

The 25th RCA National Representative Meeting
26-28 May, 2003

Progress of FNCA Projects

Sueo MACHI

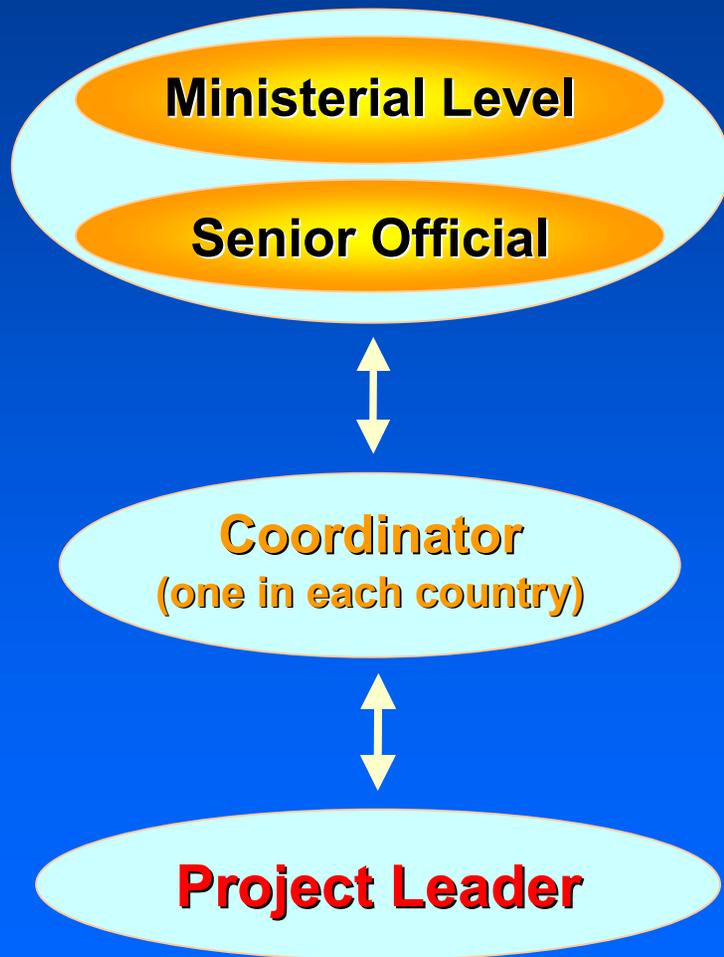
FNCA Coordinator of Japan

Senior Managing Director, JAIF

Annex 18

FNCA Forum for Nuclear Cooperation in Asia

Participating Countries: Australia, China, Indonesia, Japan, Korea, Malaysia, the Philippines, Thailand, Vietnam



FNCA Vision Statement

The FNCA is to be recognized as an effective mechanism for enhancing socioeconomic development through **active regional partnership** in the peaceful and safe utilization of nuclear technology.

Goals of FNCA

- **To achieve socio-economic development** by safe utilization of nuclear technology
- To utilize **nuclear technology** in those fields where it has a **distinct advantage**
- To **respond to the needs** of the FNCA

The 3rd Forum for Nuclear Cooperation in Asia

30 ~ 31 October 2002

Ministry of Science and Technology of Korea / Atomic Energy Commission, Cabinet Office of Japan



The 3rd FNCA Meeting Ministerial Level Meeting 30-31 Oct. 2002, Seoul, Korea





The 4th Coordinators Meeting 5-7 March, Okinawa, Japan

Eleven Projects in 8 Fields

1. Research Reactor Application

- Tc-99 generator from (n- γ) produced Mo-99.
- Neutron scattering studies on natural polymer & products
- NAA for airborne particulates

2. Application of Radioisotopes and Radiation for Agriculture

- Mutation Breeding of drought resistant soybeans and sorghum
- Bio-fertilizer

3. Application of Radioisotopes and Radiation for Medical Use

4. Industrial Application

- Low energy accelerator application

5. Radioactive Waste Management

6. Nuclear Safety Culture

- Nuclear Safety Culture for Research Reactor

7. Human Resources Development

8. Public Information of Nuclear Energy

Progress of FNCA Projects

Tc-99m Generator Production

- **(n, γ) reaction produced Mo-99 to be enriched on PZC adsorbent**
- **Bench scale column loading plant will be installed in BATAN by Kaken in December 2003**

