in 2010 specifies measures to attract and sustain people working in the field, of nuclear energy with the best conditions.
- ◆ Decision No 1558 of project “human resource development in the field of atomic energy” approved by the Prime Minister (08/2010).

☞ International collaboration for first NP projects:

- ◆ Agreement with Hungary on education and training in the field of atomic energy (2011).
- ◆ MOST-ROSATOM practical arrangement on specialist training (signed on 05 of June, 2012).
- ◆ Expert training course in JNES, MEXT, METI, JAIF, JAEA, JAERI, RADA, ROSATOM, Rostechndzorz, etc.
- ◆ ~200 students (up to 2013) at MEPHI Obninsk studying “Nuclear Power Plant and Installations”.



1. Strategy of HRD for Nuclear Power in Vietnam

Institutions involved in nuclear education

☞ University of Science, Hanoi National University



☞ University of Science, Hochiminh City National University



☞ Dalat University



☞ Nuclear Training Center, Institute of Vietnam Atom Energy



☞ Electric Power University



☞ Hanoi University of Science and Technology



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2. HRD at HUST in Nuclear Power Engineering

Why HUST



HANOI UNIVERSITY OF
SCIENCE AND TECHNOLOGY



- ☞ founded in 1956 as the first national university of technology in Vietnam;
- ☞ performs engineer training for almost all industrial branches in 63 different specializations of 21 member schools by different modes of full-time, part-time training;
- ☞ usually among Vietnam's top universities of technology.



2. HRD at HUST in Nuclear Power Engineering

Why HUST

- ☞ Nuclear education passed a long way, namely,
 - ◆ an early education program of nuclear engineering for the industrial applications has been set up since 1970;
 - ◆ for the last 15 to 20 years, around 200 students has received the diploma of engineer degree of nuclear engineering and environmental physics;
 - ◆ 8 annually 28 hours intensive courses on basic physics of nuclear fuel cycle, construction, operation, maintenance and regulation of NPPs for young students, researchers and staff members of VAEA, VARANS have been held.



...since 2006, subsidized by
Toshiba Corporation



2. HRD at HUST in Nuclear Power Engineering

Current task

☞ Responsible for providing the undergraduate and graduate education to students in the field of nuclear engineering and environmental physics (not only for energy but also non-energy area).

◆ Main role:



☞ Other possible participators for education in nuclear industry:

- ◆ School of engineering physics: general physics and materials engineering;
- ◆ School of heat engineering and refrigeration: thermal energy system;
- ◆ School of chemical engineering: rare elements and radiations.
- ◆ School of electrical engineering: control and automation engineering as well as electricity system engineering;

