Pathways to Safeguarding Asia's Tree Diversity

Regional workshop, 21 June 2021

Asia Pacific Forest Genetic Resources Programme

Alliance

Background

The first virtual workshop of the Asia Pacific Forest Genetic Resources Programme (APFORGEN) was held as a full-day event on Monday 21 June 2021. The workshop had three main objectives:

- to take stock of progress towards implementing APFORGEN's current strategy (2018-2022) through which the countries collaborate to implement the Global Plan of Action on Forest Genetic Resources in the Asia-Pacific region
- to identify and plan new collaboration opportunities and activities for the conservation and sustainable use of the region's forest genetic resources.
- to allow APFORGEN members to reconnect after the Covid-19 pandemic

The day's programme consisted of presentations of country reports by APFORGEN National Coordinators and country representatives, group discussions on common interests and collaboration opportunities to advance the implementation of APFORGEN's strategic objectives, as well as an information session about international processes related to forest genetic resources, including the preparation of the Second State of the World's Forest Genetic Resources report. The day was concluded by electing new members to APFORGEN's Board for the next three-year period. The workshop programme is in Annex 1.

The workshop was attended by 38 participants, including National and Assistant Coordinators and their colleagues from 11 countries, and representatives of FAO, the Asian Forest Cooperation Organization (AFoCO) and the Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT). The virtual format offered a unique opportunity to allow more participants from each country and team to join in the discussions. List of participants is provided in Annex 2. Workshop presentations are available online. The workshop was organized as a collaboration between APFORGEN, the Chinese Academy of Forestry, the Alliance, and ETH Zurich.

Welcome and introductions

Zheng Yongqi, Chair of APFORGEN, welcomed the participants to the workshop and highlighted the importance of regional collaboration in supporting the conservation and sustainable use of the region's valuable forest genetic resources. **Riina Jalonen** of Alliance then introduced the workshop objectives and programme. The objectives and the programme centered around the four Strategic objectives in APFORGEN's current strategy:

1) Mobilize political and financial support for the implementation of the Global Plan of Action on Forest Genetic Resources (GPA-FGR) in the Asia-Pacific region
2) Make available information about the forest genetic resources in the region
3) Develop conservation and sustainable use strategies for regionally important and threatened tree species
4) Strengthen tree seed supply systems to facilitate ecosystem restoration, support local livelihoods and climate change adaptation and mitigation

Several regional and sub-regional projects and initiatives have been organized since the launch of the current strategy. Three regional training courses have been organized starting in 2016, each involving over 30 professionals. In 2020, a new regional training centre was established in Hainan, China. Through the regional project *APFORGIS – Establishing an Information System on Asian Tree Species and their Genetic Resources* (2017-2019), up-to-date distribution, threat and priority action maps were developed for 65 regionally important tree species across APFORGEN member countries. The project also led into the development of regional guidelines for genetic conservation units. The project *Conserving Rosewood Genetic Resources for Resilient Livelihoods in Greater Mekong* (2018-2021) has developed a regional conservation assessment for three endangered Rosewood species and supported the establishment of *in situ* conservation units, *ex situ* collections, seed sources and community nurseries for the target tree species in Cambodia, Lao PDR and Thailand. Finally, an ongoing review of tree seed supply systems for restoration in India, Indonesia, Malaysia and the Philippines has highlighted good practices and common challenges in seed supply to match ambitious restoration targets.

Country presentations

National Coordinators and country representatives presented key activities and achievements in their countries, related to APFORGEN's Strategic objectives, as well as priorities for future work. The country presentations are available online in the workshop folder. Priorities for future work are shown in Box 1.

The presentations simulated discussion about good practices and common challenges in conservation and sustainable use of forest genetic resources, including the impacts of CITES regulations on planting of *Dalbergia* spp., and ways to mobilize funding from the private sector for conservation and research by connecting to industry needs.

