

## IAEAの進める各国人材育成ネットワーク構築活動の進捗状況 ~原子力人材育成ネットワーク原子力人材育成ネットワーク~

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## **Regional Education Networks**

## IAEA Facilitated Regional and Inter- Regional Networking in Nuclear Education:

ocooperation on educational experience and resources



cuss policies and strategies for

ssons learned rks in developing countries with buntries



To facilitate
collaboration
among nuclear
education
institutions

Strives to promote availability of qualified human resources

Contributing to sustainability of nuclear technology













### **Nuclear Networking Image** AFRA-NEST **Others** LANENT National Network National ANENT Network **Regional NENs** NTEC **National NENs National** Network STAR-NET **BNEN ENEN National** Network **HRKD-Net National Nuclear** Stakeholder Participants & **Network** Stakeholders

## **HRKD Network(approach)**





### **National Networks**

- Substantial (Practically What, How...)
- Framework (Leader, Goal, Resource...)



## Regional Networks

- Gather information
- Research on how to proceed



## Member of a National Network



- HRKD is one of the most crucial tasks for some countries utilizing or planning to introduce nuclear energy power.
  - In order to solve national-level various issues related to HRKD (education, training, knowledge management, public relation, etc.)
  - The <u>close cooperation</u> among all of relevant organizations in the government, the academia, and the industry is inevitable.

3. Some countries have started to organize a national network

## Government



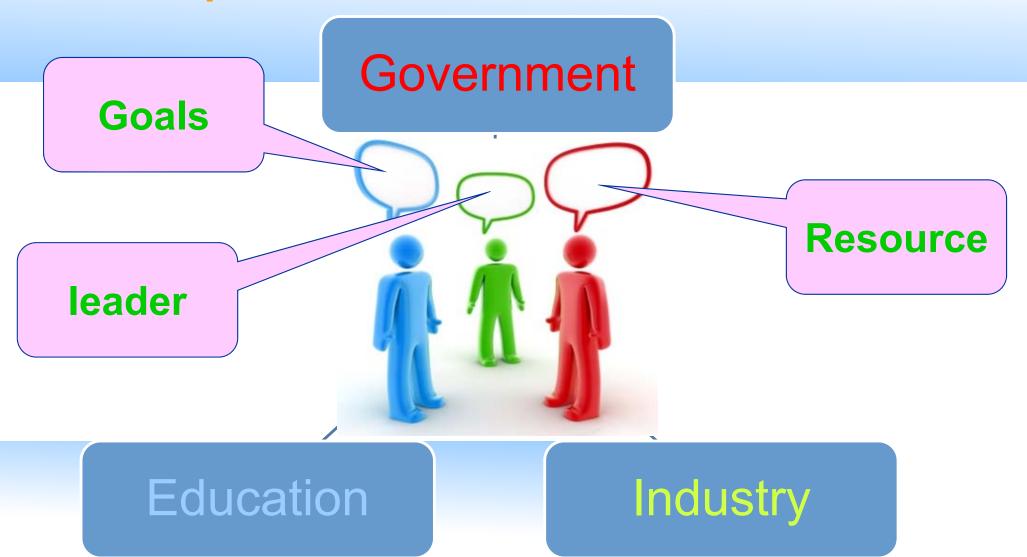
Academia

Industry



### **Member of a National Network**

## close cooperation



# N-HRKD Network (Main points for implementation 1)

### **&Leader**

- √ Who or which organization is expected to lead the network
- ✓ Having a Secretariat to strategically implement projects.

### **<b>⇔**Goals

✓ Establish common goals for member organizations to be supported by the network

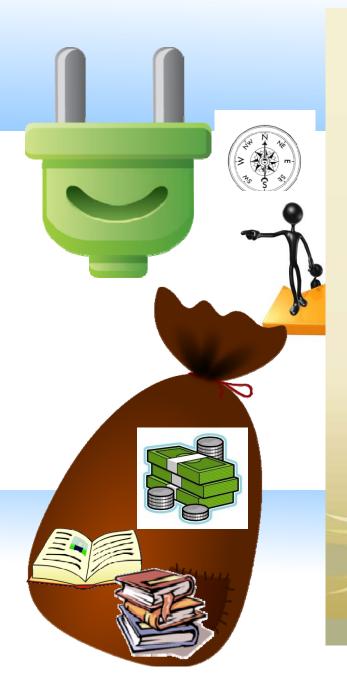
### **❖**Resource

- ✓ Appropriate people from member organizations to run the projects
- √ Budget if necessary

