Fukui Int. Mtg. on Nuc. HRD

Nuclear HRD Program in Japan

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Points of Presentation

- 1. Nuclear HRD Program for Japan's International Cooperation
- 2. HRD Policy Adapted by FNCA
- 3. Nuclear HRD Program for Japan's National Needs

1. Nuclear HRD Program for Japan's International Cooperation

Japanese Organization Cooperating with Asia for Building of Self-Standing HRD Activity

Ministry of Education, Culture, Sports, Science and Technology(MEXT)

Nuclear Safety, Research Reactor, Basic Research etc.

Japan Atomic Energy Agency

Nuclear HRD Center (My center)

- -Instructor Training Program
- -Nuclear Safety Seminar
  - -Site location of nuclear facilities course (8 countries)
  - -Administration course (10 countries)
  - -Reactor Plant Safety course (10 countries) (implemented by The Wakasa wan Energy Research Center)
- -Dispatch of Experts (Follow-up training)

Integrated Support Center for Nuclear Non-Proliferation and Nuclear Security

- -Training in Japan (Safeguards, Nuclear Proliferation, Security)
- -Dispatch of Experts

Nuclear Safety Research Association (NSRA)

- -MEXT Nuclear Researcher Exchange Program（FNCA countries）
- -FNCA -ANTEP

Fukui International Center of Human Resource Development Center

The Wakasa wan Energy Research Center(WERC)

Ministry of Economy, Trade and Industry(METI)

Agency for Natural Resources and Energy (NPP-promoting -body)

Japan Atomic Industrial Forum(JAIF)

Japan International Cooperation Center(JICC)

-Acceptance of Trainee

-Dispatch of experts

Nuclear and Industrial Safety Agency (NISA) (NPP-Regulating-body)

Japan Nuclear Energy Safety Organization (JNES)

-Training for safety –related issues

Ministry of Foreign Affairs (MOFA)

Japan International Cooperation Agency (JICA)

-Acceptance of Trainee

Cabinet Office (CAO)

- -Japan Atomic Energy Commission
- -Nuclear Safety Commission of Japan

Academia

University Network

Lectures for NPP-introducing countries

（Secretariat）Tokyo Institute of Technology

（Participating University）

Ibaraki University, Osaka University, Okayama University, Kanazawa University, Kinki University, Kyushu University, Kyoto University, Tokai University, Nagoya University, Hachinohe Institute of Fukui, Hokkaido Univer... University of Yamanashi

The University of Tokyo

Global Professional Course

Nuclear Safety Security Exercise Network

Industry

The Japan Atomic Power Company (JAPCO)

-Training in Electric Power company

International Nuclear Energy Development of Japan(JINED)

Electric Power Companies (Hokkaido, Tohoku, Tokyo, Chubu, Hokuriku, Kansai, Chugoku, Shikoku, Kyushu)

TOSHIBA, HITACHI, Mitsubishi Heavy Industrie...

-Acceptance of Trainee

Japan's Program to Support HRD of Asian Countries for Nuclear Power and Application by MEXT

- Nuclear Scientists Exchange Program:1500 scientists and engineers have been invited for a year since 1986, 25/year
- Training trainers program for nuclear engineering, nuclear safety, radioactivity measurement, etc. since 1996, 4 weeks, 18 participants per year
- Training Course on Nuclear Safety: 3 weeks, 10 participants/year
- Training Course on Administration of Nuclear Energy Program: 3 weeks, 10 participants/year
- Training Course on Radiation Safety and Radiological Emergency: 2 weeks, 16 participants/year
- Training Seminar on Site Selection of Nuclear Facilities: 1 week, 10 participants/year

Travel and staying expenses are funded by MEXT

Nuclear Scientists Exchange Program (MEXT) since 1986

1500 scientists and engineers have been invited in Japan staying for a year

Bangladesh	86
China	549
Indonesia	244
Korea	136
Malaysia	89
Philippines	46
Sri Lanka	38
Thailand	176
Vietnam	131
Total	1495

Instructor Training Program(ITC)

Purpose: ITP is a training course to train young engineers, researchers and to level up instructors from Asian countries, that will be main instructors in domestic Training Courses in own countries. Japan supports the self-standing of their domestic training courses by dispatching Japanese experts

Asian countries

Vietnam
Bangladesh
Kazakhstan
Malaysia
Philippines
Indonesia
Thailand
Mongolia

① Go to Japan as trainees

(NuHRDeC, JAEA)

ITC training course

② Training for 6～9 weeks

- Reactor Engineering Ⅰ Ⅱ Ⅲ
- Environmental monitoring
- Emergency preparedness

④ Set up of Domestic training courses
(Follow-up training courses(FTC))

