Rainforestation Case Study: The Cienda-San Vicente Farmers Association Experience



Front cover: Typical Leyte landscape with Mt. Pangasugan in the background (2015).
Above (from left to right): Illegal logging in Leyte in the early 1990s, Cienda-San Vicente Farmers Association members at the start of Rainforestation implementation on their site in 1996, Cienda-San Vicente Farmers Association members in their Rainforestation site in 2003.

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ITEEM - VSU
www.vsu.edu.ph
Phone: (63) 53-335-2651 [Philippines]
Email: vsutropicaleco@yahoo.com

ELTI
www.elti.org
Phone: (1) 203-432-9246 [USA]
Email: elti@yale.edu

Texts:
Marlito Bande, Hazel Consunji, Gillian Bloomfield and Pia Labastilla

Editing:
David Neidel, Eva Garen and Hazel Consunji

Layout:
Lina Rada and Hazel Consunji

Photographs:
Marlito Bande, VSU Photo Collection, ELTI Photo Archive

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Members of CSVFA (1996).

Introduction

In 1996, the Cienda-San Vicente Farmers Association (CSVFA) joined forces with Visayas State University (VSU) to become the first people's organization in the Philippines to implement the "Rainforestation" method of forest restoration.

Starting with a 0.97-hectare marginal piece of land in the village of Cienda, Gabas in the municipality of Baybay, Leyte, the CSVFA began a project aimed at exploring whether Rainforestation, a community-based approach to native species reforestation, could be used to rehabilitate degraded landscapes and restore key ecosystem services, while providing additional and sustainable sources of livelihood for rural farmers.

"Rainforestation was our only hope to bring back the rainforest. It also gave us a reason to protect and conserve our remaining forest, not only for the trees and animals living there, but for us and the future generation. Now, we breathe fresh air, drink clean water, sow fertile soils, have a stable source of income, the wildlife has returned, and our community is much stronger."

- Agustino Valenzona, CSVFA President (1992-1994)

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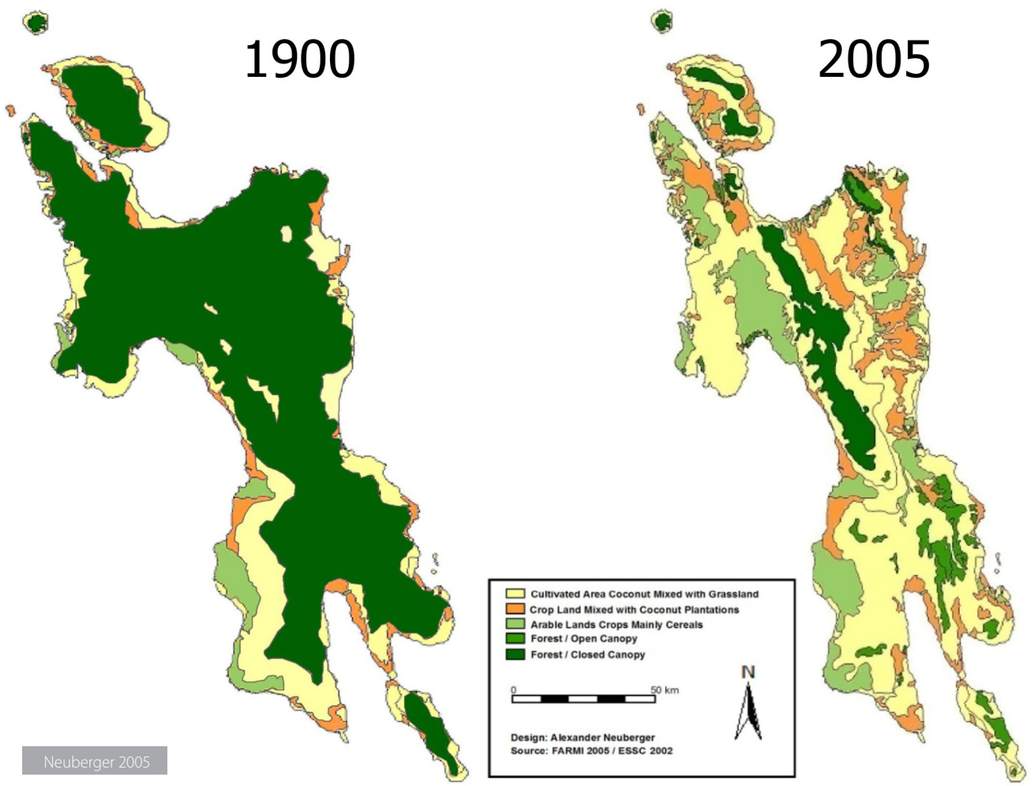
History of land use in Leyte

The province of Leyte in the central Philippines covers about 0.8 million hectares. In 1900, it was mostly covered with tropical rainforests dominated by Dipterocarp tree species. Large-scale logging operations removed many of these big trees up until the Logging Ban of 1987. Small-scale "illegal" logging, nevertheless, continues to date.

Since the mid-1970s, there have been numerous efforts by the national government and the private sector to promote tree planting for reforestation and agroforestry. However, the majority of these initiatives focused on establishing plantations of fast growing exotic tree species, such as *Swietenia macrophylla*, *Acacia mangium*, *Acacia auriculiformis*, *Gmelina arborea*, and *Eucalyptus spp*., which have indirectly contributed to further deforestation and biodiversity loss (Goeltenboth & Goeltenboth 2000; Schulte 2002, Bande 2004).

