



РОССИЙСКАЯ АКАДЕМИЯ НАУК  
Институт проблем безопасного  
развития атомной энергетики

RUSSIAN ACADEMY OF SCIENCES  
Nuclear Safety Institute (IBRAE)



НОУ ДПО  
«Центральный институт повышения квалификации»  
Central Institute for Education and Training



Дальневосточный федеральный университет

Far Eastern Federal University

# **The Establishment of Research-and-Education Nuclear Technology Centers on the Basis on Federal Universities: the Potential for Cooperation**

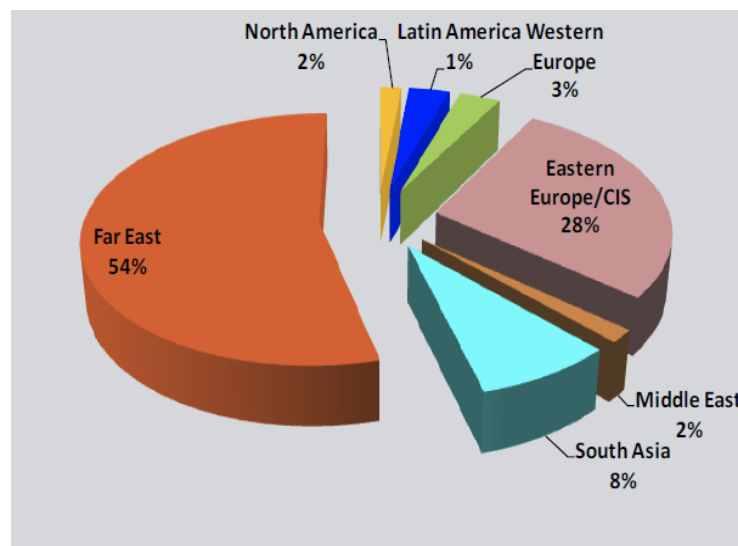
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ATOMEXPO-2012

## Basic Prerequisites – the “Nuclear Renaissance” Trend

Even most restrained forecasts suggest that by 2030 about **500 Nuclear Power Plant (NPP) units** will be in operation worldwide

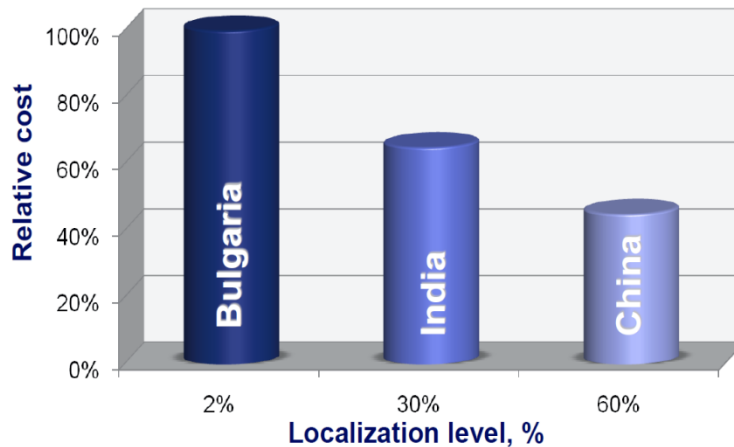


**Plans for the commissioning of new nuclear-power units by regions (IAEA)**

- **South-East Asia** (China, India, Vietnam, etc.) is the largest market for the nuclear power development
- The construction of 53 NPP units is planned in South-East Asia including 20-22 power units designed in Russia

# Basic Prerequisite – Localization

**Localization** is a necessary condition to achieve competitive advantages during NPP construction and operation



**Effects of localization on the cost of a NPP-construction project**



The involvement of specialists from recipient countries at NPP construction and operation phases **reduces** considerably **the NPP project costs** and **the maintenance costs**

