

Status of forest genetic resources conservation and management in Indonesia

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Introduction

Forest genetic resources has received more serious attention since recent years. Some new policy and regulatory measures have been put into effect. Recently the three Ministers (Minister of Forestry, Minister of Agriculture, and Minister of Environment) have agreed to establish gene bank trust fund for plants (agricultural and forestry species). The Ministry of Forestry itself has focused its policy among others on forest genetic resources conservation and management (FGR C&M).

There are a number of policies and initiatives relevant to FGR C&M since last years. For example: (a) National programme on forest and land rehabilitation, where genetic conservation has been given more attention especially in species selection for the target regions. Site and species matching has been an important consideration in selecting species for all target regions. In particular, species used for rehabilitation program in degraded conservation forest must be endemic to the targeted conservation areas. (b) Minister of Forestry Decree on Distribution and utilization of teak planting materials (SK No. 67/2004) regulates the use of teak genetic materials in the country including the need to use planting materials in which its origin is known, (c) draft of genetic resources utilization and conservation Act is in the process of inter-sectoral consultation.

National capacity in FGR conservation and management

Organizations

The existing structure and responsibility set up for each Government institution in Indonesia require involvement of a wide array of institutions and organizations. The following are government institutions and other organizations involved in forest genetic resources conservation and management activities.

1. National Departments
 1. State Ministry of Environment
 2. State Ministry of Research and Technology
 3. State Ministry of National Planning
 4. Ministry of Forestry
 5. Ministry of Agriculture
 6. Ministry Marine and Fisheries

7. National Agency for Technology Assessment and Implementation.
2. Universities
 1. University of Gadjah Mada
 2. Bogor Agriculture Institute
 3. University of Mulawarman
 4. University of Papua
 5. Bandung Technology Institute
3. Research Institutes
 1. Indonesian Science Institute (LIPI)
 2. Agency for Forestry Research and Development (with 4 Research Centres and 13 Regional Research Institutes)
 3. Agency for Agricultural Research and Development
 4. Centre for Tropical Forest Research, Mulawarman University
4. International Agencies
 1. CIFOR
 2. ICRAF
5. NGOs
 1. National (e.g. KEHATI Foundation)
 2. International (e.g. TNC, CI, Wetland Institute)
6. Community-based organizations

Many community-based organizations have emerged in recent years, however, only few of them are well established, e.g. in Krui (Sumatera), Yogyakarta, West Nusa Tenggara.

Lead institution/organization(s) responsible for FGR conservation and management

Among many institutions and organizations listed above, the following are key institutions/organizations that are responsible for FGR conservation and management in the country.

1. State Ministry of Environment, its tasks are coordinating relevant Ministries and other government institutions, and other stakeholders in formulation of environmental related policies at the national level.
2. State Ministry of Research and Technology, its tasks are coordinating relevant Ministries and other government institutions in formulation of policies on research and technology at the national level.
3. State Ministry of National Development Planning, its tasks is coordinating relevant Ministries and other government institutions in setting up national development planning where FGR C&M is integral part of the planning.

4. Ministry of Forestry, responsible in forestry sector policy formulation, planning of forestry sector, forest management, R & D, training, education, and extension, and controlling.
5. Ministry of Agriculture, responsible in agricultural sector policy formulation, planning of agricultural sector and other relevant Ministerial function.
6. Ministry of Marine and Fisheries, responsible in policy formulation on marine and fisheries, planning of the sector and other relevant Ministerial function.
7. Indonesian Science Institute, national scientific body which is responsible in conducting basic research, policy formulation on researchers' affairs.
8. National Agency for Technology Assessment and Implementation, responsible in assessing technology and its implementation.

Information regarding ministries, universities, and/or organization involved in FGR, has been gathered through questionnaires. More than 100 questionnaires were distributed to various institutions/organizations involved in or related to FGR C&M, however, only limited institutions could provide the necessary information.

Capacity building methods

Ways and methods that can be considered as effective and commendable are very much depending on the target group of capacity building. For research institutes through training (long term and short term), participating in seminars/workshops both in the country and overseas, involve in collaborative research, as well as networking were found to be very effective ways of capacity building. Learning by doing process is an effective method in strengthening human capacity in FGR.