As of 2005, the island has less than 10% forest cover and the predominant land uses are coconut plantations (~70%), irrigated rice cultivation, and shifting cultivation in the uplands.



Neuberger 2005

Beginning of Rainforestation

Starting in the 1980s, the farmers in Leyte began to experience problems with their water supply during the dry season, and with frequent flooding and erosion during the wet season. At the height of a passing tropical storm in 1991, the heavy downpour overwhelmed the degraded watershed and rushed downstream to the city of Ormoc, the largest city in Leyte. The flash flood wreaked havoc on the city, causing millions of pesos in damage and claiming around 5,000 lives. In the aftermath of the tragedy, farmers observed the inability of the exotic tree plantations to withstand, much less mitigate, the effects of storm events.

Picking up on the situation, scientists at the Visayas State University (formerly ViSCA) and the German Agency for International Cooperation (GIZ, formerly GTZ) embarked on a research program called the "closed canopy and high diversity farming system", or simply "Rainforestation Farming". This production system was developed based on the hypothesis that farming will be more sustainable the closer it is in its species composition to the original local rainforest (Milan and Margraf 1994).

Challenging the conventional reforestation practice of using a handful of exotic species, VSU and GIZ planted a diversity of native tree species on a 2.4-hectare research and demonstration site within the VSU campus in 1992. From 1995-1999, 10 pilot farms were then developed with cooperating farmers and landowners in the vicinity of VSU to assess the adaptability of the Rainforestation Farming system on the ground.

The Rainforestation method

Rainforestation Farming was originally designed to replace a destructive form of slash-and-burn agriculture by integrating fruit trees and crops into a mix of native trees. This method is not only more sustainable ecologically in terms of recovery of native biodiversity and soil and water conservation, but also economically by providing a continuous, stable source of income. Since then, the strategy has evolved to cater to other land management objectives, such as watershed restoration, wildlife habitat restoration, landslide area rehabilitation, and buffer zone enhancement, which are known simply as "Rainforestation". Subject to extensive research and experimentation, Rainforestation has been refined into a cost-effective and widely applicable method for reforestation.

A key component of the implementation of Rainforestation has been its participatory approach – the involvement of community groups and other stakeholders (e.g., the local government unit and agencies) in the different stages of project development, starting from training and planning through implementation and monitoring.

VSU demonstration site in 1992.

VSU demonstration site in 2006.

Rainforestation participatory approach


VSU helping a community set up their nursery (early 2000).

- Environmental advocacy and Rainforestation orientation
- Inclusion of activities in the Annual Investment Plan
- Identification of designated office and contact persons

Local Government Unit (LGU)

- Administrative support
- Policy and legal support
- Financial and material support
- Technical support
- Execution of MOA/MOU

- Endorsement and commitment of support
- Identification of priority sites for Rainforestation establishment
- Recognition and accreditation of farmers association

Visayas State University (VSU)

- Rainforestation technology
- Technical support
  - Farm development
  - Farm maintenance
  - Nursery establishment
- Administrative support
- Execution of a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA)

- Community consultation and organizing
- Focus group discussion and Rainforestation Orientation
  - Farmer leaders
  - Barangay council members
  - Church leaders
- Barangay council meeting
- Barangay General Assembly meeting
- Environmental advocacy

Local Community

- Identification of potential Rainforestation training participants
- Venue and food preparation
- Identification of proposed site
- Land claims settlement
- Labor and material support
- Formation and registration of farmers association
- Formulation of constitution and by-laws (CBL)
- Execution of MOA

Development of Rainforestation Site

- Rainforestation orientation
- Identification of designated office and contact persons
- Delineation of support and proposed area for RF development

Local DENR Office (CENRO)