## **National Network**

## Goal, Resource





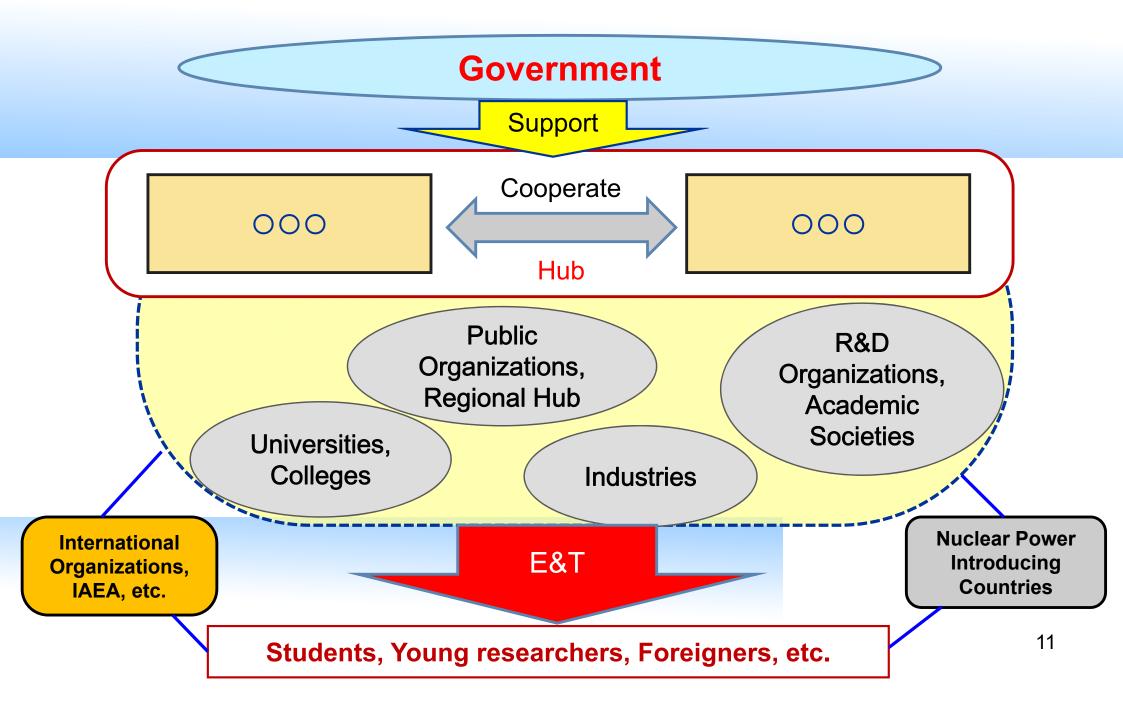




## **National Stakeholders**

Stakeholder group	Examples	
Government	<ul> <li>Ministry</li> <li>Atomic Energy Commission</li> <li>Nuclear Regulatory Authority</li> <li>National Nuclear Institutions</li> </ul>	
Education	<ul> <li>Academia</li> <li>R&amp;D institutions and Labs</li> <li>Technical Schools</li> <li>Training Organizations</li> </ul>	
Industry	<ul> <li>Operators</li> <li>Relevant companies</li> <li>Representatives of Industries</li> <li>Nuclear Professional Associations</li> </ul>	

