

# International Collaboration in Networking of Culture Collections and Microbial Research

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- 1. Activity of ACM**
  - 2. Activity of NITE**

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  2. Activity of NITE



**ACM 1: Oct. 2004, Tsukuba, Japan**



**ACM 2: Nov. 2005, Bangkok, Thailand**



**ACM 3: Nov. 2006, Beijing, China**



**ACM 4: Nov. 2007, Chibinon, Indonesia**



**ACM 5: Oct. 2008, Daejeon, Korea**



**ACM 6: Nov. 2009, Hanoi, Vietnam**



**ACM 7: Oct. 2010, Kazusa, Japan**



**ACM 8: Oct. 2011, KL, Malaysia**



**ACM 9: Oct. 2012, Chang Mai, Thailand**



**ACM 10: Sep. 2013, Beijing, China**



# ACM

# What is ACM?

- Aasian Consortium for the Conservation and Sustainable Use of Microbial Resources
- ACM was established in 2004 by representatives of **12 Asian countries** on the occasion of ICC10 in Tsukuba, Japan to strengthen the relationships among Asian countries, as well as encourage and facilitate international cooperation for biotechnology using microbiological resources in Asia.

# ACM Members are 17 Institutions from 13 Countries

## - 11 Culture Collections Included -



## Aim of ACM\_\_\_

- Framework for international cooperation to encourage microbiological researches
- Development of microbial resources characteristic for each country
- Construction of the mechanism for academia and industry to utilize microbial resources
- Establishment of BRC network
- Establishment of international standards for biological material transfer and benefit-sharing
- Improvement and share of standardized techniques

# Task Forces in ACM

## 1. Asian BRC Network (ABRCN)

Chair: Ken-ichiro Suzuki (Japan)

## 2. Human Resource Development (HRD)

Chair: Rosario G. Monsalud (Philippines)

## 3. Management of Material Transfer (MMT)

Co-chairs: Katsuhiko Ando (Japan) and  
Bubpha Techapattaraporn (Thailand)

The ACM members expect the expansion of the activities to reach the international standardized scheme to encourage microbiologists to study biological diversity to solve the global problems on environments and human welfare.