Box 1. *Examples of priorities for future work in APFORGEN member countries*

Strategic objective 1: Mobilize political and financial support

- Organize international training course on national FGR capacity development with funding from the Ministry of Science and Technology, China
- Organize training course on new technologies for FGR research and development
- Work to obtain commitment, supportive policy and regulations for the species
- Strengthen collaboration at regional level between countries, including research and exchange of material

Strategic objective 2: Make available information about forest genetic resources

- Map FGR for implementing a national FGR information system
- Create a geo-database of threatened and endangered tree species in protected areas and areas with high indigenous tree diversity
- Create a database of planted indigenous tree species from literature and field data
- Develop informative genetic information and evaluation tools
- Assess genetic diversity of *Dalbergia* spp. in the region
- Study the phylogeography of Dipterocarps in Sundaland
- Assess forest genetic resources of *Gonystylus bancanus*
- Carry out whole genome sequencing of the most threatened forest trees

Strategic objective 3: Develop conservation and sustainable use strategies

- Develop national conservation strategy based on FGR inventory data
- Integrate FGR conservation and sustainable use in protected area management, restoration, forest management
- Develop conservation strategies for Rare, Endangered and Threatened (RET) species common across the region
- Involve local community to help conserve the indigenous, threatened species
- Share *Dalbergia* spp. seeds with national seed bank units and private companies as well as rural households for ex situ conservation
- Develop advanced ex situ conservation techniques (tissue culture and desiccation) for *Dalbergia* spp.
- Establish provenance trials for *Dalbergia* spp., including *D. cultrata, D. hupeana*
- Develop domestication and improvement programmes for selected indigenous species and species for Industrial Tree Plantations
- Collaborate on tree breeding activities of *Dalbergia* spp.

Strategic objective 4: Strengthen seed supply systems

- Evaluate existing seed supply system and implementation of government regulations in the field
- Prepare genetic restoration guidelines for rare and endangered species against climate change
- Develop collection and propagation methods and guidelines for genetically appropriate restoration materials
- Develop quality control mechanisms for germplasm and guidelines for seed certification, and support their application
- Establish seed sources in and outside protected areas, farmland
- Develop seed sources for large-scale restoration programs
- Test seed germination and propagation at trial sites
- Study silvicultural techniques and markets for recommended local species for restoration
- Assess climate change effects on seed transfer zones

Introduction to AFoCO programmes

The morning session ended with a presentation of the Asian Forest Cooperation Organization (AFoCO) by **Sung Ho Choi**. AFoCO is an international organization with a vision for "A greener Asia with resilient forests, landscapes and communities". Currently, 13 Asian countries are Parties to AFoCO and another two counties have an observer status. AFoCO's objectives are to contribute to its member countries in (i) achieving the global goal of increasing forest cover up to 3% worldwide, (ii) implementing the Paris Agreement on climate change particularly in pursuit of policy approaches for adaptation in the forestry sector, and (iii) improving livelihood and income through forestry-related activities. According to its current Strategic Plan, AFoCO will strive for these objectives e.g. through initiating customized restoration and reforestation models, supporting research and development in climate change adaptation and strengthening institutional capacities.

Global processes and programmes on forest genetic resources

Zheng Yongqi briefed participants about the meetings of the Intergovernmental Technical Working Group on Forest Genetic Resources (ITWG-FGR), which he currently chairs. The Working Group reviews issues related to forest genetic resources and advises the Commission on Genetic Resources for Food and Agriculture (CGRFA). Members of the Working Group from Asia are currently China, Lao PDR, Republic of Korea, Malaysia and Thailand, with India and Indonesia as alternates. The Working Group held it sixth session in April 2021 to review progress in implementing the Global Plan of Action on Forest Genetic Resources and discuss issues related to developing a global information system on forest genetic resources, access and benefit sharing, digital sequence information, the role of forest genetic resources in mitigating and adapting to climate change and use of biotechnologies for genetic resources conservation and use. Report of the session is available on FAO website.

