Instructor Training Program

NEWS LETTER 2016

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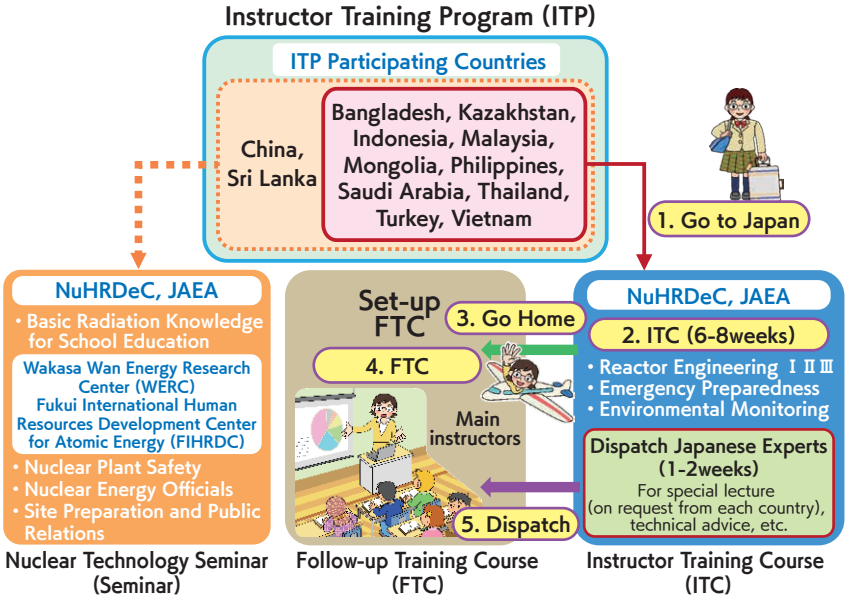
ITP Activities in JFY2015

Instructor Training Program (ITP)

Instructor Training Program (ITP) consists of 3 main activities, that is, Instructor Training Course (ITC), Follow-up Training Course (FTC) and Nuclear Technology Seminar (Seminar).
The purpose of ITC is to foster future instructors in ITC participating countries by offering 6-8 week courses in Japan where participants can learn teaching ability and techniques in the field of nuclear technology through lectures, exercises and facility tours. The ITC participants become instructors to organize FTC in their own countries by utilizing knowledge and experience gained from ITC. Japanese experts are dispatched to FTC and give technical advice for the establishment of the self-sustainable training courses. ITC and FTC are a combination package program to develop instructors effectively in Asian countries. Its roles and relationship are shown in the following figure.
Seminar is designed to cultivate experts in the specific area of nuclear technology. The seminar participants learn necessary knowledge through lectures, and have an opportunity to experience international cooperation through facility tours and joint events in nuclear facility located areas.

ITP is conducted by Nuclear Human Resource Development Center (NuHRDeC), the Japan Atomic Energy Agency (JAEA) since 1996 under contract with the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) with the aim of contributing to human resource development (HRD) in the field of nuclear technology in Asian countries.
The initial ITP participating countries were only Indonesia and Thailand, and the number currently increases up to 12 countries (Bangladesh, China, Indonesia, Kazakhstan, Malaysia, Mongolia, Philippines, Saudi Arabia, Sri-Lanka, Thailand, Turkey and Vietnam).



ITP Activities in JFY2015

Course		Duration	Place	Participant
ITC	Reactor Engineering Ⅰ, Ⅱ, Ⅲ	24 Aug – 16 Oct 2015	Tokai, JAPAN	18
	Nuclear/Radiological Emergency Preparedness	22 Jun – 31 Jul 2015	Tokai, JAPAN	8
	Environmental Radioactivity Monitoring	22 Jun – 31 Jul 2015	Tokai, JAPAN	9
FTC	Reactor Engineering Ⅰ, Ⅱ, Ⅲ	May 2015 – Mar 2016 (Total 22 courses for 1-2 weeks)	8 countries* (Bangladesh, Indonesia, Kazakhstan, Malaysia, Mongolia, Philippines, Thailand, Vietnam)	10 – 25 (per each course) 2-4 Japanese experts
	Nuclear/Radiological Emergency Preparedness			
	Environmental Radioactivity Monitoring			
Seminar	Nuclear Plant Safety	16 Nov – 11 Dec 2015	Tsuruga, JAPAN	10
	Nuclear Energy Officials	19 Oct – 6 Nov 2015	Tsuruga, JAPAN	10
	Basic Radiation Knowledge for School Education	9 Nov – 20 Nov 2015	Tokai, JAPAN	15
	Site Preparation and Public Relations	18 Jan – 22 Jan 2016	Tsuruga, JAPAN	7