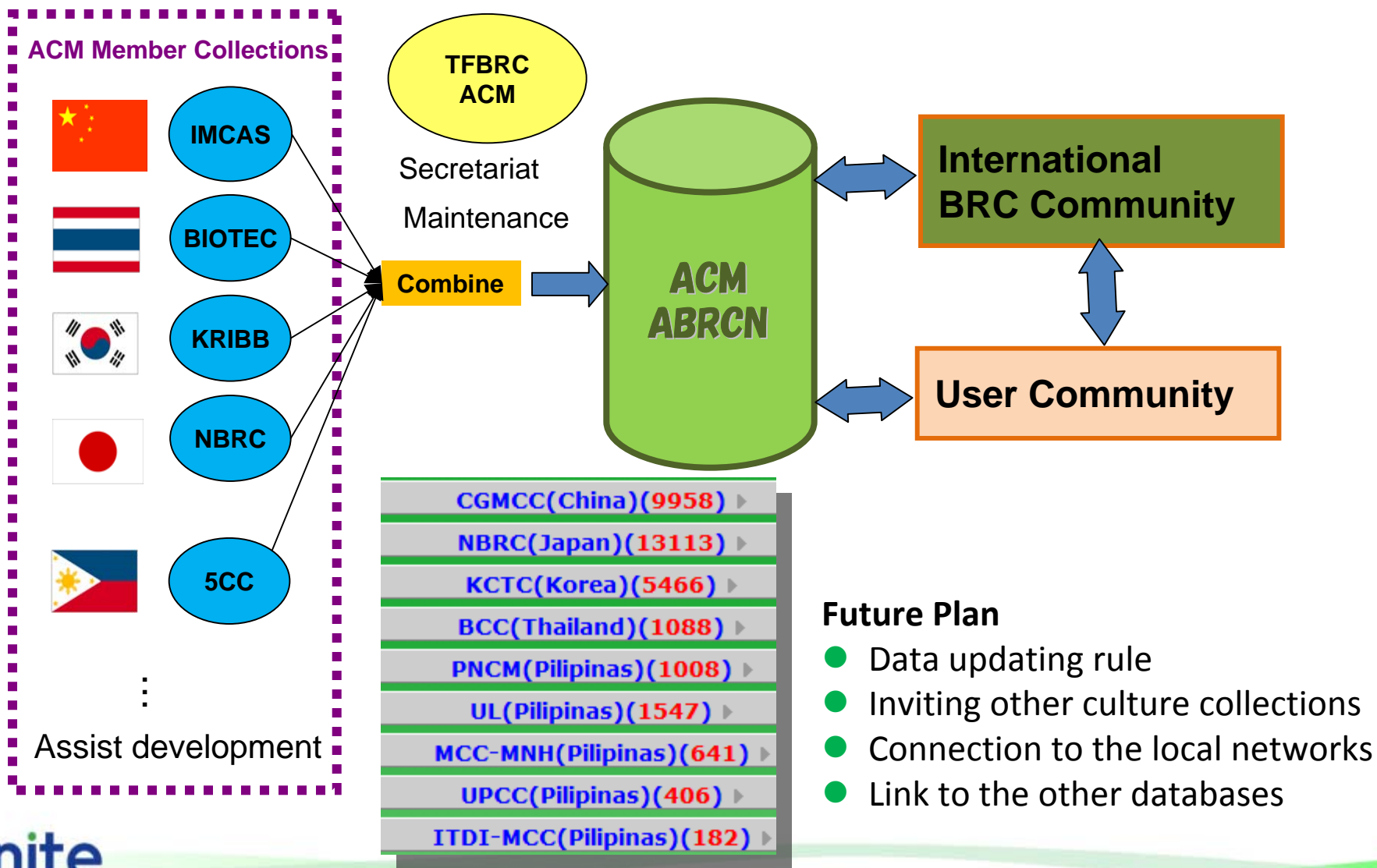


# 1. Task Force: Asian BRC Network (ABRCN)

## Establishment of an On-Line Catalogue of the Member Collection

- For the users to find the most convenient collection to obtain the materials
- To assist the establishment of strain database / on-line catalogue to show the resources for small collections
- To develop new functions for the traceability of the materials in the network

# 1. Task Force: Asian BRC Network (ABRCN)



# ABRCN: Integrated Microbial Strain Database

The screenshot shows a web browser window with the address bar displaying "www.abrcn.net". The page features a dark blue header with the ABRCN logo and navigation tabs for "About us", "Workshops", "Catalogues", "Statistics", "Documents", and "Contacts". A search bar is located in the top right corner. The main content area has a background image of blue microbial cells and the text "Sharing, Cooperation and Development". Below this is a "Please select a Country:" section with flags for various Asian countries, with Vietnam selected. The page is divided into three columns: "ABRCN has objectives:", "ABRCN Members" (listing CGMCC, KCTC, PNCM, MCC-MNH), and "ABRCN at the ACM". At the bottom, there are sections for "News & Announcements" and "Links". The footer includes the text "ASIAN BIOLOGICAL RESOURCE CENTER NETWORK" and "© Copyright ABRCN.net. All rights reserved."

## 2. Task Force: Human Resource Development (HRD)

The TF-HRD covers three objectives,

- 1) Training,
- 2) Exchange Scientists,
- 3) Research collaboration addressing specific issues to attract funding source.

# “Training workshop on Long-Term Preservation and Management of Microbial Cultures with Agricultural Importance”

May 23-27, 2011  
Hosted by BIOTEC, Thailand

## Training Course Subjects

- Taxonomy
- Preservation
- Informatics
- Management



Cooperation with:

ACM members, KRIBB, BIOTEC, NBRC, WDCM

Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)

Participants: 30 of which 16 from Thailand and 14 from other ACM member countries



2nd ACM Workshop (2013)

# “International Training Course on Application of Biotechnology Tools for Rapid Identification of Food-borne Pathogens“

hosted by NBRC, Japan, supported by Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)

## Training Course Subjects

- Rapid Identification
- Genome informatics
- PCR
- MALDI/TOF MS identification
- Factory tour



# Domestic Workshops in Korea

## ACM Microbial Taxonomy Training Course

The 3<sup>rd</sup> course will start on Sept. 30 2013 for 6 weeks

- Human Resource Development Program for ACM members
- **“Chemotaxonomy and phylogenetic analysis of novel microorganisms”**
- Participants: 6 people from 6 countries
- Period: 6 weeks

1<sup>st</sup> Week: Introduction, phylogenetic tree, cultivation

2<sup>nd</sup> Week: Fatty acids, polar lipid

3<sup>rd</sup> Week: Quinone, growth characteristics

4<sup>rd</sup> Week: Cell wall sugar

5<sup>th</sup> Week: DNA G+C mol%, DNA-DNA hybridization

6<sup>th</sup> Week: Presentation of results, discussion

	China	Indonesia	Malaysia	Mongolia	Philippines	Pakistan	Thailand	Vietnam	Total
1st	0	1	1	1	1	1	1	1	7
2nd	1	0	1	0	1	2	1	0	6
3rd	1	0	1	1	1	1	1	0	6



# Domestic Workshops in Indonesia

- **“Workshop on Molecular Identification of Lactic Acid Bacteria”** → LIPI-Gadjah Mada Univ-NBRC → 23-24 January 2013  
→ 30 participants
- **Workshop on “The Role of National Culture Collection in Facilitating Sustainable Development of Tropical Bioresources Under Green Economy Agenda “** → 1 March 2013 → 50 audiences
- **Preparing Documents for ISO 9001-2008 Management Systems in InaCC** → April, September 2013 → 20 participants
- How to operate MALDI-TOF → April 2013
- How to operate GC-MS and HPLC → May 2013
- How to operate L-drying machine → July 2013





# Domestic Workshops in Mongolia

Training workshop on conventional methods of identification

## “Identification of Mitosporic Fungi”

– August 10-11, 2013

- 25 participants



# Domestic Workshops in Vietnam

- VTCC and NITE conducted 1 workshop (3 days) on “DNA-DNA hybridization”
- Diversity of yeast (2 months)
- Diversity of filamentous fungi (2 months)
- VTCC and Thai Biotech conducted 1 workshop (3 days) on Culture Collection Data management.



