

# Analog forestry: creating biodiverse and productive ecosystems



**Analog Forestry is an innovative approach to the ecological restoration of degraded environments. Natural forests are used as the guides to create ecologically sustainable landscapes, which support the social and economical needs of local communities. Both Ends promotes this approach on all continents together with the International Analog Forestry Network.**

## THE CHALLENGE: AN ALTERNATIVE TO MONOCULTURES

Modern agriculture and forestry practices have had a devastating effect on many natural ecosystems. Landscapes with highly diverse flora and fauna are converted into monocultures designed for maximum short-term returns on investment. The resulting ecosystems are unsustainable, vulnerable to climate change and highly dependent on external inputs that further pollute the environment. These changes in the landscape and biodiversity often threaten the livelihoods of communities that depend on the forest for their survival.

## THE APPROACH: ANALOG FORESTRY

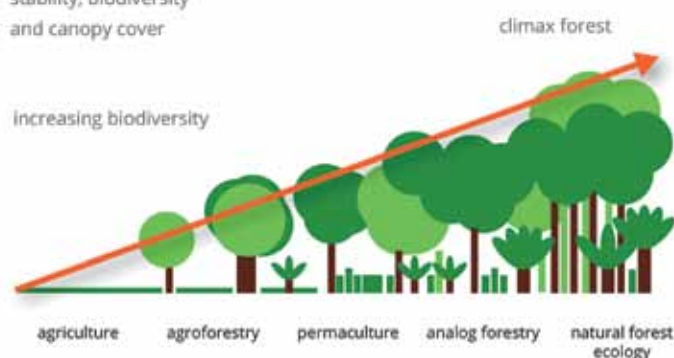
Analog forestry is a specific approach to agro-forestry developed in Sri Lanka. It restores the productivity of degraded land and provides new sources of food and income to local people. An analog forest is designed in such a way that it imitates the original native forest in an area and has similar (analogous) structures and ecological functions. Trees and crops are planted in different layers, providing food and marketable products such as spices (pepper, cinnamon), fruit (mango, citrus) and tea and coffee, which grow particularly well in the shade of the trees. The analog forest also provides firewood, fodder, construction materials and medicines for daily use. Analog forestry minimizes the use of external inputs such as agrochemicals. The method enhances biodiversity, soil fertility as well as water retention and quality. Analog forests serve as a buffer against climate change. The principles of analog forestry can be applied in many different ecosystems and climates as long as they are adapted to the local situation.

## Both ENDS supports analog forestry

Both ENDS closely cooperates with the International Analog Forestry Network (IAFN, [analogforestrynetwork.org](http://analogforestrynetwork.org)) based in Costa Rica in order to promote analog forestry worldwide.

- We facilitate trainings and exchange knowledge and experiences with NGOs and CBOs in Asia, Latin America, Africa and Europe.
- We assist the IAFN in developing training modules (e.g. on the design of analog forests, principles of species succession, management of pests, ecological evaluation and quality control), training of trainers and increasing their outreach.
- We promote analog forestry among policy makers, agronomists, social entrepreneurs, communities and NGOs.
- Through Rich Forests ([www.richforests.org](http://www.richforests.org)), a programme for matchmaking, international value chains and the sale of forest products, we seek financial support for analog forestry projects.
- Rich Forests developed a calculation model for costs and net income from forest gardens located in the tropics and in moderate climates (where they are often called 'food forests').

Following nature's design: successive serial stages provide increasing soil stability, biodiversity and canopy cover



Analog forestry: the restoration of degraded lands.

