NIEMA:

a transfer and exchange system of microbes for Microbial Resource Centers (MRCs) for non-commercial purposes according to CBD and Nagoya Protocol

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Network of International Exchange of Microbes under ACM Asian Consortium for the Conservation and sustainable Use of Microbial Resources
The objective of the Consortium is to promote collaboration among government or public organizations in Asian countries for the purposes of enhancing conservation and sustainable use of microbial resources.
Asian Consortium for the Conservation and Sustainable Use of Microbial Resources (ACM)

The ACM was established in 2004 by representatives from 12 Asian countries. Now, it has expanded to 23 organizations from 13 countries.
Task Forces under the ACM

1. Asian BRC Network (ABRCN),
2. Human Resource Development (HRD), and
3. Management of Material Transfer (MMT)
Chronology of MMT Task Force Activities

The MMT-TF of the ACM has focused on discussion on how to operate the MRCs in compliance with the CBD.

ACM 3 (China) in Oct. 2006: Establishment of MMT TF
ACM 4 (Indonesia) in Nov. 2007: Discussion on the concept of MMT
ACM 5 (Korea) in Oct. 2008: Discussion on MMT guidelines
ACM 6 (Vietnam) in Nov. 2009: Development of MMT draft guidelines
ACM 7 (Japan) in Oct. 2010: Development of Standard MTA for ACM

COP 10 (Japan) in Oct. 2010: Nagoya Protocol (NP) was adopted

ACM 8 (Malaysia) in Oct. 2011: Gap Analysis between MRC management and NP/CBD
  - May 2012 in Bangkok (Thailand): MMT-TF meeting
  - Aug. 2012 in Tokyo (Japan): MMT-TF meeting
Obligations under CBD and NP

ABS Clearing House

Providing Country
- ABS law, etc. to be made available
- PIC to be obtained
- MAT to be established

User Country
- Issued Permits to be informed
- Cooperation
- Compliance measure

User
- Checkpoint

by Dr. Seizo Sumida
We need to fill the gap between MRC management practices and the principles of CBD and NP.

We must create a new scheme of MRC management adapted to CBD and NP in order to facilitate international transfer of microbes for the advancement of microbiology.
NAGOYA PROTOCOL
Article 8: Special considerations

In the development and implementation of its access and benefit-sharing legislation or regulatory requirements,
each Party shall:

(a) Create conditions to promote and encourage research which contributes to the conservation and sustainable use of biological diversity, ...., including through simplified measures on access for non-commercial research purposes, ....;
Challenge for MMT Taskforce

In compliance with the principles of CBD and NP, we must develop a scheme that should be able to:

1. Promote exchange of microbes among MRCs,
2. Promote distribution of microbes from MRC to users,
3. Secure the tracking of transferred microbes,
4. Promote the sustainable use of microbes, and
5. Contribute to the advancement of microbiology
ACM 9 (Thailand) in Oct. 2012: **Creation of the NIEMA concept**
- Dec. 2012 in Tokyo (Japan): MMT-TF meeting
- Aug. 2013 in Taejon (Korea): MMT-TF meeting

ACM10 (China) in Sep. 2013: **Discussion on NIEMA Code of Conduct**
- Feb. 2014 in Bangkok (Thailand): MMT-TF meeting
- Jun. 2014 in Beijing (China): MMT-TF meeting
- Sep. 2014 in Beijing (China): WDCM symposium

**COP 12 - MOP 1 (Korea) in Oct. 2014 : Side-Event Presentations**

ACM 11 (Korea) in Oct. 2014: **Discussion on Publication of NIEMA**
- Dec. 2014 in Japan: NIEMA paper was published in a journal

ACM12 (Indonesia) in Oct. 2015: **Optimization of NIEMA concept and Code of Conduct**
Outline of NIEMA

A transfer and exchange system of microbes for MRCs for non-commercial purposes according to CBD and NP
Basic Concept of NIEMA System

The basis of the NIEMA is the registration of MRC declaring their adoption of a common policy (NIEMA Code of Conduct) which is in compliance with CBD and NP.