## National Network Structure (Example)



## **Detailed Organization (Example of JN-HRD Net)**

Obligation 2) Appointing contact person

(2013.8.1)International institutions JAIF, JEPIC (Japan Electric Power Information Center, CAO **IAEA-ANENT, ENEN etc.** Inc.), IRM (Institution of Radiation Measurements), IAE MOE (The Institute of Applied Energy), NUSTEC (Nuclear Related Safety Technology Center), JANSI (Japan Nuclear corporations and METI Safety Institute), NSRA (Nuclear Safety Research MOFA associations, etc. Association), JCAC (Japan Chemical Analysis Center), JICC, NMCC (Nuclear Material Control Center), RADA (Radiation Application Deveropment Association). MEXT JRIA (Japan Radioisotope Association), WERC (The Wakasa Wan Energy Research Center), KAN-GEN-**Network Steering** KON. Committee Government lab. institutions Sub-Working group (Secretariat and related institutions only) **Network Planning WG** Planning, discussing and reviewing for **Technical** Institute of inter-organ programs Submitting and discussing each project colleges National JAEA. NIRS Elementary and secondary education College of (National Secretariat Higher education Technology Institute of (JAEA & JAIF/JICC) Globalization of human resources Radiological Service office Support for the HRD programs in Sciences),. (coordination, consultation) nuclear- emerging countries Creating and managing HRD DB, Universities Transfer of knowledge and skills etc. Transmitting information Responding inquiries Federation of from abroad etc. **Electric Power** Tokyo Institute of Technology, The Companies Univ. of Tokvo. Kvoto Univ.. Okayama Univ., Hiroshima Univ., Nagoya Univ., Kobe Univ., Univ. of Fukui, Fukui Univ. of Technology. 9 power utilities Tokyo City Univ., Osaka Prefecture Academic Univ.. Nagaoka Univ. of Technology, (Hokkaido, Tohoku, Hokuriku, **Societies** Local Tokyo, Chubu, Kansai, Tokai Univ., Kinki Univ., Hokkaido **Activities Manufactures** Chugoku, Shikoku, Kyusyu), Univ., Hachinohe Institute of **Atomic** JAPCO (The Japan Atomic Technology, Tohoku Univ., Univ. of Energy Power Company), J-Power Aizu, Ibaraki Univ., Kanazawa Univ., Aomori Toshiba. Mitsubishi-Society (Electric Power Development Prefecture. Osaka Univ., Kyushu Univ., Shizuoka of Japan. HI. Mitsubishi-Co., Ltd.), JNFL(Japan Nuclear Univ., Niigata Institute of Oarai Town. Electric. Hitachi GE. Fuel Limited), FEPC(The Technology. NTC(Nuclear Power Federation of Electric Power Training Center Ltd.), Companies of Japan). Mitsubishi-Nuclear Fuel. Mitsubishi-FBR SYSTEMS. **%70member are registered under JN-HRD Net** JINED 12 Obligation 1) Providing information regarding nuclear HRD to this network

### (Example)

## Framework of JN-HRD Net



Atoms for Peace and Develonmen

### (NW Steering Committee:

Formulating basic policy and outline)

## Steering Committee

Chairman

## Network Secretariat (JAEA and JAIF/JICC)

Secretariat has most important function for N-HRD Network as follows:

- 1,Holding steering committee meeting
- 2, Managing
  Working group and
  Sub-working groups
- 3, Linking participating organizations
- 4, Conducting some HRD projects

### (NW planning WG:

 Planning, discussing and reviewing overall network projects and activities) Working Group

Sub-Working Group(1): Discussion on elementary - high school education

Sub-Working Group (3): Discussion on support of newly NPP introducing countries

Sub-Working Group (5): Discussion on HRD of engineers in practical stage

(Sub-Working Group: Discussing individual inter-organ projects and activities)

Sub-Working Group (2) : Discussion on basic nuclear education at universities and colleges

**Sub-Working Group (4) : Discussion on HRD for internationally minded engineers** 

(Example)

### Roles of Sub-Working Groups



**Sub-Working Group (1) : Discussion on elementary - high school education** 

To reinforce action toward elementary, juniorhigh and high school educations <u>to encourage</u> students to proceed to a higher grade school <u>to</u> <u>study science and engineering</u> including nuclear field

Sub-Working Group (3): Discussion on support of newly NPP introducing countries

To support nuclear HRD in countries that plan to introduce nuclear energy (NPP) in the near future

Sub-Working Group (5) : Discussion on <u>HRD</u> of engineers in practical stage

To support transfer of nuclear-related knowledge, skills and experience (know-how) to next generations