*Indonesia and Thailand are excepted from FTC on Nuclear/Radiological Emergency Preparedness

Topics : Instructor Training Course

"Reactor Engineering Ⅰ, Ⅱ, Ⅲ Course"

- Facility Tour to TEPCO Kashiwazaki-Kariwa NPS -

Every year ITC on Reactor Engineering Ⅰ, Ⅱ, Ⅲ offers tours on various nuclear facilities, in addition to lectures and exercises on reactor physics, thermal hydraulic and reactor safety.
This year, the course participants visited the Kashiwazaki-Kariwa Nuclear Power Station (NPS) of Tokyo Electric Power Company (TEPCO).
Firstly, participants were given a brief introduction of the NPS, and visited an exhibition hall to learn the features of Boiling Water Reactor (BWR) using a model reactor, a full scale of fuels and control rods. A cut model of a reinforced concreate containment vessel (RCCV) in the actual size was also displayed here, and all of participants were amazed by the thickness of RCCV wall.

On a tour of the NPS site, participants could learn the enhancement of safety measures against natural disasters since the TEPCO's Fukushima Daiichi NPS Accident (Fukushima Daiichi Accident), for example, tsunami protection walls and embankments, water reservoir for securing cooling water, and specialized vehicles such as power supply cars.
After that, participants visited the Unit 6 of Kashiwazaki-Kariwa NPS which is the latest type of BWR constructed in the world (Advanced Boiling Water Reactor: ABWR). They passed tight security checks and entered the reactor building to observe closely the actual reactor in preparation for restarting. Having seen the important facilities such as biological shield, main steam isolation valves, the hydraulic control rod unit and the reactor core isolation cooling system with their own eyes, participants could understand the three main functions of reactor, "shutdown", "cooling" and "confinement".
Through this facility tour, all of participants were excited about the actual observation of reactor and impressed by the size of NPS site. They also became well acquainted with the knowledge of nuclear reactor that had only gained from a textbook before.

- Facility Tour to BWR Operator Training Center -

Participants visited BWR Operator Training Center in Niigata prefecture where there are four operation simulators from the Generation-I (BWR-4) to the Generation-III+ (ABWR). At the time of our visit, an operational training was taken place by nuclear power plant (NPP) operators so they could grasp an image of actual operation including transients or accidents. Participants were impressed by the technical progression of control rooms from BWR-4 with mainly analog equipment to ABWR with digital equipment and liquid crystal displays, and could realize that continuous efforts (i.e. undertaking practical training with such simulation systems) are very important for safe operation of NPP.

Topics : Instructor Training Course

"Environmental Radioactivity Monitoring Course" "Nuclear/Radiological Emergency Preparedness Course"

- Research Presentation by JAEA on Fukushima Daiichi Accident -

4 researchers of JAEA were invited to ITC to share their research results of the Fukushima Daiichi Accident with participants. They delivered the topics on 1) the development of devices for monitoring the dose rate at ground surface with airplane and the results using the devices, 2) the development of mineral based adsorbent for cesium from contaminated water at the Fukushima NPS and its removal effect, 3) the analysis of radioactive materials in radioactive waste (debris) from the Fukushima Daiichi Accident, and 4) the mapping method of soil contamination for evacuation and returning plans after the Fukushima Daiichi Accident.
This event was a valuable opportunity for participants to hear the most recent and advanced researches and challenges in the Fukushima Daiichi Accident directly from researchers, and participants showed great interest and had an active discussion (questions and answers) with researchers after their presentations.

- Exercise on Radiation Survey in Fukushima Prefecture -

Since the measurement of radioactivity and radiation in the environment is one of the most important learning objectives for ITCs on Environmental Radioactivity Monitoring and Nuclear/Radiological Emergency Preparedness, after the Fukushima Daiichi Accident, a joint exercise on radiation survey in Fukushima prefecture has been conducted every year as a highlight event of both courses.
This year, the exercise was taken place in Namie town, which is designated as a zone preparing for the lifting of evacuation order, located closer to the Fukushima Daiichi NPS compared with the last year's survey point in Naraha town. For that reason, some of the participants had concerns about potential exposure to radiation, but when they actually measured the radiation level in the area by themselves, they were eased by the result because the radiation dose level in Namie was almost the same level as Tokai village where our training center is located.
Through a valuable experience of radiation survey at an actual contaminated area, participants could enhance the knowledge of radiation and radioactivity, also the exercise could help participants to disseminate the current situation of Fukushima to their own countries.

