

December 5, 2019

# 20<sup>th</sup> Coordinators Meeting and Project Activities

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# The 20th FNCA Coordinators Meeting (6 March 2019, Tokyo)

- Conclusions and Recommendations

- a) Mutation Breeding

The meeting acknowledged that a new phase of the project, "Mutation breeding of major crops for low input sustainable agriculture under climate change" has exhibited steady progress starting this year. The meeting also appreciated that **several new varieties of rice obtained from previous subprojects have been registered, expanding in member countries such as Bangladesh, Malaysia, and Vietnam.**

- b) Radiation Processing and Polymer Modification for Agricultural, Environmental and Medical Applications

The meeting recognized that **the integration of two previous projects, i.e., "Electron Accelerator Application" and "Biofertilizer," has broadened the range of research topics for the combined project and the whole project activity was activated.** The meeting appreciated the progress of the project, e.g., the **application of irradiated oligochitosan as an immunostimulator/growth promoter for cultured fish and shrimp in Vietnam and the medical applications of hydrogel for wound dressing in Bangladesh.**

## Conclusions and Recommendations of CDM (2)

### c) Research on Climate Change Using Nuclear and Isotopic Techniques

The meeting appreciated that **the sample-taking exercise of lake sediments was successfully carried out by all project leaders of the FNCA at Lake Rawa Pening in Indonesia.** Technical cooperation on nuclear and isotopic techniques among member countries to understand climate change should be enhanced, **focusing on the analyses of lake/soil sediments and soil organic carbon (SOC).**

### d) Radiation Oncology

The meeting highly appreciated that **the hands-on training on the treatment protocol of a new clinical study (CERVIX-V) was successfully conducted at a hospital in Bangladesh, which is expected to save the lives of tens of thousands of patients suffering from cervical cancer in Bangladesh in the future.** It is also recommended that **hands-on training on three-dimensional image-guided brachytherapy (3D-IGBT) for radiation oncologists and medical physicists be carried out again during the next workshop in China** this year.

# Conclusions and Recommendations of CDM (3)

## e) Research Reactor Utilization

The meeting suggested that the cooperation between FNCA member countries in the Research Reactor Utilization (RRU) project should be further enhanced to increase the sharing of information and experience with the aim of contributing to the personnel training of researchers related to research reactors, since some member countries in the FNCA are considering developing new research reactor projects.

Concerning Neutron Activation Analysis (NAA), the meeting suggested that each country should demonstrate the contributions of NAA of SPM samples and REE-containing samples to regional air quality and national economic development.

## f) Radiation Safety and Radioactive Waste Management

The meeting suggested that the report on the LLW repository to be summarized by next March--given that almost all countries in the FNCA are planning to construct low-level radioactive waste disposal facilities/long-term storage facilities--should include major and significant items such as principles and guidelines for safety assessment, regulatory and operational system preparation, site selection, and confidence-building among the public in each FNCA member country. 4