The basis of the NIEMA:
(1) Transfer of microbes from countries of the origin to member MRCs of the NIEMA,
(2) Exchange of the microbes only between NIEMA member MRCs,
(3) Distribution of the microbes from NIEMA member MRCs to users, whose applicable is ONLY for non-commercial purposes, and
(4) Each NIEMA member MRC shall make available to a NIEMA Clearing-House any data of transfer information of microbes from MRC to MRC and from MRC to third parties.
Main Procedures of NIEMA System

1. Registration for NIEMA membership

2. Registration of NIEMA strains

3. Distribution of NIEMA strains from NIEMA Primary-MRC to NIEMA MRC

4. Distribution of NIEMA strains from NIEMA MRC to Users

5. NIEMA Database (= NIEMA Clearing-House)
1. Registration for NIEMA membership

① An MRC belonging to the ACM that wishes to become a member of the NIEMA shall register by online and submit the signed registration form (Annex 1: Online Registration Form for NIEMA Membership) to the NIEMA Clearing-House (NIEMA-CH) and the NIEMA secretariat. Determinations on membership will be deliberated in the annual meeting of the ACM.

② After approval, the MRC receives a certificate of NIEMA from the NIEMA secretariat and is registered in the database of NIEMA Member MRCs in the NIEMA-CH.

Fig. 1. Procedure to be NIEMA Member
2. Registration of NIEMA strains

① The Primary-MRC that wishes to register a preserved strain into the NIEMA system shall register the strain using the Internal Registration Form for a NIEMA Strain (Annex 3), and submit the signed form online to the NIEMA Clearing-House (NIEMA-CH).

② The NIEMA number of the strain will be numbered automatically. The strain will be generated automatically and listed in the database of the NIEMA Strain Catalogue in the NIEMA-CH and made available to the public.

Fig. 2. Internal Registration of NIEMA Strains
3. Distribution of NIEMA strains from NIEMA Primary-MRC to NIEMA MRCs

1. A NIEMA strain is transferred from a Primary-MRC to a NIEMA MRC upon request from the MRC using the Request Form of a NIEMA Strain for a NIEMA MRC (Annex 5).
2. Such strain shall be transferred to the MRC with a Transfer Form of a NIEMA Strain from the Primary-MRC to the NIEMA MRC (Annex 6).
3. Then, the recipient MRC shall send an online Receipt from the MRC to the Primary-MRC with the strain number of the recipient MRC (Annex 7) to the Primary-MRC and the NIEMA-CH within 3 weeks of receipt of the requested strain. The transfer record of the NIEMA strain transfer from the Primary-MRC to the NIEMA MRC shall be reflected in the database of the NIEMA-CH and made available to the public.

Fig. 3. Transfer of NIEMA strains from Primary-MRC to NIEMA MRCs
4. Distribution of NIEMA strains from NIEMA MRC to Users

① The Material Transfer Agreement (MTA) is an integral part of the Request Form of a NIEMA Strain for Users (Annex 8). Users named ‘RECIPIENTS’ in the MTA, who agree with all the terms and conditions in the provisions of the MTA may make an online request for the distribution of a NIEMA strain directly to a NIEMA MRC by submitting the completed Request Form.

② The MRC shall confirm the status of the requested NIEMA strain and send the strain to the user with a Distribution Form from a NIEMA MRC to the user (Annex 9).

③ The user shall send an online Receipt from the user to the provider NIEMA MRC (Annex 10) within 3 weeks after receipt of the NIEMA strain.

④ Then, the provider MRC shall send a copy of the receipt to the strain’s Primary-MRC (Annex 10) once a year. In a case where the Primary-MRC is also the provider MRC, the Primary-MRC does not have to send a copy of such receipt.

Fig. 4. Distribution of NIEMA strains from NIEMA MRC to users.
Material Transfer Agreement (MTA)

1. The RECIPIENT agrees to comply with the NIEMA Code of Conduct.

2. The RECIPIENT shall use the NIEMA strain(s) for non-commercial research purposes ONLY.

3. The RECIPIENT shall assume full responsibility for complying with all national and international laws, regulations, and guidelines applicable to the NIEMA strain(s).