Topics : Follow-up Training Course

"Environmental Radioactivity Monitoring Course"

- The Establishment of Advanced Course on Environmental Radioactivity Monitoring in Indonesia -

HRD in Indonesia has been advanced towards the introduction of nuclear power generation. In recent years, there has been particularly an increasing demand for engineers in the field of environmental radioactivity monitoring.
In Indonesia, FTC on Environmental Radioactivity Monitoring has been conducted 6 times in total since 2010 at the National Nuclear Energy Agency (BATAN), and practical experience in organizing FTC has been accumulated over this period of time.
Based on such experiences, BATAN had a plan to revise the standard FTC and to hold a more advanced course specializing in the environmental dose assessment during accidents at NPPs. Upon request from BATAN, JAEA decided to give all possible support to the newly organized course.
In 2014, the first advanced course was held for 1 week, and JAEA introduced Worldwide version of System for Prediction of Environmental Emergency Dose Information (WSPEEDI) and its simplified system was demonstrated to the course participants. Even though it was the first time to conduct the advanced course, the basic concepts of the course theme were well covered, and the questionnaire result from the participants indicated a successful course management.
This year was the second time to hold the advanced course, and its duration was extended to 2 weeks. The basic topics such as the outline of atmospheric dispersion code provided by IAEA, various parameters and input date were explained by Indonesian instructors. JAEA supported an exercise using WSPEEDI in which the participants set parameters of atmospheric dispersion simulation at a hypothetical accident in Indonesia. The participants were very impressed when the diffusion of radioactive materials from the nuclear facility to the air was realistically displayed from hour to hour on the map of the computer screen.
Indonesia is planning to introduce WSPEEDI as an atmospheric dispersion calculation code for nuclear accidents in the future. Therefore, JAEA is willing to give as much support and cooperation as possible through FTC. The modification of course contents from basic to advanced one will be a meaningful challenge as the next step to establish a higher level of HRD.

Topics : Nuclear Technology Seminar

"Nuclear Energy Officials Course"

- Facility Tour to Fukui Atomic Energy Science Museum 'At Home' -

The 10 participants of seminar on Nuclear Energy Officials (NEO) visited the Fukui Atomic Energy Science Museum 'At Home'. The facility was established by the Fukui Atomic Energy Center under contract with Fukui prefecture in order to disseminate knowledge on peaceful uses of atomic energy to the general public of nuclear facility located areas.
At first, participants received the introduction of museum activities, such as, radiation experiments as regular activities at the museum, experimental workshops at schools and community centers as outreach activities, and seminars on basic radiation knowledge and experiments to observe and measure natural radiation using a cloud chamber and a survey meter. After then, participants visited galleries showing how to generate electricity and actually experienced interactive facilities such as the energy quiz game with a touch panel screen.
Through this facility tour, participants could learn the public acceptance activities of nuclear energy in Japan, and there were positive feedbacks from them at a group discussion. For example, "It was very interesting because there are no such facilities in my country", "A single approach is not enough and various approaches should be taken to effectively provide information and knowledge on nuclear power generation to the public", "It is important to offer learning opportunities to young generations who can obtain accurate information of energy, radiation and nuclear power generation from their childhood such as elementary school students".

- Facility Tour to Mitsubishi Heavy Industries, Ltd. -

The participants of Seminar on NEO visited the Kobe Shipyard of Mitsubishi Heavy Industries (MHI), Ltd. to learn what technology is the basis for manufacturing and supplying various kinds of structure, system and components of NPP.
At first, participants were explained about the organizational structure of MHI and their products supplied to NPPs. After that, participants moved to the manufacture site of large-scale equipment where they could observe a steam generator in the process of production and contaminated water tanks to be supplied to the Fukushima Daiichi NPS.
During this tour, many questions were arisen from participants such as the material quality of products, a manufacturing period and technology used in manufacturing, and detailed explanation was given to their questions by MHI.
Participants also visited the latest operation simulator for NPPs, and by seeing a display monitor with advanced technology, they were able to understand visually how safety systems operate to bring plants to a safe and stable state when troubles occur.
At the exhibition hall, the history of MHI and the technological progression of heavy industries, such as technologies for NPPs, large ships and oceanographic research vessels, were explained.
For some of participants, it was the first time to visit the manufacture site of NPP equipment and most of participants expressed that this visit was very interesting and the delivered contents were excellent.

