

Session 4: HRD for introduction of nuclear power

Experiences and Proposal for Improvement of FNCA HRD Database toward Nuclear Power

FNCA Workshop on Human Resources
Development

June 24, 2009, Tsuruga, Fukui, Japan

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Summary of Country Reports at 1st Study Panel Oct. 30-31, 2007

"Study Panel for Cooperation in the Field of Nuclear Energy in Asia"

HRD-related Challenges to be Resolved

- Strong needs of sufficient number of qualified human resources
- Difficulties in attracting young generation and technology transfer
- Establishment or effective use of education/training facilities
- Few international education/training programs on nuclear power
- Consideration of self-sustainability and effective use of international cooperation ²

Wrap-up of Discussion on HRD for Nuclear Power

- It is agreed that sharing valuable information among FNCA members on HRD toward nuclear power, such as early experience on building NPP, good practices, public acceptance and regulation, is important especially for the countries to introduce nuclear power.
- It is recommended that information exchange on human resources development for the introduction of NPP among the FNCA member countries should be enhanced.
 - As the first step, it is recommended that FNCA web-site will be effectively utilized for this purpose.

Seven-step Approach of Follow-up Activity accepted at 9th Coordinators Meeting in March 2008

1. Nominate focal point for users in each country to conduct questionnaire survey for FNCA web-site
2. Prepare and send questionnaire to focal point to clarify more detailed needs for information on HRD toward nuclear power
3. Collect questionnaires from FNCA countries
4. Determine format and design database based on results of questionnaire survey
5. Collect data from FNCA countries and construct database
6. Update database regularly with new data and needed improvement
7. Report to FNCA Ministerial-Level and Coordinators Meetings on the status of the activity

Desired Features of Database

1. HRD related information, such as educational organizations (universities, colleges), research institutes, and training centers in each country will be included.
2. HRD related specific data, such as name, address, objectives, fields, ongoing education and training programs, conditions of accepting foreign trainees, contact person of above organizations will be included.
3. Since HRD toward nuclear power requires wide spectrum of human resources, FNCA web site should be easily accessible, especially from universities in nuclear power countries for accepting students.
4. Duplication with activities at FNCA/HRD ANTEP should be carefully avoided, but linkage to ANTEP and related web sites is necessary.

FNCA 2nd Study Panel Meeting

FNCA 2nd Study Panel for Cooperation in the Field of Nuclear Energy (Sep. 1-2, 2008 Tokyo) was held, and the discussion was carried out about the Development of the Infrastructures for Ensuring Nuclear Safety.

Excerpt from the minutes

- It was suggested that it is necessary to share the knowledge and experiences among FNCA countries and to promote coordination of FNCA with other international frameworks such as Asian Nuclear Safety Network (ANSN) in IAEA etc.
- The progress was reported on the development of human resources development (HRD) information database.
- It was confirmed to continue the effort for improvement, i.e. the enhancement of data contents and items. Data on legislation system for safety regulation in each country was suggested as an example.

FNCA 2nd Study Panel Meeting (cont.)

Summary of Contents to be submitted to the 9-th Minister Level Meeting.

- FNCA database for human resources is expected to be instrumental in sharing information as well as identifying important issues.
- FNCA should continue to work to strengthen international cooperation.

FNCA 9-th Minister Level Meeting

FNCA 9-th Minister Level Meeting (Nov.28, 2008 Manila)

The progress on the Human Resources Development Database was reported.

Excerpt from the Resolution

“Promotion of international cooperation among FNCA member countries, utilizing information, actual experience accumulated and other related resources available, for the development of infrastructure for nuclear power” was decided to work toward.