Sub-Working Group (2): Discussion on basic nuclear education at universities and colleges

To reinforce the <u>basic education on nuclear</u> technologies and related subjects at <u>universities and colleges</u>, and to rebuild the professional education system on nuclear energy

Sub-Working Group (4) : Discussion on HRD for internationally minded engineers

To train young generations to be internationally minded talented persons

### Schedule of HRKD network





- Discuss
  - -Methodology, Feedback and lessons learned from IAEA's expert missions



## **National N-HRD Coordination Network**





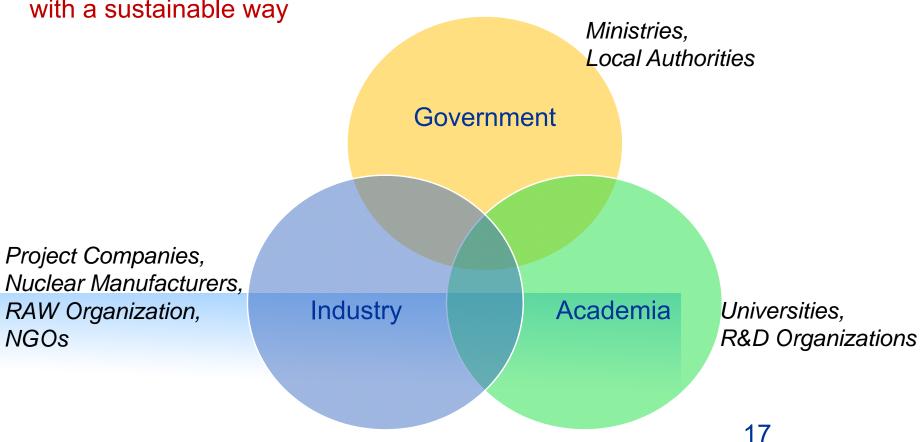
### National N-HRD Network

The network will ensure «close cooperation among ...» in the solution of problems regarding with N-HRD.

Purpose: To develop nuclear workforce needed for Turkish nuclear industry

with a sustainable way

NGOs





## Schedule of National N-HRD Network

14-16 June 2016: Consultancy Meeting in Vienna, AUSTRIA

13-15 February 2017: Consultancy Meeting in Tokyo, JAPAN

13-14 March 2017: Consultancy Meeting in Ankara, TURKEY (21 participants from 12 organizations)

**12 April 2017:** Kick-Off Meeting with Turkish Organizations in Ankara, TURKEY (41 participants from 27 organizations)

Feedbacks from Turkish Organizations on Possible Structure of the Network (30 organizations)

Draft Rules of Turkish National N-HRD Network

Feedbacks from Turkish Organizations on Draft Rules of the Network and Name of Participants from Organizations (30 organizations)