Interview

Dr. Somporn Chongkum
Executive Director
ITP counterparts, the Thailand Institute of Nuclear Technology (TINT) (as of July, 2015)

1.What professional background do you have in the nuclear field?

My educational background started from Chiang Mai University with a Bachelor degree in physics. After graduation, I started working for physics division of the Office of Atoms for Peace (OAP) as a technical assistant for "Thai Research Reactor No.1".
A few years later, I was involved in the construction project of a first NPP in our country and went to Chulalongkorn University to obtain a Master degree for nuclear engineering. After then, the nuclear project was postponed because natural gas was found in the Gulf of Thailand, and natural gas became a major energy source in our country.
Under such circumstances, I went to Germany for 5 years to take my PhD degree and had an opportunity to study in various areas of nuclear physics, such as an accelerator, a research reactor, nuclear reactions as well as isotope separation for a cyclotron. After returning to Thailand, I worked for OAP again and engaged in the utilization of a research reactor, mainly for isotope production, neutron activation analysis, neutron diffraction, and boron neutron capture therapy.
In 2006, OAP was divided into a regulatory body (OAP) and a nuclear research and development institute (TINT). Since then, I have worked for TINT.

2.What was the reason that led you to take responsibility for HRD in TINT?

Wherever we are in OAP or TINT, we have to foster new generations in terms of human resources. The first thing young staff needs to learn is our 5 purposes called "SHINE". S stands for Safety, H for health, I for income and economy, N for nuclear expertise and E for environment. Both OAP and TINT focus on the five purposes as guidelines for HRD.

3.What is your HRD policy?

My policy of HRD is safety always comes first. As TINT has a research reactor and an accelerator, as well as handling radioisotopes, we need to ensure safety through showing the best performance on the five purposes.

4.As Thailand has participated in ITP for more than 20 years, how do you evaluate our ITP and how ITC, FTC and Seminar have contributed to HRD in your country?

We appreciated very much for your support to our HRD through ITC and FTC.
JAEA's ITC and FTC help young professionals in TINT, OAP, as well as universities to enhance their knowledge of nuclear engineering and technology. TINT has made efforts to establish an effective educational system, but it is better to cooperate together with JAEA because JAEA has the sufficient number of experienced instructors.
We should focus not only on NPP but also on nuclear applications in many fields such as agriculture, industry and medicine because public understanding for nuclear energy and radiation is important to carry out our nuclear project. I believe ITC is taking one of parts to contribute to the public understanding of nuclear energy in Thailand.

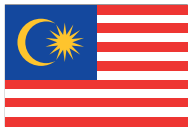
5.What do you expect from Japan in future?

Since we emulated the nuclear project from Japan, if the government decides to install NPP, we need to ask Japan to extend supports in this field.
Since we also have an accelerator, electron beams, a cyclotron, and X-ray machine, we need to learn more about the utilization of radiation from Japan.

6.What kinds of actions have you taken towards the establishment of a sustainable education system in Thailand?

TINT organizes FTC and also some training courses almost every month. The training courses are provided not only for staff in TINT but also for companies, energy utilities, universities. During courses, participants need to pass an examination to get certifications in order to work at nuclear or radiation facilities. The ITC participants contribute to the training courses as instructors and they are effectively using the obtained materials from ITC in Japan.

Voice from ITP Past Participants


Malaysia

Mr. Yii Mei Wo
Malaysian Nuclear Agency (Nuclear Malaysia)
ITC Environmental Radioactivity Monitoring 2012

I am a research officer at Nuclear Malaysia and responsible for the measurement of radionuclide concentrations in various samples. I had participated in ITC on Environmental Radioactivity Monitoring on July 02 - August 10, 2012. And this year I was invited as a guest lecturer* for this same program. During my time, we only had 6 participants, but this year the number was increased to 9. This is clear evidence showing that the successful of this program which received overwhelming response from the countries in Asian region.

Since completing ITC in 2012, I have involved with the annual FTC in Malaysia to train participants on environmental sampling and measurement as preparation for the nuclear power program. Besides this, I became one of regular lecturers for 1 day to 2 week radiation protection courses to industries provided on a monthly basis by Nuclear Malaysia as part of the radiation safety awareness program. The knowledge gained from the ITC program also helps me a lot in teaching these courses.