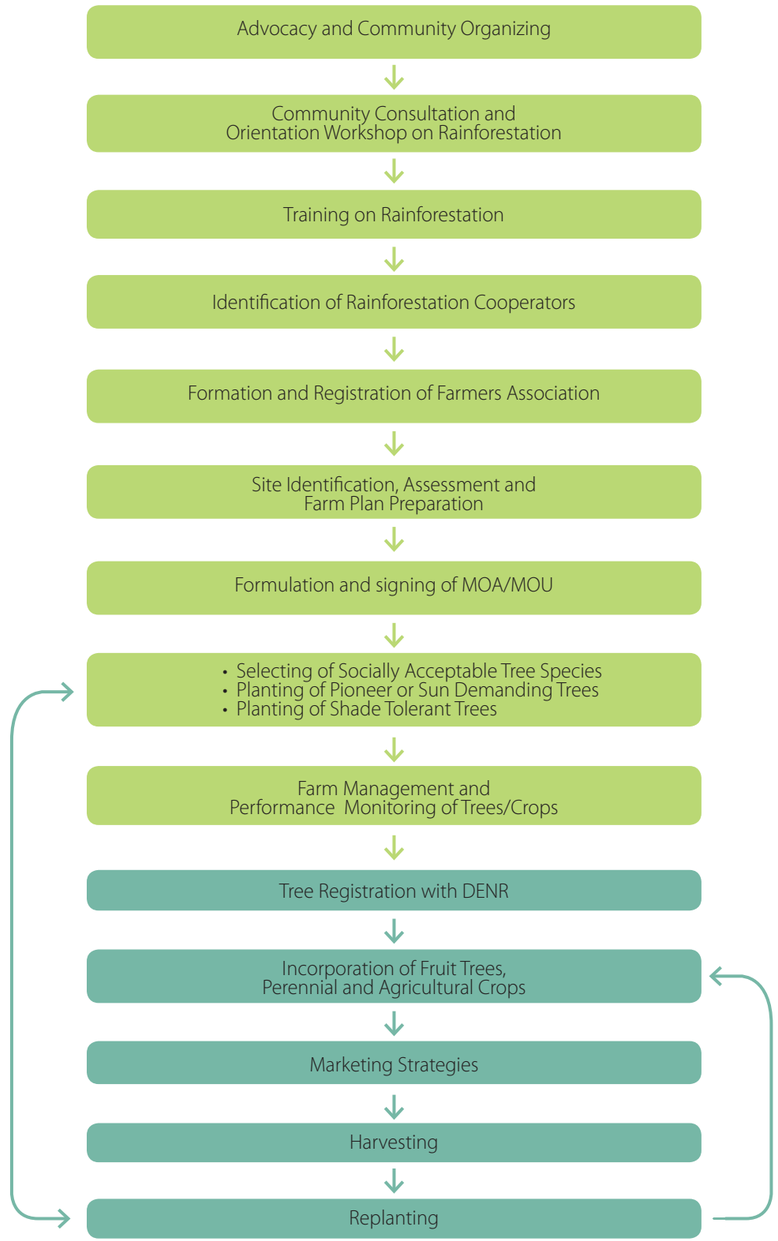
- Tenurial instrument issuance
- Tree registration
- Policy and legal support
- Administrative and technical support

- Endorsement and commitment of support
- Identification of priority sites for Rainforestation establishment
- Recognition and accreditation of farmers association

Rainforestation implementation process

Many reforestation efforts in the Philippines have fallen short in achieving their objectives, often because of failure to conduct proper site assessment and to fully engage local partners in the whole process, including resolving land tenure issues, which are needed to sustain the efforts. In order to avoid this same fate, Rainforestation advocates have adopted a community-based implementing strategy, described in the flowchart on the next page.

From top left to right to bottom: VSU giving Rainforestation Orientation, Community drafting CBL, Community preparing the site (1995-1996).



Rainforestation Implementation Process, adapted from Margraf & Milan 1996.

History of the Cienda site and CSVFA

As with the rest of the province, the forests around the Cienda and San Vicente villages have been subject to degradation from rampant illegal logging, wildlife poaching, and slash-and-burn agriculture. When their farms and fields – their main source of livelihood – started to become affected by a shortage of water during the summer and flooding and sedimentation during the rainy season, some of the community members decided to take action and formed the group, Kilim Upland Farmers Association (KUFA). From 1985-1988, the group protected their watershed and promoted sustainable forestry, and was even chosen for a pilot project under the Integrated Social Forestry Program of the national government. However, when the project ended, the efforts of the group were not sustained. Illegal logging resumed in the watershed.

Upon hearing about the Rainforestation program through VSU's community advocacy and realizing that this was aligned with their mission to protect and restore their forests, some of the KUFA members approached VSU and expressed interest in participating.

A river in Cienda during the summer (early 1990s).

Marlito Bande conducting a Rainforestation training (late 1990s).

Community organizing and training

VSU conducted an initial Rainforestation training for 67 members of the Cienda and San Vicente villages. Only 27 individuals decided to pursue the project at that point. To facilitate the establishment of a pilot site in Cienda, VSU assigned a community organizer, Marlito Bande, to the village. Marlito decided to live with the community and conducted regular discussions and consultations to build consensus on key issues, strategize a plan of action, and mobilize the members based on increased awareness and commitment.

He assisted in restructuring the group and in registering them as a People's Organization with the Department of Labor and Employment under a new name, the Cienda San Vicente Farmer's Association (CSVFA). In order to stop the destructive logging and slash-and-burn practices, the members trained to be DENR-deputized forest wardens, giving them the right to apprehend violators in their watershed area. The association came up with their organizational structure and constitution and by-laws, outlining the different environmental activities and cost-benefit sharing scheme. CSVFA then signed a Memorandum of Agreement (MOA) with VSU, the local government unit, and the owner of the land where the Rainforestation farm would be developed. The MOA legalized the lease of the land to CSVFA for 50 years, formalized the partnership among the different stakeholders, and specified the roles and responsibilities of each stakeholder.

CSVFA members in their site before Rainforestation implementation (1996).

Identifying and preparing the site

Suitability and adaptability of tree species to the biophysical condition of the area is an important consideration in the successful development of Rainforestation. The CSVFA members played a major role in identifying the tree species that naturally grew in their area and the other tree species that they would like to plant for socio-economic reasons. Incorporating what the community wants is key for social acceptability and sustainability of the project. Meanwhile, VSU and GIZ provided technical assistance on ecological factors like soil analysis and planting design based on the topography, the successional guild of the species selected, and the management objective of the association. Being the first ever community-adopted Rainforestation site, this exchange of ideas between the researchers at VSU and GIZ and the CSVFA members served as a learning experience for both parties and a benchmark for future site development planning.