Jarkko Koskela of FAO explained the progress in preparing the Second State of the World's Forest Genetic Resources Report. He urged countries to submit their national reports to FAO as soon as possible and not later than end of October 2021. Currently, 13 countries have submitted their full reports and data, and approximately 40 countries are making good progress with their reports. Countries that have yet to nominate their National Focal Points should also do so as soon as possible, and ideally develop teams to assist the Focal Points with the task of preparing the reports. The next session of the ITWG-FGR will be held in 2022 and will discuss progress made in the conservation and use of forest genetic resources based on the country reports. The global information system on forest genetic resources is being designed, and a test version will be available by the end of 2021. FAO will then organize workshops to discuss issues

in documenting forest genetic resources, train Focal Points in using the database and collect ideas for further developing it.

During discussion, countries highlighted the impact of the Covid-19 pandemic on the preparation of the country reports. In response to the questions, Jarkko Koskela explained that it is fine for the countries to build on the previous reports and only add new information where available, if this helps with the report preparation. Even incomplete reports will be welcome if they cannot be completed in time, as this is better than not having a report at all and helps provide some information about the status of forest genetic resources across countries.

Breakout groups on Strategic objectives

Participants split into four groups to discuss needs, priorities and collaboration ideas for each of APFORGEN's strategic objectives. Two rounds of discussions were organized, with an opportunity for the participants to change groups in between. Action points arising from the group discussions are shown in Table 1.

On the first strategic objective, the participants discussed the plans to initiate the activities of the Regional Training Centre that have been delayed due to the Covid-19 pandemic. The first training could be held soon as a virtual meeting, or it could be further postponed until a physical meeting is possible. Emerging technologies for forest genetic resources conservation and use are a promising topic for trainings. The participants also discussed the need to better link forest genetic resources to broader sectoral or cross-sectoral policies and programmes, both to promote their conservation and sustainable use and to mobilize funding and support for the work. In many countries, it is difficult to make the case for forest genetic resources, especially as stand-alone projects, but they could potentially be integrated in sectoral projects. Participants in the group felt that they lacked relevant contacts to help advocate for forest genetic resources in sectoral projects. There is also need to better demonstrate and articulate the values of forest genetic resources, and sharing information and experiences between APFORGEN members on this would be useful.

On the second strategic objective, the participants agreed to establish a working group to refine standards for documenting forest genetic resources. The work could include (i) reviewing standards developed by different initiatives, including within countries, (ii) participating in dialogues about standards (e.g. contributing to the development of an international information system led by FAO), and (iii) identifying similarities and synergies between different approaches in order to work towards harmonization or compatibility of systems. The standards should go beyond spatial data and include a long-term perspective to encompass developing technologies, for example by covering digital sequence information (DSI). Members of the working group should include APFORGEN coordinators and other technical experts from

member countries who are involved in collecting or producing relevant data, as well as representatives from FAO. The work should be initiated soon, also to be able to link to FAO's work on developing the global information system.

The group for the third strategic objective discussed conservation and sustainable use strategies in general, as well as specifically for *Dalbergia* spp. which are of common interest to many member countries. There is an urgent need to identify populations of many native, endangered trees and assess their genetic diversity, as populations are often scattered and declining. Target species include *Dalbergia* spp., *Shorea* spp. and *Aquilaria* spp. Relevant knowledge and tools such as molecular and morphological identification protocols have already been developed in some countries and can be shared as examples. Much of this work has focused on *Dalbergia* spp. and they could be used as a case study of the development of knowledge, tools and strategies that could then be adapted to other, currently less studied species as well. It was noted that IUCN conservation status assessments do not adequately consider genetic diversity and do not, therefore, always represent the actual conservation status in countries. A regional network is needed to compile information on genetic diversity of selected species to inform IUCN assessments. APFORGEN should organize a session on *Dalbergia* spp. at the next World Forestry Congress in Korea in 2022 to foster exchange of knowledge on the species and gain visibility for the network's agenda. AFoCO is one of the conference organisers.