# Conclusions and Recommendations of CDM (4)

## g) Nuclear Security and Safeguards

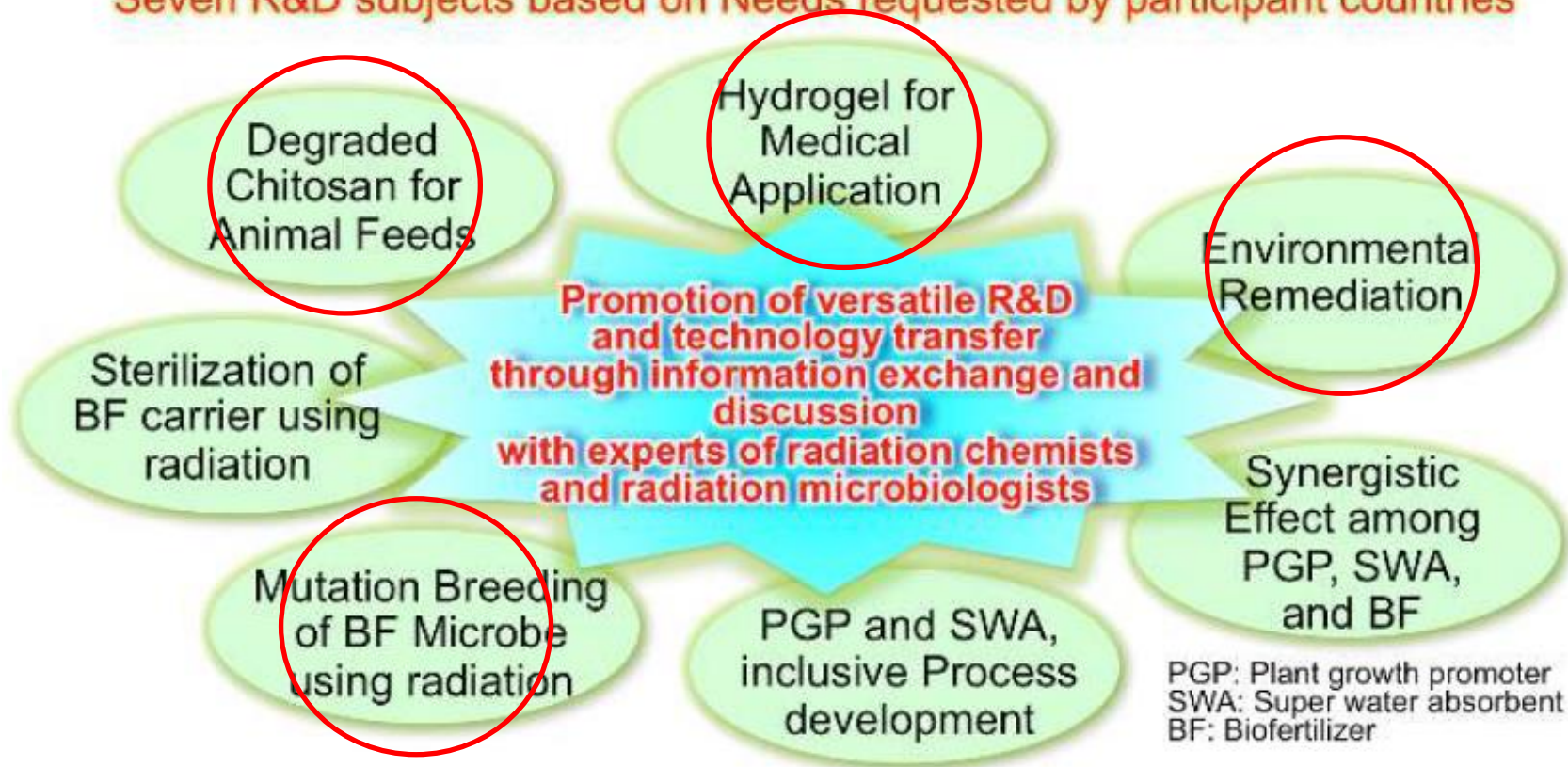
The meeting suggested that **research collaborations for the development of advanced measurement technologies for nuclear forensics data, such as isotopic ratio, impurity, and morphology should be enhanced.** In addition, **a table-top exercise (TTX) to identify unknown nuclear materials using the Nuclear Forensics Library should be conducted in the next workshop.**

# FNCA workshops held in 2019

- Mutation Breeding: 3-6 Sep, Malaysia
- Radiation Processing and Polymer Modification: 3-7 Sep, Indonesia
- Research on Climate Change: 7-10 Oct, Japan
- Radiation Oncology: 28-31 Oct, China
- Research Reactor Utilization: 10-12 Sep, Kazakhstan
- Radiation Safety and Radioactive Waste Management: 1-3 Oct, Vietnam
- Nuclear Security and Safeguards: 26-28 Nov, The Philippines

# Research areas in RPPM Project

Seven R&D subjects based on Needs requested by participant countries





# Degraded Chitosan for Animal Feeds

Cihateup duck (Indonesia)



Addition of Oligochitosan (200 mg /kg-feed) increased blood glucose, albumin, globulin, and egg weight

Striped catfish(Vietnam)



600 tons feed (100 mg degraded chitosan/kg-feed) to 800,000 fishes for 9 months

	Average survival rate (%)	Average FCR
Chitosan added	83.2	1.48
Control	78.4	1.58



F.C.R. = Feed given / Animal weight gain

Talapia (Malaysia)



Experiment starts based on aquaculture production of 49 %, followed by catfish (37 %) and carps (10 %) in freshwater

## Major Gaps in Basic aspects

- 1) Little study on optimum molecular weight of oligochitosan as animal feed

## Major Gaps in Application aspects

- 2) Limited collaborator such as institution and farmer to conduct field test because it is costly and time consuming.