Prior to the Rainforestation program, the Cienda site had been cleared for upland rice cultivation and then was later converted to a coconut plantation. The area was not intensively managed, therefore, cogon grass (*Imperata cylindrica*) dominated the understory with some occasional trees. In preparation for planting the Rainforestation trees, the grass was cut and the trees were left standing.

Planting of nurse trees

To facilitate the planting, the area was systematically laid out with bamboo stakes , which were used to mark where the seedlings should be planted. The Rainforestation method follows the natural ecological succession in their planting design. In the first year, "nurse trees" or fast-growing pioneer species were planted at 2x2 meter spacing. The researchers decided to plant at close intervals to achieve a closed canopy more quickly and shade out the cogon grass, thus reducing maintenance costs. There were 22 species of nurse trees planted, with more or less one individual of each species per row.

Nurse trees: Pioneer (early-successional) species known for their ability to grow quickly in full sun and provide the shade needed by other shade-tolerant species.

After three months, weeding was done to ensure higher survival of the planted seedlings. To increase farm productivity, vegetables and root crops were planted in between the nurse trees after weeding.

From left to right, top to bottom: Lay-outing with bamboo stakes, Digging holes and planting of nurse trees, Weeding, Planting of vegetables and root crops (1996).

List of nurse trees planted in the Cienda site

Scientific name	Common name	Family
*Albizia saman**	Acacia	Fabacea
Agathis philippinensis	Almaciga	Araucariaceae
Calophyllum blancoi	Bitanghol	Calophyllaceae
*Cassia javanica**	Antsoan dilaw	Fabaceae
Casuarina nodiflora	Mountain Agoho	Casuarinaceae
Cleistanthus pilosus	Banitlong	Phyllanthaceae
Dracontomelon dao	Dao	Anacardiaceae
Instia bijuga	Ipil	Fabaceae
Melia dubia	Bagalunga	Meliaceae
Myrica javanica	Hindang laparan	Myricaceae
Ormosia calavensis	Bahai	Fabaceae
Petersianthus quadrialatus	Toog	Lecythidaceae
Podocarpus philippinensis	Malakauayan	Podocarpaceae
Premna odorata	Alagao	Lamiaceae
Pterocarpus indicus	Narra	Fabaceae
Radermachera pinnata	Banai-banai	Bignoniaceae
*Senna siamea**	Thailand shower	Fabaceae
Strombosia philippinensis	Tamayuan	Olacaceae
*Tectona grandis**	Teak	Lamiaceae
Terminalia microcarpa	Kalumpit	Combretaceae
Vaccinium sp.	Balao	Ericaceae
Vitex parviflora	Molave	Lamiaceae
*Afzelia rhomboidea***	Tindalo	Fabaceae
*Toona philippinensis***	Lanipga	Meliaceae
*Knema mindanensis***	Bunod	Myristicaceae
*Dracontomelon edule***	Lamio	Anacardiaceae

* *Exotic species were used due to limited availability of native seedlings at that time.*

** *Native species that were used to replace mortalities. Not included in the original 22 species of nurse trees planted.*

Above: Planting of nurse trees (1996).

Planting of dipterocarps and fruit trees

After two years, shade-tolerant species, particularly Dipterocarp species, were planted at 2x2 meter intervals, in between the nurse trees. Some fruit trees were also planted in between the nurse and Dipterocarp trees. There were six species of Dipterocarps and nine species of fruit trees planted. A total of 6,817 seedlings of 41 species were planted. However, due to overshading and competition, some fruit trees did not survive. Pineapple, rattan, and ornamental plants were then integrated in the following years to further increase farm productivity.

Dipterocarps: Late-successional species from the Dipterocarp family, most of which require some amount of shade for optimal growth. These are often highly valued timber trees, therefore regarded as "premium" timber species.

List of dipterocarp and fruit trees planted in the Cienda site

Scientific name	Common name	Family
Dipterocarp Trees		
Dipterocarpus grandiflorus	Apitong	Dipterocarpaceae
Dipterocarpus validus	Hagakhak	Dipterocarpaceae
Hopea malibato	Yakal kaliot	Dipterocarpaceae
Hopea plagata	Yakal saplungan	Dipterocarpaceae
Parashorea malaanonan	Bagtikan	Dipterocarpaceae
Shorea contorta	White Lauan	Dipterocarpaceae
Fruit Trees		
Anacardium occidentale	Kasoy	Anacardiaceae
Annona muricata	Guyabano	Annonaceae
Artocarpus heterophyllus	Langka	Moraceae
Chrysophyllum cainito	Kaimito	Sapotaceae
Durio zibethinus	Durian	Malvaceae
Garcinia mangostana	Mangosteen	Clusiaceae
Lansium domesticum	Lanzones	Meliaceae
Artocarpus odoratissimus	Marang	Lauraceae
Nephelium lappaceum	Rambutan	Sapindaceae

CSVFA members giving a tour of their 6-year old Rainforestation site to other communities (2002).

Pruning and thinning

The high density of nurse trees was proposed in the beginning because pruning and thinning of these trees were part of the farm management plan to provide wood for local use or for sale. All the planted trees were registered with the DENR Community Environment and Natural Resources Office (CENRO) so that it would be easier to harvest and transport the timber products when the time comes.

