

Both ENDS Information Pack Nr.12 'Analog Forestry'

Both ENDS offers a wide range of services to **NGOs** in Africa, Latin America, Asia and Central and Eastern Europe, who are working in the field of environment, development and social justice.

Our **standard information service** includes Information packs on a wide range of topical environment issues . These packs have been written mainly for Southern NGOs. They are to enable (beginner) environmental organisations to get familiarized with an important environmental subject in a short period of time.

Contents:

- a general overview of the theme
- details of relevant international treaties, guidelines and conventions
- some aspects of the current (international) debates on the topic
- a listing of useful contacts in North and South
- a list of publications
- a choice of Websites
- case studies (mainly from Southern countries)

We are making an effort to **regularly update** the information included in these packs. But since people and developments are moving fast, we will inevitably lag behind somewhat.

The information presented is meant as an introduction. If you require more specific information, please feel free **to contact us**.

You can **download** the information packs from our Website or you can request an e-mail printed version. They are free of charge for NGOs in the South and Central/Eastern Europe.

We welcome any suggestions or comments which help improve this information pack.

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Introduction

The pressure on the environment to provide for human needs continues to rise. In meeting this demand, mainstream agriculture places a huge strain on the environment and threatens its ability to continue meeting human needs.

Mainstream agriculture and plantation forestry, characterised by large monoculture plantations (single species), do not take into account their long-term impact on the environment. Intensive use of chemical pesticides and fertilisers combined with its emphasis on maximum productivity creates severe imbalances in the local ecosystem.

Sustainable alternatives to producing agricultural crops are available. They are agricultural and forestry systems that incorporate the long-term effects of their activities on the environment and illustrate that social and economic use and sustainability can go hand in hand. Well known systems include 'bio-dynamic' or 'organic agriculture', 'agro-forestry', 'ecological' or 'alternative' or 'sustainable agriculture'.

Here we present a new alternative agricultural and forestry system, Analog Forestry, which provides new insights and a fresh approach.

This information packet will provide a background and overview of Analog Forestry. It gives a definition of Analog Forestry along with the history and its requirements. Case studies are brought forward to give practical examples of how Analog Forestry can work. Addresses and further reading material is suggested to provide the reader with means to further explore the subject.

Defining Analog Forestry

Analog Forestry is a system of forest management that combines the values of local forest biodiversity with organic crop cultivation. It seeks to establish a forest type environment, analogous in architectural

structure and ecological function to the original forest ecosystems that once existed in the area.

Making use of the design of the natural forest, land is redesigned to incorporate economically viable trees and plants in a polycultural system that aims to unite biodiversity and economic gain for the small-scale farmer.

Analog Forestry was inspired by Sri Lanka's legendary tradition of 'home gardens', where local people select subsistence or cash crops according to specific needs and preferences. Analog Forestry holds enormous potential to rehabilitate and use deforested lands which are now lying waste, while also enabling poor colonists to settle down and develop their land.

The history of Analog Forestry.

The term 'Analog Forestry' was coined by the Sri Lankan biologist Ranil Senanayake in 1987. His ideas of creating an agricultural system adapted to the local context has been further investigated by the Neo Synthesis Research Centre (NSRC) in Sri Lanka.

In April 1994, Analog Forestry was accepted as a methodology integrating the protection of biodiversity within the context of sound landscape management by scientific experts at the Open-ended Intergovernmental Meeting of Scientific Experts on Biological Diversity (sponsored by the UN) in Mexico City.

The practical value of this system has now been demonstrated with over 19 years of research that is being translated into community projects. Today there are over 35 villages in Sri Lanka with over 250 individual farmers involved in extension projects. The approach has also been successfully adopted elsewhere in Asia and Latin America, under various ecological and climatic conditions.

The commercial value of Analog Forestry is being realised by the development of a system of crop certification. Producers of crops who follow the principles of Analog Forestry get their crops certified as 'Forest Garden

Products', a government-approved label with independent certification which enables better marketing.