# Domestic Workshops in Philippine

- **“Molecular Techniques for Microbial Identification”**
  - November 22-23, 2012
  - Trainers: Dr. Koji Mori & Dr. Takahide Ishida (NBRC)
  - 34 participants



# 3. Task Force: Management of Material Transfer (MMT)

- ◆ The access and benefit-sharing (ABS) of the CBD (Article 15) and the Nagoya Protocol are of special importance for Microbial Resource Centers (MRCs) .
- ◆ In this TF, much work was done by MRCs towards the development of a model for voluntary implementation of the CBD's ABS and NP provisions.

**MMT Taskforce aims to develop a practical guide for the management of material transfer.**

# MMT Taskforce Members

Co-Chair System

**Chairpersons:**

**Ms. Bubpha Techapattaraporn  
(Thailand)**

**Dr. Katsuhiko Ando (Japan)**



## New members of MMT Taskforce



**Ms. Rie Funabiki (Japan)**  
NITE



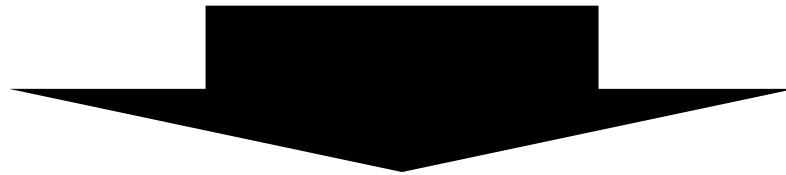
**Dr. Tae-Eun Jin (Korea)**  
KRIBB



**Dr. Linhuan Wu (China)**  
EDCM/IMCAS

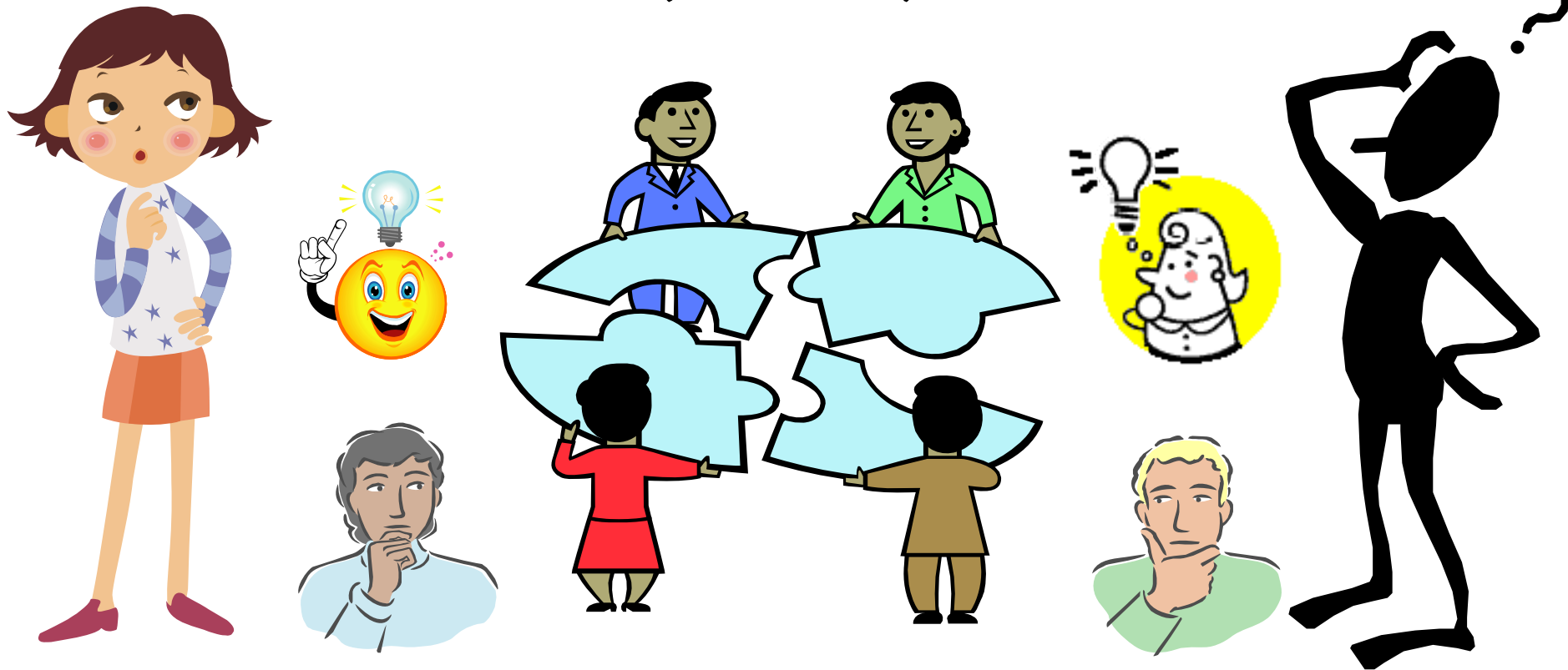
# Conclusion

**After the Nagoya Protocol enters into force, it could be a hard work for MRCs and USERS to use overseas microbes preserved in MRCs.**