## Major Implementation plans

- 1) Study on optimum molecular weight of oligochitosan as animal feed and a new additives containing Se nano particles/ oligochitosan
- 2) Development of cost-effective method in the field test



# Conclusions of CDM on CERVIX V

- March 2017

It is strongly expected that the optimal treatment protocol of radiotherapy and chemotherapy for cervical cancer (CERVIX-V), including state-of-the-art techniques of radiotherapy, will be established and disseminated in three years.

- March 2018

CDM suggested holding a hands-on-training course on 3D-IGBT during the workshop in 2018 to train radiation oncologists and medical physicists, since 3D-IGBT (three dimensional image-guided brachytherapy) is used in the treatment protocol, a new clinical study, or CERVIX-V.

# Hands-on Training of CERVIX-V at United Hospital in Bangladesh (November 2018)



Home » City

12:00 AM, November 07, 2018 / LAST MODIFIED: 02:16 AM, November 07, 2018

## Cancer specialists visit United Hospital



Photo: Collected

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### City Desk

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A 30-member team of cancer specialists from the Forum and Nuclear Cooperation in Asia (FNCA) recently visited United Hospital Cancer Care Center, says a press release. Prof Shingo Katto and Prof Masru Waka Suki from Japan, along with specialists from Indonesia, Malaysia, Thailand, China, Kazakhstan, the Philippines, Vietnam, Mongolia and Bangladesh were also present. They conducted a training session and visited the hospital's radiation therapy facility. The hospital's Managing Director Faridur Rahman Khan, CEO Faizur Rahman, Chief of Communications Dr Shagufa Anwar and oncologists were also present on the occasion. 5656565

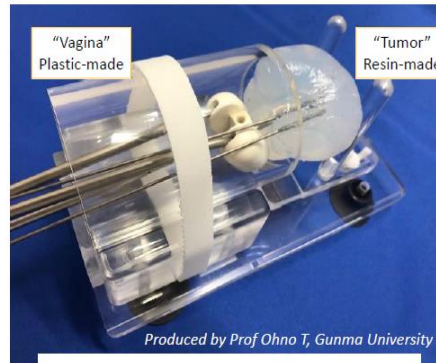


# Hands-on Training at the First Affiliated Hospital of Soochow University, China (October 2019) -using Hybrid Brachytherapy training kit-