By the 6th year, some pruning and thinning was done and the wood collected was sold as firewood and lumber. This process also provided some light and space for the Dipterocarp and fruit trees to grow. However, thinning was not continued due to the emotional attachment of the CSVFA members to the trees that they planted and cared for through the years. The site was originally developed as an agro-forestry farm, but CSVFA decided to maintain it for restoration, as well as educational purposes.

Maintenance and monitoring

Maintenance, such as watering and weeding, and monitoring the growth of seedlings, as well as replacement of seedlings that died, are critical activities during the first three years of farm development.

Maintenance and monitoring was done almost every week during the first six months, every month from the 7th month until the end of the second year, every quarter during the 3rd year, and every six months until the 5th year. The frequency of maintenance and monitoring was also possible due to the availability of manpower through "pintakasi", a form of community volunteer action.

VSU carried out regular soil sample collections to monitor the changes in soil properties and biodiversity assessments to track recruitment of wildlife in the area. According to the most recent tree inventory in May 2014, there are 3,434 trees from 55 different species in the Cienda site. The super typhoon Yolanda in November 2013 knocked down some of the trees and caused flushing, or emergence of new growth, in the understory.

From left to right, top to bottom: Cienda site through the years – March 1997, October 1997, April 1998, July 1999, January 2000, October 2001, March 2002, November 2004, June 2006.

Cienda site in 2015.

Establishment costs

The "pintakasi" method of community volunteer action formed the basis of CSVFA's cost-benefit sharing scheme. Time rendered during the farm development was recorded as the member's contribution to the association's Capital Build Up (CBU), which also determined the member's share of income. The CBU through the sweat equity concept, i.e. contribution in the form of effort, was adopted to overcome the lack of capital investment. Actual labor costs were accounted for to provide benchmark information on the cost of development of a Rainforestation farm, as shown in the table below.

Activities	Cost / Year in Pesos (PhP)							
	1996	1997	1998	1999	2000	2001	2002	2003
Brushing	7,200							
Lay outing	9,360							
Stalking	15,600							
Hauling	6,240							
Digging	15,600							
Planting	9,360	6,734	3,279					
Application of fertilizer	187	188						
Maintenance	10,080	34,560	40,336	34,636	25,028	15,460	10,280	10,695
Replacement	3,360	6,720	3,360					
Planting materials	87,462	16,939	8,399					
Harvesting	2,819	1,020	1,102	1,247	1,115	1,358	1,239	2,857
Sub total	167,268	66,161	56,476	35,883	26,143	16,818	11,519	13,552
Total	**PhP 393,820.00**							

CSVFA's Capital Investment.

Source: Evaluation of Silvicultural Management, Ecological Changes and Market Study of Products of Existing Rainforestation Demonstration and Cooperators' Farms. 2004. Institute of Tropical Ecology and Environmental Management (ITEEM), Visayas State University, Baybay, Leyte.

Buffer zone in the CSVFA CBFMA area (early 2000).

Community-based forest management

Formalizing and registering the CSVFA as a People's Organization and carrying out environmental conservation activities, including the development of the Rainforestation project, gave CSVFA more authority in the eyes of the DENR. To secure their right to manage and protect their surrounding land, CSVFA applied for a Community-Based Forest Management Agreement (CBFMA) in 1997, which was awarded to them in January 2000.