**We should develop streamlined way using overseas microbes preserved in the MRCs for MRCs and USERS under the Nagoya Protocol.**

# Network of International Exchange of Microbes in Asia under ACM (NIEMA)

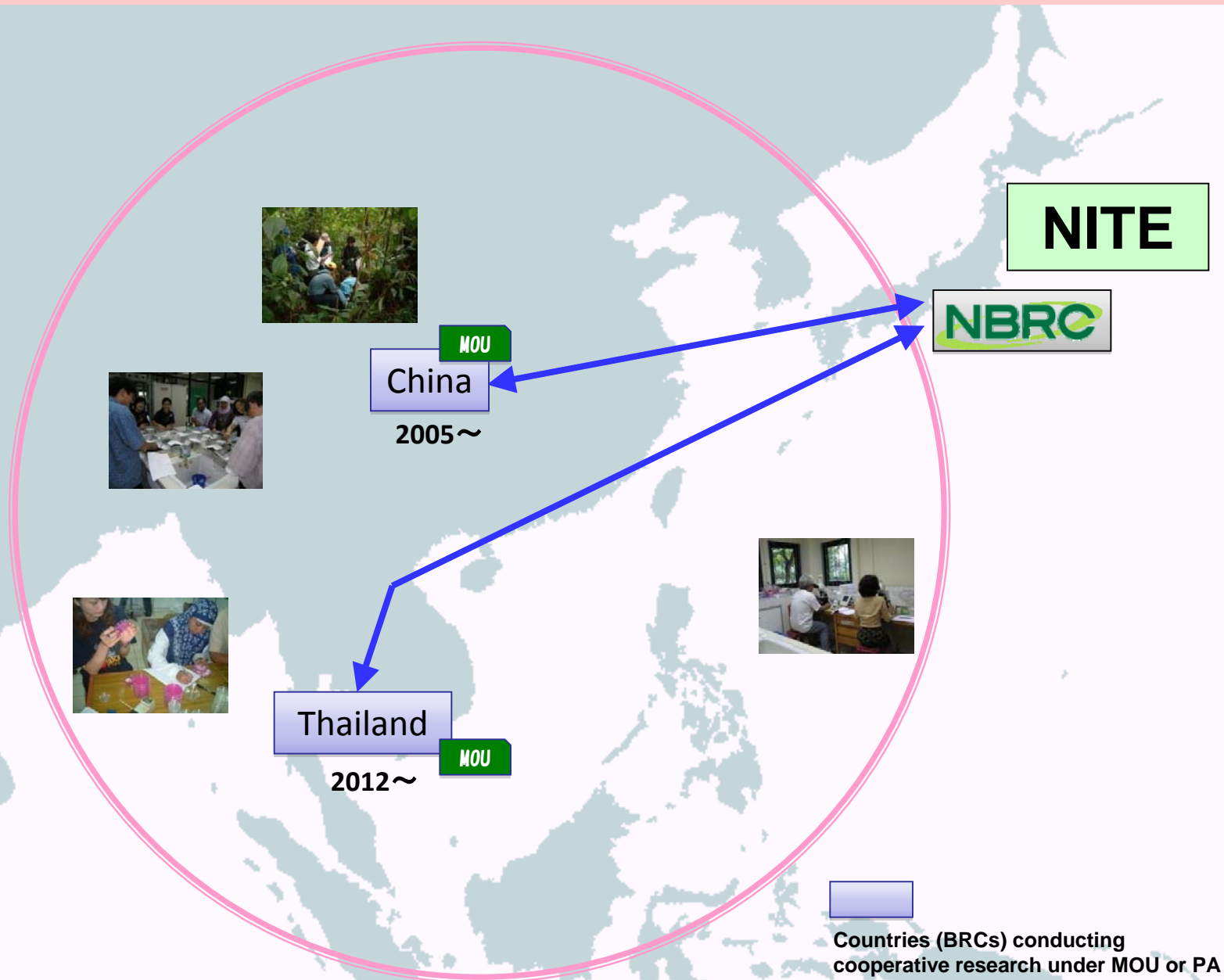


- ◆ Initiated by pilot projects at the MMT-TF in ACM, a “[Network of International Exchange of Microbes in Asia \(NIEMA\)](#)” has been discussed.

