



## Dynamic Agroforestry for Cocoa Production

### Dynamic Agroforestry: Improving Livelihoods and Conserving Nature

In line with its main objectives of soil and biodiversity conservation and sustainable rural development, FORCLIME promotes dynamic (or successional) agroforestry in the cocoa sector.

Indonesia is one of the biggest cocoa producers in the world, and smallholder production predominates. As in many other tropical countries, monocultural cocoa production has caused deforestation and biodiversity loss and involves widespread use of agrochemicals.

Dynamic agroforestry is a diverse and multi-layer farming system that integrates natural succession and aims to mimic natural forests, which are the natural habitats of the cocoa tree. The principles are high biodiversity, multiple strata, high biomass production and ecological recycling of organic matter, no use of agrochemicals (organic production) as well as no slash-and-burn clearance. The approach follows natural succession, departing from annual crops and fast-growing leguminous trees to species-rich secondary forests. Plants that become redundant are gradually removed to create space for others that support the system's development towards a higher successional level. In an advanced agroforestry system a wide



mixture of tree species, including timber and fruit trees, are grown side by side with the cocoa trees. Even though cocoa agroforestry gardens cannot match the biodiversity levels of primary forests their level of biodiversity is considerably higher than in conventional agricultural landscapes. This has positive implications on pest and disease prevention as well as on rural livelihoods through diversified income opportunities.



### Dynamic Agroforestry and Climate Change

Dynamic agroforestry in cocoa production can contribute to soil and biodiversity conservation and climate change mitigation while generating income through the sustainable use of permanent plots. This helps to prevent further forest encroachment. Agroforestry is also suitable to rehabilitate degraded agricultural land by improving its soil fertility through biomass input and the ecological recycling of organic matter. Thereby it contributes to climate change mitigation in terms of carbon sinks. The reforested land may help to improve habitat connectivity for wildlife. In addition, by applying dynamic agroforestry practices, agrochemicals are not needed, which translates into a significant reduction of production and environmental costs.

There are favorable world market prospects for organic cocoa and the big players of international cocoa marketing have committed to sourcing their complete supply sustainably by 2020. These prospects together with the fact that Indonesia is among the world's largest cocoa producers, the distribution of dynamic agroforestry for cocoa production promises mutual benefits for soil and biodiversity conservation, climate change mitigation and rural economic development.

## Strategy

Introducing dynamic agroforestry systems requires support from various parties that have the authority and can provide the human, social and other capital needed. FORCLIME aims to facilitate the communities' access to knowledge, networks and funding by building capacities among the stakeholders involved - from cocoa farmers, extension workers and smallholder businesses up to government agencies - in order to create positive framework conditions.

## Our Partners

On a national level, FORCLIME is working together with the Directorate General of Social Forestry and Environmental Partnership in the Ministry of Environment and Forestry of Indonesia. On a regional level, partners include all relevant government institutions, including the provincial forest and plantation services and local Forest Management Units (FMU) of the pilot areas (provinces of North, East and West-Kalimantan). The program also cooperates with farmer and extension worker groups, non-governmental organizations (NGOs) and consultants with expertise in dynamic agroforestry.

## Our Activities

FORCLIME facilitates various dynamic agroforestry activities for cocoa production and associated commodities:

- Introducing the concepts and methods of dynamic agroforestry as a sustainable cultivation system for cocoa and other commodities through field trainings, farmer field schools and the establishment of demonstration plots.
- Implementing baseline studies of production potentials to get an overview of smallholder plantations of cocoa and other commodities with commercial potential (black pepper, fruits, vanilla, etc.).
- Facilitating training of trainers (extension workers and officers) on improving the management, production and processing of cocoa and other commodities as well as supporting trainer groups' organization building, service provision and networking.



### Forests and Climate Change (FORCLIME)

FORCLIME is Forests and Climate Change Programme, a bilateral programme of the German and Indonesia governments, consists of Technical Cooperation (TC) and Financial Cooperation (FC).

FORCLIME TC, a programme implemented by the Indonesian Ministry of Environment and Forestry and GIZ, and funded through the German Federal Ministry for Economic Cooperation and Development (BMZ)

- Supporting producer groups in the analysis of value chains, planning business models, networking with companies and direct marketing of cocoa and other commodities.

## Achievements

More than 800 farmers, extension workers and officers joined in the field trainings about dynamic agroforestry. The development of cocoa in 15 agroforestry demonstration plots mostly established in Kapuas Hulu has shown good progress. The switch to dynamic agroforestry entails lower input of agrochemicals and associated costs. Intensive soil and tree management (e.g., pruning, mulching, composting) helps to increase cocoa tree vitality. In comparison, young cocoa trees in monocultures show signs of stress and diseases due to a high exposure to sunlight and weeds. The producers and advisers usually try to address those issues with a high input of agrochemicals while the problems persist.

In Malinau, a trainer organization was built up to distribute agroforestry knowledge among local producers.

In a Public Private Partnership (PPP) with a private company, the chocolate produced in Malinau's demonstration plots is marketed as "Kalimantan" chocolate in Jakarta and beyond.

In cooperation with the Ministry of Environment and Forestry, a concept for Nationally Appropriate Mitigation Action (NAMA) for agroforestry systems to rehabilitate degraded lands was developed and presented at the UN Climate Conference (COP 21) 2015 in Paris.

## Next Steps

- Analysis of lessons learnt from the established demonstration plots and identification of potentials, opportunities, risks and challenges.
- Follow-up trainings for producers and extension workers on dynamic agroforestry management, production and post-harvesting methods as well as on value chains and business models of cocoa and other commodities.
- Developing strategies for upscaling the concepts and methods of dynamic agroforestry on district/provincial/national level (e.g., local trainer groups, training concepts).
- Networking with strategic partners (governmental and non-governmental institutions, private sector etc.) to strengthen the overall goals of sustainable production of cocoa and other commodities.
- Systematization and publication of the best practices and lessons learnt from dynamic agroforestry development.

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