Biotechnology and Biosafety for Sustainable Development in LAO PDR

BioMalaysia and ASEAN Bioeconomy Conference 2015

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SCOPE OF THE PRESENTATION

1) Introduction of Biotechnology Safety Law
2) GMO Testing and Assessment
3) Raising awareness activities
4) Biotechnology and Ecology Institute, MOST LAOS
INTRODUCTION OF BIOSAFETY LAW
The biosafety regulations

- This was followed by accession to the Cartagena Protocol on Biosafety (CPB) on 1 November 2004.
- Lao PDR participated in the UNEP/GEF National Biosafety Framework Development (NBF) project and completed it successfully in December 2004.
The NBF was also used to prepare Biosafety regulations. A draft Biosafety Law was considered initially at the Lao Government Meeting on August 30, 2005. The law was adopted in the 6th ordinary session at the 7th National Assembly Congress on 18 December 2013 and promogated by the President of the Lao People’s Democratic Republic on 28 January 2014.
Structure of Biosafety Law

There are 10 parts and 78 articles

Part I: General provision
Part II: Biotechnological works
Part III: Biotechnology Risk Analysis
Part IV: Human Resource Development and Public Participation
Part V: Prohibition
Part VI: Dispute Resolution
Part VII: The Committee for Biosafety Administration
Part VIII: Administration and Inspection
Part IX: Policy on Performance Generators and Measures for Violators
Part X: Final Provision
This Law determines the principles, regulations and measures on management and monitoring of biotechnology safety to ensure safety in research, development, handling, movement, and the use of Genetic Modified Organism (GMOs) resulting from the use of biotechnology, which may result in having negative impacts on conservation and sustainable use of biodiversity, with a focus on the limitation and reduction of risks to the life and health of human beings, animals, plants and the environment that can be linked at the regional and international levels, and which contribute to the national socio-economic development.
Biotechnological Research and Development (Article 13)

Biotechnological Research and Development is a new, wide open field promoted for the conservation and sustainable use of genetic resources by defining research and development plans at the national level within priority areas that hold potential for socio-economic development as follow:

1. Biotechnology in Genetic Resources
2. Biotechnology in Agriculture and Forestry
3. Biotechnology in Health
4. Biotechnology in Industrial Processing
5. Biotechnology in the Environment
Areas of biotechnological research and development of genetic resources at the national level include the following:

1. Identification of characteristics and Establishment of a genetic database;
2. In-situ conservation of genetic resources such as conservation forests and conservation areas;
3. Ex-situ conservation of genetic resources such as botanic gardens and community gardens;
4. Sustainable use of genetic resources;
5. Other topics based on the needs of socio-economic development periodically.
Areas of biotechnological research and development in agriculture and forestry at the national level include the following:

1. Plant variety development and improvement;
2. Animal breed development and improvement;
3. Soil and water resource development and improvement;
4. Forest resource development and improvement;
5. Other topics based on the needs of socio-economic development periodically.
Areas of biotechnological research and development in health at the national level include the following:

1. Food and nutritional value;
2. Disease testing and diagnostics;
3. Development of traditional and modern medicine;
4. Disease prevention, treatment and health promotion;
5. Other topics based on the needs of socio-economic development periodically.
Areas of biotechnological research and development in the processing industry at the national level include the following:

1. Processing and value added products;
2. Packaging and trademarks;
3. Production standards and quality;
4. Bioenergy;
5. Other topics based on the needs of socio-economic development periodically.
Areas of biotechnological research and development in the environment at the national level include the following:

1. Biological indicator of ecological systems;
2. Environmental quality control;
3. Management of waste and pollutants harmful to the environment;
4. Environment conservation and rehabilitation;
5. Other topics based on the needs of socio-economic development periodically.
Providing that biotechnology is associated with patents in other areas, the use and transfer of such rights is managed and protected as stipulated in the Law on Intellectual Property.
Traditional Knowledge (Article 22)

Traditional knowledge is promoted and protected as follows:

1. Respect, protect and mobilize creativity and the actual practices of people that are related to the conservation and sustainable use of genetic variation,

2. Extensive use by means of approval and promotion of creativity and skills with participation of the owners, and the benefits from knowledge, creativity and skills shall be properly shared,

3. cont ….
Traditional Knowledge cont...

(Article 22)

3. Protect and encourage the use of genetic resources related to the traditional culture being practiced, consistent with the conservation and sustainable use of its contents,

4. Encourage and assist local populations to develop and implement measures on conservation and protection of rare areas of genetic diversity to avoid deterioration,

5. Encourage all public and private agencies to cooperate in conservation and the sustainable use of genetic resources.
Access to and Benefit Sharing of Genetic Resources (Article 24)

All parties can access to genetic resources by using such resources consistent with environmental conditions, conservation, and the sustainable use of genetic resources, and shall share the benefits of using such resources equally and legitimately, as well as being able to access the transfer of relevant biotechnology appropriately.
Committee for Biotechnology Safety Administration (Article 54)

The Committee for Biotechnology Safety Administration consists of:

1. The National Committee for Biotechnology Safety
2. The Technical Coordination Committee

In cases where it is necessary, the Committee for Biotechnology Safety Administration may be established in local areas.
The National Committee for Biotechnology Safety is not an ad hoc organization. This Committee has technical or academic functions and responsibilities for organizationally implementing tasks concerning biotechnology safety, and consists of representatives from ministries and organizations related to biotechnology and biotechnology safety.
Structure of the National Committee for Biotechnology Safety (Article 56)

The National Committee for Biotechnology Safety consists of:

1. Minister of the Ministry of Science and Technology as President
2. Vice Minister of the Ministry of Natural Resources and Environment as Vice President
3. Vice Minister of the Ministry of Agriculture and Forestry as Vice President
4. Vice Minister of the Ministry of Public Health as Committee member
5. Vice Minister of the Ministry of Science and Technology as Committee member and Chair of the Technical Coordination Committee
6. Other relevant Vice Ministers as Committee members
Secondary biosafety regulations

The country is in the process of drafting sub-regulations which will support the implementation of Biosafety Law including:

1) Environmental Release
2) Food and Feed (labelling)
3) Contained use
GMO TESTING AND ASSESSMENT
Establishment of Molecular Laboratory
(July 2014)

Laboratory Facilities used for GMOs detection
## Capacity Building under the Lao-UNEP-GEF INBF project activities

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<th>16–27 June 2014</th>
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Trainings on GMO risk assessment and risk management
Hands-on training on Detection of Living Modified Organisms (Quality Assurance and GMO Analysis Using Real-Time PCR)
Field sampling during the training period
Demonstration of using test kit
Sampling activity in mini mark during the training
Sampling activity in fresh market during the training
Some of food products from the market will be used for GMO testing
Corns: use for feed processing
GMOs detection training activity
RT-PCR for GMOs detection
RAISING AWARENESS ACTIVITIES
Biosafety publication
Biosafety publication

Raising awareness materials on Biosafety
Biosafety publication
Biosafety publication
Welcome to the Lao BCH

The Lao Biosafety Clearing-House (Lao BCH) was established by Article 20 of the Cartagena Protocol on Biosafety, in order to facilitate the exchange of scientific, technical, environmental and legal information on, and experience with, living modified organisms (LMOs).

News and Events

Training on LMO Detection at Biotechnology and Ecology Institute, Vientiane Capital, Lao PDR, 08-18 July 2014

The training workshop was held on 08-18 July 2014. There were over 10 participants in this training, including LMOs detection expert from Environment Agency Austria (Dr. Frank Narendja), and key stakeholder from Ministry of Science and Technology, Ministry of Agriculture and Forest, Ministry of Health, and National University of Laos.

Dr. Frank Narendja facilitated and presented during the training. The presentations included the Introduction to LMOs, LMO-detection, LMO sampling, Analyze extraction, Qualitative detection of LMOs, Background information on web-information about GMOs and GMO detection, Expression of results and requirements for test report, Sampling on grains and seeds, field sampling, practical use of protein strip tests.

This training workshop has created a great opportunity to learn from GMOs detection expert’s experiences in order to further improve biosafety information in Lao PDR.
BIOTECHNOLOGY AND
ECOLOGY INSTITUTE
MOST, LAOS
The Ministry of Science and Technology was established by Prime Minister Decree number 309 PM dated 28 September 2011, which determinate the principles concerning the location, functions, duties, scope of rights, organizational structures and operational working approaches of the Ministry of Science and Technology in order to be a reference in implementing and performing the political movements of their own in order to implement the policies and guidelines of a party and a state concerning works on science, technology, intellectual property, standardization and metrology throughout the country.

- The Ministry of Science and Technology is abbreviated as “MOST”, is the technical organization and the governmental administration at the central level, is structured within the governmental structures and has the roles as a secretary for the state in developing and macro-administering for the concerning works on science, technology, intellectual property, standardization and metrology throughout the country.
Ministry of Science and Technology
Organization Structure

• Administrative structure at central level: (1) Office of the Ministry; (2). Organizing and Personnel Department; (3). Inspection Department; (4). Planning and Cooperation Department; (5). Science Department; (6). Technology and Innovation Department; (7). Intellectual Property Department; (8). Standardization and Metrology Department; (9). Information Technology Department; (10). National Science Council Office

• Expertise structure at central level: (1) Biotechnology and Ecology Institute; (2) Renewable Energy and New Material Institute; and (3) Technological Computer and Electronic Research Institute

• Structure the local level: (1). Science and Technology Division at the provincial level; (2). Science and Technology Office at the district level.
Biotechnology and Ecology Institute

- The Biotechnology and Ecology Institute, was established by MOST Minister Order number 0036 MOST dated 18 January 2013, which determinate the principles concerning the location, functions, duties, scope of rights, organizational structures, principle and operational working approaches of the Biotechnology and Ecology Institute in order to be a reference in implementing and performing the political movements of their own in order to implement the policies and guidelines of a party and a state; plans, programs and projects concerning MOST roles on biotechnology and ecology throughout the country.

- The Biotechnology and Ecology Institute is abbreviated as “BEI”, is structured within the MOST structures and has the roles as a secretary for the ministry in research, development, apply and service on biotechnology and ecology.
BEI-MOST Research and Development Strategies

BEI-MOST Research and Development Strategies to the year 2020-2030 were determined as following: “Make intention to strengthen capacity of the scientific research, human resource development, infrastructure establishment and international corporation for the purpose to establish Institute as Center of Excellence on Education, Research, Development, Applying and Public Service in the fields of biotechnology and ecology, to be joint in the region level by the year 2020 and international level by the year 2030; by using diversity of the genetic resources for

(1) the challenge of conservation and sustainable development,
(2) the suitable, harmonization and focusing on the problem solution of related sectors,
(3) the tool of socio-economic development and
(4) the nation poverty reduction and prosperity purpose “
BEI-MOST New Building

Ministry of Science and Technology
Ecology and Biotechnology Institute

CONCEPT DESIGN
TREE + WATER + AIR = GREEN BUILDING

PERSPECTIVE
AND ENVIRONMENT

ELEVATION

By ASSOC. PROF. MBP. MINTH
Phuthavone KODHONG
BEI-MOST and Botanic Garden 170 ha
Thank you Very Much!