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# Joint Research Project with Asian countries



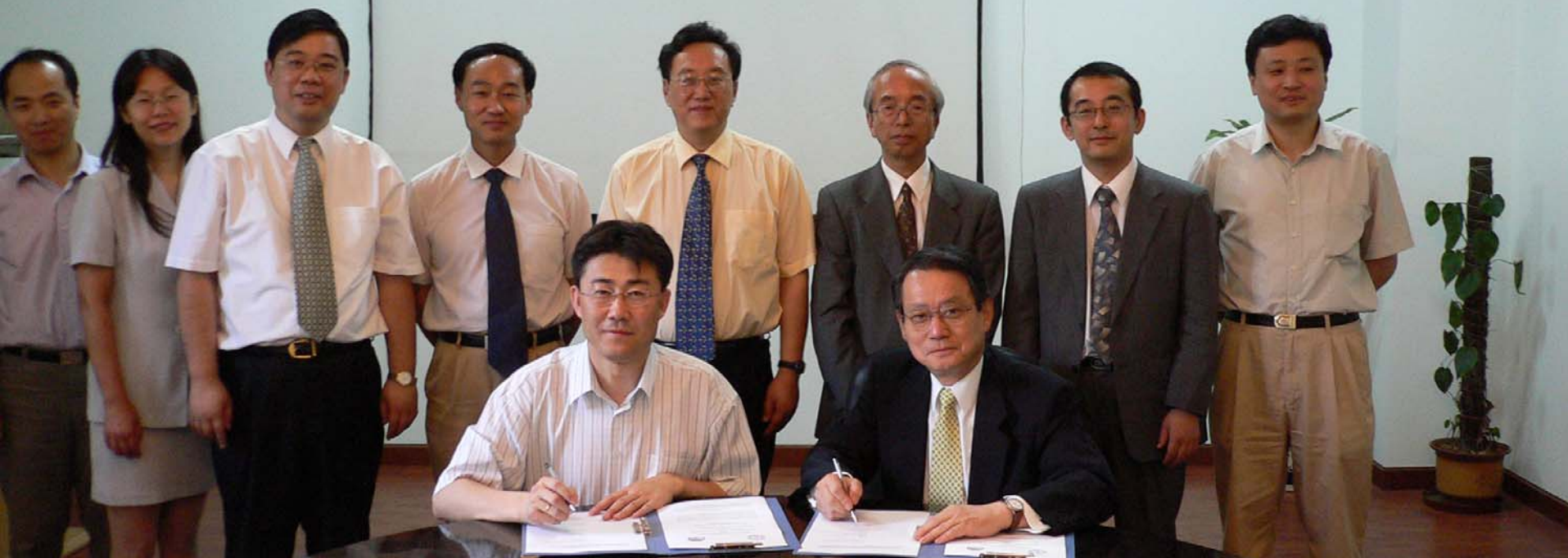
Countries (BRCs) conducting cooperative research under MOU or PA

**MOU** between National Center for Genetic Engineering and Biotechnology (**BIOTEC**), National Science and Technology Development Agency of Thailand and National Institute of Technology and Evaluation (**NITE**) of Japan on **Conservation and Sustainable Use of Microbial Resource**



**MOU** between Institute of Microbiology of the Chinese Academy of Science (**IM-CAS**) and National Institute of Technology and Evaluation (**NITE**) of Japan on **Joint Program on the Conservation and Sustainable Use of Biological Resources**