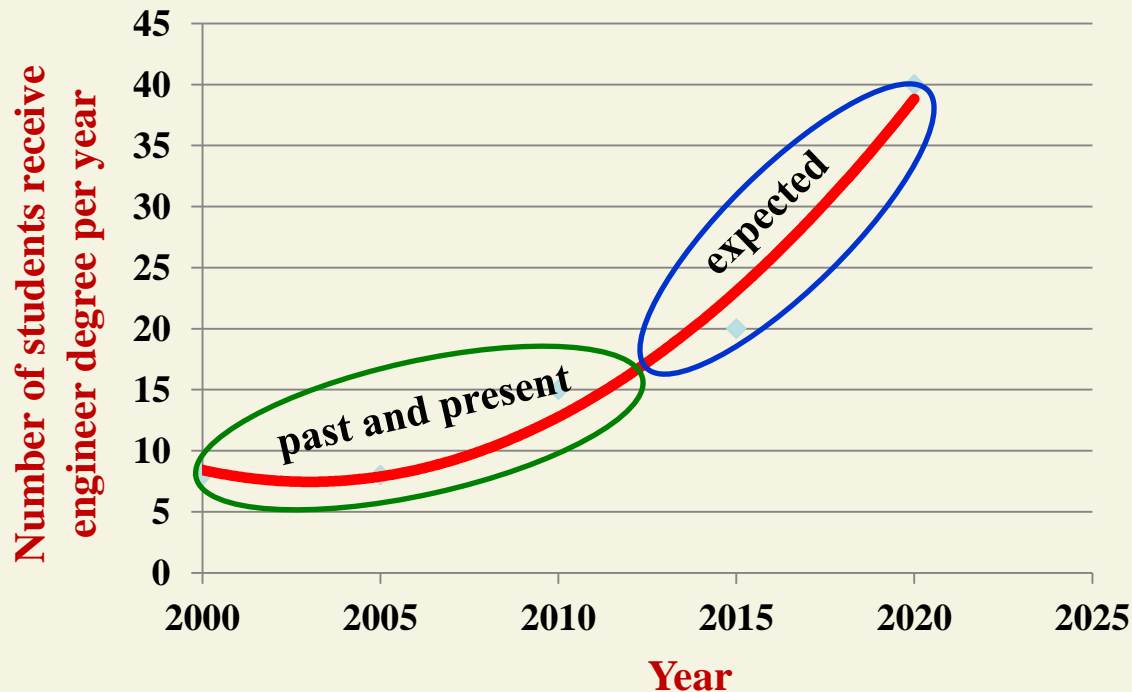


2. HRD at HUST in Nuclear Power Engineering

Current task

☞ Education program:

- ◆ Bachelor degree: 4 years (130 credits);
- ◆ Engineer degree: 5 years (130 + 30 credits);
- ◆ Master degree: one more years added and implemented with either 36 credits for applications / or 43 credits for research field.



2. HRD at HUST in Nuclear Power Engineering

Challenges

☞ Quality of teaching staff and infrastructure

◆ There is not a nuclear industry in Vietnam, yet \Rightarrow very few professional experts in the field of nuclear power engineering.

◆ Lack of equipments and instruments for lab-work and practice of nuclear engineering.

☞ Attraction of the learning and career opportunities to work for NP sector

◆ Young people feel difficult and boring to study the courses related to nuclear physics and engineering for being engineer in nuclear industry.

◆ Lack of a strong and clear policy of government's support to encourage/motivate young people studying nuclear technology at home universities.



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3. Proposals of cooperation with Russia