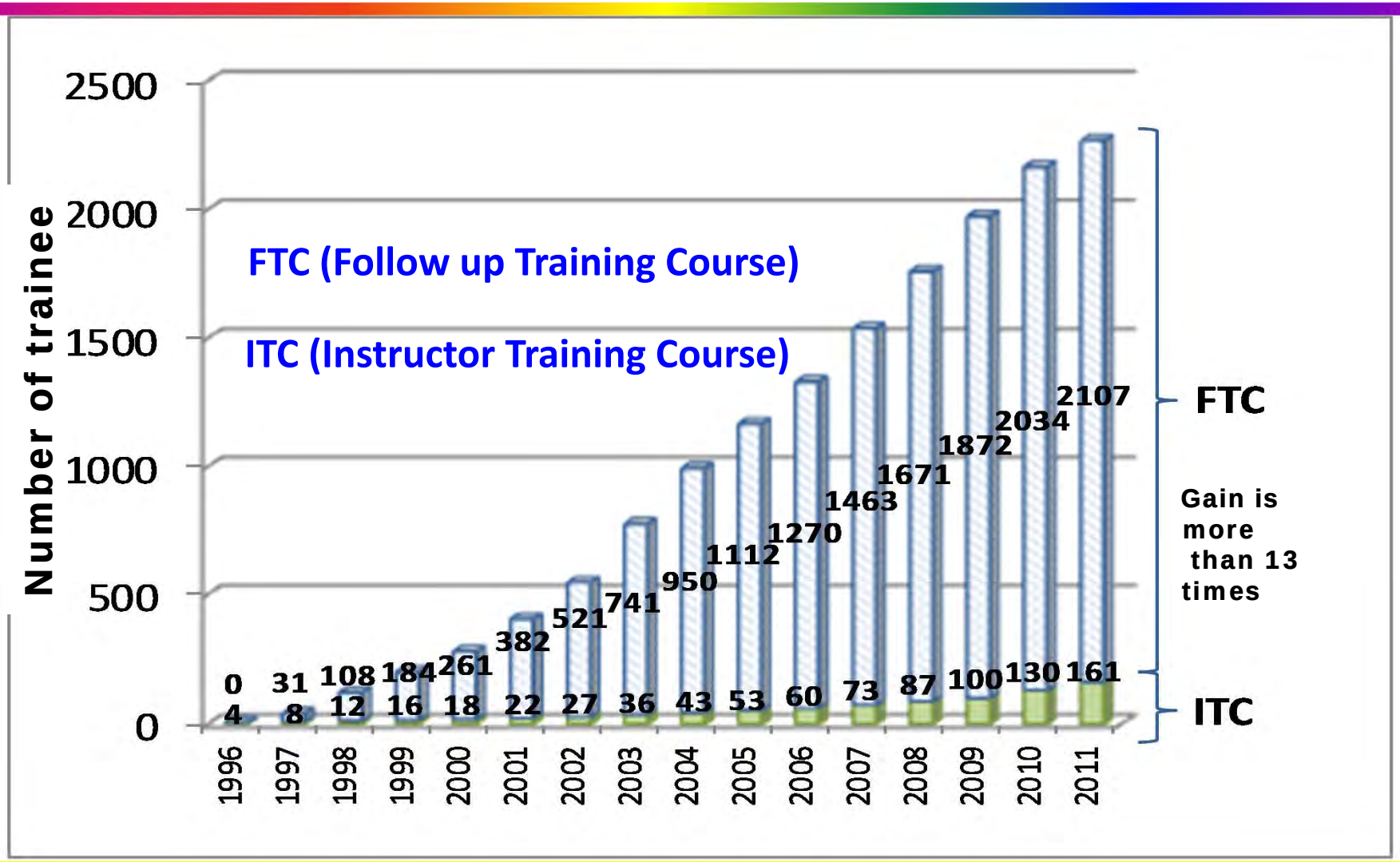
(Main instructors)

③ Go home as instructors

⑤ Dispatch to support

Japanese experts
(For 2 weeks)

Number of participants of Training courses



ITC program is useful and effective for self-standing of Nuclear HRD-Activity in Asian countries