中国科学院微生物研究所 合作备忘录签字仪式  
日本微生物资源中心



# Joint Research Project with Asian countries



Mongolia  
2006~

MOU  
P A



Myanmar  
2004~2006,  
2013~

MOU  
P A



Vietnam  
2004~

MOU  
P A



Indonesia  
2003~2009

MOU  
P A



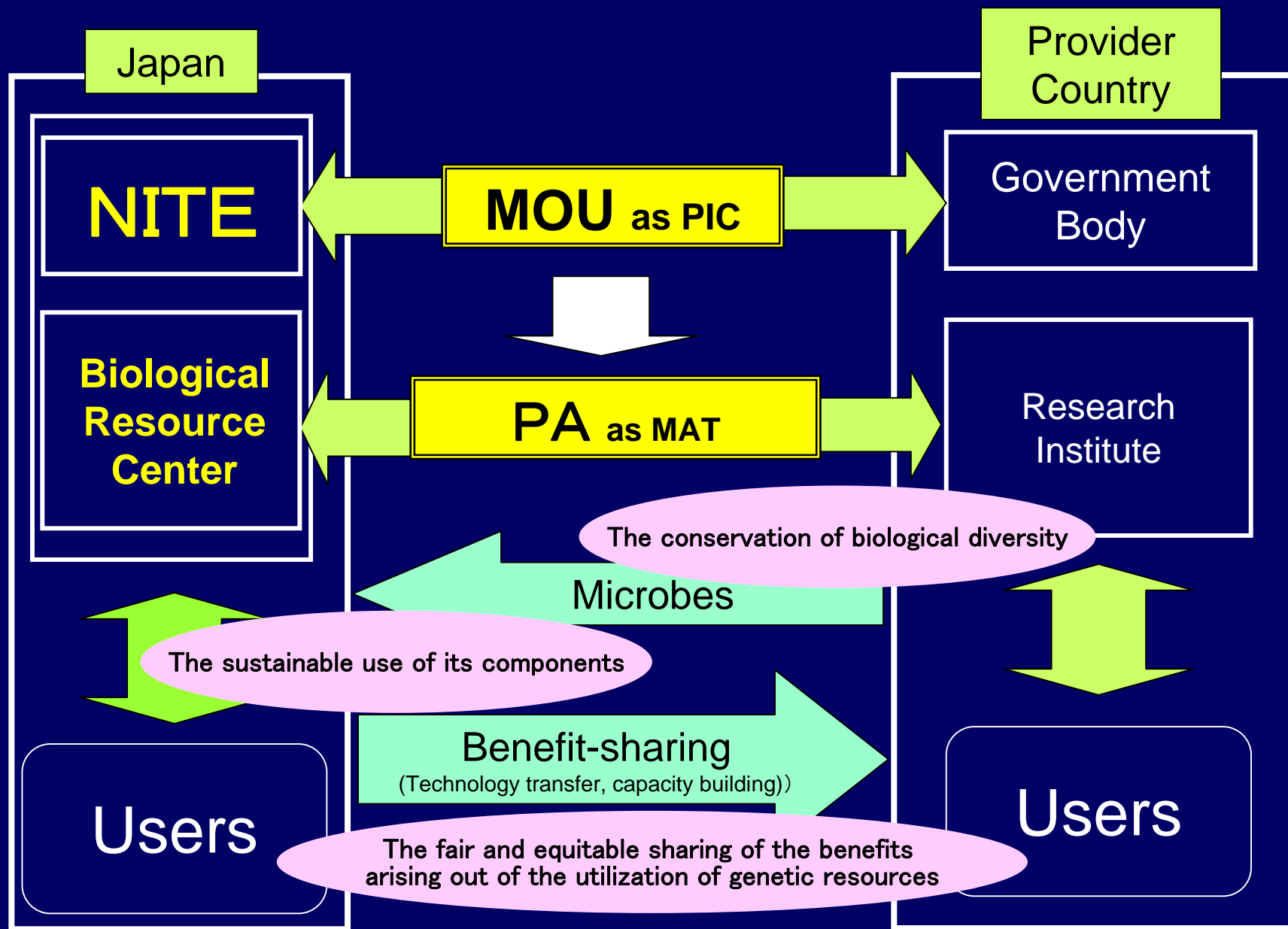
Countries continuing the Joint Research Program for the Conservation and Sustainable Use of Microbial Resources under MOU and PA

NITE

NBRC



# NITE Scheme of Access and Benefit-sharing





With Indonesia



With Vietnam



With Mongolia



With Myanmar

with Indonesian Researchers



August 2003

with Vietnam Researchers



March 2004

with Mongol Researchers



July 2007

with Myanmar Researchers



May 2004

# Workflow of the Project

Sampling



Primary Identification



Work together !!



