

The Challenge of Risk Management within Analog Forestry Interventions

AARON M. BECKER & EMILY S. GOLDMAN, *Counterpart International, Washington, DC, USA*

ABSTRACT

The integration of environmental conservation with economic development has historically faced considerable challenges. Convincing poor rural farmers to adopt new technologies requires a high degree of trust, support and accountability between farmers and implementers. Based on the principles of Analog Forestry and Community-based Ecosystem Management, Counterpart International and its partners implement the Forest Garden Programme to provide economically viable and environmentally sound opportunities for raising rural incomes, restoring degraded land, and preserving native biodiversity through community-led management of watersheds, forests and agricultural lands. This study focuses on the participation of Sri Lankan farmers in the programme. Success of the programme, rates of adoption and withdrawal from the programme, as well as its long-term sustainability are highly dependent on project implementers' ability to reduce risk and make substantial functional linkages between farmers and their fledgling Forest Garden-based enterprises as well as their sustainable use and stewardship of their natural resources.



Figure 1
Dr. Panil Senanayake (r.), developer of Analog Forestry, discusses a Forest Garden farm plan with an extensionist. Extensionists and farmers assess plot designs on a regular basis to evaluate plot progress and ecological succession

trees, vines, understorey shrubs, valuable subsistence and perennial cash crops, fuelwood, medicinals and other products. The choice and placement of each species is determined by both its economic and ecological functions. Specifically, the Forest Garden Programme fosters the introduction of sustainable farming through a network of seedling nurseries and community seedbanks, seeds-and-tools funds, technical assistance and training, and certification and marketing of Forest Garden Products (FGPs) (Senanayake & Beehler, 2000).

THE FOREST GARDEN PROGRAMME

The Forest Garden Programme assists farmers in creating sustainable livelihoods through environmentally-friendly agroforestry and the cultivation of multi-crop tree and shrub gardens that:

- produce a range of subsistence and cash crops,
- arrest erosion, build soil productivity, and retain groundwater, and
- mature to approximate natural forests in architectural structure and ecological function.

Forest Gardens (FG), founded on the principles of Analog Forestry developed by Dr. Ranil Senanayake, mimic the structure and function of endemic forests in the region, thereby producing plots analogous to natural forests. These organic agroforestry systems are composed of canopy

FOREST GARDENS, SRI LANKA

Sri Lanka is the birthplace of Analog Forestry. Devastated by widespread deforestation, low agricultural yields and the introduction of high-input monoculture crops, FGs were developed to rehabilitate Sri Lanka's landscape, build its soil fertility, boost annual incomes, enhance and diversify subsistence-level crop production, and strengthen appropriate traditional land management practices undermined by decades of extractive natural resource policies. FGs are low-cost, provide communities with a greater variety of foodstuffs, and serve as biological corridors connecting forest islands which offer contiguous habitat for forest-dependent wildlife. This programme provides rural Sri Lankan communities with a viable alternative to destructive high-input agricultural practices and encroachment on protected forest areas.

- The programme works with nearly 500 farmers (over half of them female), rehabilitating 870 acres of land.



Figure 2
Some of the young monks who participate in the Temple Forest Garden Programme in Walapane, Sri Lanka. Analog Forestry complements the Buddhist worldview, with both placing an importance on planting trees and careful stewardship of natural resources

- Tree and seedling nurseries have been established in 12 communities, propagating a total of 73,308 plants for reforestation – a value estimated at \$52,400.
- FGPs from mature sites are being purchased by several organic products exporters (Lanka Organics, Guayapi Tropicals, and Quickshaws Ltd) paying premium prices for export-quality certified products. The average monthly income, Rs. 3000/month prior to project inception, increased on average Rs. 824 with the introduction of income generation activities such as vegetable and spice cultivation, seed collecting and plant nursery development.
- In addition to bi-weekly extension to farmers, over 100 training courses were conducted last year, including soil and water conservation, nursery practices, traditional methods of pest control, processing, packaging, and marketing of FGPs, and data collection.