Seven Steps for FNCA Database Construction

1. Nominate focal point for users in each country to conduct questionnaire survey for FNCA web-site

A focal point in each country is expected to play a pivotal role as a representative person for integrating activities of Database construction in each country, e.g., collecting HRD information.

| | | |
|-----------------|-------------------------------|--|
| Bangladesh | Dr. Feroza Akhtar | Bangladesh Atomic Energy Commission |
| China | Dr. Cao Dongqing | China Guangdong Nuclear Power Holding Co., Ltd |
| Indonesia | Mr. Hendriyanto Hadi Tjahjono | National Nuclear Energy Agency (BATAN) |
| Japan | Dr. Jun Sugimoto | Japan Atomic Energy Agency (JAEA) |
| Korea | Mr. Eui-Jin Lee | Korea Atomic Energy Research Institute (KAERI) |
| Malaysia | Ms. Rabiah Abu Hasasan | Division of the Malaysian Nuclear Agency |
| Thailand | Dr. Kanokrat Tiyaapun | Thailand Institute of Nuclear Technology |
| The Philippines | Dr. Corazon Casenas Bernido | Philippines Nuclear Research Institute (PNRI) |
| Vietnam | Mr. Vu Dang Ninh | Vietnam Atomic Energy Commission (VAEC) |

Seven Steps for FNCA Database Construction

2. Prepare and send questionnaire to focal points to clarify more detailed needs for information on HRD toward nuclear power
3. Collect questionnaires from FNCA countries
 - With the support of FCNA member countries, the questionnaire survey was conducted in August, 2008.
4. Determine format and design database based on results of questionnaire survey
 - The responses to the questionnaire were analyzed for designing an effective and user-friendly database. The analysis were reflected to the database construction.

Activities of FNCA Database Construction for HRD toward Nuclear Power

5. Collect data from FNCA countries and construct database

Data collection requests were sent via focal points in member countries in Dec. 2008. Information on HRD programs or courses having some kind of relationship with nuclear power were requested.

HRD programs or courses requested to be sent;

- a. Available for other FNCA member countries or foreign individuals,
- b. Held regularly or recently (the last three or four years) or to be held in the near future,

Besides these information, the followings were requested;

- c. Domestic or not available for other FNCA member countries,
- d. Held long ago or not to be held in the future.

Activities of FNCA Database Construction for HRD toward Nuclear Power

5. Collect data from FNCA countries and construct database

To facilitate data collection, EXCEL data sheets were prepared and distributed.

| Program No. | Title of Program | Host Country | Type of Program |
|-------------|-----------------------|--------------|---------------------------------------|
| 000010 | Radiation Protection | Vietnam | Training Course by Receiving Trainees |
| 000011 | Radiation Measurement | Vietnam | Training Course by Receiving Trainees |
| 000012 | Radiation Protection | Vietnam | Training Course by Receiving Trainees |
| 000013 | Radiation Measurement | Vietnam | Training Course by Receiving Trainees |
| 000014 | Radiation Protection | Vietnam | Training Course by Receiving Trainees |
| 000015 | Radiation Measurement | Vietnam | Training Course by Receiving Trainees |

Program registration sheet

| Sequential number | Title of the Lecture or Class | Syllabus | Lecturer | Lecture Time | URL for Specific Information of the Class |
|-------------------|--|--|--|--------------------------------|---|
| 000001 | Opening Ceremony | NA | NA | 8:30 - 9:15 | NA |
| 000002 | (1.1) Interaction of Radiation with Matter | Interaction of Radiation with Matter | Nguyen Trieu Tu, H. Shiraishi | 9:20 - 11:50 13:20 - 14:05 | NA |
| 000003 | (1.2) Radiation Measurement | Radiation Measurement | M. Noguchi, P.V. Duin | 14:15 - 17:30 | NA |
| 000004 | (1.3) Introduction to Radiation Protection | Introduction to Radiation Protection | S. Suga, P.T. Van | 8:30 - 10:05 | NA |
| 000005 | (1.4) Biological Effect of Radiation | Biological Effect of Radiation | Y. Ikuta, N.T. Tu | 10:15 - 11:00 | NA |
| 000006 | (1.5) X-ray Fluorescence Analysis | X-ray Fluorescence Analysis | Sekine, V.T. Bac | 11:05 - 11:50 13:20 - 14:05 | NA |
| 000007 | (1.6) Gamma Ray Spectrometry/Spectrometer | Gamma Ray Spectrometry/Spectrometer | M. Noguchi, N.T. Dung | 14:15 - 15:50 | NA |
| 000008 | (1.7) Gamma Ray Spectrometry Analysis | Gamma Ray Spectrometry Analysis | M. Noguchi, N.T. Dung | 15:55 - 17:30 | NA |
| 000009 | (1.8) Errors and Statistical Analysis of Experimental Data | Errors and Statistical Analysis of Experimental Data | Hoang Duc Luc, Shiraishi | 8:30 - 10:05 | NA |
| 000010 | (1.9) Safe Handling of radiation and Radioisotopes | Safe Handling of radiation and Radioisotopes | Kushita, N.H. Quang | 10:15 - 11:50 | NA |
| 000011 | Guidance for Experiments (E1, E2, E3, E4) | Guidance for Experiments (E1, E2, E3, E4) | V.T. Bac, Sekine, M. Noguchi, N.T. Dung, Shiraishi, T.O. Nghiep, P.V. Duin, Suga | 13:20 - 16:40 | NA |