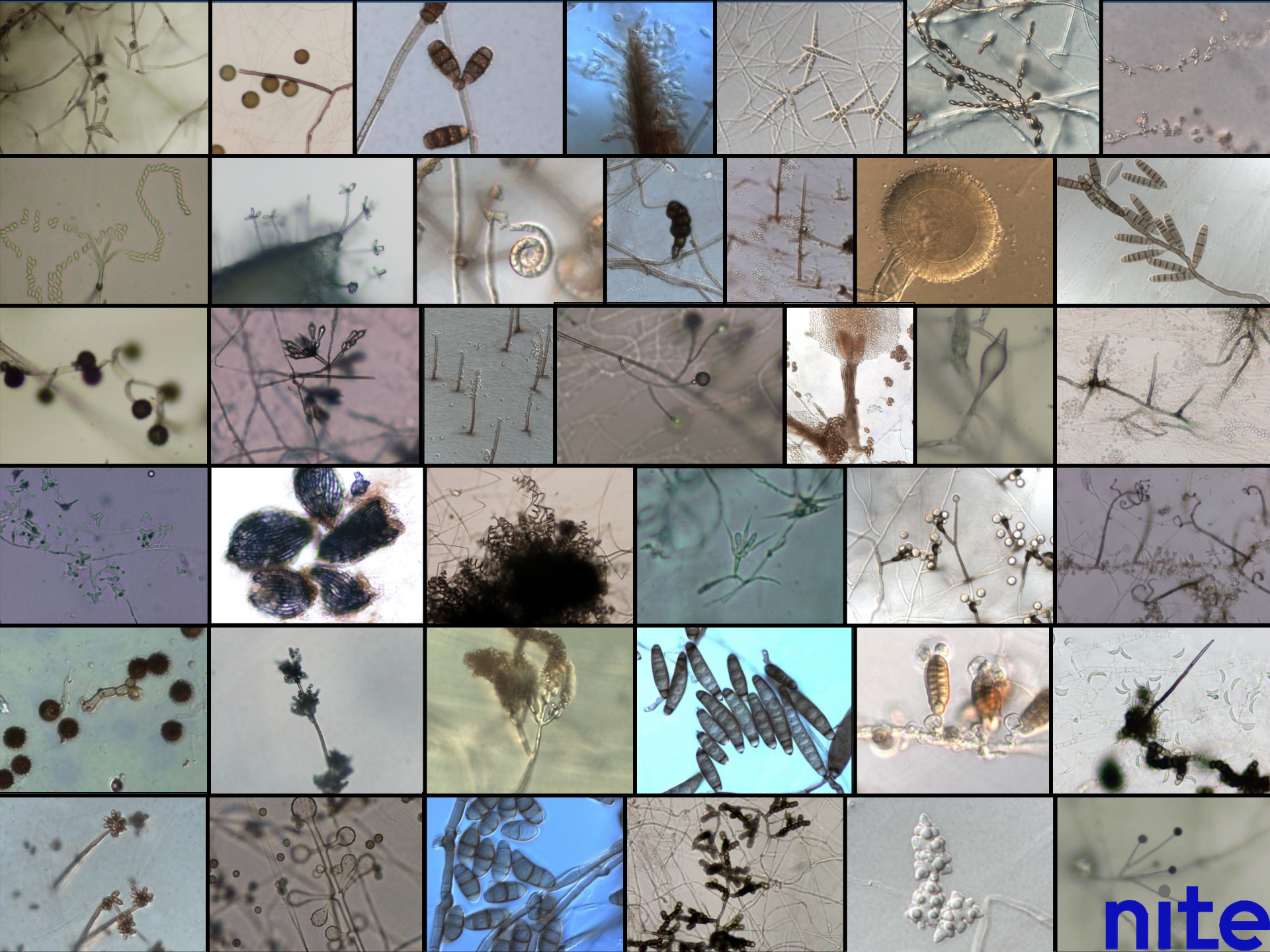
Sample Treatment



Isolation



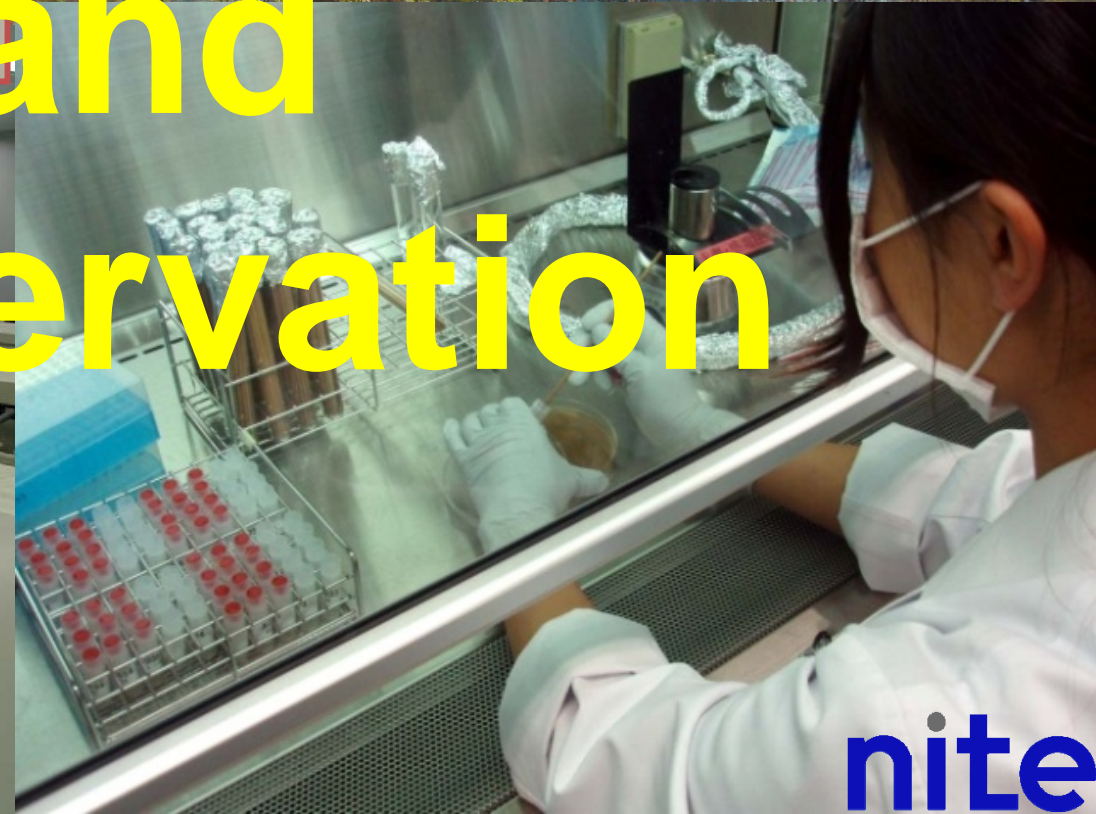




nite



# Identification and



# Preservation



# Taxonomi Stude Actinomyc

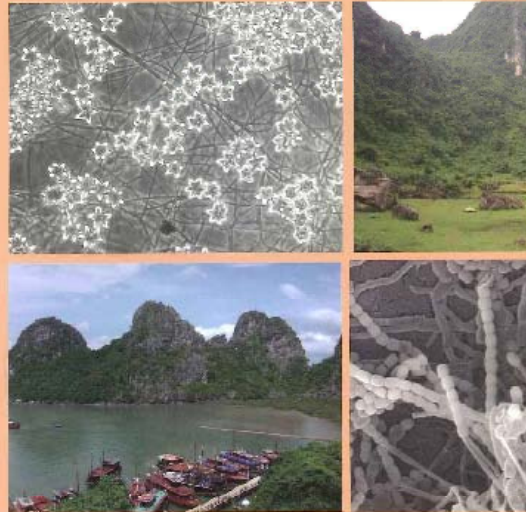
Yantyati Widya



Indonesian Institute of Science  
Centers (GR  
and National Institute of

## Taxonomic and Ecological Studies of Microorganisms Vietnam and the Utiliza

Duong Van Hop and Katsuhiko Ando



Joint research project  
between  
VNUH-IMBT, Vietnam and NITE-DOB, Japan

March 2010

## Taxonomic and Ecological Studies of Microorganisms in Mongolia and the Utilization

Tsetseg Baljinova and Katsuhiko Ando



Joint Research Project  
between  
Institute of Biology, Mongolian Academy of Sciences (MAS) of Mongolia  
and  
Biological Resource Center, National Institute of Technology and Evaluation (NITE) of  
Japan

July 2013

# ***Benefit Sharing***

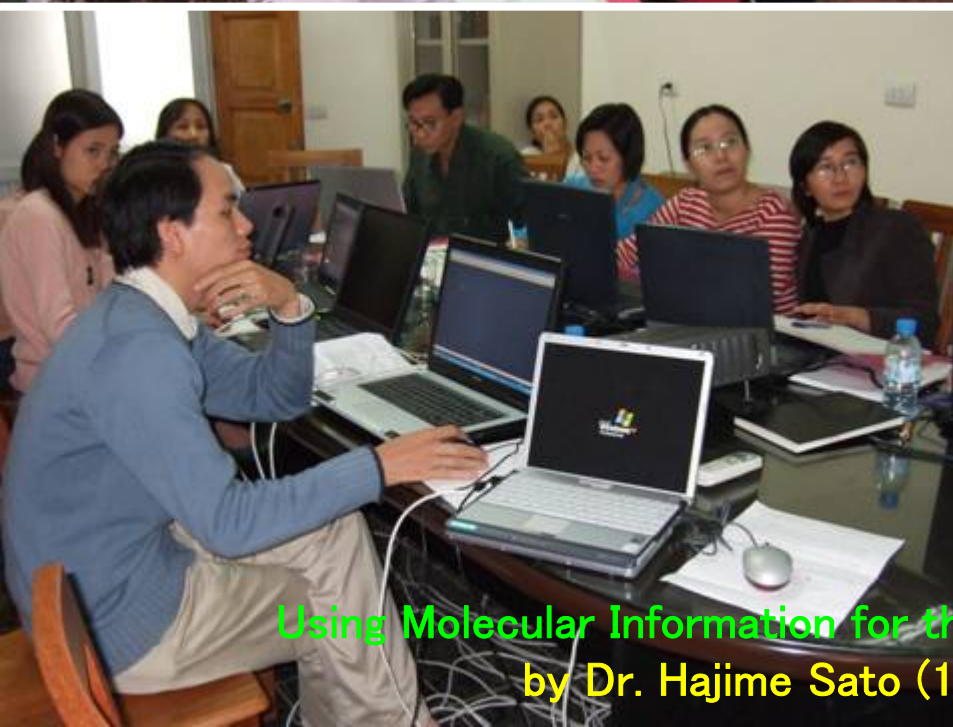
1. Monetary Benefit

2. Non-monetary Benefit

# Workshop in Indonesia



# Workshop in Vietnam



Using Molecular Information for the identification of microorganisms  