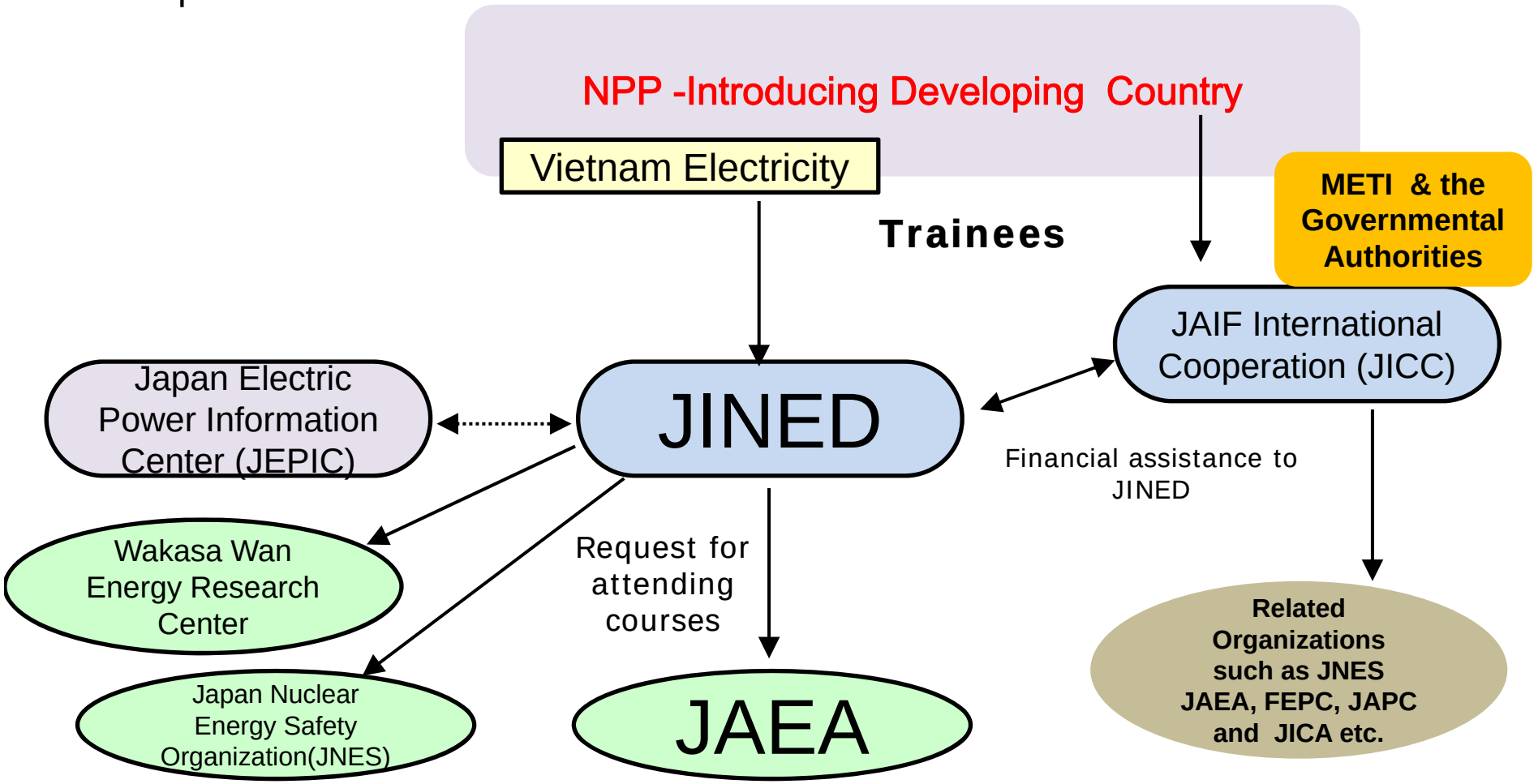
Nuclear Security Course
Regional Training Course on the
Physical Protection of Nuclear Material and Facilities 17-28 October 2011

from Bangladesh, Cambodia, China, Indonesia, Jordan, ROK, Lao, Malaysia, Mongolia, Myanmar, Philippine, Thai, UAE, Vietnam

Japan contributes to strengthening nuclear non-proliferation and security in Asian countries, using Japan's knowledge and experiences in peaceful uses of nuclear energy,

NPP-related Training by JINED and JICC

JINEND and JICC support the NPP-emerging countries for human resource development



EVN : Vietnam Electricity, **JINED** : International Nuclear Energy Development of Japan , **JICC** : JAIF International Cooperation Center, **JEPIC** : Japan Electric Power Information Center, **JNES** : Japan Nuclear Energy Safety Organization, **JAEA** : Japan Atomic Energy Agency, **WERC** : Wakasa Wan Energy Research Center

HRD Policy Adapted by FNCA

Recommendations on Human Resource Development
13th FNCA Coordinators Meeting, Fukui, Japan, March 7,2012