Lecture registration sheet¹²

Login Page of FNCA Database

URL: <http://nutec.jaea.go.jp/fncadb>

The image shows a screenshot of the FNCA HRD Database login page. The page title is "FNCA HRD Database" with the subtitle "Forum for Nuclear Cooperation in Asia". A blue banner at the top contains the text "FNCA HRD Database Forum for Nuclear Cooperation in Asia Human Resources Development for Nuclear Energy". The main content area states: "FNCA HRD database is available for member only. To enter this database, you need a user ID and password." Below this text is a red-bordered button labeled "Login". To the right of the button, a message says "Adobe Acrobat is necessary on this site." with a small Adobe Reader icon. A red arrow points from the "Login" button to a circular inset showing a hand pointing at a screen. In the bottom left corner, a Windows "ネットワーク パスワードの入力" (Network Password Input) dialog box is overlaid. It contains the following text: "ユーザー名とパスワードを入力してください。" (Please enter your user name and password.), "サイト: nutec.jaea.go.jp" (Site: nutec.jaea.go.jp), "領域: Enter password" (Domain: Enter password), "User: *****", "Password: *****", and a checkbox "このパスワードを保存する(S)" (Save this password (S)). The dialog box has "OK" and "キャンセル" (Cancel) buttons.

FNCA web site will link to this Database site.

Top Page of FNCA Database

Latest information (e.g., Upcoming



Select a Type of Programs

Distance Learning Program

Exchange

Instructor

Joint Tra

OJT

Participa

Research

Training

Training

Others

Select a Subject of Programs

Basic/General Nuclear F

Nuclear Power Generat

Radiation/Radiation Pr

Waste Management

Inspection/Maintenance

Nuclear Safety

Regulation

Select Year

.....

2006

2007

2008

2009

.....

After search conditions are selected, click "Search"



Year

Word or phrase search is

Enter words or phrases up to five

Search

Reset

to Search Page

Reactor Eng.

land
The Philippines

Vietnam

TA

ers



FNCA

❖ TOPPAGE

❖ FNCA Focal Points

❖ FNCA HRD Database Search

❖ Useful Information Search

❖ Forum for Users

❖ Administrator

❖ Links



FNCA HRD Database

HOME

Select Retrieval Pattern

Select "AND Search" or "OR Search"

Select Retrieval Pattern ☒ AND / ☐ OR ← "AND Search" is selected.

Search Conditions

Select search conditions or enter words or phrases, and press "Search".

Host Country

Type of Programs

of Programs

Search is NOT case sensitive.

Enter words or phrases up to five.

