

# Chapter 3

## Degraded Landscape Transformed into Foodland and Woodland by Village Agroforestry



Nathalie Viviane Raharilaza

**Abstract** This case study shares the results and lessons learned from agroforestry practices to restore a degraded and abandoned landscape, the production of seedlings of native and endemic tree species for forest restoration, and a trial of autochthonous species transplantation at the village level in Madagascar. Awareness-raising and facilitation carried out by the NGO team on landscape changes and their effects on local people's lives, food and natural resources, were the initial drivers of this process. A farmer led the landscape restoration experimentation by taking part of his poor, degraded land that had been long abandoned, and giving the green light to use it as a 'farmer field school'. The community decided to keep the other side of the field untouched to enable comparison. Community members learned from each other by periodically sharing experiences. Community capacity-building on family accounting, production and harvest management helped community members to make decisions regarding the choice of crops and landscaping types suited to their needs. The community started to see results from the third year and increased the landscaped areas to boost future production. Some native trees like *Harina* (*Bridelia tuleasneana*), a highly preferred tree usually harvested from the rainforest for building materials, adapted very well to the village. The villagers learned to plant them rather than harvest them from the natural forest. The commitment, patience and courage of the community, and their immense pride in what they have achieved, created a cascading effect leading to sustainability.

**Keywords** Forest · Tradition · Landscape · Food security · Demography · Agroforestry

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N. V. Raharilaza (✉)

Ny Tanintsika NGO, Pres Lot 089/3606-02 Ivory Avaratra, Fianarantsoa, Madagascar

e-mail: [nat.nt.fnr@moov.mg](mailto:nat.nt.fnr@moov.mg)

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### 3.1 Introduction

Madagascar, a country in southern Africa located in the Indian Ocean east of Mozambique, is the fifth largest island in the world, with 25.6 million people inhabiting a land mass of 587,000 km<sup>2</sup>. More than 80% of 200,000 catalogued species (fauna and flora) are endemic. Madagascar remains a critical priority for international conservation efforts. Over the past 60 years, 44% of Madagascar's natural forests have disappeared, and deforestation rates have accelerated since 2005. Total biodiversity loss between 1950 and 2000 was estimated at 42%, of which 9.1% was estimated to be from forest loss alone (Allnutt et al. 2008).

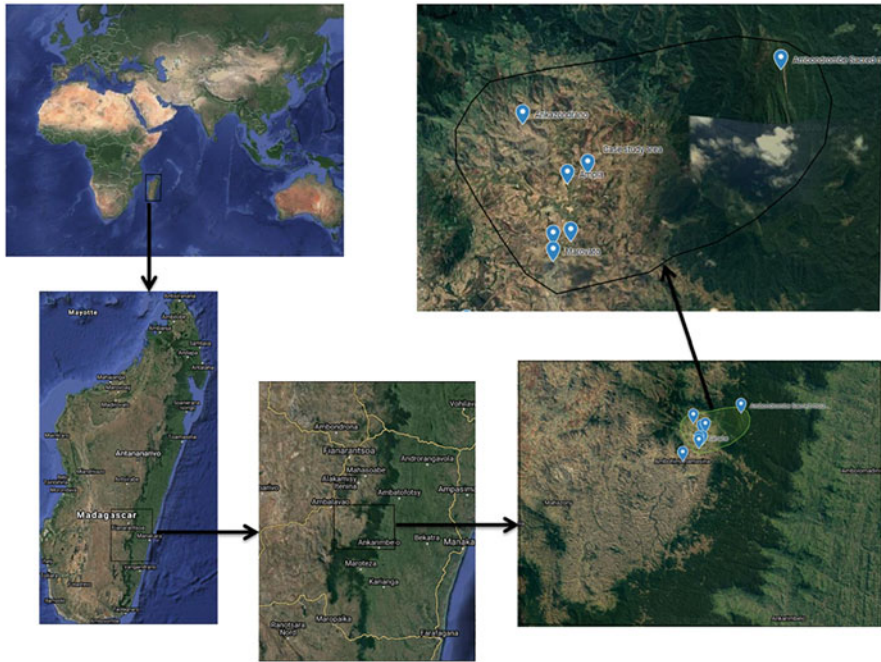
In 2010, the country had 4,628,241 ha of primary forest with 16,450,024 ha of tree cover. However, this has decreased gradually to 4,060,522 ha of primary forest, with only 13,772,127 ha of tree cover in 2018 (Velo and Zafitsara 2020). With lack of funding to support agriculture development, timber harvesting and traditional slash-and-burn agriculture (locally known as “*tavy*”) constitute the largest destructive forces of primary forest in Madagascar (Cormier-Salem et al. 2005). This phenomenal calamity has led to biodiversity loss with the extinction of thousands of endemic species. Creation of agricultural or pastoral lands at the expense of deforestation in Madagascar is an ongoing environmental issue that has had a profound effect on water resources, landscape design and features, habitat loss and soil impoverishment, among other negative impacts (Andriananja and Raharinirina 2004; Moreau 2013). Despite having considerable natural resources, Madagascar's poverty rate is amongst the highest in the world.