6-8 September 2017: Consultancy Meeting in Kuala Lumpur, MALAYSIA



Annual Meeting of Steering Committee in February 2017, in Tokyo, JAPAN







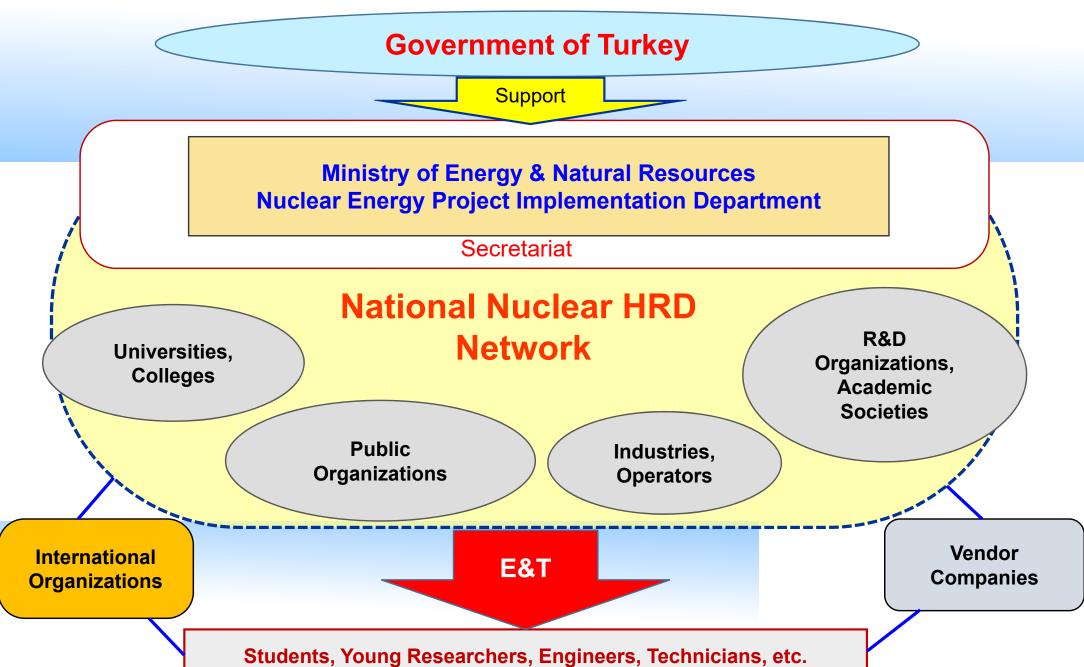
Consultancy Meeting on April 13-14, 2017, in Ankara, TURKEY



Kick-Off Meeting on April 12, 2017, in Ankara, TURKEY 21



Alams for Peace and Developmen





#### **MINISTRIES (4)**

- Ministry of Energy & Natural Resources
- Ministry of Development
- Ministry of National Education
- Ministry of Foreign Affairs

### **PUBLIC INSTITUTIONS (10)**

- Turkish Atomic Energy Authority
- Higher Education Council
- Professional Qualifications Authority
- Turkish Scientific and Technological Council
- Turkish Standarts Institute
- Disaster & Emergency Management Presidency
- Turkish Radio & Television Corporation
- Anadolu Agency
- · Ankara Chamber of Industry
- Ankara Development Agency

### **NON-GOV. ORGANIZATIONS (4)**

- Nuclear Engineers Society
- Radiation Protection Society
- Radiation Protection Experts Society
- · Chamber of Physic Engineers

### **OPERATORS (3)**

- Akkuyu Nuclear JSC
- Sinop Nuclear Ltd. Co.
- EUAS International CC

#### **UNIVERSITIES (6)**

- · Hacettepe University
- Ankara Universities
- Istanbul Technical Universities
- Akdeniz Universities
- Ege Universities
- Sinop Universities

#### **TRAINING & RESEARCH CENTERS (3)**

- Cekmece Nuclear Training and Research Center
- Saraykoy Nuclear Training and Research Center
- Marmara Research Center



### Structure of Coordination Network

### **Steering Committee**

### •Role:

- √ Highest decision-making body of the network,
- √ Final evaluation of network activities
- •Chairman: Deputy Undersecretary of Energy Ministry (MENR)
- •Number of members: 15
  - At least one time meeting per year(within 4th quarter of the year)

### **Working Group**

- Role:
  - ✓ Planning, coordination and preliminary evaluation of all projects and activities on HRD,
- Chairman: Head of NEPID/MENR
- Number of members: approx. 30
  - —At least two times meeting per year (at the end of 1th and 3rd quarter of the year)



# Sub-Working Groups

- At initial stage, there are 8 sub-working groups.
- Heads of each sub-working group are selected by related group members.
- Heads of SWGs submit evaluation report of related SWG's activities on N-HRD to Working Group at the end of 1th and 3rd quarters of the year.

- 1- Determination of Basic Qualifications and Training Needs of Turkish People for the Nuclear Sector
- 2- Promoting Nuclear Acceptance and Awareness
- 3- Radiological Emergency Planning and Response; Crisis Management
- 4- Returning of Turkish Citizens Working in the Nuclear Sector Abroad to Turkey
- 5- Development of Nuclear Education at the Higher Education Level
- 6- Training of «Mid-Man» (Technicians and Skilled Crafts) to be Needed for Nuclear Sector
- 7- Strengthening Nuclear Academic Staff at Universities
- 8- Strengthening Nuclear R&D Staff at R&D Centers and Institutes

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