Search

Reset

Search Example

"2009" is selected



List of Search Result performed in 2009

FNCA HRD Database

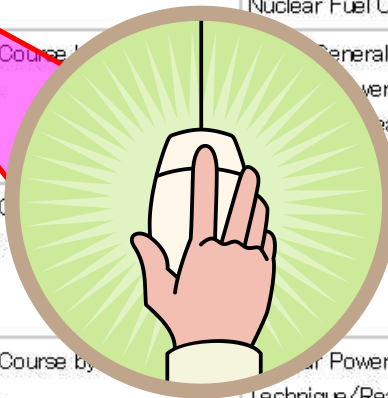
SEARCH LIST / 5 data

5 data found. For details, click the title

close

For more details, click the title

| Title of Program | Host Country | Type of Program | Subjects of Program | Organization Responsible for the Program | Venue | Language | Year |
|---|--------------|--|---|--|--------------------|--------------|------------|
| Reactor Plant Safety Course (Winter Course) | Japan | Training Course by Receiving Trainees | Nuclear Safety Basic/General Nuclear Energy Nuclear Power Generation Technique/Reactor Engineering Nuclear Fuel Cycle | Japan Atomic Energy Agency | Tsuruga JAEA Japan | English | 2009/01/19 |
| Introductory Nuclear Technology Course(Japanese) | Japan | Training Course by Receiving Trainees | Basic/General Nuclear Energy Nuclear Power Generation Reactor Engineering Radiation Protection | Japan Atomic Energy Agency | Tokai JAEA Japan | Japanese | 2009/01/13 |
| Regional Training Course on Research Reactor Utilization and Radiation Application Technology | Korea | Training Course by Receiving Trainees | Basic/General Nuclear Energy Nuclear Power Generation Reactor Engineering Radiation Protection | Korea Atomic Energy Research Institute | Daejeon, Korea | English | 2009-10-00 |
| Regional Training Course on Nuclear Power Policy, Planning and Project Management | Korea | Training Course by Receiving Trainees | Basic/General Nuclear Energy Nuclear Power Generation Technique/Reactor Engineering | Korea Atomic Energy Research Institute | Daejeon, KAERI | English | 2009-09-00 |
| Instructor Training Program for Nuclear Safety | Thailand | Training Course for Instructors Training Course by Receiving Trainees | Nuclear Safety Basic/General Nuclear Energy Inspection/Maintenance Public Communication | Thailand Institute of Nuclear Technology | TINT, Thailand | Thai/English | 2009/05/01 |



Example of Course Details

31th Instructor Training Program for Vietnam and Malaysia, Course on Reactor Engineering [DETAILS]

Lecture information



[OBREJAEA.pdf](#)

Program Details

| | |
|--|--|
| Title of Program | 31th Instructor Training Program for V |
| Host Country | Japan |
| Type of Program | Training Course Training Course |
| Subjects of Program | Nuclear Power |
| Organization Responsible for the Program | Japan Atomic |
| Sponsor | MOX Japan |
| Country of Trainees | Vietnam, Malay |
| Objectives and Outline | Instructor train |
| Start Date | 2008/09/01 |
| End Date | 2008/10/14 |
| Term(days) | 44 |
| Times/year | 1 |
| Intended Participants | Candidate for i |
| Qualifications of Participants | Participants m |
| Accepted Number of Participants | Less than 10 |
| Venue | Tokai JAEA Ja |
| Language | English |

For details on lecture or exercises, click

1. Title of Program
2. Host Country
3. Type of Program
4. Subjects of Program
5. Responsible Organization
6. Sponsor
7. Country of Trainees
8. Objectives and Outline
9. Term (days)
10. Intended Participants
11. Qualifications of Participants

.....

.....

