Provisional



# Overview of JN-HRD.Net Activities --- Activities in 2017 and Challenges in 2018 ---

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on behalf of
JN-HRD.Net Secretariat (JAEA/JAIF/JICC)



# Organizations in collaboration (as of Jan. 2017)

JAIF, JEPIC (Japan Electric Power Information Center, Inc.), IRM (Institution of Radiation Measurements), IAE (The Institute of Applied Energy), NUSTEC (Nuclear Safety Technology Center), JANSI (Japan Nuclear Safety Institute), NSRA (Nuclear Safety Research Association), JCAC (Japan Chemical Analysis Center), JICC, NMCC (Nuclear Material Control Center), RADA (Radiation Application Deveropment Association), JRIA (Japan Radioisotope Association), WERC (The Wakasa Wan Energy Research Center), KANGEN-KON, JEMA(The Japan Electrical Manufacturers' Association).

Related corporations and associations, etc.

International institutions IAEA-ANENT, ENEN etc.

M O E

METI

MEXT

Network Steering Committee

Government lab. institutions

Technical colleges

Institute of National College of Technology

#### Universities

Tokyo Institute of Technology, The Univ. of Tokyo, Kyoto Univ., Okayama Univ., Hiroshima Univ., Nagoya Univ., Kobe Univ., Univ. of Fukui, Fukui Univ. of Technology, Tokyo City Univ., Osaka Prefecture Univ., Nagaoka Univ. of Technology, Tokai Univ., Kinki Univ., Hokkaido Univ., Hachinohe Institute of Technology, Tohoku Univ., Univ. of Aizu, Ibaraki Univ., Kanazawa Univ., Osaka Univ., Kyushu Univ., Shizuoka Univ., Niigata Institute of Technology., Univ. of Tsukuba

Network Planning WG Planning, discussing and reviewing for inter-organ programs

#### Secretariat (JAEA & JAIF/JICC)

Service office
(coordination, consultation)
Creating and managing HRD DB,
Transmitting information
Responding inquiries
from abroad etc.

## Sub-Working group (Secretariat and related institutions only)

Submitting and discussing each project

- Elementary and secondary education
- · Higher education
- Globalization of human resources
- Support for the HRD programs in nuclear- emerging countries
- •Transfer of knowledge and skills etc.

JAEA,QST,IRI D,JCAC(Japa n Chemical Analysis Center ),IES

Federation of Electric Power Companies

Academic Societies

Atomic Energy Society of Japan. Local Activities

Aomori Prefecture, Oarai Town., Tokai Village

#### Manufactures

Toshiba, Mitsubishi-HI, Mitsubishi-Electric, Hitachi GE, NTC(Nuclear Power Training Center Ltd.), Mitsubishi-Nuclear Fuel, Mitsubishi-FBR SYSTEMS., AGTC(Aomori Gennen Technology Center, Inc.) 9 power utilities (Hokkaido, Tohoku, Hokuriku, Tokyo, Chubu, Kansai, Chugoku, Shikoku, Kyusyu), JAPCO (The Japan Atomic Power Company), J-Power (Electric Power Development Co., Ltd.), JNFL(Japan Nuclear Fuel Limited), FEPC(The Federation of Electric Power Companies of Japan).

**JINED** 

**※74member are registered under JN-HRD Net** 

Obligation 1) Providing information regarding nuclear HRD to this network Obligation 2) Appointing contact person



# **Operational Chart**

### **Policy Making**

**Chair Takahashi (JAIF)** 

# **Steering Committee**

(19 members)

### Secretariat

(JAEA / JAIF / JICC)

General Sakurai (JAEA)

### **Management**

**Chair Kudo (AESJ)** 

Planning Working

**Group** (24 members)

- 1. Sub-WG: HRD at Secondary
  Schools [JAIIF]
  Chair Kudo (AESJ)
- 2. Sub-WG: HRD in Universities and Colleges [JAEA]
  Chair Arita (Fukui Univ.)
- 3. Sub-WG: HRD for Working Engineers [JAIF]
  Chair Hotta (Shikoku EPCO)

Sub-Working Groups:

Identifying and implementation planning of cross-organizational programs

- 4. Sub-WG: Internationalizing Domestic Engineers [JAEA] Chair Yoshimura (Hitachi-GE)
- 5. Sub-WG: HRD Support to Newcomer Countries [JICC]
  Chair Uesaka (Tokyo Univ.)

[Secretarial organization]



# 2017 Activities Supporting Nuclear Education at Universities and Colleges

#### **Tours to nuclear facilities**

[Participants] about 30
[Dates] August/September 2017, February/March 2018
[Facilities visited]
J-PARC Center at Tokai, QST Fusion Labo. at Naka
Mitsubishi NFC, NARO Gamma-field in Ibaraki

JAPC NTC at Tsuruga, WERC, KEPCO Mihama NPS



- Job hunting trend of nuclear students
- Recruiting trend in nuclear industry
- ✓ Baseline for NHRD programs
- Survey of workforce securing and HR D in nuclear industry
- ✓ Input to NHRD policy making in industry, government and academia

✓ Interest shown by media



#### **Research reactors restarted**

[KUCA (Kyoto Univ. CA)]

- Restarted in June 2017
- 137 post graduates in experiments
   [KUR (Kyoto Univ. Research Reactor)]
- Restarted in August 2017
- Utilization for joint research
   【Kindai Univ. Research Reactor】
- Restarted in March 2017
- Student drills under Global NHRD



# 2018 Activities planned for Supporting Nuclear Education at Universities and Colleges

- (1) Continued from 2017
  - Job hunting and recruiting survey
  - Tours to nuclear facilities
- New challenges in 2018
  - Tours to nuclear facilities: timeliness, expanded to teachers ...
  - Opportunities survey of sharing equipment, software, educational materials, nuclear drill facilities, etc.
  - Self-auditing of NHRD programs against Roadmaps (what is satisfiable, insufficient, delayed or missing?)