Facility for Vietnamese students visiting Russia

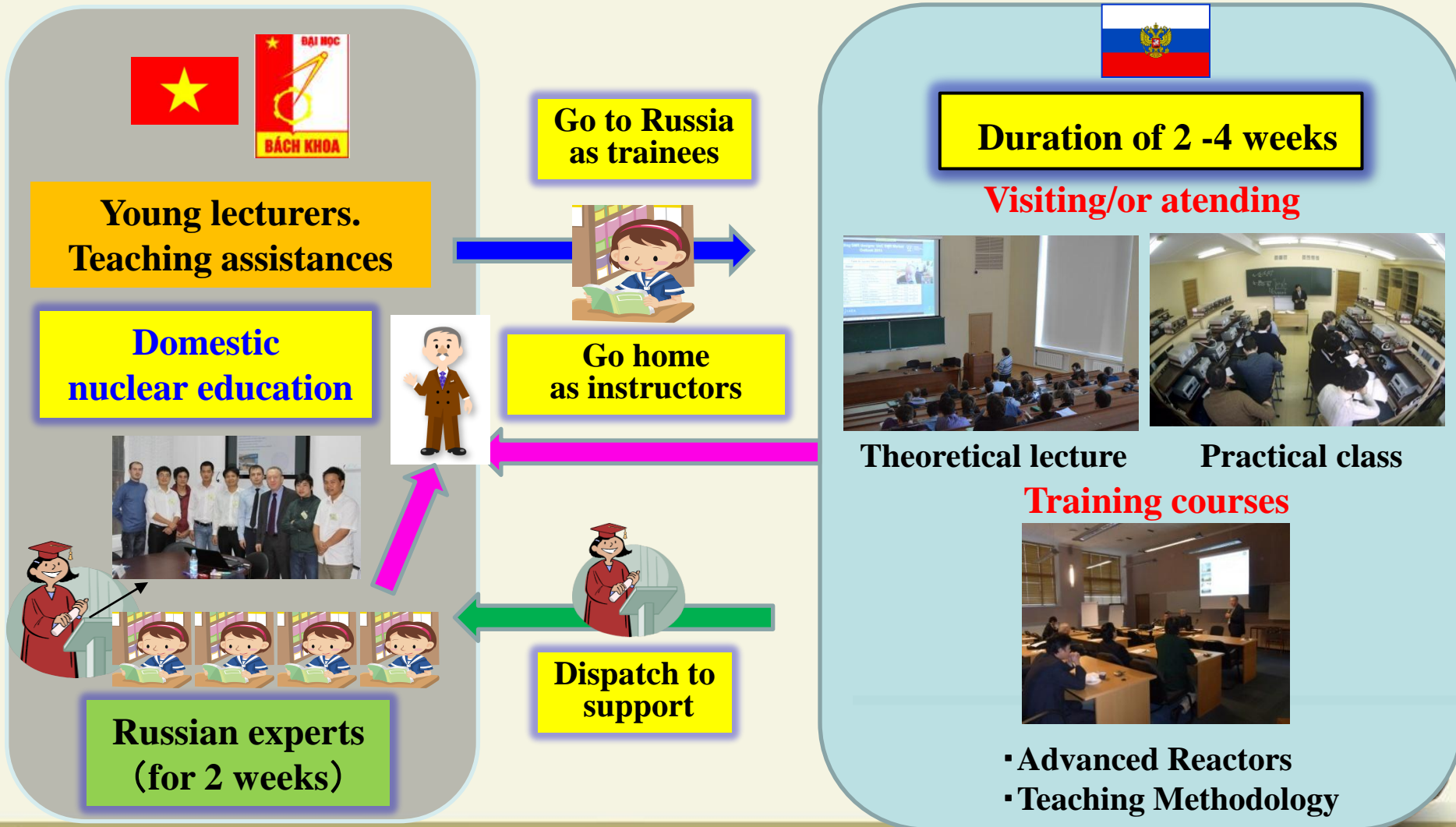
- ☞ Duration of visiting: between 2 to 4 weeks.
- ◆ One or two weeks for lectures on reactor engineering, e.g. WWER.
- ◆ Tours of real power plants \Rightarrow can understand different stages of construction and commissioning.
- ☞ Who are eligible? may be
 - ◆ all students who ended the third academic year.
 - ◆ selected students who begin doing the thesis.
- ☞ What are profits?
 - ◆ more understand about the critical requirements for safe operation of NPP;
 - ◆ Opportunity to have the interactions with professors, commercial power reactor personnel and Russian culture;
 - ◆ make a stimulation and enthusiasm for pursuing the professional work in nuclear industry.



3. Proposals of cooperation with Russia

Training the teachers

☞ Purpose: to level up the instructors of domestic courses



3. Proposals of cooperation with Russia

Information exchange and consultancy for curricula

☞ Why?

- ◆ not a nuclear power industry in Vietnam, yet \Rightarrow very few experts in the field of nuclear power engineering.
- ◆ Syllabi of all the subjects within the curricula of education program in nuclear engineering were designed mostly based on the old ones \Rightarrow need to update.
- ◆ Even in developed countries, the program of educational institutions might lapsed as the industry has aged \Rightarrow requires to update.

☞ Proposed plan

- ◆ Establishment of an international joint advisory board (IJAB) including Russian reputable experts of education and training in nuclear power.
- ◆ Consideration of curricula to correctly adjust and improve so that it is appropriate and meets the demand of advanced technology.