These enriched plots are proving to be a steady source of income for rural farmers. Efforts to restore native

biodiversity have been successful – rare birds such as Lady Torrington’s Wood Pigeon and the Three-toed Kingfisher, which had been absent for many decades from Sri Lanka’s deforested valleys, have reappeared in mature FGs.

THE REAL SCOOP: MANAGING RISK

The above summation paints a tidy picture. What it fails to describe are the inherent risks and challenges involved in introducing new ideas to disadvantaged farmers, and the continuous negotiation between project implementers and beneficiaries required for a project to be successful, as well as the ‘wild cards’ presented by the weather, markets, land tenure and socio-political mores. The beneficiaries are small-scale farmers with limited access to land, capital, new technologies, market leverage, and economies of scale, who employ mostly unskilled family labour. The commitment and willingness of these farmers to adopt new agricultural and land/watershed management practices depends on their perception of the risks involved and their confidence in being able to overcome them successfully. In the initial phases of the project, it is the role of the implementing organisation(s) to help minimise and manage farmers’ risk. Counterpart International’s ability to help solve farmers’ problems through the promotion of new concepts depends on our effective linking of wise stewardship of farmers’ resources with their own and future generations’ well-being. While risk factors such as political upheaval, land tenure instability, and environmental disasters are difficult to contend with and often hard to predict, the following illustrate a few ways risk has been managed in the programme thus far.

DIALOGUE AND APPROPRIATE TECHNOLOGY

Each farmer household represents a unique set of circumstances, values and risk tolerance. These are traits that shape how each household perceives the problems it faces and selects ways to solve them. It is critical, then, for project implementers to understand the needs of each family and community, and to be able

Figure 3
Samples of certified Forest Garden Products from Sri Lanka currently on the market



to exchange ideas in mutual respect. Programme personnel must take time to build relationships with the people among whom they will work, gaining their confidence and trust. Only dialogue, requiring critical thinking, is capable of producing critical thinking. Without dialogue, communication is impossible (Freire). Only then can the project be informed to embody the interests and concerns of both parties and make adoption of new ideas by individual farmers more likely. Through this dialogue, a critical rapport is nurtured and a learning process developed between interventionist and farmer. This process requires project officers to 'be honest and reliable with farmers, to be a partner and to build with farmers' (Analog Forestry Network, 1997, p.16).

The introduction of Analog Forestry is the outgrowth of a dialogue between farmers and interventionists, comprising a bundle of ideas that 'meet a felt need, are simple to teach and understand, and use resources poor people already have' (Bunch, 1982, p. 97). While all appropriate technology is not assured long-term success, the farmers' active participation throughout the process of identifying the problems, choosing solutions, and implementing them on their own lands will lessen their reticence to try the new techniques.

Dialogue is the first building block that can produce participation and buy-in to FG from the target beneficiaries. Dialogue must be geared toward mutually identifying farmers' felt needs, instilling confidence in the farmers that they can solve their own problems, and demonstrating the project personnel's competence and desire to help the farmers (Bunch, 1982, pp. 24–25). By working together to identify problems requiring resolution, farmers and project staff become a team, clarifying the inherent risks involved and increasing the farmers' confidence in the programmes' methodologies. This can only occur when farmers are adequately informed throughout the project, participate in all project-related decision-making, and assist in project evaluation. This concerted effort to join project implementers and beneficiaries in common cause presents opportunities for improving the situation without raising false expectations. Farmers are thus adequately prepared to manage associated risks and accept both the benefits and potential consequences of implementing new ideas.

Establishing rapport and project credibility requires *time*. A commonly overlooked requirement for long-term project success is to start slowly and start small. A slower pace protects project personnel from falling prey to the common mistake of trying to 'teach too much'. By teaching everything ... they have failed to explain any one practice enough to convince the farmers of its value or make sure the farmers can apply it successfully' (Bunch, 1982, pp.5–6). Teaching a limited number of innovations and proving the programme's value through a stepped process then increases the number of farmers adopting the programmes and implementing them correctly.