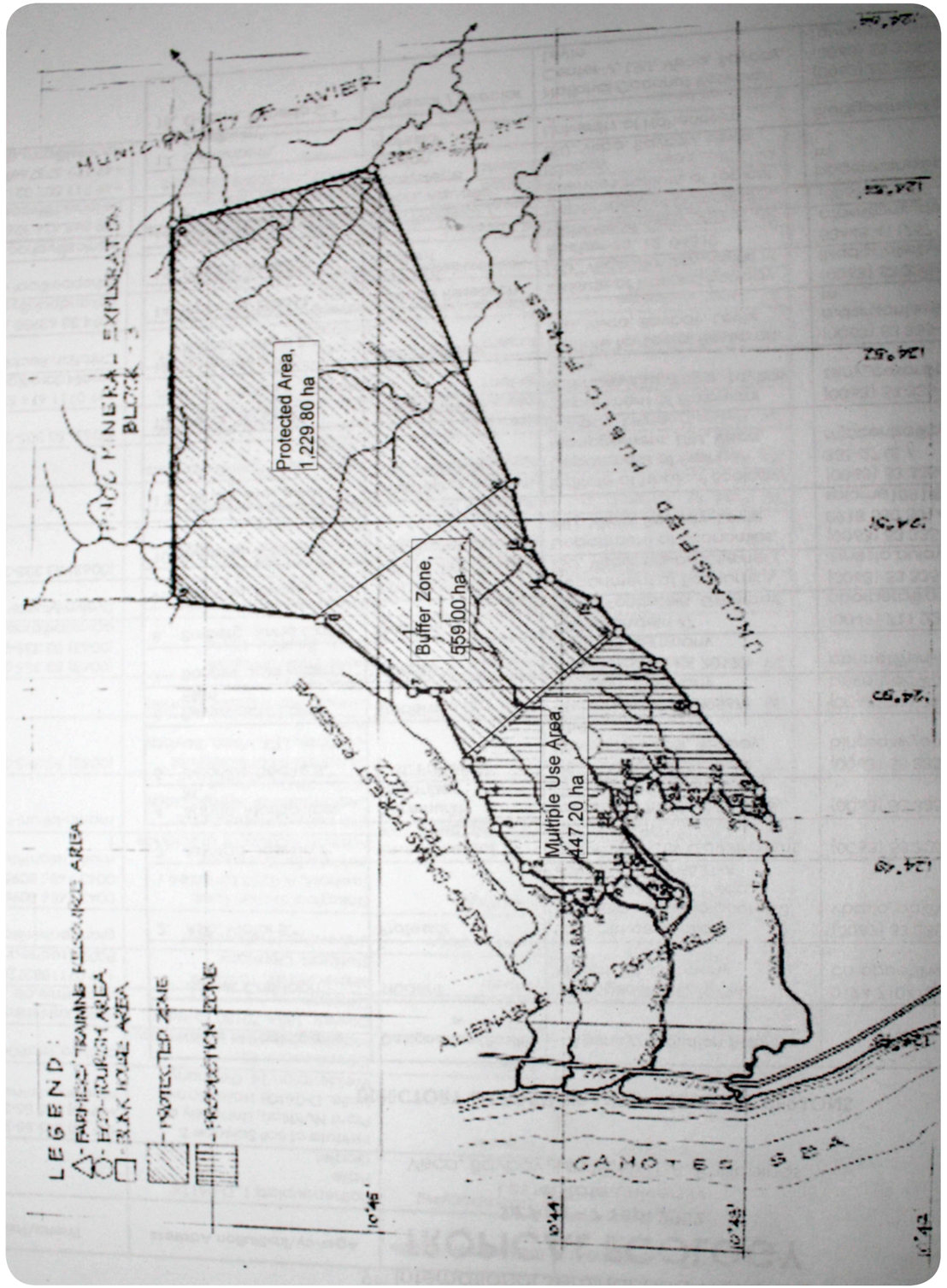
The CBFMA gave CSVFA security of tenure over 2,236 hectares of land for 25 years, renewable for another 25 years. The area will be managed according to three different land-use regimes:

1) Protected Area – identified portions of land and water set aside by reason of their unique physical and biological significance, managed to enhance biological diversity and protected against destructive human exploitation.

2) Buffer Zone – identified areas outside the boundaries of and immediately adjacent to designated protected areas that need special development control in order to avoid or minimize harm to the protected area.

3) Multiple Use Zone – areas where settlement and traditional and/or sustainable land use, including agriculture, agroforestry, extraction activities and other income generating or livelihood activities, may be allowed to the extent prescribed in the management plan.

Source: DENR



Community-based Forest Management Area Map of CSVFA (2000).

Expansion of Rainforestation activities

Since the establishment of the 1-hectare Rainforestation pilot farm in 1996, the CSVFA has expanded its efforts to develop additional Rainforestation areas, namely:

1) 2.4-ha genetic resource bank, where they planted 2,500 forest trees of 50 different native species;

2) 10-ha Rainforestation agroforestry farm comprised of fruit trees such as durian, marang and lanzones, integrated with native forest trees, in the Buffer Zone;

3) 30-ha Rainforestation agroforestry farm integrating abaca (*Musa textilis*) and coconuts with native trees in the Multiple Use Zone;

4) 2.5-ha Rainforestation agroforestry farm with fruit trees, root crops, vegetables, coconuts and native trees in the production area within the Alienable & Disposable land (outside the CBFMA area);

5) 7-ha in landslide area rehabilitated with native trees;

6) 3-ha in critical watershed and riverbank areas rehabilitated with native trees;

7) 50-ha restoration of degraded land under the Philippine National Greening Program;

8) 15-ha agroforestry farm under the Energy Development Corporation's BINHI "Tree for Food" program;

9) 50-ha Rainforestation agroforestry system within buffer and production zones; and,

10) 10-ha restoration of denuded lands within buffer and protected areas.

Rainforestation agroforestry system integrating abaca and native trees into coconut plantations (2005).

VSU signing a MOA with the community (1996).

Discussion points: successful strategies

Piloting the Rainforestation method for the first time with a community had its share of challenges, but these were overcome due to the following factors:

• An important factor that eased the adoption of the Rainforestation method by the community was their initial awareness of the danger of unabated forest destruction. This was further reinforced by VSU and GIZ's intensive environmental awareness campaign using different media and approaches, e.g. radio plays, posters, and talks after Sunday mass. Therefore, the willing community was presented with a timely opportunity to address the environmental problems through Rainforestation.

• After having negative experiences with previous projects, it was critical to establish rapport and build the trust of the community. The rigorous community organizing, and the dedication of the community organizer to the cause and to the community, laid a solid foundation for the Rainforestation project in Cienda. Creating a network of support was also crucial to start and sustain the project, and this was achieved through the 'participatory approach'. This approach gave ownership of the project to the different stakeholders, and fostered camaraderie, innovation, and empowerment. Having the partnership legally recognized through a MOA also helped ensure the delineation of roles and responsibilities and the commitment of the different stakeholders.