Having experience as a lecturer, I feel that responses and questions from the audients will sometimes stimulate us to look for new knowledge. Therefore, I would like to encourage all ITC participants to seek opportunities to share their knowledge with others to become a successful lecturer or instructor in their country.

Finally, I wish ITC will continue to be successful and be beneficial to more participants from nuclear developing countries in the future.

*The past ITC participants, who showed excellent performance at ITC and actively contribute to FTC in their own countries, are selected each year and invited as a guest lecturer to ITCs.


Kazakhstan

Ms. Sholpan Nazarkulova
al-Farabi National Kazakh University(KazNU)
ITC Environmental Radioactivity Monitoring 2012

The training of qualified specialists in the field of nuclear technology is very important from a viewpoint of development of the nuclear industry in Kazakhstan.

In 2012, I participated in ITC on Environmental Radioactivity Monitoring. Participation in the course allowed me, firstly, to expand knowledge in the field of radiochemistry, radiobiology and environmental monitoring, secondly, to meet and make friends with the other participants who came all over the world, and finally, to discover Japan for myself: one of the most ancient countries with rich culture, friendly people and a developed economy.

Participation in this course gave me an opportunity to conduct FTC in Kazakhstan and confidence to share knowledge in alpha-, beta- and gamma-spectroscopies which I enhanced during ITC. Every year, on the basis of KazNU in cooperation with the Institute of Nuclear Physics of Kazakhstan (INP) and JAEA, we conduct FTC for employees of national institutions working in the field of nuclear energy, masters and PhD-students, who will become undoubtedly future staff of the nuclear industry in Kazakhstan. In FTC, I have a responsibility for the lecture on methods of determination of uranium in environmental samples.


Philippines

Ms. Mary Rose Quizana Mundo
Philippine Nuclear Research Institute (PNRI)
ITC Nuclear/Radiological Emergency Preparedness 2011

I participated in ITC on Nuclear/Radiological Emergency Preparedness in 2011. Since then I have involved in organizing FTC in Philippines. This year, 25 participants from the various member agencies of the National Radiological Emergency Preparedness and Response Plan (RADPLAN) attended FTC and learned the basic principles of radiation protection and communication principles during nuclear and radiological emergencies. Also, they enhanced the emergency response capabilities through the integrated radiological field exercise and by adopting their agencies roles, responsibilities and concept of operations. The participation in ITC provided me with learning knowledge on the field of emergency preparedness and response at nuclear or radiological accidents which makes me conduct FTC with ease and confidence, and also I could become aware of the importance of coordination with other departments in PNRI and relevant agencies in Philippines in order to further develop human resources in the field of emergency preparedness.

Interview from ITP 2015 Participants

Mongolia

Mr. Odkhuu Sukh
National University of Mongolia (NUM)
ITC Reactor Engineering I 2015

Mongolia has a grand plan to build a nuclear reactor in the near future because introducing an ecological power plant is a primary issue in my country in order to reduce air pollution and secure stable energy supply. However, we are facing a shortage of sufficient manpower, especially, specialized personnel so that I applied to ITC on Reactor Engineering I with the aim of leading HRD in the field of nuclear energy and reactor physics in my country.

During the course, one of most interesting contents was an experiment to observe neutron moderation using a neutron source and a neutron detector in a water tank because I could directly see the neutron moderation through the change of count rate of neutrons by changing the water level in the tank. As obtaining neutron sources is difficult in Mongolia, I learned neutron moderation only from the textbook, but having actual experience through the experiment helped me to understand its process accurately and made my knowledge richer. Also visiting the TEPCO Kashiwazaki-Kariwa NPS could help me to visualize the knowledge on nuclear reactors learned from lectures at ITC, and I was very impressed by the actual size of facilities such as reactor containment vessel and the main steam line as well as various safety measures installed against natural disasters.

After finishing this course, I would like to share my knowledge and experience obtained through the course with my colleagues in Nuclear Research Center, NUM and to give lectures on nuclear applications to undergraduate students. I would also like to take a role in FTC to teach the topics on reactor physics, reactor kinetics and the features of NPP to local trainees. I believe that this is only the beginning for me to take the initiative for nuclear HRD in my country, and my confidence and ability as a lecturer will be enhanced by the establishment of self-sustainable educational system in Mongolia through conducting FTC in the future.