SITE SPECIFICITY AND PROGRAMME FLEXIBILITY

The programme begins with a participatory rural appraisal (PRA) process, followed by an introductory workshop explaining the programme and inviting community and farmer participation. Farmer households are self-selected, with some joining the project individually and others working through a farmer collective. Viewed in conjunction with community socio-economic priorities, access to land, and other tenurial issues, the PRA process is followed by:

- a) an interview with the individual farm family to assess its social and economic priorities,



Figure 4
Participating farmer holds the farm plan for her Forest Garden. An important focus of the Forest Garden Programme is working with women

- b) an examination of remnant forest patches and identification of flora and fauna therein, along with their ecological roles and any anthropogenic uses or value,
- c) establishment of nurseries, and
- d) studies of the suitability and synergy of native and exotic species in the gardens.

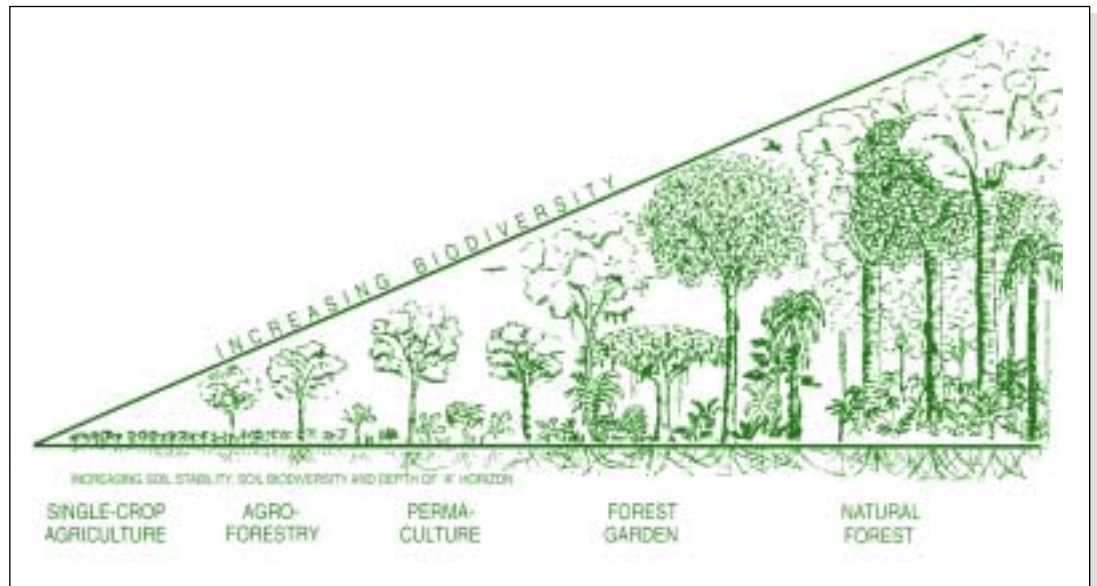
During the interview with the farmer, other issues of concern not strictly related to FG may arise (such as health, literacy and access to safe drinking water); it is Counterpart International's responsibility to respond in a holistic fashion to these felt needs such that perceived risk associated with project adoption is diminished.

Analog Forestry extension workers then begin working with the farmers to implement site-specific farm management plans. Each farm plot represents a unique environment. Careful consideration of farm-specific variables in planning provides the information needed to create designs tailored to each plot, thereby reducing farmer risk. By profiling their land, farmers come to a

Figure 5
Participating Sri Lankan farmer displays the design of his Forest Garden which he developed in conjunction with the FG Programme extensionists. FG designs incorporate information on a variety of tree and other vegetation species, producing a plan that addresses the specific ecological needs and challenges of each plot as well as financial and other needs of the farmer



