

**CENTRE FOR NURSERY DEVELOPMENT AND ERU PROPAGATION
(CENDEP)**



Samco Qtr. Bonadikombo-Mile 4, C/O P.O Box 437 Limbe, CAMEROON
Tel: + 237 776 75 61 Email: cendep2001@yahoo.com Website: www.cendep.org

IUCN CONTRACT No.600160
(Restoration of Degraded Montane Forests Using Analogue Forestry Techniques)

Report: Learning Visit to Rainforest Rescue International, Sri Lanka



Compiled By Youndjie Koleoko Gabriel
Limbe, July 2008

Summary

Analog Forestry is a system of forest management that seeks to establish a tree-dominated ecosystem analogous in architectural structure and ecological function to the original climax or sub climax vegetation community

The purpose of this report is to document the experiences and skills acquired during the Analogue Forestry Training conducted by Rainforest Rescue International, for Mr. Youndjie Koleoko Gabriel of CENDEP, Cameroon. The goal of the training was to empower CENDEP to effectively implement analogue forestry in Cameroon.

After participating in a training workshop on Analog Forestry in Zimbabwe in October 2006, CENDEP embarked on introducing this inspiring conservation model in the grass field areas of North Western Cameroon, specifically in Bui Division.

The Zimbabwe training was of short duration and trainees were inadequately trained on several components necessary for the implementation of analogue forestry. For example it was not possible to see the end products of analogue forestry as the demonstration plot was still at the initial stage. Also an important exercise like physiognomic study using "The Tropical Forest Register Method" could not be practiced. So the training was more theoretical.

On this background and within the framework of CENDEP's ongoing contract with IUCN, the latter approved an exchange visit by CENDEP to Sri Lanka. The objective was to complement the training acquired in Zimbabwe with practical experience on the implementation of Analogue forestry. The ideal location was Sri Lanka where analogue forestry began. Rain Forest Rescue International was the host organization.

Knowledge acquired through this learning visit would be passed onto field staff through a training session. This would be followed by monthly support visits to assist field staff implement the training.

The training lasted from the 8th to the 12th of July 2008 and was conducted by Charith Senanayake, Ranil Senanayake, Ajantha Palliwathane and Priyantha Palliyawardena

Following a presentation by Mr. Gabriel on the work of CENDEP in Cameroon related to analogue forestry, a matrix of needs that could be addressed at the training was developed. The training consisted of field walks, explanatory lectures and discussions. Based on the training needs of CENDEP the following topics were covered:

- a. General Ecology: Understanding Tree, Forests and Ecosystems
- b. Water, Soil and Air Cycles in a Forest
- c. Biodiversity
- d. Analogue Forestry methodology
 - Structure – Physiognomic Formula
 - Ecological Functions - Database,
 - Design - Mapping - Ecological Valuation
- e. Application of the Analogue Forestry Methodology at Hinniduma
- f. Development and Presentation of results on Analogue Forestry methodology
- g. Analogue Forestry Principles for Design

Apart from the training certificate that was awarded to Mr Youndjie Koleoko Gabriel, planning for future actions/activities and possible links between CENDEP & RRI was done. This led to the development and signing of a MoU between CENDEP and RRI (appendix 2)

This training demystified analogue forestry. This is because it was practical and I had the opportunity to observe Analogue forests at different stages/under different objectives. Most important was the simplified nature in which design steps were presented to me. My limited computer knowledge hampered my understanding of data base but a soft ware was provided for use by computer literate field staff of CENDEP. The training provided the necessary skills to effectively plan and carry out analogue forestry activities in Cameroon and CENDEP is quite sure where she is heading to.

Summary of learning skills/knowledge from the exchange visit

- Knowledge on establishing the physiognomic formulae for the different plant species in the Analogue Forestry site
- Understood factors and principles underlining the establishment of the data base (soil types, height of trees, root systems, scientific names, local uses, ecological functions, growth forms, micro-habitats, propagation techniques etc)

- Update on successes of Analogue forestry in Sri Lanka and possible replication in Cameroon
- Understood the different benefits of Analogue Forestry
- Understood management of Analogue Forests and other bio-monitoring techniques
- Understood the design technique for Analogue Forestry: describing the landscape and associating the different ecosystems to the area under study