Saudi Arabia

Ms. Shama Ibrahim Lahawawi
King Abdullah City for Atomic and Renewable Energy (KACARE)
Seminar Basic Radiation Knowledge for School Education Course 2015

All course contents were very interesting and informative enough to give me more confidence to talk about radiation to the public because I learned many useful and practical skills through the course and my knowledge on radiation became far deeper than before.

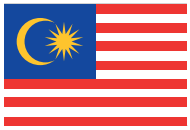
Currently, I am taking part in projects to teach the basic knowledge of different energy resources to middle school teachers, and I would like to introduce some experimental methods learned from the course such as using a real measuring equipment like a GM survey meter to learn the presence of natural radiation around us and learning radiation penetrating properties with different types of shielding materials.

The joint experiment on radiation measurement with local high school students was very beneficial and I believe the experience will add significant value to my future work because I could learn what kind of radiation knowledge the school students should know about, and providing reliable data on radiation is very important.

Wearing the radiation protection clothes was also a memorable experience during the course because I could feel like a real radiation worker. Also visiting NPP was very impressive as I have never visited the actual NPP site in my life.

Now the course is approaching to the end, and the enhancement of knowledge on radiation and teaching skills is the main objective of the course but I feel that meeting people from different cultural backgrounds is also a great part of this course because I could share opinions, knowledge and experiences across different education approaches with other participants to expand my perspective of radiation education.

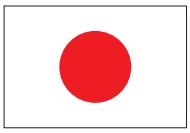
FTC Model Case


Malaysia

"Reactor Engineering Course"
- Cooperation with Local Universities - Malaysia

In Malaysia, FTC on Reactor Engineering has been conducted at universities for 3 years. In 2013, FTC was held for 2 weeks at Nuclear Malaysia which is ITP counterparts and Technical Support Organization (TSO), and a shorter version of FTC was held for 2 days at University Technology Malaysia (UTM) in Johor Bahru. The 2 week FTC was taken place at UTM in 2014 and at University Tenaga National (UNITEN) in Kuala Lumpur in 2016.
The cooperation with universities for FTC will be direct support leading to the fulfillment of the purpose of ITP "the establishment of self-sustainable system for nuclear HRD in Asian countries". Also, large-scale facilities, which would be difficult for university alone to provide at FTC, is available through an agreement on the joint utilization of experimental equipment and facilities made between Nuclear Malaysia and UTM/UNITEN. Nuclear Malaysia can also receive benefits from joint studies on advanced research areas with universities. We therefore believe that building closer cooperation with universities to organize FTC could contribute to the effective construction of the nuclear HRD system, and this successful example could be applied to other countries in future as a model case.

FTC Report as Visiting Lecturer


Japan

Dr. Kenta Murakami
Research Associate
Nuclear Professional School, Graduate School of Engineering,
The University of Tokyo

I have taught about the Fukushima Daiichi Accident at ITC since 2014. I also joined FTC in Malaysia and Thailand, and taught about safety principles as well as the accident. The accident has presented a difficult challenge of "how to embody the principle of defense in depth against external initiators" to nuclear safety experts. ITC and FTC provided great opportunities to consider this subject deeply from a new viewpoint.
Many findings came up through the discussion between the students. One is that, earnest students often remember incorrect information on the accident progression which was distributed immediately after the accident. We must teach them the latest information clarified through the subsequent investigation continuously and repeatedly.
The other is that, the typical Japanese style of teaching is not appropriate to build "the way of thinking" regarding nuclear safety in the limited time. I found several common misinterpretations on the concepts regarding nuclear safety such as safety goal because most of students are still halfway through the learning of the concepts. In order to correct the ingrained misunderstandings, it is required to help the students to make an inference logically by themselves. Also, we should use our ingenuity to find better ways of teaching, for example, using E-learning to teach the basic concepts before the lecture and introducing the flip teaching to devote most of the lecture to discussion or exercise.
I realized that these two findings are common with nuclear human resource development in Japanese universities. I would like to work on these challenges continuously in my university.