Figure 6
Ecological succession is the process by which the vegetation on a plot of land progresses towards an increasingly stable ecosystem. The process of moving from colonisation of degraded land through to the growth of climax ecosystem. With improved soil productivity, increased biodiversity, and canopy cover is called seral progression. At each seral stage the complexity of the vegetation community increases as does its ability to maintain a stable environment (Analog Forestry Manual, p.3)



more detailed understanding of its composition, strengths, and weaknesses, and thus determine the best way to design their FGs and incorporate species that increase crop productivity potential and canopy cover, improve soil quality, reduce erosion, protect water catchments, etc. With an individualised farm plan, a farmer can gradually adopt programme principles and move her land through successional stages of restorative growth by employing techniques such as composting/mulching for soil and crop improvement, hedgerows for soil conservation, integrated pest management, windbreaks, and production of saleable products. These short- and long-term farm plans allow farmers with limited resources to predict their labour and input costs more accurately, estimate projected economic returns and associated benefits, understand challenges and risks they face in adopting Analog Forestry, and provide them with the analytical tools to troubleshoot their problems in a timely manner. These plans help increase farmer adoption of FG principles by incorporating modern sustainable agricultural and ecosystem knowledge with proven indigenous systems of resource husbandry, creating a flexible tool that is culturally appropriate.

One field example of the flexibility of the FG model is found in Walapane, Sri Lanka. The Temple Forest Garden Programme takes advantage of the central importance of Buddhism in the lives of most Sri Lankans. Reverence for nature, and especially trees, is a key tenet of the Buddhist worldview. FG principles thus provide a natural complement to Buddhism. The programme is developing a network of temples as individual project sites. Each reflects the vision and goals of that particular temple and surrounding community and incorporates the training of monks in Analog Forestry, establishment of demonstration plots and nurseries, and the provision of extension services to nearby farmers. Some Buddhist temples support small tracts of old-growth forest; when combined with strategically-placed FGs developed by the monks and local farmers, these tracts provide significantly improved habitat for wildlife and native species of plants.

ANALOG FORESTRY DEMONSTRATION SITES

Analog Forestry demonstration sites in CBO/agricultural cooperative nurseries, or found on plots of

farmers demonstrating a firm grasp of Analog Forestry and a willingness to teach other farmers by example, have proven very useful in Sri Lanka as 'dynamic laboratories' of Analog Forestry. Such sites provide an arena for farmers and extension personnel to jointly investigate innovations, exchange information on activities undertaken, and actively shape the programme as it progresses, sharing responsibility for its implementation. These plots thus help to inform farmers' assessment of the risks involved in adopting FG management principles. While demonstration plots can sometimes give farmers a false impression of how 'easy' FGs are to develop, due to all the attention and inputs given them by extensionists, they can also help to convince farmers of the efficacy of FG principles, encouraging them to design FGs on their own plots.

FINANCIAL INPUT

A formidable barrier commonly faced by small-scale farmers is a severe lack of disposable income. Limited-resource farmers are hesitant to invest even small amounts of money and time when they are not absolutely assured at the outset of its success. Thus, access to funds for developing FGs was addressed through the creation of a seeds-and-tools credit mechanism. This fund is designed for qualifying FG farmers, providing the financial leverage to permit them to purchase necessary materials to develop sound farm management practices. Repayment is tied to updated land-use plans, specific crop seasons, and proven agricultural production by the borrower. Thus, there has been a known/expected source of income for repayment on an appropriate time scale. The fund targets farmers with proven skills, an interest in new crops, and innovative planting/harvesting methods. This credit fund is often the necessary start-up facility that has helped reduce farmer risk and allowed cash-starved communities to make small but critical investments in constructing a productive resource base.

PRODUCT MARKETING

Small-scale farmers worldwide are most interested in:

- 1.) producing enough to satisfy their subsistence needs and
- 2.) producing a surplus to sell at the highest price and lowest cost to themselves.