- **We, FNCA Coordinators of member countries, the Commonwealth of Australia, the People's Republic of Bangladesh, the People's Republic of China, the Republic of Indonesia, Japan, the Republic of Kazakhstan, the Republic of Korea, Malaysia, Mongolia, the Republic of the Philippines, the Kingdom of Thailand, and the Socialist Republic of Viet Nam, make recommendations to report to the FNCA Ministerial Level Meeting in 2012 for enhancing Human Resource Development (HRD) in FNCA member countries.**

We, FNCA Coordinators of member countries,

1. Recognizing that most FNCA member countries have the strategy to introduce nuclear power plant that requires many kinds of infrastructure developments, and that the **HRD is essential infrastructure to implement nuclear power programs efficiently and appropriately,**
2. Recognizing that some FNCA member countries are not considering the introduction of nuclear power as part of their energy mix, but have a strong commitment to the **other peaceful applications of nuclear science and technology in the country and developing HRD to support those applications,**
3. Recalling that **each country is responsible for implementing HRD** for radiation applications and nuclear power programs in the country,

4. **Recognizing some countries need assistance from more experienced countries concerning HRD,**
5. **Recalling that the significance of HRD for developing and implementing radiation applications and nuclear power programs was discussed at the FNCA Ministerial Level Meeting held on 16 December 2011 in Tokyo,**
6. **Reaffirming the conclusion and recommendation of the FNCA HRD project Workshop in 2011 that each government should provide funds for the own HRD, including training abroad when it is required,**
7. **Recalling FNCA member countries have jointly pursued effective HRD activities through ANTEP,**
8. **Recognizing the strategy for nuclear HRD should be formulated and implemented by each FNCA country to meet its specific needs.**

Agreed to stress the importance of following issues;

1. Each government of those FNCA member countries formulates a national HRD strategy for radiation applications and nuclear power programs and provides funding, together with other related organizations, for radiation applications and nuclear power programs,
2. For effective formulation and efficient implementation of the national HRD plan, each government of those FNCA member countries establishes a national network of HRD of all related organizations for radiation applications and nuclear power programs,

3. Each country's network collects and assesses its HRD needs in the country, defines the specific programs which needs support from abroad due to inadequate expertise in their country, and formulates a concrete national HRD plan for radiation applications and nuclear power programs,
4. The FNCA coordinators and HRD project leaders review the ANTEP implementation process and propose possible changes to improve efficiency and better meet the needs of FNCA countries,
5. A focal point is established within each country's network for coordination of its HRD plan with international cooperation to support its national HRD,

and decided to report the recommendations to the FNCA Ministerial Level Meeting in 2012 with a view to enhancing HRD in the FNCA member countries.

Conclusion of Workshop of HRD Project, September 12-14, 2012, China

- National network of nuclear HRD should be established
- National focal points for HRD is single contact point for international cooperation for HRD
- Strategic planning HRD for introduction of 1st nuclear power plant is essential
- The essential role of university and nuclear institute for HRD should be recognized
- Concern about the large gap of competence of nuclear technology application between senior generation and new generation