## Hybrid brachytherapy (Tandem and Ovoid plus **interstitial needles**)

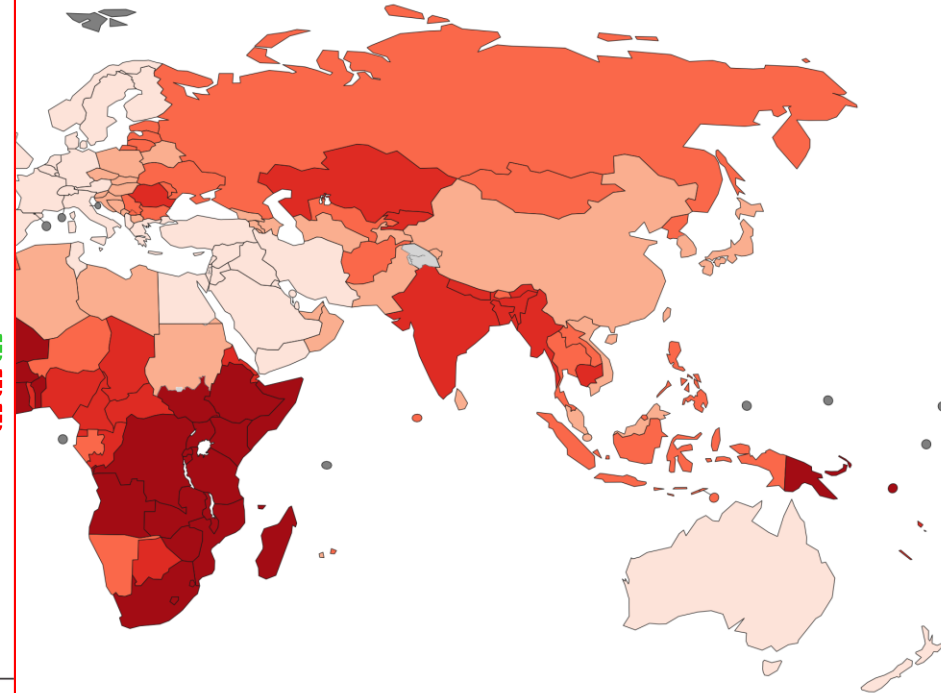
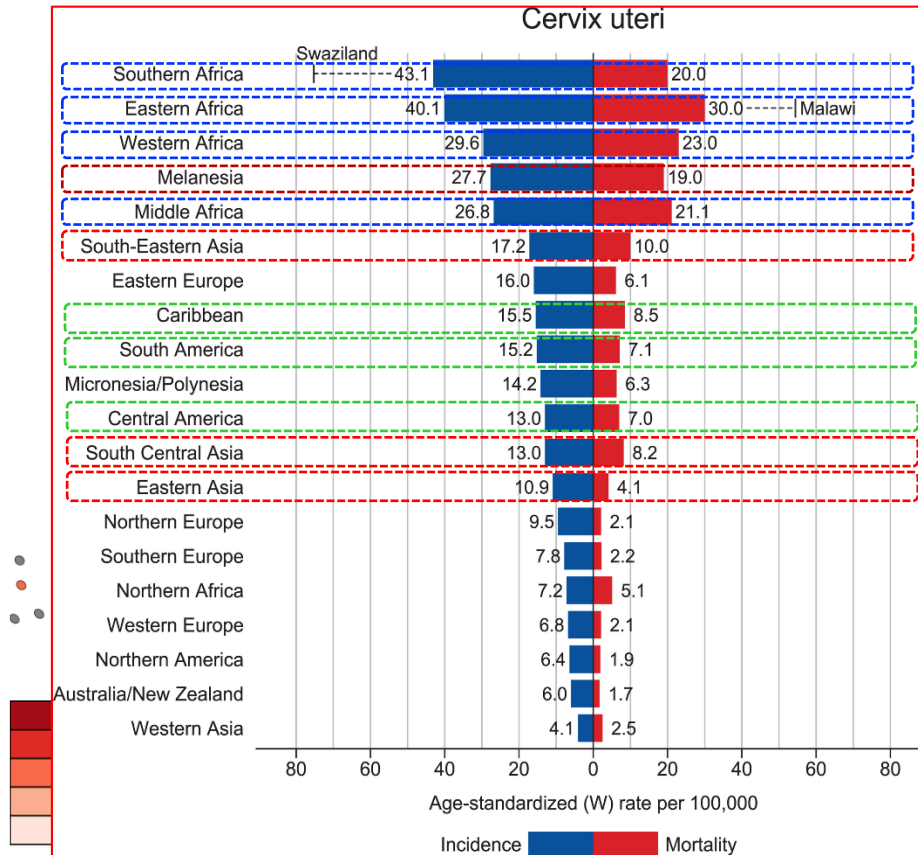
For good 3D-IGBT, preparation and training are essential!



Let's practice using this training kit!



# Global impact of FNCA study for cervical cancer



428,000 newly diagnosed patients (282,000; advanced stage)/year in Asia, Africa, central/south America, and Melanesia.

FNCA protocol improves survival rate of advanced cancer **from 40% to 85%**, which indicates possible **increase of 127,000 cancer survivors/year all over the world.**

# Project on research on climate change using nuclear and isotopic techniques

- Using nuclear and isotopic techniques the project will identify and date past climate change with the goal of interpreting the drivers of the Earth's climate system. Two major directions of this project are analysis of the lake/soil sediment and organic carbon analysis in soil, to understand the regional paleo-climate mechanism and carbon circulation between air and soil.
- 2nd workshop was held in Indonesia in October last year. During this workshop sample taking exercise of lake sediment was carried out by all the project leaders at one of Indonesian lakes.





**Hadapi Iklim dengan Nuklir**

Penulis: STAFF  
 Foto: Suara, 23 Sep 2018, 08:03 WIB | [SEMARANG](#)

# Teknologi Nuklir Solusi Atasi Dampak Perubahan Iklim

## 気候変動の影響を克服するための核技術を用いた解決方法



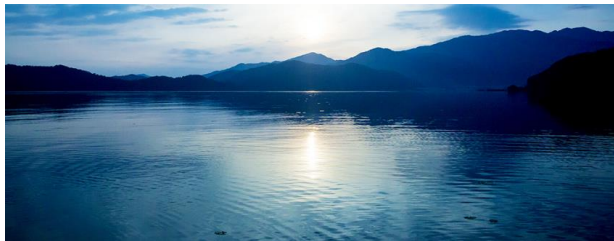
Kepala Batan Djarot Sulisto Wisnubroto (kelima dari kiri) dan para narasumber berfoto bersama sebelum peremuan Forum for Nuclear Cooperation in Asia (FNCA) di ruang sidang Sekolah Pascasarjana Undip, Serin, 24 September 2018. ( Foto: suara pembaruan / staff thenu )  
 2018年9月24日曜日、UNDIP大学の会議室にて、アジア原子力協力フォーラム（FNCA）に先立ち撮影されたグループ写真。Batn Djarot Sulisto Wisnubroto（左から5番目）（写真：sound update / staff thenu）  
 Staff Thenu | JEM Serin, 24 September 2018 | 14:31 WIB