# Interfaces between the Russian Vendor and a Local Contractor of a Recipient Country

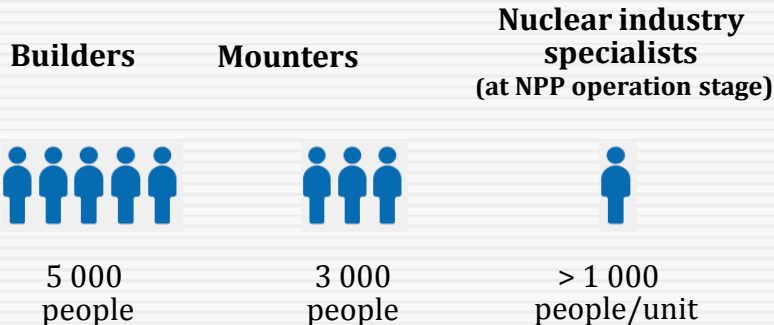
**In action**



POCATOM



**Local contractor of the recipient country**



**Required**

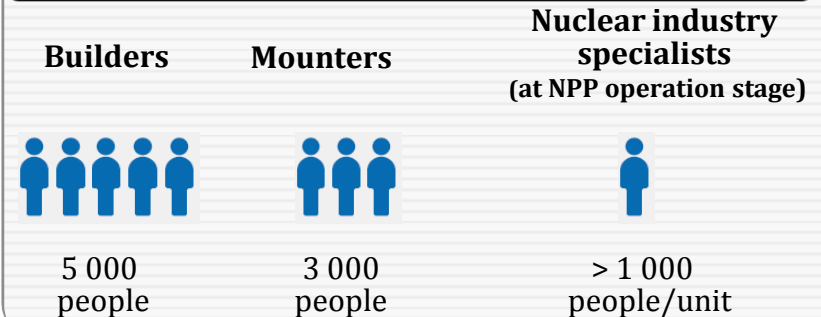


POCATOM

**Localization managers with cross-culture competence**



**Local contractor of the recipient country**



# Conclusions

1. Most ambitious plans for NPP construction are under development in South-East Asia (including 20-22 power units designed in Russia)
2. Increasing the localization level is the requirement of both the local customer (the development of local industries) and the contractor (reducing the costs for NPP construction and maintenance)
3. The development of localization requires supervision of local contractors by the vendor at all stages of the NPP life cycle including:
  - construction
  - assemblage and adjustment, commissioning
  - NPP operation (including maintenance and repairs)

## Problem:

There is presently no education-and-training system for localization managers



**How** and **Where** an education-and-training system can be organized for such unique specialists in a short time?

# Research-and-Education Nuclear Technology Centers



1. I. Kant Baltic Federal University
2. Kazan (Volga region) Federal University
3. M.V. Lomonosov Northern (Arctic) Federal University
4. M.K. Ammosov North-Eastern Federal University

Vladivostok

8

«The Point of Growth»  
for international cooperation in the field of nuclear technologies, radiation and nuclear safety

5. Siberian Federal University
6. Southern Federal University
7. B.N. Yeltsin Ural Federal University
8. Far Eastern Federal University

Federal University

Research-  
and-Education  
Center

Leading Main  
High Schools

Basic courses

Distance education

Special courses

# Pilot Project: the Far Eastern Research-and-Education Center for Nuclear Technologies, Radiation and Environmental Safety

## School of Regional and International Studies

Departments of:

- International Relations
- Pacific Asia
- Languages of Asia and the Pacific
- Department of Linguistics and Intercultural Communication
- Professionally-oriented Foreign Languages
- Professional-based Translation, etc.

## School of Humanities

Departments of:

- Mass Communications
- Theology and Religious Studies
- Social Sciences, etc.

## School of Engineering

Departments of:

- the Division of Mining and Geology
- Chemical Technologies and the Technosphere safety
- the Division of Mechanical Engineering, Marine Engineering and Transport
- the Division of Energy and Electronics, etc.

## School of Natural Sciences

Departments of:

- Computer Systems and Information Security
- Management Information Systems
- Ecology, etc.

## School of Economics and Management

Departments of:

- Management
- Economics and Enterprise Management
- Public Administration, etc.

## Centers

- Innovation and Consulting Center
- Distance-education Center
- Marketing Center



# Education and Training of Localization Managers at FEFU

## Mission

**Provide education and training of localization managers with cross-cultural competencies to support localization of NPP construction, operation and maintenance in South-East Asia**

## Objectives

- ◆ Education and training of Russian **localization managers with cross-culture competencies to provide supervision of local contractors**
- ◆ Education and training of specialists from recipient countries to perform NPP construction, equipment installation, operation and maintenance as well as education and training of specialists in nuclear, environmental and radiation safety for work in supervisory and regulatory authorities.
- ◆ Education and training of Russian specialists for work in the nuclear industry of Far East Federal District