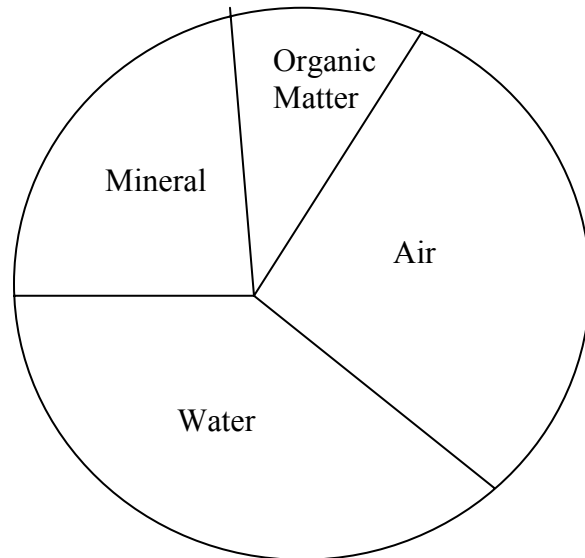
Exchange visit activities

I arrived in Colombo on the **5th of July 2008**. Some documents (e.g. booklet on application of Analogue Forestry in Vietnam) were consulted that provided background information on general analog forestry.

On the **7th July 2008** Dr. Rannil and I discussed on the general functioning of a forest and some environmental benefits especially examining restoration of biodiversity (lost flora and fauna) through forest conservation. We visited Galle (RRI Head office location) about 117km from Colombo situated along the west coast. I was welcomed to RRI office by its Managing Director, Mr.Charith Senanayake and he introduced to me the rest of the staff. We had a working session, during which I made a presentation of the achievements of CENDEP on analogue forestry in dry montane forests of Cameroon (Bui Division) since the introduction of analogue forestry in February, 2008.

Based on the presentation, Dr. Ranil gave explanatory guidelines for the establishment of analog forest. These guidelines included: knowledge on the background history of the place; physiognomy formula for available flora and ability to observe and record/collect data on the ecological function (Data base development). Further lectures focused on the ecological processes, keystone species, and their role in the ecological functioning. We equally examined the edge effect of analogue forest which is to create corridors for biodiversity. Lectures on the

soil composition were also provided and demonstrated in the diagram below:



An analysis of soils sample was given as follows:

1g of the top soil contains 1-2 billion individual bacterial cells. This accounts for a mass of about 350-7100 kg of bacteria per hectare of top soil (15cm). Dr. Rannil provided an understanding that about 20% of the roots of every tree is released out into the soil to feed the soil organic matter (massive soil inoculation) yearly.

After this first hand training on analog forestry, we left for Baddegama on the **8th July, 2008**. We did seed collection. Seeds included "Doorian", Jackfruit, etc.



We crossed vast plantations of rice, tea, coconut, rubber (Hevea), and palms, and went through patches of forested area. Baddegama covers a surface area of 6500km² with more than 600 families practicing Analogue Forestry. Almost every household had a home garden with rice, tea, coconut and varying spices. Most of the tea plantations included leguminous plants (*Gliricidia spp*) usually for soil fertility improvement. This must have been Analogue Forestry at the agroforestry stage.



I realized that this practice was carried out in the wet lowland forest areas but not on montane rainforests. The explanation given to this was that Montane rainforest farmers fear blight attack on crops during the rainy seasons. They look forward to training on blight management and the integration of leguminous plants in their cropping systems as well as undertake coppicing during the rainy season to fertilize the soil.

We visited a nursery on arrival at Baddegama in which materials are develop (seed multiplication) for the Analogue Forestry.



Here Dr. Ranil talked on the uses of medicinal plants common to the area. Bromelia together with other ornamental plants were found in the nursery. We visited a group that was trained on the local processing of tea for income generation.

We crossed to the Hinmiduma Analogue Forestry site on the **9th of July 2008:**

Brief history: This Analogue Forest was created 4 years ago (2004) and the ages of the 305 planted species ranged from 2-4years in a mix of natural plant species. This Analogue Forest was divided into 17 plots following the different ecosystem of the land (8 different types).

We visited the entire Analogue Forest site. This was accompanied by explanatory lectures laying emphasis on design, structure and function to facilitate our work in Cameroon. We walked through the Analogue Forest using an established transect (100m x 3m) and sub-transects (5m x 3m). These lines facilitate monitoring of frogs and other species that are attracted by the Analogue Forest. This system of bio-monitoring includes recording to capture biodiversity rates (increase or decrease).

I was informed by Dr Ranil that in any regenerated forest, the frog is usually the first creature to set in.



Photo: Frog in bamboo placed in regenerated forest

Trees are gradually taking up the tea plantation in this area. The establishment of Analogue Forests in Hinmiduma has envisaged the restoration of biodiversity (plants and lost fauna). I was able to learn that rainforest trees species are good for water catchments protection and the increase of water table.

Learning about the structure, I was able to make advances on establishment of physiognomic formula through practice.