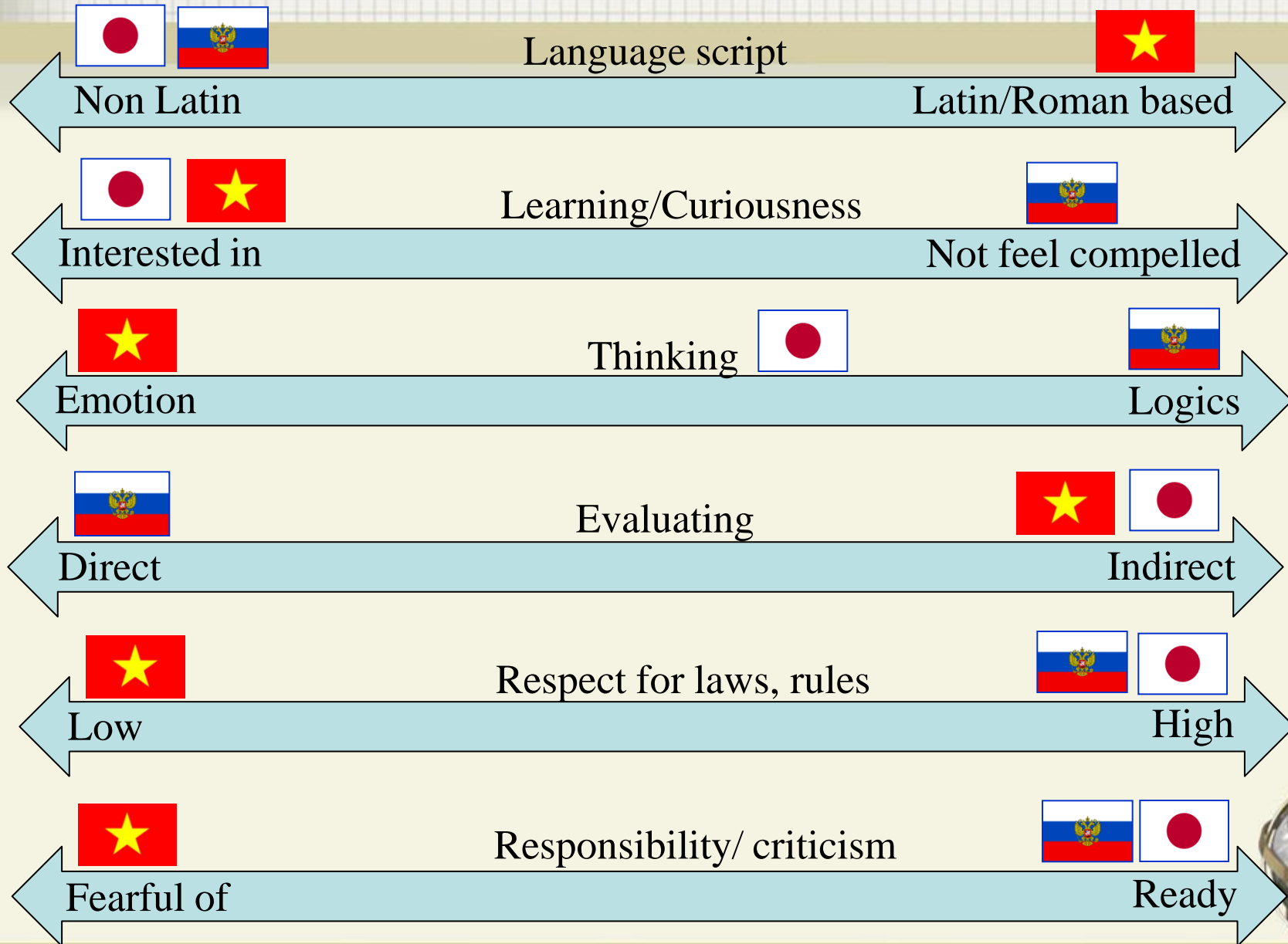


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4. Cross Cultural Issues for Cooperation



Conclusions

- ☞ HRD is determined a key factor by Government thorough the issued important documents to ensure the success of the ambitious nuclear power plan in Vietnam.
- ☞ HUST has important role to contribute to the programmes of nuclear education as a first top rank of technology universities in Vietnam.
- ☞ In order to meet the demand of a well-rounded workforce available for all of the nuclear careers, the Vietnam government also should support the students learning nuclear engineering at the domestic universities.
- ☞ Cooperation with the foreign partners is considered the most necessity for currently real status of the poor conditions and weakness of nuclear education in Vietnam.
- ☞ Cross cultural issues in communication should be taken in account to get the effective cooperation with the foreign partners as well as professional experts of nuclear engineering that would contribute to HRD and success of the nuclear power policy in Vietnam.



Many thanks for the support to

☞ Vietnam Atomic Energy Agency




☞ International Atomic Energy Agency



☞ Rosatom Central Inst. of Continuing Education & Training



A close-up photograph of two hands shaking in a firm grip. The hands are wearing dark business suits. The background is a light blue world map with a grid pattern. The text is overlaid on the map.

Thank you for your attention!
Спасибо за внимание!

Welcome for cooperation