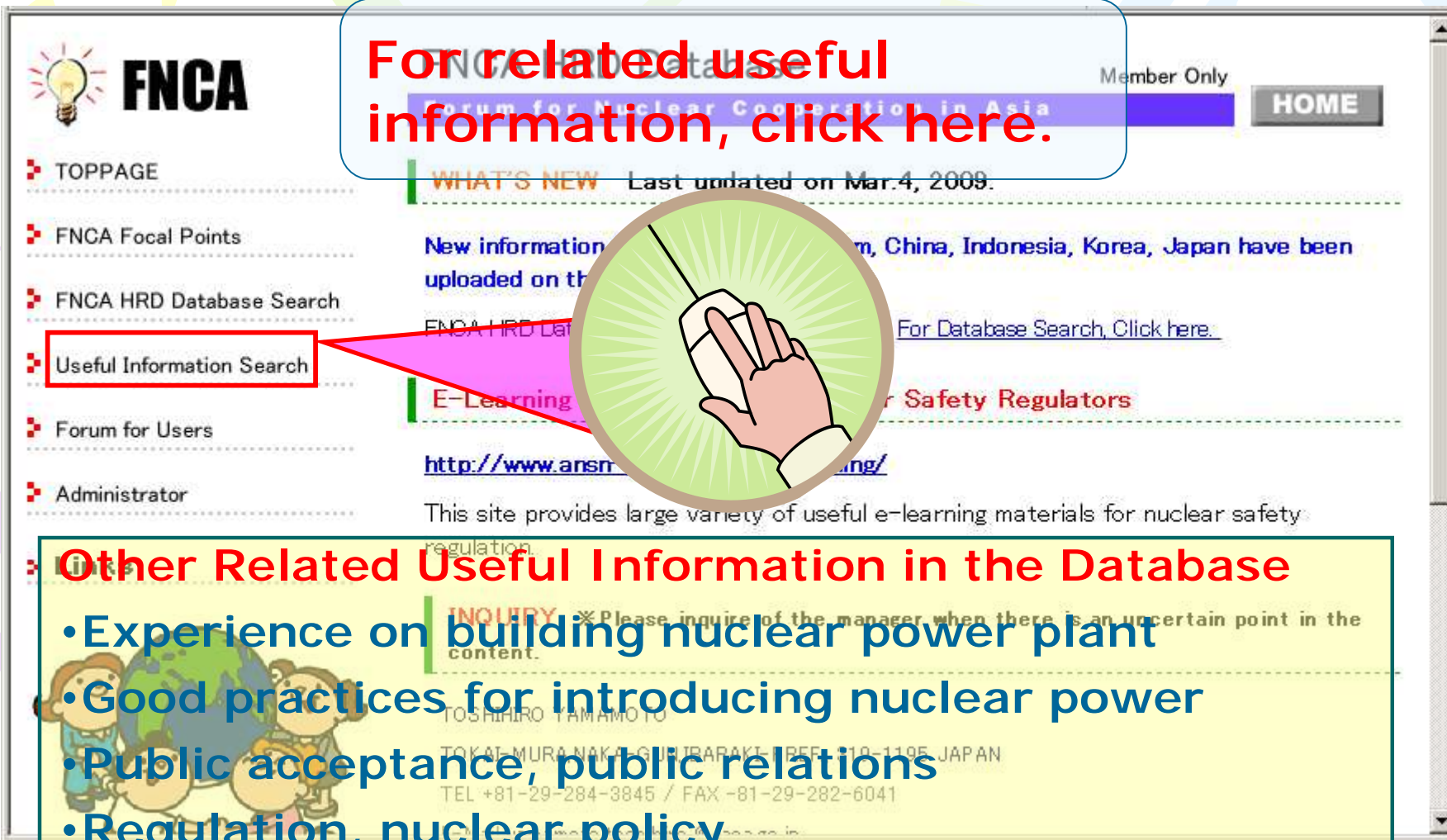
Example of Lecture Information

Lecture information

| Title of the Lecture or Class | Syllabus | Lecturer | Lecture time | URL for Specific Information of the Class | Educational Method | Small Classifications of Lectures or Exercises in the Program | Large Classifications of Lectures or Exercises in the Program | Remarks |
|--|--|--|--------------|---|---------------------------------|---|---|---------|
| Configuration and Features of Reactor Plant | Outline of configuration and features of LWR and FBR, and comparison between them | Guest Instructor (Aoki, OB of JAEA) | 2.5hr | | Class Room Lecture | LWR, FBR | LWR, FBR | |
| Nuclear Safety Culture | Concept of safety culture and how to establish and to develop safety culture | Guest Instructor (Matsuno, OB of JAEA) | 1.5hr | | Class Room Lecture | Safety culture | Safety culture | |
| Basic Concept of NPP Safety | Concept of how to secure reactor plant safety by taking a safety principle | Guest Instructor (Matsuno, OB of JAEA) | 2hr | | Class Room Lecture | Nuclear power plant | Nuclear power plant | |
| Safety Design Principle of NPP | Guidelines for the safety design evaluation of LWR power plant | Guest Instructor (Matsuno, OB of JAEA) | 1.5hr | | Class Room Lecture | Safety design | Safety design | |
| Reactivity and Reactor Control | Basis of nuclear fission and basic principle of reactivity and kinetic equation and outline of reactor operation | JAEA (Sawada) | 2hr | | Class Room Lecture | Reactor control | Reactor engineering | |
| Group Discussion (Public Acceptance of Nuclear Energy) | Discussion about the situation regarding public acceptance of nuclear energy in each country | JAEA (Sawada) | 2hr | | Group Discussion, Group Program | | | |
| Facility Visit | Prototype FBR "Monju" (Prototype Fast Breeder Reactor Monju) | NA | Half days | | Facility Visit | | | |

Title, Syllabus, Lecturer, Lecture time, Educational method, Related URL etc. are presented here.

Other Related Useful Information toward NPP



The image shows a screenshot of the FNCA (Forum for Nuclear Cooperation in Asia) website. The website has a header with the FNCA logo and a navigation menu on the left. A red box highlights the 'Useful Information Search' link in the menu. A red callout bubble points to this link with the text 'For related useful information, click here.' Another red callout bubble points to the 'Useful Information Search' link with the text 'Other Related Useful Information in the Database'. Below this, a list of topics is provided. The website also features a 'WHAT'S NEW' section and an 'E-Learning' section.