## THE RESULT: PRODUCTIVE FORESTS AND A LOW-COST CERTIFICATION STANDARD

### *Successful restoration of landscapes*

Productive analog forests have been established in 20 countries around the world, while training centres are active in Sri Lanka, Costa Rica, Cameroon, Honduras and Bolivia. These achievements are for a large part due to the extensive and committed on-the-ground network of CSOs linked to the IAFN. Successful examples include:

Land degradation and declining forestland caused by large-scale mining, logging and monocultures (especially soy) is threatening the traditional livelihoods of small cattle farmers in the region La Chiquitania in **Bolivia**. Both ENDS' partner Probioma, with the support of the IAFN, organised a training trajectory for 60 cattle farmers, smallholders, local authorities and scientists. Farmers increased their understanding of landscape restoration and the unique AF methods. Both local and national authorities were enthused and intend to include the analog forestry concept in their policies on natural resource management. Probioma designed a training module on local advocacy for producer groups, which is now used by IAFN members all over the world.

In **Ecuador** and **Costa Rica**, the analog forestry method has been used to regenerate abandoned pastures with severely degraded soils. Within a year, farmers were harvesting fruit and spices from their agro-forests. The shade provided by the trees and plants proved favourable to commercial crops. Within five to eight years, the farmers had established highly productive and biodiverse forests, that produced a range of edible products.



*Ecuador:  
degraded  
pasture land*



*same plot  
with AF,  
after 8 years  
Photos by  
Ranil  
Senanayake*



*Conventional monoculture tea in Sri Lankan highlands / Photo by Both ENDS*



*Tea growing under the canopy in Sri Lanka / Photo by Both ENDS*

In **Sri Lanka**, analog forests provide local food crops as well as commercial crops such as tea, coffee, cinnamon, ginger, cardamom, pepper, cashew nuts, mango and papaya. Within these forest gardens a small plot is set aside for household consumption. The high productivity is achieved without using chemical fertilisers, herbicides, pesticides or heavy machinery, but by creating compost, plant nurseries and combinations and successions of species. The farmers benefit from an increase in income, sometimes by as much as a factor 4. A remarkable success is the Greenfield Bio Plantations. Rainforest Rescue International and Both ENDS assisted this tea estate in the Uva highlands to convert 85 hectares of tea land into a sustainable forest-tea mix. Native and exotic tree species were integrated with the tea bushes: macadamia nut, orange, citrus, avocado and Andean cherry trees, stevia, and ice-cream beans (an ingredient for curries). The trees provide shade, fix nitrogen in the soil and provide fruit, nuts, fodder and protein for plantation workers and local consumers. According to our calculation model, the net profits over 10 years from these diverse plantations are considerably higher than from monoculture tea estates. This is thanks to healthy tea bushes and additional income from cash products.



In northwest **Cameroon**, most original forests are degraded or have been turned into farmland. Where forest canopies are gone, water supplies are fast disappearing. In Mbiame forest, local communities are applying the principles of analog forestry to counter these alarming developments. The watersheds are restored using the analog forestry method, including participatory mapping, developing farm plans, new techniques for erosion control, establishing tree nurseries and seed banks and record keeping for future certification. Trees were planted on farms but also in degraded sections of community forests and water catchment areas. Now local farmers have clean water again and marketable products for sale.

### **Certification of forest garden products**

The IAFN developed a low-cost certification system called 'Forest Garden Products (FGP)'. It is the only standard developed in the regional South and has global reach. The International Federation of Organic Agriculture Movements (IFOAM) has adopted the FGP standards in its Family of Standards. Farmers and tea plantations that work with this certification standard constantly try to increase biodiversity in their production areas or gardens. As a result they have been able to diversify their production to include fruits, herbs and spices for the national and international market.

## **THE WAY FORWARD**

Analog Forestry has proven its value to smallholders and large estates. It is high time to scale up the method and restore many more hectares of degraded land. Both ENDS and IAFN are ready to train more farmers, CSOs, businesses and government authorities. Certification and marketing of forest garden products need to be financed. We invite social enterprises and commercial companies to join us and invest in climate change resilience and food security through analog forestry.



International FGP label

Store in Sri Lanka selling certified forest garden products / Photo by Both ENDS



### **FURTHER READING:**

[analogforestry.org/resources/publications](http://analogforestry.org/resources/publications)

*Rich Forests. Making a living under the canopy.* Both ENDS 2015.  
[richforests.org/publications](http://richforests.org/publications)



[www.bothends.org](http://www.bothends.org)