• Another strategy that proved effective was the use of the 'family approach' during the farm development. The men (husbands and older male sons) collected wildlings from the forest, prepared the site, and planted the seedlings, while the women (wives and daughters) and young boys handled the nursery operations, such as putting

the soil mix into the polybags and potting of the wildlings. CSVFA also adopted the 'family approach' such that if an association member could not fulfill an assignment, a member of his family can fill in. This approach promoted cooperation within the family and the community and facilitated the transfer of knowledge, skills, and responsibility between generations, which ensured the long-term sustainability of the project.

Top left, bottom left, right: "Family Approach" to Rainforestation - Men gathering wildlings, Women mixing potting medium, Children tending the nursery (1996).

Discussion points: areas for improvement

The Cienda case was definitely a learning experience, and the following areas were identified for improvement for future projects:

- Systematic data collection and extensive documentation of the different steps of the Rainforestation implementation process, including pre- and post-establishment activities, would have been useful in providing benchmark information for adaptive management and for further scientific and socioeconomic studies.

- More rigorous research on the experimental design and planning with the community, especially on the cultural management of their farm, could increase the cost-effectiveness of the farm establishment and profitability in the long run. The planting distance in Cienda was too close for an agroforestry system, especially with existing coconut and other trees. Although thinning was originally part of the management plan, the hesitation to cut the trees due to the emotional attachment of the CSVFA members could not have been anticipated. Based on this experience, VSU revised their planting design and eventually came up with Rainforestation 'typologies', which are based on different land management objectives with specific planting strategies. For example, to develop an old coconut plantation into an agroforestry farm, it is now recommended to plant 20-40 forest trees and 60-80 fruit trees (i.e., total of 100 trees per hectare), interspersed with 1000 perennial plants, such as abaca, banana, papaya and pineapple, per hectare. Adjustments and other details can and should still be worked out with the community.

VSU monitoring the growth performance of trees in a Rainforestation site (early 2000).

Economic benefits

The Cienda Rainforestation farm was able to provide supplementary income through the crops, fruit trees, and some firewood in the early stages. With the change of management objective from an agroforestry farm to a restoration area, the community shifted their focus to nursery production. Selling seedlings of native tree species for public and private reforestation initiatives have made community nurseries a profitable business, while at the same time providing an economic incentive to protect the 'mother trees' and the remaining natural forests.

Between 1997 and 2013, the CSVFA sold over PhP 1.6 million worth of native seedlings to different organizations, agencies, and individuals. Under the DENR's current National Greening Program, they are also paid for their labor in planting and maintaining the seedlings.

The CSVFA farm and nursery serve as a model for community-based Rainforestation, and the association conducts farmer-to-farmer trainings on Rainforestation and Native Seedling Production, as well as Rainforestation Orientations and Site Visits for interested groups from all over the country. Not only has this provided an additional source of income for the association, it has also boosted the morale and self-confidence of the members, empowering them all the more to be stewards, advocates, and leaders in forest conservation and management.

Top left to right, bottom: CSVFA member harvesting pineapple from their Rainforestation farm (2001), CSVFA members giving a tour of their nursery to out-of-town visitors (early 2000), CSVFA nursery (2006).

Environmental benefits

Studies conducted by VSU showed improvement in soil properties, such as soil structure, water holding capacity, soil color, and nutrient status in the Cienda farm after five years of establishment.

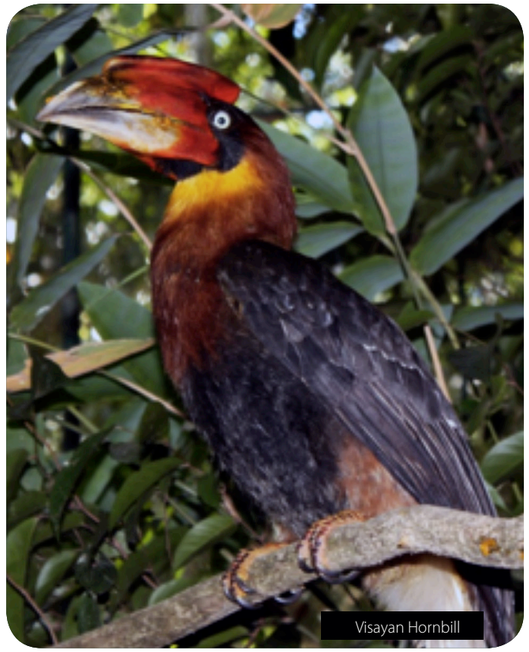
Within two years of the Rainforestation implementation, wildlife started to recolonize the area, with birds nesting on the established nurse trees and snakes resting in the young trees. With the increase in diversity and number of trees, the insect diversity and abundance also increased. More endemic wildlife, such as the Philippine tarsier and Philippine long-tailed macaque, followed and were occasionally spotted.

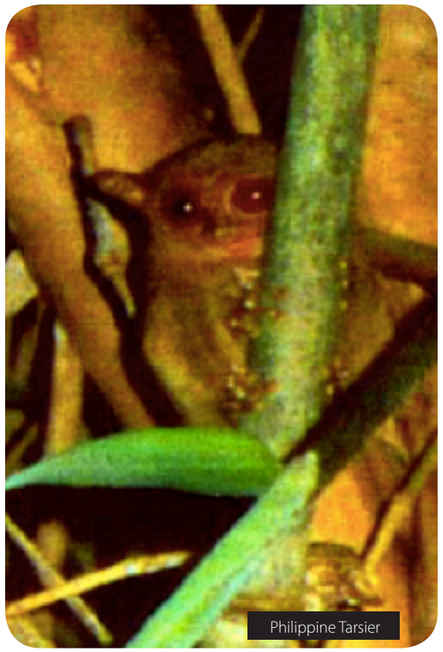
With the expansion work of CSVFA, these patches of forests provide refuge for the endemic threatened wildlife and serve as biodiversity corridors.