Current Situation of NPP Program

Turkey

Dr. Mehmet Ceyhan

Head of Department of Nuclear Safety
Turkish Atomic Energy Authority (TAEK)

	Akkuyu NPP	Sinop NPP
Intergovernmental Agreement	Russian Federation	Japan
No. of Unit	4	4
Rector Type	WWER-1200	ATMEA 1
Total Capacity	~4800MWe	~4500MWe

Turkey has started two NPP projects. The first one is the Akkuyu NPP and the second one is the Sinop NPP.
TAEK has concentrated on the review and assessment of licensing documents of the Akkuyu NPP and inspection activities regarding the site activities carried out in Akkuyu and Sinop. The Akkuyu and Sinop NPPs are to be licensed by TAEK according to Turkish regulations supported by IAEA safety standards and vendor country regulations. In order to implement its regulatory functions effectively and adequately, TAEK needs competent human resources.
The Russian Federation companies will be involved in the operation of the Akkuyu NPP and bring expertise from Russia. Operator has initiated implementation of education and training of 600 Turkish engineers in Russian Federation universities and institutes. Those engineers will comprise up to 30% of operating personnel of the whole 4-units plant by 2023.
The Sinop NPP will be operated by a Sinop NPP Project Company (to be established soon). EÜAŞ (National Electricity Generation Company of Turkey), one of shareholders in the Sinop NPP Project Company, currently focuses on siting activities and will take part in the operation of the Sinop NPP.

Bangladesh

Dr. Kanailal Chakraborty

Director (as of December 2015)
International Affairs Division
Bangladesh Atomic Energy Commission (BAEC)

	Rooppur NPP
Intergovernmental Agreement	Russian Federation
No. of Unit	2
Rector Type	AES-2006/V-392M
Total Capacity	~2400MWe

The present government of Bangladesh has planned to generate 10% of the total electricity from nuclear power by 2021 in order to solve a shortage of energy and contribute significantly to the economic development in our country. Since the first proposal of the NPP program in 1961, a number of reports have affirmed the technical and economic feasibility, the Rooppur site in Pabna district, which is about 160 km north-west of Dhaka, was selected. So as to facilitate building a solid infrastructure for successful implementation of the Rooppur NPP Project by 2022, Bangladesh has signed a number of agreements and has carried out innumerable cooperation with a partner country and international agencies in the areas of finance, site works, regulations and HRD. For instance, the Bangladesh Atomic Energy Regulatory Authority (BAERA) was established in 2013, and its staff will be trained in Russian Federation regarding regulation, licensing and supervision. The nuclear information centre was also opened where nuclear knowledge dissemination programs are continuously going on. Last year, the Nuclear Power Company of Bangladesh (NPCB) was set up to run the plant although the ownership remains with BAEC. Once the successful operation at the Rooppur NPP is confirmed, Bangladesh will go ahead with a second NPP project in the south of the country, and the government and BAEC already invited JAEA in 2014 to explore the possibility of building a second 2000 MWe NPP. For the meantime, to achieve the operation of the Rooppur NPP, we have strived for developing human resources in various nuclear-related fields.

Vietnam

Dr. Nguyen Hao Quang

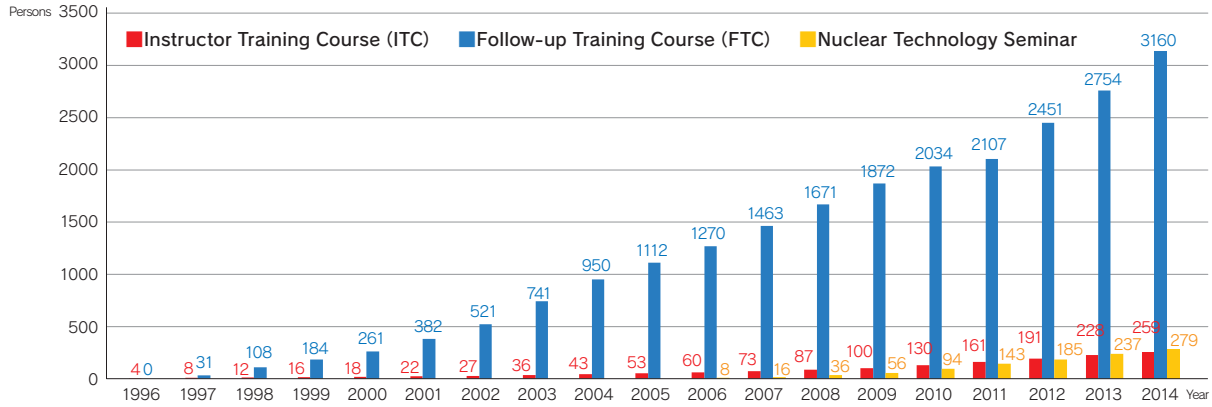
Vice President
Vietnam Atomic Energy Institute
(VINATOM)

