AFoCO

Establishment of Forest Genetics Center for Restoration of Major Timber Species in Cambodia

• **Project Code**	AFoCO/005/2014
• **Project Duration**	10 years (2016-2025)
• **Project Budget**	USD 1,500,000
• **Project Site**	Khun Ream, Siem Reap Province, Cambodia
• **Project Area**	248 ha

▶Overview

Cambodia lost 22% of its forest cover from 73.1% (13.2 million ha) in 1973 to 57% (10.3 million ha) in 2010. The main causes of forest cover loss include more frequent increased forest fires, population increase, shifting cultivation, fuel wood/charcoal, land conversion, encroachment and expansion of infrastructure for economic development. Intensified efforts are required to restore forest cover in cambodia.

Despite the implementation of a series of restoration projects in Cambodia, the fundamental issue regarding the source of seeds is still being questioned. Most of the time, seeds are collected or purchased from different places across the country as well as neighboring countries, without clear genetic information. Especially for major timber species such as *Dalbergia cochinchinensis*, the quality of seeds in terms of its genetic superiority (e.g. phenotype and productivity) cannot be guaranteed. It is necessary to produce genetically improved seeds within Cambodia through a long-term tree breeding plan in order to achieve effective and efficient restoration of the major timber species in Cambodia.

For that, the project supports the broadening of experience and knowledge on tree breeding in the forestry sector in Cambodia. Through a technical cooperation with the National Institute of Forest Science of the Republic of Korea (NIFoS), the project will establish a clonal seed orchard (CSO) for three major timber species *Dalbergia cochinchinensis, Dipterocarpus macrocarpus* and *Pterocarpus macrocarpus*. This will be the first CSO in the country.

Grafted part of *Dalbergia cochinchinensis*

▶Objectives

The objectives of the project are to: (1) implement a long-term tree breeding plan and (2) strengthen the restoration and tree breeding capabilities of the Forestry Administration of Cambodia.

1. To implement a long-term tree breeding plan

- Plus tree selection of 3 major timber species: *Dalbergia cochinchinensis, Dipterocarpus macrocarpus* and *Pterocarpus macrocarpus*
- Establishment of progeny test plantation (24 ha)
- Establishment of clonal seed orchard (6 ha)
- Establishment of demonstration forest (18 ha)
- Silvicultural management for conservation of forest genetic resources (200 ha)

2. To strengthen the restoration and tree breeding capabilities of Forestry Administration of Cambodia

- Training on tree breeding for technical staff
- Educational programs on restoration techniques and tree breeding
- Local trainings on forest protection for villagers
- Publication of textbook on tree breeding in Cambodia in both English and Khmer

"Model forest for SFM based on conservation of tree genetic resources"

▶Implementation Progress

After the identification of plus trees for target species, the country-wide collection of seeds was carried out between November 2015 and April 2016. At the same time, the vegetative propagation test for the species was conducted as the first step towards the establishment of the clonal seed orchard. The inception workshop was organized by the implementing agency, the Institute of Forest and Wildlife Research and Development (IRD) under the Forestry Administration of Cambodia, in May 2016 in Siem Reap, Cambodia. From July to September 2016, the first progeny test plantation and seed orchard were established (15 ha). Weeding, pruning, monitoring and establishment of firebreaks for the 200 ha Dalbergia plantation site were conducted as part of silvicultural management activities.

Scion collection

Grafting production

Layout of research blocks and plots on the ground

Education and training programs

▶Expected Outcomes

The project will contribute to the national goals in Cambodia, and provide environmental and socio-economic benefits. The establishment of a progeny test plantation, a clonal seed orchard and a demonstration forest will improve the genetic quality of seeds in Cambodia, as well as the overall environmental quality of the area.

Furthermore, it will support the Cambodia National Forest Program (2010-2029) to achieve sustainable forest management. Timber market competence will also be improved through the stable provision of high-quality seeds.

At the end of the project, a forest based on genetic resources of timber trees will be established in Cambodia, and it will serve as one of the AFoCO model forests in the region to demonstrate sustainable forest management and promote the implementation of national forest programs.

◈ AFoCO Landmark Program

Asian Forest Cooperation Organization (AFoCO) is a regional forestry organization in Asia. Under the broader scope of achieving sustainable forest management and addressing the impacts of climate change, AFoCO aims to strengthen regional forest cooperation, undertake diverse forestry projects and translate sound forest policies and proven technologies into practical actions, with a mission to rehabilitate degraded forest land and prevent deforestation.

Launched in 2014, the AFoCO Landmark Program is a regional project with a holistic approach of 'Restoring Degraded Forests in Southeast Asia as a Model for a Greener Asia', as well as long-term activities and goals to contribute to the socio-economic development of local communities in accordance with the strategic framework of the Initiative for ASEAN Integration (IAI) to narrow the developmental gaps among AMS. The Landmark Program consists of 4 components, and the project "Establishment of Forest Genetics Center for Restoration of Major Timber Species in Cambodia" is under Component 3 of the program, 'Restoration of Degraded Forest Regions'.

Facebook : www.facebook.com/AFoCOLandmark / Website : www.afocosec.org / E-mail : contact@afocosec.org

AFoCO

8th Floor, 9 Gukhoe-daero 62-gil, Yeongdeungpo-gu, Seoul, Republic of Korea 07236
Tel : +82-2-785-8961 Fax : +82-2-785-8970
Website : www.afocosec.org

AFoCO

Korea Forest Service