The Analog Forestry Network

The network is a collection of local organizations around the world, who are adopting the principles of Analog Forestry and applying them to their local environment. The network is co-ordinated by the Environmental Liaison Centre International (ELCI) in Nairobi, Kenya. Currently member NGOs are located in Sri Lanka, Costa Rica, Kenya, Canada and Ecuador.

The First International Workshop on Analog Forestry was April 3rd -7th, 1995 in Sri Lanka. Attended by 11 participants from seven countries, the workshop consisted of lectures, discussions and visits to field experiments. In May 1995 the First Analog Forestry Network Newsletter was distributed.

The Networks goals are to:

- exchange information and experiences
- initiate arboreta and tree nurseries.
- Implement a five year plan aiming for all partners to be involved in the certification of 'Forest Garden Products' that will be sold for export.

Requirements for Analog Forestry

The initiator of an Analog Forestry project can be a local NGO, a community organisation or any other land user. Using the Analog Forestry Manual, available from the Analog Forestry Network, organisations can gain a practical perspective of what is required. The following is an introduction into what Analog Forestry involves:

- It starts with an analysis of the local environment. Information on the composition and structure of the local forest is collected, including composition of tree, plant and animal species endemic to the area.

- The design for the farmland is made, in consultation with the farmer, using this information. The design should aim at integrating the demands of both the farmer and the local environment.
- A plot of land is established to contain the nursery. The function of this site is both to experiment with new species and as a propagation unit.
- An arboretum and a demonstration site also needs to be established. These should be of easy access to the community, and function as a teaching site.
- The crops and plants are cultivated using organic fertilisers and natural pesticide control. The trees and plants are not planted in blocks but follow a more spread out pattern mimicking the local forest. The crops are grown primarily for the farmers own use with any surplus being sold.
- If there is a market for these organically grown crops, they can also be sold to regional, national or international markets. Products therefore need to undergo quality control measures and be certified. Transportation to the market must also be considered.

Analog Forestry projects can be undertaken in co-ordination with and support from the Analog Forest Network.

Case studies

Sri Lanka:

The Neo Synthesis Research Centre.

The NSRC in Mirahawatte, Sri Lanka was created, in 1980, to promote sustainable agriculture production and the conservation of biodiversity through research and education. Through experimentation on a plot of degraded tea land and using the local natural forest as a model, they developed a productive forest ecosystem that was analogous to the natural forest.

Two lowland projects have been undertaken by the research centre: a coastal ecosystem conservation project and the Panadura mangroves and wetlands conservation project.

A collaborative Analog Forestry project has been established in the area around Ratnapura. Through an extension program, 25 villages were involved and in cooperation with the NSRC 500 farmers planted in excess of 50,000 trees.

Educational programs and demonstrations of composting and organic farming are held for farmers, schools and institutes. A nursery produces native, utility and endangered plants. The information is collected in the Tropical Forest Registry on native vegetation patterns and the flora and fauna composition of different regions.

A new Analog Forestry extension project is training youth from different villages in the application of Analog Forestry. These youth provide village extension activities and linkages between several villages.

Contact: Kamal Melvani
Address:
320A, Delawela Road,
Bellanwila, Sri Lanka
fax: 941 723 130
email: nrsc@sri.lanka.net

Q: What is the difference between Agroforestry, Analog Forestry and Permaculture?

Agroforestry takes an agricultural system and puts a tree layer on it. The paradigm is agriculture. Such a system takes traditional models and simplifies them. In agroforestry, an increase in the production of crops and income generation is the desired goal.

Analog Forestry uses natural vegetation as its design paradigm. In an analog, the system is designed to bring about more complexity and not less. Analog Forestry has conservation of biodiversity as an equally important goal as economic gain. The model for design is drawn from the original local forest ecosystem.

Permaculture tries to create a permanent system of cultivation, but it doesn't look at the nature that existed before. It doesn't look to natural systems for its design criteria. Conservation of biodiversity is not a design goal. It is a collection not a synthesis.