Example of areas that need training is the use of molecular marker in genetic conservation, characterization of FGR, and understanding genetic diversity of population and individuals for sustainable use of FGR etc.

Public awareness

Large proportion of Indonesian people probably is not aware of the issue relevant to FGR and the importance of FGR conservation and management. And so, awareness raising on FGR is critical not only for rural people but also various groups in urban society, including business communities.

Community groups living in and surrounding forests (indigenous people) mostly are aware of the importance of FGR conservation and management especially because their livelihood and other customary activities are very much dependent on the existence of FGR. Unsustainable use of FGR will bring about considerable problem for this community group.

The issue should be addressed to government both the central and autonomous governments to get significant political impacts.

Specific research addressing FGR problem in this kind may not exist, but in most cases it is incorporated in sustainable forest management issues.

Institutional and political setting for FGR conservation and management

National Policies

i) National Forest Policy / Forest Management Policy

National forest policy/forest management policy is guided by Forestry Act No. 41/1999 and a number of regulations that have already existed before the Forestry Act No. 41/1999 were put into effect, as well as other regulations under the Forestry Act No. 41/1999.

Some policies and regulations relevant to FGR C & M are follows:

- Five priority Policies on Forestry Sector (e.g. rehabilitation and conservation),
- National Programme on Forest and Land Rehabilitation 2003-2007.
- Government Regulations and Ministerial Decrees/Regulations under UU No. 41,
- Act (UU No. 5/1990), Conservation of Living Resources and Their Ecosystems
- Act (UU) No. 5/1994, ratification of CBD

ii) National Forest Genetic Resources conservation & management Policy

Among the existing policies and regulations, ones that more specific addressing FGR C & M are for example: Minister of Forestry Decree on Distribution and utilization of teak planting materials (SK No. 67/2004) which regulates the use of teak genetic materials in the country including the need to use planting materials in which its origin is known, and (draft of) genetic resources utilization and conservation Act. The intention of the three Ministries (MoF, MoA, MoE) to establish 'gene bank trust fund' can also be considered as relevant FGR C&M policy.

iii) National Biodiversity Action Plan

National Biodiversity Action Plan has been published in 2003 both in Bahasa Indonesia and English (e-copy will be provided in CD).

National FGR Task Force

Presently there are National Commission and Working Group on Germplasm, coordinated by the Ministry of Environment, consisting of representatives of related Ministries and other government institutions as well as experts from various Universities and R & D institutes. The key ministries in this area include Ministry of Agriculture and Ministry of Forestry.

This commission is meant to coordinate programme and activities related to genetic resources (agriculture and forestry) especially in translating Article 15 of CBD at the national level to suit national development objectives. This commission, for some reasons, is not effective yet.

FGR conservation strategies and practices

National strategies for FGR C&M

As stated in Indonesian Biodiversity Strategy and Action Plan (IBSAP) 2003-2020, eight points of policy direction for IBSAP implementation were determined (BAPPENAS 2003).

- Enhance the capacity of communities in managing biodiversity,
- Enhance assessment and development of knowledge and technology in sustainable management of biodiversity,
- Increase function sustainability and ecosystem balance at the local, regional, and national levels,
- Improve national economy through environmentally and socially sound biodiversity-based technology development,
- Improve management systems (conservation, rehabilitation, utilization) of biodiversity on a fair and sustainable basis,
- Develop institutional framework, local and national policy, and effective law enforcement in a synergic management of biodiversity.
- Encourage deconcentration and decentralization of central government authority on managing biodiversity to local governments and communities on a gradual and selective manner,
- Develop mechanism for conflict resolution on natural resources and biodiversity at the local, regional, national and international levels.

These eight points have supposed to be followed up by relevant Ministries and other government institutions, organizations and other stakeholders. However, as each Ministry/organization has also set up priority policy and actions, progress in the implementation of the above eight points of strategy varies among Ministry/organizations.

Priority species - update

i). Institution responsible for assessing conservation needs and priorities for forest species and selecting/recommending national “**priority**” **species** for FGR conservation.