# Bachelor program “Nuclear Power Plants and Nuclear Installations” with the study of languages of South-East Asia

Main areas of training

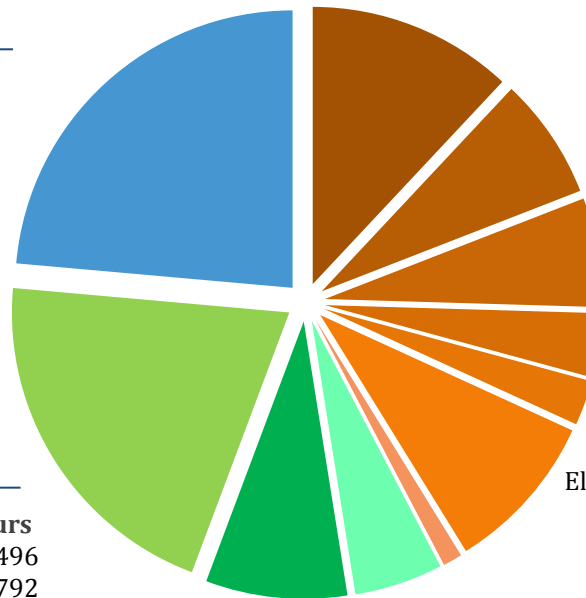
Total academic hours: 9937

## Disciplines to study cross-cultural and managerial competencies

Discipline	hours
Language studying:	1500
Regional geography and culture :	430
Management and Marketing:	338

## Disciplines of the professional unit

Discipline	hours
Calculation and design of NPP reactors:	496
Mechanics and durability of NPP structures:	792
Equipment and operation of nuclear power installations:	1989
Special issues of nuclear, environmental and radiation safety :	200
Special issues of NPP safety :	200
Practical training at ROSATOM’s enterprises	

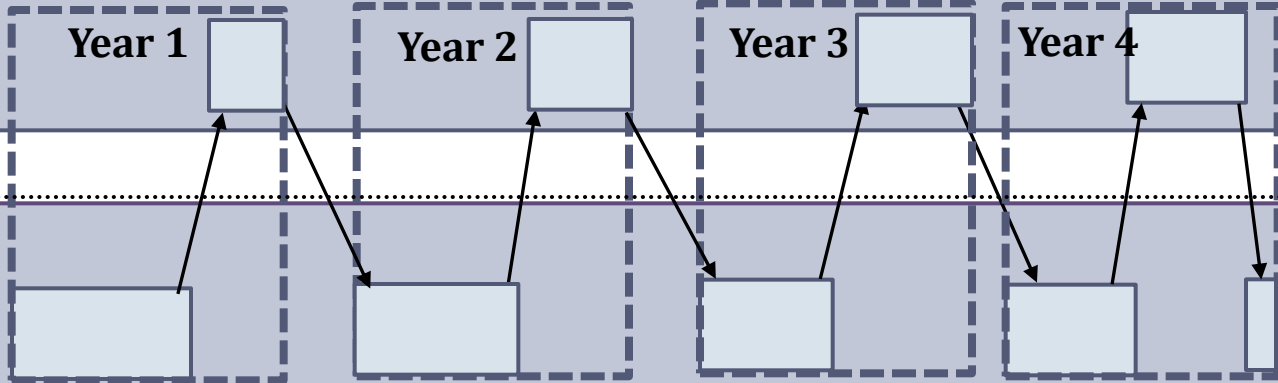


## Natural-science and basic-engineering disciplines

Discipline	hours
Higher Mathematics:	800
General and Special Physics:	684
Nuclear Physics:	612
General and Special Chemistry:	360
Electrical Engineering and Electronics:	252
Thermal Physics:	900
Material Science:	108
Environmental Science:	108
Nuclear, Radiation and Environmental Safety:	108
Safety of NPPs :	108

# Scheme of Professional Education at Far-Eastern Federal University (FEFU)

Professional education including special practical training and special courses at ROSATOM's enterprises and academic institutions including the use of 'Distant-education' technologies.



**FEFU**

Natural science and basic engineering education  
Cross-culture education  
Management



# Conclusions

**The above-presented system for education and training of localization managers will allow achieving in a short time on the basis of federal universities and leading specialized high schools:**

- ▶ education and training of Russian specialists with professional, managerial and cross-cultural competences for work with local contractors
- ▶ education and training (in Russian) of foreign specialists for NPP operation in Far-East Asia and in other promising regions (Eastern Europe, South Africa, Argentina, Brazil, etc.)

**THANK YOU FOR ATTENTION!**

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