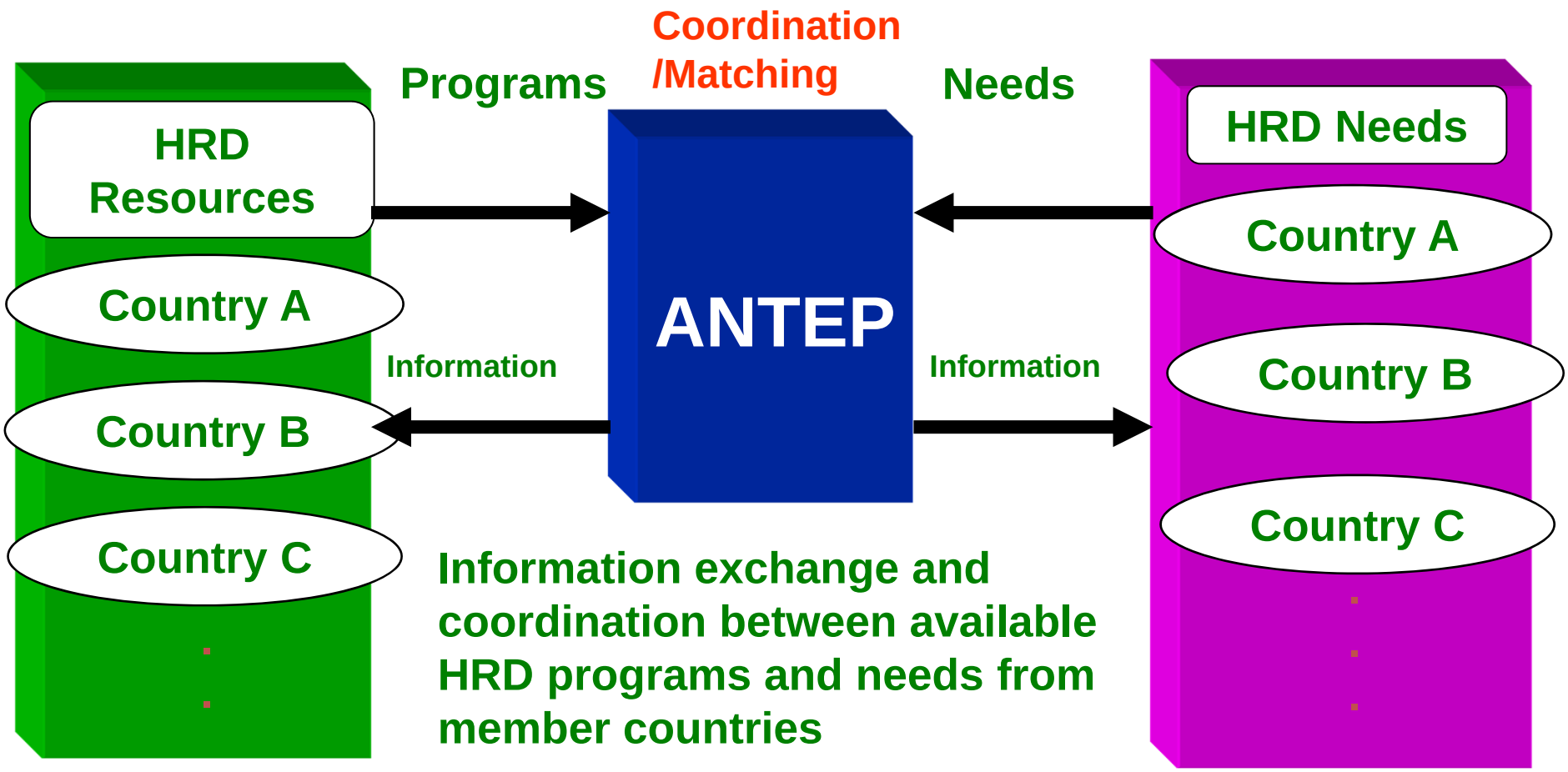
- Securing government funds for HRD

for HRD program including ANTEP is essential

- Distant learning may be good tool for saving cost of HRD
- Asian Nuclear Training and Education Program (ANTEP)
  - Offers by MCs are not implemented due to shortage of funds of HRD
  - The MCs to offer program with financial support to trainees is desirable
- Importance of HRD of technicians for maintenance of instruments for nuclear medicine and radiation therapy

Asian Nuclear Training and Education Program(ANTEP)

ANTEP is the network system proposed by Human Resources Development (HRD)project in **FNCA** activities. It provides the information of needs and available programs/courses to promote the HRD activities in FNCA member countries.



ANTEP Needs More Funds to Meet Requests

ANTEP funded by MEXT

- **Number of invitees by ANTEP**

	2011	2012
Bangladesh	3	3
China	2	2
Indonesia	4	3
Malaysia	3	2
Mongolia	0	2
Philippines	0	1
Sri Lanka	1	1
Thailand	2	4
Vietnam	3	3
Total	**18**	**21**

Challenge:

1. **Expansion of ANTEP**
2. **Securing national funds for HRD**
3. **HRD for the 1st Nuclear Power Plant in MC.**
4. **Setting HRD net-work/hub in MC for coordination**

List of National Focal Point of HRD

Bangladesh	BAEC
China	CAEA
Indonesia	BATAN
Japan	JAEA/JAIF
Kazakhstan	NNC RK (tentative)
Republic of Korea	KONICOF
Malaysia	MNPC
Mongolia	NEA
Philippines	PNRI
Thailand	TINT
Vietnam	VINATOM

Nuclear HRD Program for Japan's National Needs

Japan's National Nuclear HRD (MEXT) 1

- National HRD Policy of Japan after Fukushima nuclear accident:

1. HRD for decommissioning of Unit 1-4 of Fukushima 1
2. HRD for measurement of environmental radioactivity, radiology and risk communication
3. HRD for R/D of severe accident
4. HRD for R/D of devices for improving NPP safety
5. HRD for nuclear safety culture and safety management system

Japan's National Nuclear HRD (MEXT) 2

- National HRD Policy for Sustainable Nuclear Science, Applications and Industry:

1. Strengthening network between nuclear research centers, universities and industries
2. Strategic HRD to meet national demands
3. HRD for international cooperation and trade