On the fourth strategic objective, the participants agreed to develop guidelines for quality control systems for priority native tree species. The work would involve assessing existing quality control measures in the member countries, develop criteria and indicators for high-quality seed, and develop accessible tools for measuring or assessing quality. A multi-country proposal should be developed to help improve seed systems for forest and landscape restoration in APFORGEN member countries. Country focal points of international and donor organizations can be approached to try to identify funding opportunities. Lastly, the participants agreed to establish a working group on seed systems for forest and landscape restoration that would have national and regional dimension and that would focus on developing new knowledge and tools but also on strengthening capacity, raising awareness among practitioners and securing funds for the work.

A survey will be sent out for participants to register to the identified working groups on (i) capacity strengthening, (ii) standards for documenting species and genetic information, (iii) conservation and sustainable use guidelines for genetic resources, (iv) compiling genetic information to support IUCN Red List assessments and (v) improving tree seed systems.

Table 1. Action points arising from the breakout group discussions

Action	Notes
Strategic objective 1: Mobilize political and financial support	
• Establish a working group on capacity needs	
• Regional training centre: Plan format for the first training course (physical or virtual) and carry out a survey on training needs for new technologies	Led by Chinese Academy of Forestry
• Develop National FGR strategy for countries that do not yet have one	Thailand
• Align APFORGEN's activities with country and international policies	Helps gain support from governments
• Share information and experiences on the values of FGR and how to advocate for those	
Strategic objective 2: Make available information about forest genetic resources	
• Establish a working group to define standards for documenting FGR	National coordinators, technical experts, FAO
Strategic objective 3: Develop conservation and sustainable use strategies	
• Organize a session on *Dalbergia* spp. during the World Forestry Congress in 2022	All participants working on Dalbergia spp. as contributors.
• Identify Dalbergia populations and carry out diversity assessment (marker development needed)	India, Indonesia
• Share existing protocols for species identification (molecular and morphological)	Thailand, Indonesia
• Carry out range-wide genetic diversity assessment for threatened species	Malaysia, Thailand, Indonesia
• Develop germplasm collection guidelines	Malaysia, Indonesia
• Identify tools and genetic information that can be used for timber tracking	
• Establish a network / working group to compile information on the genetic diversity of selected species to complement IUCN conservation assessments	
Strategic objective 4: Strengthen seed supply systems	
• Set up working group on improved seed systems	Sri Lanka, Bangladesh, India, China, Vietnam, Indonesia, Lao, Philippines,
• Create cross-country project proposal on improved seed systems for FLR	
• Create set of guidelines for quality control system for priority native species	
General	
• Develop an action plan with annual activities for APFORGEN	
• Update national coordinators lists where relevant and appoint assistant coordinators	Nominate interim coordinators as regional experts where relevant