### 2017 Activities for Internationalizing National Human Resources

# 6-th Japan-IAEA joint Nuclear Energy Management School

[Participants]

20 from overseas (16 States)

15 from Japan

[Dates]

July 18 – August 3, 2017

[Venue]

U. of Tokyo, Fukushima Kosen and others



#### WNU-SI, IYNC

- Participation support for WNU-SI, 2017 (5 fellows: from KEPCO, Toshiba, Hitachi-GE, MHI, Mitsubishi FBR Systems)
- Exploring to host a WNU-SI
- ◆ Committing to host IYNC2020
- Participation support for research reactor drills at Utah State University, USA

#### Global Nuclear School (WERC)

[Participants]

38 (36 from local high schools, 2 from Fukui University)

#### **Capacity Building for Globalization**

[Organizer] JAEA [Participants] 16 (Electric Utilities, Manufacturers, JAEA) [Dates] November 20 – 24, 2017 [Venue] British Hills Training Facility



# 1-HRD NET 2018 Challenges in Internationalizing National Human Resources

- (1) Continued from 2017
  - Japan-IAEA Nuclear Energy Management School 2018
  - Participation support for WNU Summer Institute
  - Global Capacity Building Training Course
- 2 New Challenges in 2018
  - Exploring of hosting WNU Summer Institute in Japan
  - Exploring Global Capacity Building in IAEA Working Environment
  - Self-auditing of NHRD programs against Roadmaps (what is satisfiable, insufficient, delayed or missing?)
  - Exploring the introduction of workshops by reviewing ongoing activities (NEM, Global Capacity Training Course and others)



# 2017 Activities for Supporting Working Engineers

#### **Outcome from 2017 Activities**

- 1 Standardization of working knowledge and technologies
  - "Standard working knowledge and technologies" by FEPCO being reviewed by electric utilities
  - Training Guidelines under compilation by JANSI
- 2 CPD of NPP engineers
  - Education standardization being explored for skill up
    - Operator development program at EPDV Ohma NPP
    - Reactor Chief Engineer accreditation acquisition by NPP owners
- 3 Human resource development for decommissioning
  - Technology requirements and associated HRD
  - NPPs and nuclear fuel cycle facilities
- 4 Case study (field survey of training facility)
  - JAL Safety Development Center



# 2018 Challenges in supporting working engineers

- 1 Standardization of working knowledge and technologies
  - Development and application of standardized working knowledge and technologies for education and training at NPPs
- 2 CPD of NPP engineers
  - Education standardization for skill up (cont'd)
- 3 Human resource development for decommissioning
  - Technology requirements and associated HRD (cont'd)



# 2017 Activities for Supporting Education at Elementary to Junior-High Schools

#### **Outcome from 2017 Activities**

- 1 Horizontal development of activities, good practices
  - Participation encouraged to IAEA Science Competition in October 2018
  - Secondary students education in collaboration with IAEA
  - Nuclear and radiological education in secondary students' educational guidelines (Science and sociology)
- ② For transparent education support,
  - Dissemination of available educational resources (seminars for teachers, textbooks, etc.)
- 3 Collaboration with secondary students education managers
  - Support to Teachers' Workshop on Reactors at Kinki University
  - Exhibition at the National Junior-high Science Symposium in Sapporo
  - Sponsored Workshop on Education Guidelines jointly with FEPCO
- 4 Input to high-school textbooks in collaboration with AESJ
  - Comprehensive survey of descriptions (geography, history, sociology)



# 2017 Activities for Supporting Education at Elementary to Junior-High Schools

# Issues for support

- Radiation measuring kit "Hakaru," not easily available
- Educational material on irradiation too costly to acquire

## Challenges in 2018

Activities in 2017 to be continued in higher qualities

- IAEA Science Competition Workshop
- Secondary student education jointly with IAEA
- Input to an AESJ new publication "Nuclear: Today and Tomorrow"
- Dissemination of available educational resources for school teachers
- Support to Teachers' Workshop on Reactors at Kinki University
- Exhibition at the National Junior-high Science Symposium in Kobe
- Input to high-school textbooks (science and people, basic physics · · · )
- Facility tours for teachers, workshop for teachers, portal operation



### **Activities for Supporting NPP Newcomer Countries HRD**

#### **Outcome from 2017 Activities**

- **1** IAEA course on NP infrastructure development
- ② Japan-IAEA NEM School 2017 (jointly with Sub-WG on Domestic HRD)
- 3 HRD courses for specific countries
- 4 Follow-up of INMA activities

- ① Japan-IAEA NEM School 2018 (jointly with Sub-WG on Domestic HRD)
- 2 IAEA course on NP infrastructure development
- 3 HRD courses for specific countries as they emerge



# N-HRD Activities foreseen ahead

- ◆ JN-HRD.Net Operation:
  - Steering Comm., Planning WG, Sub-WGs, Annual Review Meeting ...
    - → Cooperation among industry, academia and government
- Secretariat Work: Liaison, Coordination, Portal operation
- Public Outreach:
  - → Newsletters (quarterly), Web operation (upcoming events, etc.)
- Promotion of international networking
  - → International cooperation, Experience exchange, etc.
- Strengthening of collaboration among relevant national organizations by means of operating IAEA NEM, NP Training Course and other opportunities
- Self-auditing and feedback to PDCA on pre-established HRD roadmaps