For related useful information, click here.

Other Related Useful Information in the Database

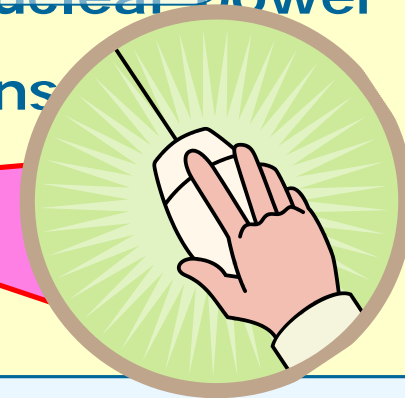
- Experience on building nuclear power plant
- Good practices for introducing nuclear power
- Public acceptance, public relations
- Regulation, nuclear policy
- Community development
- Experience on accident, incident

20

Other Related Useful Information toward NPP

Other related useful information will be presented.

- Experience on building nuclear power plant
 - Good practices for introducing nuclear power
 - Experience on building nuclear power plant
 - Public acceptance, public relations
 - Good practices for introducing nuclear power
 - Regulation, nuclear policy
 - Public acceptance, public relations
 - Regulation, nuclear policy
 - Community development
 - Community development
 - Experience on accident, incident
 - Experience on accident, incident
 - Others
 - Others
- Select Search Conditions
- Select "AND Search" or "OR Search"



Search function is also equipped.

More information are now being solicited.



Select Retrieval Pattern ☒ AND / ☐ OR ←

Select search conditions, and press "Search".

| | |
|--------------------|-----|
| Country | N/A |
| Useful information | N/A |

Search Reset

Useful Information on “Regulation, Nuclear Policy”

FNCA HRD Database

SEARCH LIST / 5 data

5 data found. For details, click the title

close

| Title | URL | Remark | Country | PDF |
|--|---|---|---------|-----|
| Japanese major laws and ordinances relevant to nuclear energy utilization and regulation (English translation) | http://www.nsc.go.jp/NSCenglish/index.htm | English translations of major laws in Japan are provided in the web site of the Nuclear Safety Commission of Japan. Visit the URL in the left column to see each law. | Japan | |
| Japanese Regulatory Guides made by the Nuclear Safety Commission of Japan (English translation) | http://www.nsc.go.jp/NSCenglish/regulatory_guides/index.htm | | | |
| Japanese Regulatory Guides made by the Nuclear Safety Commission of Japan (in Japanese) | http://www.nsc.go.jp/NSC/regulatory_guides/index.htm | | | |
| JNES E-Learning Site for Nuclear Safety Regulators | http://www.jnes.go.jp/elearning/ | | | |
| Nuclear safety regulation and policy in Korea | http://www.nsc.go.jp/NSCenglish/korea/index.htm | | | |

Currently, URL for Japanese nuclear laws and regulatory guides, and KINS site are presented.