	Ninh Thuan 1 NPP	Ninh Thuan 2 NPP
Intergovernmental Agreement	Russian Federation	Japan
No. of Unit	2	2
Rector Type	WWER-1200	To be dicided
Total Capacity	~2400MWe	~2400MWe

The initial plan to start the operation of NPP in Vietnam was in 2020 and it has been delayed for 3-4 years. The Ninh Thuan 1 NPP will be constructed between 2017-2023, and its operation will start in 2023 or 2024. The Ninh Thuan 2 NPP is now under consideration of reactor types and the final decision has not been made yet. Also, the construction of a research reactor for the purpose of operational training and RI production is scheduled to be completed in 2023.
Recognizing the importance of HRD for the NPP program in Vietnam, in October 2015, the Prime Minister has issued the decision No.1756/QD-TTg on the approval of training plan for human resources of state management, research and development, and technical support for nuclear power development up to 2020.
Training areas for the state management organizations will be infrastructure development of NPP according to IAEA guidance including safety review and inspection, licensing, safeguards, quality and environment management, and also NPP related technical issues.
Training areas for research and development and technical support organizations will be nuclear science and technology, NPP construction technology, radiation safety and protection, nuclear fuel cycle and waste management.
In order to encourage officials and engineers to enhance their knowledge and skills of nuclear and related techniques, we will actively promote the nuclear HRD based on the newly issued training plan and provide short to long-term training programs in Vietnam as well as overseas training opportunities.

* Information as of February 2016

Accumulated Number of ITP Participants



JFY2015 Participating ITP Counterparts
(actual basis)

Bangladesh	Bangladesh Atomic Energy Commission	(BAEC)
Indonesia	National Nuclear Energy Agency	(BATAN)
Kazakhstan	National Nuclear Centre of the Republic of Kazakhstan	(NNC RK)
	Institute of Nuclear Physics	(INP)
Malaysia	Malaysian Nuclear Agency	(Nuclear Malaysia)
Mongolia	Nuclear Energy Commission	(NEC)
Philippines	Philippines Nuclear Research Institute	(PNRI)
Saudi Arabia	King Abdullah City for Atomic and Renewable Energy	(KACARE)
Sri Lanka	Atomic Energy Authority	(AEA)
Thailand	Thailand Institute of Nuclear Technology	(TINT)
Turkey	Turkish Atomic Energy Authority	(TAEK)
Vietnam	Vietnam Atomic Energy Institute	(VINATOM)

Message from Director of NuHRDeC

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In recent years, various HRD programs have been initiated for Asian countries. JAEA has actively conducted ITP over the last 20 years, and ITP has been honorably evaluated at the meeting of Forum for Nuclear Cooperation in Asia (FNCA) and others. However, we are eager for the further improvement of ITP by considering each country's needs and our technological potential as a unique organization on comprehensive research and development for nuclear technology in Japan that experienced the Fukushima Daiichi Accident. For example, many other training programs for new countries introducing nuclear energy tend to focus on only acquiring the knowledge and technology learned from an enormous number of past failures, but we also offer participants to obtain practical experience through exercises and facility visits.

This is because we assume that participants may face difficult situations in their actual work in future and need to go back to the starting point to think why these principals were discovered, and our aim is to foster capable personnel to ascertain the most important truth in technology when they face such a situation. Therefore, we are very pleased if we can introduce such our activities through this issue's newsletter to as many people as possible in the relevant organizations in Asian countries.

Editor's note

Spring has just arrived in Japan, and we enjoy a beautiful season by celebrating plume blossoms at one of the three most outstanding gardens in Japan, Kairakuen, with precious memories of visiting there with the ITP participants.

Welcome to our 2nd issue of ITP Newsletter. We tried to write this issue to offer insights into our training activities; participants' passion to learn new knowledge and skills of nuclear technology and their enthusiasm to engage in international collaboration such as information exchange among participants and a joint activity with local students. We also included an article on the current situation of NPP program and nuclear facility site in the member countries of ITP from this issue.

So far, we have invited about 300 trainees to Japan, and having seen their efforts and contribution as a FTC's instructor to the development of nuclear human resources in their own countries, we feel that our ITP has fulfilled its unique mission of the establishment of self-sustainable education system in Asian countries. Therefore, we continue to take further initiatives toward the nuclear HRD and international cooperation in Asian countries through ITP.

Finally, we would like to thank everyone who made a great contribution to this newsletter.

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