4. The RECIPIENT shall not transfer the NIEMA strain(s) and any material(s) originating from the NIEMA strain(s) to any third party without prior written permission of the provider NIEMA MRC.

5. The RECIPIENT shall take full responsibility for the receipt, handling, storage, disposal, transfer, and use of the NIEMA strain(s).

6. The RECIPIENT shall acknowledge the provider NIEMA MRC, the NIEMA number, and the country of origin in any publication presenting scientific results and related information resulting from the use of the NIEMA strain(s).

7. The RECIPIENT shall agree that the provider NIEMA MRC will inform the Primary-MRC of the strain(s) regarding the distribution of the NIEMA strain(s), the name of the RECIPIENT’s organisation and the distribution date of the NIEMA strain(s).

8. The RECIPIENT shall inform the provider NIEMA MRC of the termination of the use of the NIEMA strain(s) as early as practicable; in the event the RECIPIENT has destroyed the NIEMA strain(s), whether intentionally or unintentionally.
5. NIEMA Database (= NIEMA Clearing-House)

The NIEMA-CH shall provide an annual report to the NIEMA secretariat in the ACM, to the ACM annual meeting, and make it available to the public. The report shall include information such as: (1) a member list of NIEMA MRCs, (2) new NIEMA strains deposited, and (3) NIEMA strains transferred from Primary-MRCs to NIEMA MRCs.

At the ACM annual meeting, each NIEMA MRC shall report on the number of NIEMA strains distributed that year from the MRC to third parties.
Network of International Exchange of Microbes under the ACM (NIEMA)

—A transfer and exchange system of microbes for microbial resource centres for non-commercial purposes according to the CBD and the Nagoya Protocol—

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The Asian Consortium for the Conservation and Sustainable Use of Microbial Resources (ACMR) was established in 2004. Currently, 23 organisations in 13 countries (Cambodia, China, India, Indonesia, Japan, Korea, Laos, Malaysia, Mongolia, Myanmar, Philippines, Thailand, and Vietnam) are members of the ACM. The objective of the ACM is to promote collaboration among governments and public organisations in Asian countries for enhancing conservation and sustainable use of microbial resources in Asia. Having recognised the importance of microbial Resource Centres (MRCs) in the development of microbiology, a new scheme titled the ‘Network of International Exchange of Microbes under the ACM (NIEMA)’ has been developed by the Task Force of Management of Material Transfer (MFT-TF) in the ACM. This scheme proposes a legitimate and streamlined way of transferring and utilizing microbial resources in line with the Convention on Biological Diversity (CBD) and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity (NP).

Key words: CBD, code of conduct, microbial resource centre, Nagoya protocol, NIEMA

INTRODUCTION

The Convention on Biological Diversity (CBD) came into effect in December, 1992 (Convention on Biological Diversity, 1992). Thereafter, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity (NP), was adopted by the Conference of the Parties to the CBD for the benefit of the Parties at its tenth meeting, held in Nagoya, Japan, in October, 2010 (Nagoya Protocol, 2011), and it enters into force on 12 October 2014. Upon effectuation of the NP, the utilisation and transfer of genetic resources shall be subject to NP-adopted domestic legislation. The CBD encourages contracting Parties to have their domestic guidelines (e.g., Objectives, 11-0) (Bonn Guidelines, 2005) clearly state such domestic laws or regulations should not affect the overall biodiversity and the provider’s property rights. These are used for taxonomy. The users, on the other hand, should make available to the public all information obtained as a result of the taxonomic study. It is beyond question that conservation of
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MMT-TF Members
ACM 12 in 2015

Thank you

Chairperson:
Dr. Katsuhiko Ando (Japan)

Ms. Rie Funabiki (Japan) NITE
Dr. Jung-Sook Lee (Korea) KRIBB
Dr. Linhuan Wu (China) WDCM IMCAS
Dr. Honglada Thoetkiattikul (Thailand) BIOTEC
A. Criteria for NIEMA Strains
1. Microbes with clearly identified country of origin.
2. Microbes exchangeable within member MRCs without restrictions

B. Unique Identifier for NIEMA strains
NIEMA number consists of:
1. NIEMA headline (NIEM)
2. Acronym of the country of origin (ISO 3166 Alpha-2 code, a two-letter code),
3. Acronym of the Primary-MRC (Code used in the World Data Centre for Microorganisms, World Federation for Culture Collection), and
4. Identification number of the strain used in the Primary-MRC.