Under the Forestry Act (UU No. 41) 1999, Ministry of Forestry holds the authority on forestry sector. As far as forest species is concern, the Ministry of Forestry is responsible for assessing conservation needs and priorities for forest species and selecting/recommending national **priority species** for FGR conservation.

Update of the national lists of priority species for FGR conservation *and/or* tree improvement

There have not been national lists of priority species which specifically for FGR conservation and/or tree improvement. National lists of priority species issued through the the Minister of Agriculture issued the Decrees No. 54/Kpts/Um/2/1972 and No. 261/Kpts-IV/1990, which set a minimum cutting diameter for a number of important species were meant to sustain supply of logs for commercial species. The species are not allowed to be cut before reaching the minimum size defined in the Decree.

As there is a large variation among region in terms of biodiversity level, species characteristics, social and cultural values, each region has its own priority species to be promoted. For this reason, up to now there is no formal document listing priority species at the national level. The existing lists of priority species were compiled from priority species proposed by various institutions and in various fora (see Indonesia Country Report on FGR-CM 2003).

Major updates in the selection of priority species since the 2003 Workshop

Along with the National Programme on forest and land rehabilitation (called GERHAN in Bahasa Indonesia) and policy change in forestry research and development, priority species varies from district to district with teak as the most preferred species to be planted under GERHAN.

National conservation strategies

The existing conservation strategies focused on securing conservation areas in order to maintain species diversity, with special attention on species which have been identified to be extinct or closed to extinction. Ministry of Forestry is responsible to develop the strategy in consultation with relevant Ministries and other stakeholders. Where inter-sectoral issues are involved, the process of strategy development is coordinated by the Ministry of National Development Planning.

The use of genetic information using genetic tools like molecular markers in developing national conservation strategies has not been priority yet. The use of this tool is still limited for genetic conservation in *ex-situ* conservation and breeding programme, which is mostly carried out by research institutions.

National budget for FGR activities

It is difficult to figure out national budget allocation for FGR activities as they are allocated to many government institutions under various categories of activities. For Ministry of Forestry itself, budget allocation comes from several sources, distributed to many organization units under the Ministry both at the central and regional/local levels.

Challenges in FGR C&M

Major challenges for FGR C&M in Indonesia include:

- No regulation specifically address FGR C &M
- Lack of fund, facilities, qualified human resources
- Awareness of the importance of FGR C & M is relatively low,
- Mobilization of alternative funding is still difficult.

Challenges 1 and 3 need more national efforts, while challenges 2 and 4 need collaborative activities at the regional and international levels.

FGR management in the community level

Local communities who use FGR sustainably were mostly because they are inherit the so called environmentally friendly practices from their ancestors. It is indigenous knowledge which brought them be able to practice sustainable utilization of FGR. Some examples

includes: sustainable use of FGR by several tribes in some major islands, sustainable forest management by community groups in Krui, Sumatera, Yogyakarta, and Nusa Tenggara.

Examples

JICA-FORDA cooperation on tree improvement programme, implemented by CFBTI is one among few successful examples of overseas funded project in relation with the ability of the host partner to sustain the activities after project termination. Through ten years bilateral cooperation of FORDA-JICA, the CFBTI has improved its capacity both institutionally and in human resources capacity.

Updates since the last workshop

The development in policy relevant to FGR C & M was emerged because of policy in forestry as a whole, for example through National Programme on forest and land rehabilitation, the issuance of new regulation related to FGR C&M, and more budget allocation for R & D activities relevant to FGR&M.

Regional collaboration on FGR C&M

Expectation by participating in the APFORGEN includes:

- Exchange of information,
- Exchange of germplasm for R & D activities,
- Training (e.g. characterization of genetic diversity, the use of molecular genetics to assist conservation and breeding programmes),
- Exchange of researchers and research managers among participating countries.

It is suggested that APFORGEN focused among others these four issues.

References

BAPPENAS. 2003. Indonesian Biodiversity Strategy and Action Plan 2003-2020. Board of National Development Planning. 50 pp.