by Dr. Hajime Sato (13-15 November 2007)

# Workshop in Mongolia



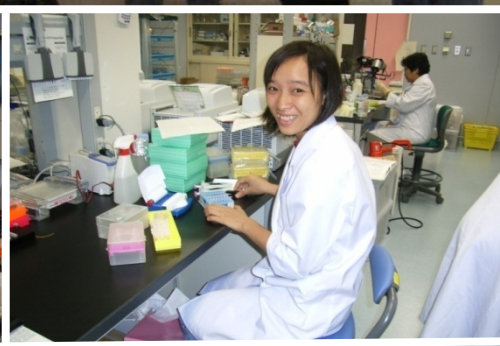
# Workshop in Myanmar





2005

# Exchange of Researchers



# **NITE's Non-Monetary Benefit**

- a. Sharing of research results (sharing of information, co-author of Paper, etc.);**
- b. Delivery of equipments and supplies**
- c. Collaboration in sampling, isolation and characterization (human resource development);**
- d. Transfer of knowledge and technique by holding of on-site workshops;**
- e. Transfer of knowledge and technique to researchers invited to NITE, Japan; etc.**

# Joint Research Project with Asian countries



Mongolia  
2006~

MOU  
P A



NITE

NBRC



China  
2005~

MOU

Myanmar  
2004~2006,  
2013~

MOU  
P A

Vietnam  
2004~

MOU  
P A



Thailand  
2012~

MOU

Indonesia  
2003~

MOU  
P A



Countries continuing the Joint Research Program for the Conservation and Sustainable Use of Microbial Resources under MOU and PA



Countries (BRCs) conducting cooperative research under MOU or PA



Thank you