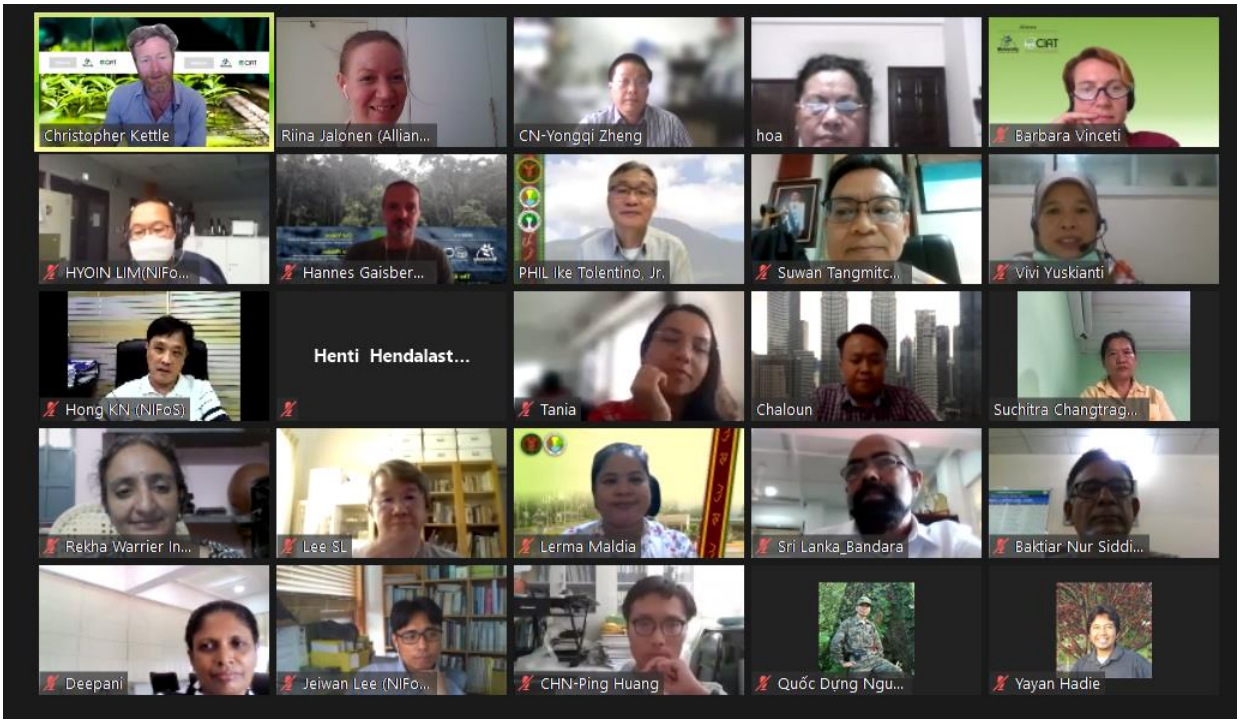
Election of APFORGEN office holders

The following people were elected to APFORGEN's Board for the next three-year term:

- Zheng Yongqi, Chinese Academy of Forestry, China (Co-chair)
- Rekha Warrier, Institute of Forest Genetics and Tree Breeding, India (Co-Chair)
- Chaloun Bountihiphonh, Forest Research Center, Lao PDR (Secretary)

The position of Vice Chair was left vacant for the time being, as there were no candidates during the meeting. It was noted that it would be good to have Malesia region (Malaysia, Indonesia, Philippines) represented in the new Board.

Participants thanked and congratulated the elected Board members and expressed their appreciation to the outgoing Board members, Vice Chairs Suchitra Changtragoon (Department of National Parks, Wildlife and Plant Conservation, Thailand) and Bandara Ariyaratna (Sri Lanka Forest Department) and Secretary Enrique Tolentino jr. (University of the Philippines, Los Banos).



Group picture of participants on Zoom

Cover photo of the report: Compilation of photos from country presentations by APFORGEN National Coordinators

Annex 1: Workshop programme

Time * *Cambodia, Lao PDR, Vietnam, Thailand, Indonesia*	**Activity**
09.00-09.30	Meeting room opens, time for testing and catching up
09.30-09.40	Welcome *Zheng Yongqi, Chair of APFORGEN, Chinese Academy of Forestry*
09.40-09.50	Quick round of introductions
09.50-10.00	Meeting objectives and structure *Riina Jalonen, Alliance of Bioversity International and CIAT*
10.00-11.00	Progress with Strategy: East Asia and Greater Mekong subregion (China, Korea, Lao PDR, Thailand, Vietnam)
11.00-11.10	*Comfort break*
11.10-12.10	Progress with Strategy: South Asia subregion (Bangladesh, India, Sri Lanka) Malesia subregion (Indonesia, Malaysia, the Philippines)
12.10-12.30	Introduction to AFoCO programmes *Sung Ho Choi, Asian Forest Cooperation Organization (AFoCO)*
12.30-13.45	*Lunch break*
13.45-14.05	Updates from the International Technical Working group on Forest Genetic Resources *Zheng Yongqi*
14.05-14.25	Progress with the State of the World's Forest Genetic Resources Report: *Questions and Answers* *Jarkko Koskela, FAO*
14.25-15.30	Break out groups: Project & collaboration ideas
15.30-15.45	Comfort break
15.45-16.30	Plenary: *Reporting back from breakout groups; Action plans*
16.30-16.50	Appointment of new members to the Board of APFORGEN
16.50-17.00	Conclusions and way forward