Marketing their products thus becomes critical to their financial well-being, as well as to maintaining their active interest and participation in the Forest Garden Programme. Marketing presents what amounts to the greatest challenge to programme promoters and the biggest risk to participating farmers. Surmounting it starts with a frank acknowledgement on the part of interventionists of the difficulty of establishing product niches and markets. Market studies are conducted locally and regionally to ascertain what products will secure the most profitable niches and at what times of the year; project staff and farmers then incorporate this information into FG farm designs. Counterpart International provides farmers with enough training to enable them to produce dependable quantities of high-quality FGPs that first meet farm-household subsistence needs. Cooperative capacity-building activities enabling farmers to achieve some economies of scale, set product quality standards, process and transport products on a regular timeframe, as well as gain business skills to increase the farmers' profit are important to our initial focus of tapping into local markets. Only after a market foothold is achieved in project sites are the larger venues of regional, national, and international markets targeted. This steady though tempered progression keeps farmer expectations realistic, yet gives them ever-larger goals to shoot for.

GENERAL RISK MANAGEMENT

Whether farmers are inclined to adopt the methodology for the programme's offer of improved soil and water conservation, the potential for increased income, or to gain the support of the local extension officer and associated resources, farmer risk must be minimised through a dynamic approach. Risks associated with FG implementation can be minimised by:

- continually monitoring and evaluating project successes and failures by project staff and farmers and jointly discussing the findings;
- developing a strong network of farmers and farmer cooperatives among project sites, and providing opportunities for 'farmer-to-farmer' exchanges and training, as well as exchanges of inputs among sites and nurseries. This creates a platform for innovations to be attempted, evaluated and, if valuable, incorporated into the programme, as well as resources shared;
- a constant focus on programme flexibility and ongoing consultation with farmers is critical. This creates room for increased community participation and continual project improvement by building on lessons learned.

While the adoption of Analog Forestry involves some inherent risks to limited-resource farmers, Counterpart International has developed mechanisms to address these risks in a manner that actively involves farmers and project staff in both the identification of those risks and the development of appropriate solutions.

BIBLIOGRAPHY

Analog Forestry Network. 1997. Analog Forestry Manual. Knowlesville, New Brunswick: Falls Brooke Centre.

Bunch, Roland. 1982. Two Ears of Corn. Oklahoma City, OK: World Neighbors.

Freire, Paulo. 1970. Pedagogy of the Oppressed. New York, NY: The Continuum Publishing Company.

Senanayake, F. Ranil & Bruce M. Beehler. 2000. Forest Gardens – 'Sustaining Rural Communities Around the World Through Holistic Agro-forestry.' Sustainable Development International, Second Edition. Pp. 95-8. London: ICG Publishing, Ltd.



ABOUT THE AUTHORS

Aaron M. Becker is Program Manager of Forest Garden Programmes in Sri Lanka, the Philippines, and Zimbabwe. His work, both domestic and international, has focused on community capacity building, outreach,

integrated land-use, poverty reduction, and a range of other community-based programs. His graduate work concentrated on Economic and Social Development in South and Southeast Asia, with a focus on 'Priority Weighting in the Indonesian Transmigration Program: Land, Environmental Sustainability and Social Suitability'.



Emily S. Goldman is Latin America Programme Manager at Counterpart International. After serving in the Peace Corps in Honduras working on beekeeping, organic gardening, and cholera prevention, she received her M.A. in Anthropology from the University of Florida, focusing on land reform in the Mexican ejido system and its potential effects on land use practices as well as the community cultural fabric. Her work at a variety of NGOs has focused on sustainable forestry and agroforestry, poverty reduction, strengthening of the community-based organizations, and protection of protected area buffer and nuclear zones.

system and its potential effects on land use practices as well as the community cultural fabric. Her work at a variety of NGOs has focused on sustainable forestry and agroforestry, poverty reduction, strengthening of the community-based organizations, and protection of protected area buffer and nuclear zones.

IF YOU HAVE ANY ENQUIRIES REGARDING THE CONTENT OF THIS ARTICLE, PLEASE CONTACT:

Emily S. Goldman

Program Manager

Latin America and the Caribbean

Counterpart International, Inc.,

1200 18th Street, NW Suite 1100

Washington, DC 20036

USA

Tel: +1 (202) 296-9676

Fax +1 (202) 296-9679

E-mail: egoldman@counterpart.org