(Ranil Senanayake)

Canada

The Falls Brook Centre (FBC)

The centre was founded in 1990 in New Brunswick, Canada. The organization is a community demonstration and training centre. Through education and outreach programs the FBC develops the environmental awareness and activities of the community.

It also concerns itself with improving current relationships between Canadian and international NGOs. It is the co-ordinating organization of the Village Action Network,

and the Canadian co-ordinator for the United Nations Eco Volunteer Program.

A series of international practical workshops have taken place at the FBC including: 'Traditional Forest Uses', 'Sustainable Agriculture and Forest Management', 'Alternative Economics' and 'Sustainable Communities'.

It has regenerated the ecosystem of degraded bog-land, on a 200 acre site by creating an extensive herbarium with local spices and herbs and three ponds. A boardwalk allows visitors to identify the species by moving through the pond area. A small arboretum, tree nurseries and berries and gingseng planting complete the visitor's demonstration of Analog Forestry at the Falls Brook Centre.

Three local schools are involved with the project 'Biodiversity Learning Centres' in which the Centre provides extension work and involves the students in transforming barren playgrounds.

Contact: Jean Arnold.
Address:
RR#1, Hartland, New Brunswick
EOJ 1N0 Canada.
Fax: 1 506 375 4221
email: fbcja@ web.net

Costa Rica Arbofilia

Over the past 15 years, Arbofilia has been working in different zones of the coastal Pacific slopes of Costa Rica. The primary objective of Arbofilia has been to combine environmental restoration with economic alternatives for poor rural families.

They have worked with 460 families in a number of projects including the establishment of fruit tree polyculture plots, restoration of native forest, reproduction and planting of endangered rain forest tree species and the creation of native vegetation corridors between patches of threatened ecosystems. These restoration activities aim to combat accelerated erosion in the region, while

permitting the reestablishment of the original native forests that protect local fauna.

Contact: Miguel Soto Cruz
Address:
Tibas, Apdo 512
San Jose 1100
Costa Rica.
Fax: 506 240 7145

Ecuador Centro de Informacion de Bosques Tropicales (CIBT)

CIBT is a young, yet strategically positioned, grassroots NGO on the Peruvian border. CIBT has embarked upon a ambitious campaign to offer migrant colonists economic and subsistence alternatives - in the face of massive deforestation due to cattle ranching, logging, road building, and cash crop agriculture. CIBT promotes Analogue Forestry as one of the most promising options for local colonist farmers to sustain their livelihoods. Analogue Forestry offers the colonists an alternative to slash and burn farming and cattle ranching and to gain a better standard of living and a more secure source of income and basic needs.

Contact: Sr Ali Sharil
Address: Casilla 17-07-88088
Quito, Ecuador
Phone: (593-2) 535568
Fax: (5932)568664
email: asharif@pi.pro.ec

Kenya Tree Shade Clubs of Kenya (TSCK)

This club began to address the problem of tree loss in Kenya six years ago. Its initial work involved establishing tree nurseries with native tree species in collaboration with interested schools. The students collected seeds and were encouraged to create tree nurseries. They took part in school competitions concerning the tree

nurseries. In two years the number of participating schools grew to 135. Support has now also been given by the Scouts Movement. The Tree Shade Clubs are now known nationally. The Forestry Department has given them a 3 acre portion of the Nairobi arboretum to initiate a Analog Forestry Arboretum.

Address: contact through ELCI(see below).

The Environmental Liaison Centre (ELCI)

The ELCI is a global network of non-governmental organizations and community based groups working on environmental and development issues. It exists to 'facilitate the voice of the grassroots' which involves:

- i. fostering communication and the sharing of information and skills between groups working at the grass roots level
- ii. developing mechanisms whereby there is a greater and more effective communication between the NGO/ grassroots sector and the governmental/ inter-governmental sector.