* Republic of Korea: +2 h (11.00-19.00)
* China, Malaysia, Philippines: +1 h (10.00-18.00)
* Myanmar: -30 min (8.30-16.30)
* Bangladesh: -1 h (8.00-16.00)
* India, Sri Lanka: -1 h 30 min (7.30-15.30)
* Italy: -5 h (4.00-12.00 noon)

Annex 2: List of participants

Name	Organization	Country
Md.Baktiar Nur Siddiqui	Bangladesh Forest Department	Bangladesh
Zheng Yongqi	Chinese Academy of Forestry	China
Huang Ping	Chinese Academy of Forestry	China
Rekha R Warrier	Institute of Forest Genetics and Tree Breeding	India
Vivi Yuskianti	Forest Research and Development Center, Bogor	Indonesia
Nur Sumedi	Forest Research and Development Center, Bogor	Indonesia
Henti Hendalastuti Rachmat	Forest Research and Development Centre, Ministry of Environment and Forestry	Indonesia
Yahya Hadiyan		Indonesia
Chaloun Bounithiphonh	Forest Research Center, NAFRI	Lao PDR
Julia Sang	Forest Department Sarawak	Malaysia
Vilma Bodos	Forest Department Sarawak	Malaysia
Lee Soon Leong	Forest Research Institute Malaysia	Malaysia
Enrique L. Tolentino Jr.	College of Forestry & Natural Resources, University of the Philippines	Philippines
Lerma Maldia	University of the Philippines Los Banos	Philippines
Hyo-In Lim	National Institute of Forest Science	Republic of Korea
Joowon Park	Asian Forest Cooperation Organization	Republic of Korea
Sung Ho Choi	Asian Forest Cooperation Organization	Republic of Korea
Jeiwan Lee	National Institute of Forest Science	Republic of Korea
Hong Kyung Nak	National Institute of Forest Science	Republic of Korea
Deepani Alawathugoda	Department of Forest Conservation	Sri Lanka
K M A Bandara	Forest Department	Sri Lanka
Panduka Weerasinghe	Forest Department	Sri Lanka
Benjarat Prompen	Royal Forest Department	Thailand
Suwan Tangmitcharoen	Royal Forest Department	Thailand
Narin Tedsorn	Royal Forest Department	Thailand
Suchitra Changtragoon	Department of National Parks , Wildlife and Plant Conservation	Thailand
Nguyen Quoc Dung	Forest Inventory and Planning Institute	Vietnam
Hoa Tran	Institute of Agricultural Genetics	Vietnam
Branislav Trudic	FAO	Italy
Jarkko Koskela	FAO	Italy
Chris Kettle	Alliance of Bioversity International and CIAT	Italy
Smitha Krishnan	Alliance of Bioversity International and CIAT	India
Tania Kanchanarak	Alliance of Bioversity International and CIAT	Malaysia
Hannes Gaisberger	Alliance of Bioversity International and CIAT	Italy
Barbara Vinceti	Alliance of Bioversity International and CIAT	Italy
Ennia Bosshard	Alliance of Bioversity International and CIAT	Switzerland
Riina Jalonen	Alliance of Bioversity International and CIAT	Malaysia