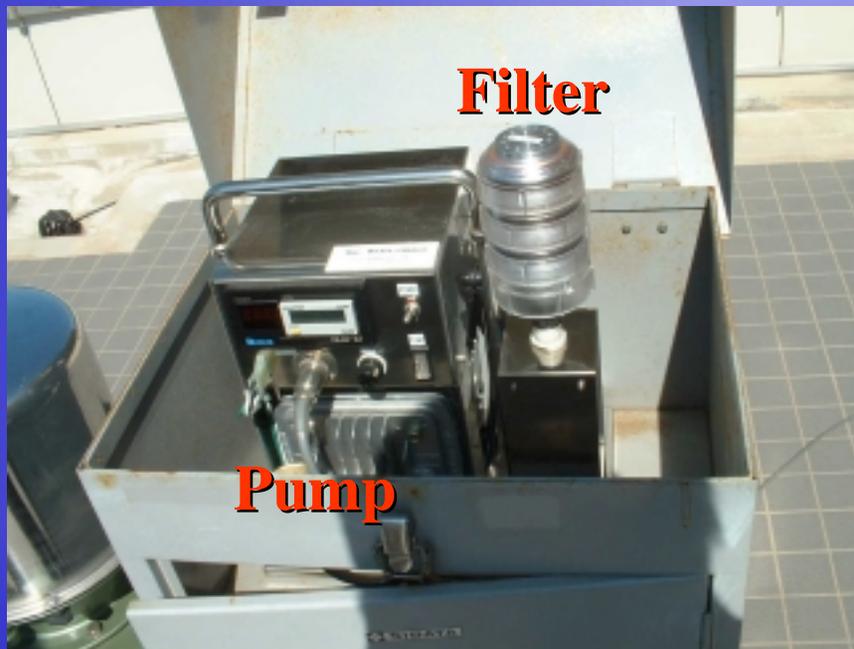
**Small experimental
loading equipment
at KAKEN**



Progress of FNCA Projects

NAA for Airborne Particulates

- ◆ Collection of samples by filters provided by Japan for analysis by NAA.
- ◆ Publication of compiled results in 2003.
- ◆ Strengthening linkage with environmental sectors.
- ◆ Development of Ko method to significantly increase efficiency of NAA. China-Vietnam-Japan collaboration.



**Sample Collection of
Airborne Particulates**

Progress of FNCA Projects

Neutron Scattering Studies

- ◆ **Focusing on the structural studies of natural polymers**
- ◆ **Research cooperation between Thailand, the Philippines and Japan to be carried out in Japan by experts from these countries.**



**Small Angle
Neutron Scattering
(SANS) Devices
in JAERI**

Mutation Breeding

Specific R & D Programme

i) Drought Tolerance

**a. Sorghum - staple food -
- Indonesia and China**

**b. Soybean
- the Philippines and
Vietnam**

**Mutants were exchanged for
collaboration in 2002.**

ii) Insect Resistant : Orchid

**- China, Indonesia, Japan,
Malaysia, Thailand, Vietnam**



Sorghum



Orchid

Progress of FNCA Projects

"Biofertilizer" for Better Crop Production in Environmentally Friendly Way

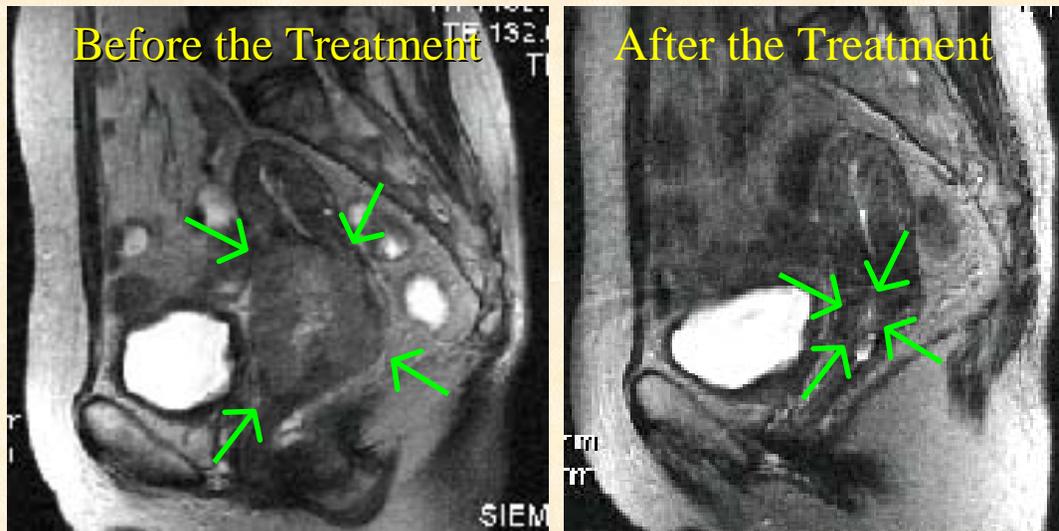
- ◆ **N-15 tracer technique for selection of nitrogen fixing microorganism.**
- ◆ **Radiation for preparation of inoculant.**
- ◆ **Field tests to demonstrate the improvement of yields.**