Major nuclear laws in Japanese are available from this URL.

Some regulatory guides in English translation are available from this URL.

All nuclear laws in Japanese are available from this URL.

“Forum for Users” is ready for sending your comments. The messages will be posted.



The screenshot shows the FNCA HRD Database website. On the left is a navigation menu with the FNCA logo (a lightbulb) and the text 'FNCA'. The menu items are: TOPPAGE, FNCA Focal Points, FNCA HRD Database Search, Useful Information Search, Forum for Users (highlighted with a red box), Administrator, and Links. A red arrow points from the 'Forum for Users' link to a circular inset showing a hand clicking a computer mouse. The main content area is titled 'FNCA HRD Database' and has a 'HOME' button. Below the title, it says 'Messages from users are posted here.' and 'Fill out below to send your message.' It also states 'The messages are to be reviewed before posted on the message board.' A dark button labeled 'The message board is here' is present. The form for sending a message has fields for Name, E-mail, and Organization, and a large text area for the Message. At the bottom of the form are 'Preview' and 'Reset' buttons.

FNCA

TOPPAGE

FNCA Focal Points

FNCA HRD Database Search

Useful Information Search

Forum for Users

Administrator

Links

FNCA HRD Database **HOME**

Messages from users are posted here.

Fill out below to send your message.

The messages are to be reviewed before posted on the message board.

The message board is here

Name

E-mail

Organization

Message

Preview Reset

Number of HRD Programs Registered as of March, 2009

| Country | No. of Programs |
|-----------------|-----------------|
| Bangladesh | 0 |
| China | 1 |
| Indonesia | 8 |
| Japan | 66* |
| Korea | 4 |
| Malaysia | 10 |
| Thailand | 10 |
| The Philippines | 0 |
| Vietnam | 20* |

More information are now being solicited.

Information can be sent to JAEA at any time.

Especially, information on upcoming courses to be held in 2009 and later should be sent in a timely manner.

*including joint training courses with other countries

Activities on FNCA HRD Database thus far since March, 2009

- A simple manual has been prepared, and it has been sent to focal points in member countries.
- Then, the focal points were asked to
 - distribute the manual,
 - select appropriate users of the Database in their countries,
 - fill out the “User Registration Form” and return it to JAEA.
- User ID and password are being issued to users registered in the Form.

Currently, approx. 130 users are registered.



Manual of Database

| | A | B | C | D | E |
|---|---------|-------------|------------------------|---------|----------------|
| 1 | | | | | |
| 2 | | Name | Organization | Title | E-mail address |
| 3 | Example | Ms. Aaa Bbb | Nuclear Power Co.Ltd.. | Manager | xxxx@xxxxx.jp |
| 4 | 1 | | | | |
| 5 | 2 | | | | |

User Registration Form

Future Prospect of Database

2009

2010

2011

Data Collection from Member Countries

Data Extension

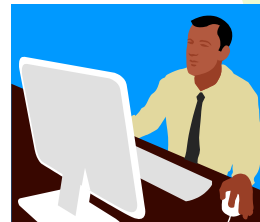
Database Management

Functional Enhancement

Comments or Feedbacks from Users



Service start



Summary and Future Works

- FNCA HRD Information Database toward nuclear power is being developed according to the decision at 8th FNCA Ministerial Meeting in December 2007 based on the recommendation of the Study Panel.
- The first version of the Database has been completed. Further improvement and data collection will be persistently continued.
- User registration is now going on.
- Comments and requests from users are important and welcome.
- It is highly appreciated for FNCA member countries to cooperate in collecting data, and update and refinement of the Database.