The following formulae were developed:

Bh7b; Ch6b; Ph5b; Fs3r; Vh3p; Xh3-6p; L1-6b

Interpretation:

Forest is composed of woody trees broad leaves ever green hard, 20-35m high 1.6 and sporadic (Bh7b); Climbers hard leaves 10-20m high sporadic (Ch6b); Palms 5-25m high and sporadic (Ph5b); Ferns soft leaves 0.5- 2m high 6-25% and rare (Fs3r); Bamboos hard leaves 0.5-2m high 25-50% and in patches (Vh3p); Epiphytes hard leaves 2-20m high 25-50% occurring in patches (Xh3-6p) and Lichens, mosses less than 0.1-20m high 1-6% and are sporadic (L1-6b).



This Analogue Forest is situated at a zone of intense rainfall influencing the growth or abundance of Lichens all year round. In a very dry land the like Bandarawela (1000-1500m) lichens are almost nearly absent during the dry season. In the montane rainforest, (2000-2500m) there are no lichens at all.

We visited another AF site on the **10th of July, 2008** at Bandarawela precisely Mirahawatti. This AF is purely human established as all trees were planted on an almost bare land. First species of trees were planted 26years ago.

History:

It is purely man-made forest dating 26 years old. The forest vegetation was destroyed to establish a monoculture tea plantation. Later it was converted into an Analogue Forest now comprising several varieties of plant species.

This Analogue Forest contains one of the world's fastest growing tree-*Brazilia fitrous*. This site reflects the inclusion of both economic and ecologically important plant species that make up the foundation of modern Analogue Forestry. There is an important economic tree product-*Maguedemia* which is one of the most expensive nuts in the world, mangoes, Citrus, avocados etc. Some of these species were introduced with species from the remnant natural forest. Some are exotic. Trees of up to 35m high were observed. There is a marshy area dedicated for the cultivation of vegetables.



The green house at the nursery is being used to protect fragile plants from rain drops and strong radiant heat from the sun. The edges of the vegetable beds were not weeded. This was to avoid destructive actions of sunlight.



We finally returned to Colombo on the **12th of July 2008** to mark the end of field visits. While on our way back we continued with the seed collection exercise.

I was evaluated on the **13th of July, 2008** and awarded a Course participation Certificate.

The end of my training course gave birth to a new collaboration through the signing of an MoU between CENDEP and RRI.

Summary of learning skills/knowledge from the exchange visit

- Knowledge on establishing the physiognomic formulae for the different plant species in the Analogue Forestry site
- Understood factors and principles underlining the establishment of the data base (soil types, height of trees, root systems, scientific names, local uses, ecological functions, growth forms, micro-habitats, propagation techniques etc)

- Successes of AF in Sri Lanka
- Understood the different benefits of Analogue Forestry
- Management of Analogue Forests and other bio-monitoring techniques
- Understood the design technique for Analogue Forestry: defining the landscape and associating the different ecosystems to the area under study



Appendices:

Appendice 1: Training schedule

5th July, 6th July Arrival and Stay in Colombo.
1st DAY - 7th July Morning Session in Colombo General Ecology: Understanding Tree, Forests and Ecosystems - RS Water, Soil and Air Cycles in a Forest - RS Biodiversity - RS Questions and Answers – Discussions Lunch Depart to Galle (3pm)
2nd DAY – 8th July RRI office Meetings and Greetings – CS other RRI staff Presentation of Mr. Gabriel - CENDEP's work in Cameroon related to AF Development of a Matrix of Needs that can be addressed at the training – G & RS Depart to Baddegama, Visit Nursery & Tea Production Lunch Koggala – Mangrove Nursery & Temple Night at Hinniduma Rest House
3rd DAY – 9th July Cross to Hinniduma RRI Research Center AF Methodology - RS - Structure – Physiognomic Formula - Ecological Functions - Database, - Design - Mapping - Ecological Valuation - Visit of Hinniduma Lunch Application of the AF Methodology at Hinniduma - AP Development and Presentation of results on AF methodology Return to Galle
4th DAY- 10th July Depart to Bandarawella (8 hours travelling) Lunch Arrival at Bandarawella Dinner Bandarewella Night at Bellipola – AF Center
5th DAY – 11th July Visit of Bellipola and Explanation of AF Design and Management - PP Lunch AF Principles for Design - RS Discussions
6th DAY – 12th July Return to Colombo (6 hours) Lunch in Nuwara Eliya (mountains)
7th Day – 13th July Wrap up and Training closure Planning for future actions/activities and possible links between CENDEP & RRI Presented Training Certificate Lunch Gabriel's Depart

Initials:

Gabriel - G

Charith Senanayake – CS

Ranil Senanayake – RS

Ajantha Palliawathane - AP

Priyantha Palliyawardena - PP

Appendice 2: MoU Between CENDEP and RRI



Rainforest Rescue International (RRI)