**Semarang** - Isu dampak perubahan iklim tidak hanya menjadi perbincangan sangat di dalam negeri saja, melainkan sudah mendunia. Bahkan pada sidang umum Badan Tenaga Atom Internasional atau Atomic Energy Agency (IAEA) ke-62 yang berlangsung seminggu ini juga mengangkat isu peran teknologi nuklir dalam memberikan solusi dampak perubahan iklim.



# Discussions on Lake Suizetsu sediments of the past 70,000 years (2019 workshop)

Lake Suigetsu sediments of the past 70,000 years in Fukui Prefecture (Japan) have become a global standard measure for age determination.



# Report on low level radioactive waste repositories (March 2020)

- General Part
  1. General policy
  2. Principles and Safety Assessment
  3. Regulatory and Operational System Preparation
  4. Site Selection
  5. Design and Construction of Disposal Facilities
- Specific Part
  1. General Considerations for Safety Assessment
  2. Specific LLW Repository site (planning etc.)
  3. Guidelines for Safety Assessment
  4. Confidence Building

# Table Top Exercise (TTX) on Nuclear Forensics (Manila, Nov. 2019)

- Identification of unknown nuclear materials by FNCA project leaders and Philippine Police
  - Case 1: Cs-137 in the back of the truck with passengers at the border checkpoint
  - Case 2: EU in the abandoned vehicle by the hotel



# FNCA Activities and MEXT Training Programs on Nuclear Energy and Radiation Utilization

## Forum for Nuclear Cooperation in Asia (FNCA)

### Nuclear Researchers Training Program

#### 1. FNCA Research Course

This course is set up to perform research activities related to the FNCA project themes. (3~6months)

#### 2. Individual Research Course

This course is set up to match the ANTEP Needs from Asian Countries. (3~6months)

#### 3. Basic and Fundamental Course

This course is set up to give various lectures on Nuclear Engineering/Nuclear Safety Engineering. (1~3months)

NSRA

### Instructors Training Program

#### 1. Instructors Training Course

This course is set up to invite participants, who are expected to be instructors in their countries in the future. (6~8weeks)

#### 2. Follow-up Training Course

Japanese experts visit Asian countries and give a technical advice to local instructors who have participated in Instructors Training Course. (1~2weeks)

#### 3. Seminars on Nuclear Technologies

- (1) Nuclear Plant Safety
  - (2) Atomic Energy Administration
  - (3) Basic knowledge of Radiation
  - (4) Site Location of Nuclear Facility
- (1~4weeks)

JAEA

# MEXT Human Resources Development Program

<Nuclear Researchers Training Program>

	JFY2016	JFY2017	JFY2018
Bangladesh	2	3	3
China	1	3	2
Indonesia	1	1	3
Kazakhstan	1	1	1
Malaysia	3	2	1
Mongolia	1	2	2
The Philippines	2	1	1
Sri Lanka	3	2	1
Thailand	3	2	3
Vietnam	6	3	3
<b>Total</b>	<b>20</b>	<b>20</b>	<b>20</b>

<Nuclear Instructors Training Program>

	JFY2016	JFY2017	JFY2018
Bangladesh	9	9	11
China	0	0	0
Indonesia	7	7	6
Kazakhstan	4	5	4
Malaysia	10	12	13
Mongolia	6	9	9
The Philippines	7	7	4
Sri Lanka	5	4	4
Thailand	14	15	6
Vietnam	9	8	13
Turkey	4	4	9
Saudi Arabia	1	0	3
<b>Total</b>	<b>76</b>	<b>80</b>	<b>82</b>

# The 21st FNCA Coordinators Meeting

- Date: March, 2020
- Venue: Mita Conference Hall, Tokyo, Japan
- Major agenda:
  - Report of the project activities and outcomes
  - Proposals for new projects
  - Discussions of FNCA future activities