ELCI has its headquarters in Nairobi, Kenya and has a membership of 850 organisations in 107 countries. It also maintains a database on over 8,000 organisations with whom it communicates regularly.

Contact: Patrick Mallet

Address:

P.O. Box 72461

Nairobi, Kenya

phone: (2542) 562015, 562022,562172

fax: (2542) 562175

email: pmallet@elci.sasa.unep.no

Other Alternative Agriculture Systems

As previously mentioned several 'alternative' systems of agriculture exist. They have been developed by a large number of different institutions. Efforts are now being made for a more co-ordinated approach to developing sustainable agriculture by uniting the information on these alternatives and making more use of the networks available.

Most agroforestry systems are developed in biological research centres where information is collected and trial plots are worked. Projects are carried out in locations all over the world but especially in Africa, the Americas and Asia. These projects can be both initiated by the institutes or applied for by external sources.

International Centre for Research in Agroforestry (ICRAF).

The combination of agriculture and forestry, 'agroforestry', has been studied by the International Centre for Research in Agroforestry (ICRAF) since 1977. They define agroforestry as 'using trees on farms' or more scientifically as 'the deliberate integration of woody perennials with crops or animals on the same land management unit'.

There are two categories: a simultaneous system where trees, crops or animals grow at the same time or the sequential system where trees and crops take turns in occupying the same space.

Headquarters: ICRAF House

United Nations Avenue

P.O. Box 30677

Nairobi, Kenya.

Phone: (2542) 521 450

Fax: (2542) 521 001

The International Alliance for Sustainable Agriculture (IASA)

It was founded in 1983 by farmers, researchers, consumers and numerous organisations. Its mission is for the world wide realisation of sustainable agriculture systems that are ecologically sound, economically viable, socially just and humane.

Its activities include:

- 1) Encouraging networking and collaboration among groups through the Newsletter 'Manna', other publications;

participation in Pesticide Action Network (PAN) and the International Federation of Organic Agriculture Movements (IFOAM)

- 2) public education and publications.
- 3) encourage governmental and institutional policies to incorporate sustainable agriculture.
- 4) create a healthy sustainable Alliance

Address: The Newman Centre at the University of Minnesota,
1701 University Avenue S.E.,
Minneapolis, MN 55414, U.S.A.
Tel: (612) 331-1099
Fax: (612) 379-1527

The **sequential** system is very similar to the traditional slash-and-burn agriculture with rotating crops. There are various systems:

Relay intercropping of trees and annual crops where both the crops and trees are temporary. **Multistrata systems** where different tree species are forming two or more canopies with or without simultaneous cropping and can be combined with small scale animal husbandry. **Taungya system** where trees and crops are grown simultaneously but the trees are permanent and crops temporary.

The **simultaneous** system consists of various sub-systems.

Erosion control systems such as boundary planting, windbreaks and intercropping. **Parkland system** where a permanent woody upperstorey (dense or open) is combined with crops. **Silvopastoral system** where a discontinuous tree storey stands over a continuous grass cover that benefits animal husbandry. **Agroforests** which is a managed plant community that resembles a natural forest in that it is multistrata and contains large mature trees and shade-tolerant understory plants. A **'homegarden'** is a small agroforest near a homestead, a well known traditional system in the humid tropics. It contains many different plant species of various sizes, types and growth cycles. Homegardens can be used for domestic and commercial purposes.

Recommended Reading

FAO, *Analog Forestry as a conservation tool*. Bangkok, 1987.

Analog Forestry: 'A strategy to reverse some trends in forest loss'. *Tirra Lira*. Melbourne, 1991.

Mallet, P. Senanayake, R. *Analog Forestry Manual*. Falls Brook Centre. Canada, 1997.

Senanayake, R. *Analog Forestry: An Introduction*. Monash University. Australia, 1998.

Essential Browsing

<http://www.forestgarden.org/>

http://elements.nb.ca/theme/climate/jean/ran_a.htm

<http://www.guayapi.com/>