37/cWekunagoda Rd,
Galle-Sri Lanka
Tel: +94(0) 91 2232585
E-Mail: Info-ri@sltnet.lk



Center for Nursery Development and Eru Propagation (CENDEP)

Samco Quarter. Bonadikombo-Mile 4
P.O. Box 742 Limbe, Cameroon
Tel: +237 7767561
E.mail: cendep2001@yahoo.com

MEMORANDUM OF UNDERSTANDING (MoU)

Between

Rainforest Rescue International (RRI) & Center for Nursery Development and Eru Propagation (CENDEP)

Introduction:

- I. Rainforest Rescue International (RRI) is an environmental organization that seeks to actively demonstrate sustainable principles and promote biodiversity conservation within the local community, through environmental education and other extension activities. RRI seeks to reintroduce the concept of sustainable livelihood to the people of the rainforest.

RRI seeks to assist and network environmentally concerned individuals within Sri Lanka and internationally for the increased understanding and implementation of global biodiversity principles.

- II. The Centre for Nursery Development and Eru Propagation (CENDEP) is a grassroots organization. It is an offspring of a farmers group that was trained in 1999 on the domestication of a forest vegetable known as Eru (*Gnetum africanum*). CENDEP has as mission to assist and/or train local people in the domestication, sustainable production and marketing of NTFPs and agricultural products of economic importance and in the sustainable management of natural resources. It also engages in analogue forestry for the restoration of degraded forest lands, improve forest cover around water catchments, and discourage inefficient slash and burn agriculture in favour of organic farming with the aim of

improving food security, enhance income generating opportunities and promote the conservation of biodiversity in the montane forests of Cameroon.

RRI and CENDEP share a common goal in spreading the experience of analog forestry in the South and are committed to work for the development of a common agenda to jointly promote the concepts of sustainability and community development within the framework of Analogue Forestry and restoration

Rainforest Rescue International and The Centre for Nursery Development and Eru Propagation have voluntarily come into agreement to:

1. Exchange available Information and written materials about Analog Forestry
2. Coordinate a seed exchange program within the framework of both Government's legislation
3. Link both organization's web sites
4. Lead the formation of a Coordinated South – South network based on Analog Forestry and restoration methodologies
5. Seek financial support for joint projects to extend knowledge on a South – South bases
6. Search for markets and promote analog forestry products through organizing and participating in fairs as well as establishing agreement with farmer's cooperatives, shops and supermarkets.

In addition Rainforest Rescue International shall:

1. Endorse CENDEP's membership affiliation to the International Analog Forestry Network (IAFN)
2. Assist CENDEP by providing trainers, technical and scientific advice on Analog Forestry under a jointly agreed budget.

This MoU is not a legally binding document but an understanding of both parties' intentions and desire to jointly pursue a common goal. This MoU takes effect from date of signature and shall be revised if need be.

Signed:

Charith Senanayake
(Asst. Director)
RRI

Date:

Signed:

Youndjie Koleoko Gabriel
(Director)
CENDEP

Date:

Appendix 3: Request for permission to conduct visit

Centre for Nursery Development and Eru Propagation
Samco Quarter, Bonadikombo Mile 4 Limbe
Po Box 742, Limbe
Sw Province
Cameroon

IUCN NETHERLANDS COMITE
PLANTAGE MIDDENLAAG 2K
1018 DD AMSTERDAM
TEL: +31 20 6261732
FAX: +31 206279349

LIMBE June 23, 2008

Sir,

Request for use of unforeseen budget line: Project no 600160

We write to request for permission to use the budget line unforeseen of contract no 600160. This is to enable us deepen our understanding of analogue forestry through a learning visit to Rainforest Rescue International (RRI), Sri Lanka that is well advanced in analogue forestry. They have accepted to receive us from July 7 to 12, 2008. We are interested especially in seeing the end products of analogue forestry as this will help us determine if we are on the right track.

The visit will be done by Mr. Koleoko Gabriel who attended the analogue training workshop in Zimbabwe in 2006. After this visit Mr. Koleoko will organize a session with CENDEP staff to update them on the out come of the visit. This will be followed by monthly visits during our planned monitoring and supervision visits to assist field staff implement his findings.

We do not yet have the exact costs of the visit but based on the experience of Jules Adjima of Togo (who did a similar visit) this may not be above Euro 4000 as per the following tentative break down. We shall provide the detailed cost once this is available to us

Air ticket: euro 2000

Accommodation (Nigeria, India and Sri Lanka, visa, taxi etc.): euro 1000

Consultancy fees: euro 800 /1000

Sincerely yours
Youndjie Koleoko Gabriel
(Delegate)