Example: NIEM JP NBRC 105312
List of ACM Member Organisations

National Steering Committee for Biosafety, Ministry of Environment (MOE), Cambodia
Institute of Microbiology, Chinese Academy of Sciences (IMCAS), China
Microbial Type Culture Collection and Gene Bank (MTCC), Institute of Microbial Technology (IMTECH), Council of Scientific and Industrial Research (CSIR), India
Indonesian Institute of Sciences (LIPI), Indonesia

Biological Resource Center, National Institute of Technology and Evaluation (NBRC), Japan
Japan Collection of Microorganisms (JCM), RIKEN BioResource Center (RIKEN BRC), Japan
Microbial Culture Collection (MCC), National Institute for Environmental Studies (NIES), Japan

Korean Collection for Type Cultures/BRC, Korea Research Institute of Bioscience and Biotechnology (KCTC), Korea
Korean Agricultural Culture Collection (KACC), National Academy of Agricultural Science, Korea
Korean National Research Resource Center (KNRRC), Korea

Research Institute of Science (RIS), Science Technology and Environment Agency (STEA), Laos

Malaysian Agricultural Research and Development Institute (MARDI), Malaysia

Institute of General Experimental Biology, Mongolian Academy of Sciences (MAS-IGEB), Mongolia

Botany Department, Pathein University, Myanmar

Philippine National Collection of Microorganisms (PNCM), National Institute of Molecular Biology and Biotechnology (BIOTECH), University of the Philippines Los Baños, Philippines
Ecosystems Research Development Bureau (ERDB), Department of Environment and Natural Resources (DENR), Philippines
Microbiological Research and Services Laboratory, Natural Sciences Research Institute (NSRI), University of the Philippines, Diliman (UPD), Philippines

University of Santo Tomas Collection of Microbial Strains (USTCMS), Thomas Aquinas Research Complex, Philippines

National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA), Thailand
Microbiological Resource Center (MIRCEN), Thailand Institute of Scientific and Technological Research (TISTR), Thailand
Biodiversity-Based Economy Development Office (PO), The Government Complex Commemorating His Majesty, Thailand

Department of Science and Technology Management, Ministry of Science and Technology (MOST), Vietnam
Institute of Microbiology and Biotechnology, Vietnam National University, Hanoi, Vietnam
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   ② After approval, the MRC receives a certificate of NIEMA Member from the NIEMA secretariat and is registered in the database of NIEMA Member MRCs in the NIEMA-CH.

2. Registration of NIEMA strains
   ① The MRC that wishes to register a preserved strain into the NIEMA system shall register the strain, and submit the signed form online to the NIEMA Clearing-House.
   ② The strain will be generated automatically and listed in the database of the NIEMA Strain Catalogue in the NIEMA-CH and made available to the public. Then, the MRC is called as the Primary-MRC of the strain.

3. Distribution of NIEMA strains from NIEMA Primary-MRC to NIEMA MRC
   ① A NIEMA strain is transferred from a Primary-MRC to a NIEMA MRC upon request from the MRC.
   ② The transfer record of the NIEMA strain transfer from the Primary-MRC to the NIEMA MRC shall be reflected in the database of the NIEMA-CH and made available to the public.

4. Distribution of NIEMA strains from NIEMA MRC to Users
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   ② The MRC shall confirm the status of the requested NIEMA strain and send the strain to the user.
   ③ The provider MRC shall send a copy of the receipt to the strain’s Primary-MRC.

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