Beneficial effect of biological N fixation in soybean cultivation

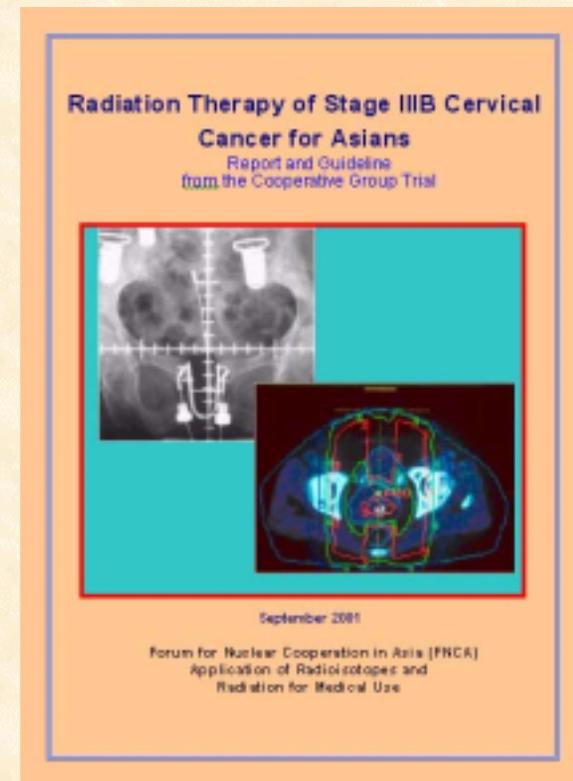
Progress of FNCA Projects

Radiotherapy of Uterine Cancer



MRI Image

210 clinical tests:
Survival rate after
5 years is (2002): 53.7%
Local Control rate: 81.5%



Book of Protocol
Published in 2002

Progress of FNCA Projects

Application of Electron Accelerator

- ◆ Development of low energy, low cost, self-shielded, easily-operated electron beam irradiation system for liquid, film, particulates and gases.
- ◆ Demonstration for liquid system was conducted in December 2002 at JAERI.
- ◆ Specific applications should be demonstrated with cost analysis.



Low Energy Electron Accelerator in JAERI

Progress of FNCA Projects

Task Group for Improvement of Management of Spent Radiation Source

Thailand, the Philippines 2001

Indonesia, Korea 2002

- **Regulation and rules**
- **Reason for accident and mismanagement if any**
- **Facilities and good management practice**
- **Training of workers**
- **Monitoring export products**



**Task Group Meeting in BATAN
Indonesia for Spent Radiation
Source Management in 2002**

Progress of FNCA Projects

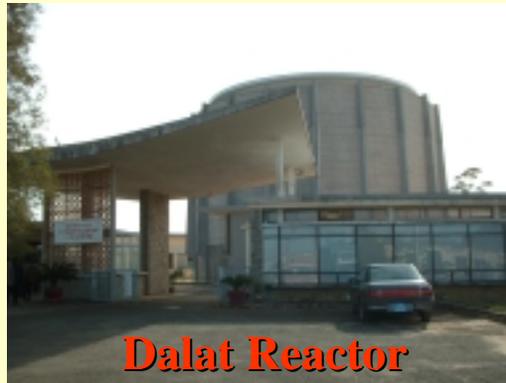
Safety Culture of Research Reactor Peer Review for Research Reactors

Objectives:

- To foster safety culture in research reactors by identifying good practices and areas for further improvement.
- To learn each other as equal partners through peer review process.

Process:

- Member countries conduct self-assessment for their own research reactor(s) along the review items.
- Member countries visit a specific plant and conduct peer review, in conjunction with the project workshop.
 - ✓ Interview / Discussion with plant personnel,
 - ✓ Confirmation through documents, drawings, etc.
- The first peer review took place at the Dalat Nuclear Research Institute in Vietnam in Jan. 2003.



Dalat Reactor



Review Team

Human Resources Development

- **Survey of basic data on HRD to improve HRD strategy from 2002 to 2004.**
- **Exchange of training texts**
- **Enhancement of efficiency of ongoing “Nuclear Scientist Exchange Programme” to meet needs and interests.**
- **Exploration of regional networking for research, education and training**

Progress of FNCA Projects

Public Information of Nuclear Energy

- **Joint survey on “Radiation” for high school students in 8 countries, 1,100 students each in urban areas.**
- **Results of the survey to be published in 2003.**
- **Following up the survey – expert lectures and exhibition at schools to enhance knowledge on “Radiation and Nuclear” of both students and teachers**



**Joint survey on “Radiation”
in Bangkok, Thailand,
September 2002**

Q7 What do you imagine when you hear the word “radiation”? Please select as many as you like.

Percentage of Persons who Selected

1. Roentgen (X-ray) Radiography

2. Hiroshima, Nagasaki or Nuclear Weapon

3. Nuclear Power Generation

4. Cancer Therapy

5. Mutation Breeding of Crops

6. Chernobyl

7. Food Irradiation