Above, bottom: Oriental dwarf kingfisher in the Cienda site, Forest in the protection zone of CSVFA's CBFMA area (2014).

List of Endemic Bird and Mammal Species in the CBFMA area


Green Racket-tail


Visayan Hornbill


Philippine Tarsier


Philippine Flying Lemur

Endemic bird species

Scientific Name	Common Name	IUCN Status
Buceros hydrocorax	Rufous Hornbill	Near threatened
Bubo philippensis	Philippine Eagle Owl	Vulnerable
Microhierax erythrogenys	Philippine Falconet	Least Concern
Prioniturus luconensis	Green Racket-tail	Vulnerable
Nisaetus philippensis	Philippine Hawk Eagle	Vulnerable
Penelopides panini	Visayan Hornbill	Endangered
Otus megalotis	Philippine Scoops Owl	Least Concern
Spilornis holospilus	Philippine Serpent Eagle	Least Concern
Loriculus philippensis	Philippine Hanging Parrot	Least Concern
Tyto capensis amauronata	Philippine Grass Owl	Least Concern

Endemic mammal species

Scientific Name	Common Name	IUCN Status
Tarsius syrichta	Philippine tarsier	Near threatened
Cynocephalus volans	Philippine flying lemur	Least concern
Rusa marianna	Philippine deer	Vulnerable
Sundasciurus samarensis	Samar squirrel	Least concern
Macaca fascicularis philippinensis	Philippine long-tailed macaque	Near threatened
Prionailurus bengalensis rabori	Visayan leopard cat	Vulnerable
Sus philippinensis	Philippine warty pig	Vulnerable

A river in Cienda during the summer (2010).

Social benefits

For the individual members of the association, the Rainforestation project has developed self-confidence and leadership skills and improved their quality of life. For households, it has meant food security, a steady supply of water, a source of fuel wood and lumber for house construction, and education and employment opportunities. At the community level, the people have security of tenure over their land, authority to manage their own resources, and stable sources of livelihood. The association has grown to more than a hundred members now, and has attracted significant funding from international donor agencies, the government, and the private sector through the years. CSVFA has also received national and international recognition as the Best CBFMA holder in 2005 and 2010, as an Equator Initiative Finalist in 2002, as a finalist of the FAO Search for Excellence Award in 2003, and as one of the United Nations Innovative Communities in 2005.

Broader impacts of Rainforestation

The CSVFA experience has served as a model for other Rainforestation sites in Leyte and the rest of the Philippines. Having proven itself as a cost-effective and widely applicable method, Rainforestation was picked up and adopted by local organizations, including Haribon Foundation, a pioneer environmental organization in the country, which helped to lobby for Rainforestation at the national level. In 2004, the DENR adopted Rainforestation as an official reforestation and sustainable forest management strategy through Memorandum Circular 2004-06. In the same year, Haribon, together with VSU and other Rainforestation Organizations and Advocates (ROAD), launched the "ROAD to 2020", a movement to restore one million hectares of rainforest using native tree species by year 2020.

To further support Rainforestation, the Rain Forest Restoration Initiative (RFRI) was established. RFRI is a network of organizations and individuals from the academe and the non-profit and private sectors engaged in environmental conservation advocacy, training & capacity building, project implementation, and research and development. RFRI has been instrumental in pushing for the inclusion of Rainforestation in the Philippine National REDD-plus Strategy as a carbon stock enhancement strategy, and in the National Greening Program, as the government prepares to phase out the use of exotic species in all of their reforestation programs. For more information about RFRI and Rainforestation, please visit *www.rainforestation.ph*.

Map of Philippines showing Rainforestation sites.

Renato Poliquit, former Chairman of CSVFA, talking about their experiences during an ELTI-VSU Rainforestation Training (2009).

In 2008, ELTI partnered with VSU and developed a National Rainforestation Trainer's Training Program to further disseminate the knowledge and skills needed to develop native species nurseries and Rainforestation sites, while developing a cadre of local champions. The CSVFA pilot project has been used as a case study and site for field trips in many of these trainings, where the association members themselves serve as resource persons. ELTI and VSU have also developed Rainforestation Training programs for different audiences, such as watershed managers, protected area superintendents, forestry school professors, and People's Organizations engaged in the National Greening Program, catering to their specific needs. ELTI, together with VSU and the rest of RFRI, will continue to work closely to promote Rainforestation and to refine the methodologies, increase scientific rigor, and improve the adaptability of the approach.

For more information about the Rainforestation Trainings, please visit *www.elti.org*.

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www.denr.gov.ph
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Back cover: Entrance to the CSVFA Rainforestation Demonstration Site.


Rainforestation
DEMONSTRATION FARM
COOPERATOR : Cienda-San Vicente Farmers Association (CSVFA)
AREA : 1.0 Hectare
DATE STARTED: March 4, 1996
Institute of Tropical Ecology and Environmental Management
VISAYAS STATE UNIVERSITY | Visca, Baybay City, Leyte