“Against poverty, for nature,” is the slogan of Ny Tanintsika (NT) ([www.nytanintsika.org](http://www.nytanintsika.org)), an NGO that encourages strategies and actions to improve lives, livelihoods and nature conservation in local communities bordering the rainforest. To contribute to the Satoyama Initiative's vision and global effort to realise societies in harmony with nature, we share the lessons learned by this case study which shows results from the ground related to landscape restoration through agroforestry and forest restoration in a project carried out and supported by NT since 2013.

In the context of transformative change as proposed by IPBES (2019), this project strongly influenced the following levers: incentives and capacity-building; pre-emptive action; and decision-making in the context of resilience and uncertainty. The leverage points shown to be effective in the context of this community were: visions of a good life (especially a vision out of poverty); values and action; inequalities; justice and inclusion in conservation (especially proactive actions by community members themselves); technology, innovation and investment; and education and knowledge generation and sharing.

### 3.2 Overview of the Project Location

The project was conducted in the village of Ambondro, located within the Ambohimahamasina rural municipality. Ambohimahamasina is 45 km southeast of Ambalavao, in the Fianarantsoa Province of Madagascar’s central highlands. (Fig. 3.1 and Table 3.1).



**Fig. 3.1** Location and the surrounding landscape of Ambondro village

**Table 3.1** Basic information of the study area

Country	Madagascar
Province	Fianarantsoa
District	Ambalavao
Municipality	Ambohimahamasina
Size of geographical area (hectare)	54,500
Number of indirect beneficiaries	37,418
Dominant ethnicity(ies), if appropriate	Betsileo
Size of case study/project area (hectare)	2330
Number of direct beneficiaries	500
Dominant ethnicity in the project area	Betsileo
Geographic coordinates (latitude, longitude)	21° 54' 5.76" S; 47° 12' 56.88" E



**Fig. 3.2** Pierre RAMOMA, Guardian of the sacred mountain (Photo: H.F.RAHARILALAO)

In Malagasy, “Ambohimahasina” literally means “at the scared mountain”. The sacred mountain, named Ambondrombe, is believed to be where all spirits of the dead reside—the refuge of the souls of all Malagasy people’s ancestors. Out of respect for the mountain of Ambondrombe on the part of the surrounding populations, the mountain’s forest and biodiversity remains largely preserved. Pierre RAMOMA (Fig. 3.2), the village elder who holds the key to visiting the sacred mountain, is still alive and lives in Ambondro, our case study site. He is respected by the whole community, particularly young people. He tells them, *“I will not be here for much longer, so take responsibility. We need to protect our unique and common heritage”*.

Bordering a rainforest stretching between Ranomafana and Andringitra National Parks, Ambohimahasina has some stunning scenery, surrounded by numerous villages, rice fields and mountainous landscapes. Traditional livestock rearing is widespread, with the ownership of zebu cattle, a sign of wealth. The common practice is to allow herds to graze almost at will. To feed cattle, people burn land to let new grass shoots grow back (Messerli 2003). Basket weaving is traditionally practiced by women in this region and, most of the time, they harvest reeds and raw materials from the forest. People’s lives depend on natural resources, and population growth has led to severe pressure on the landscape and natural resources.

These mountainous communities have found it difficult to determine a sustainable way to use the landscape and natural resources to meet their needs, which are growing day by day. At times, they have felt lost between external and internal views on use and conservation. Several environmental organisations work in the municipality with the common goals of forest protection, enhancing well-being and strengthening community resilience to climate change. However, the approaches and vocabulary used differ between organisations and local community—the local community cannot fully understand scientific explanations (e.g. carbon cycle, ecosystems). This is one of the reasons that prompted Ny Tanintsika to prioritise a more traditional approach based on traditional knowledge and inter-generational transfer of knowhow, and to choose Ambondro village as a study location. In Malagasy culture, leaving a legacy for future generations is considered a great responsibility,

and we used this philosophy to sensitise people and encourage them to take responsibility to prevent deforestation and to leave forest and natural resources as a legacy for future generations.

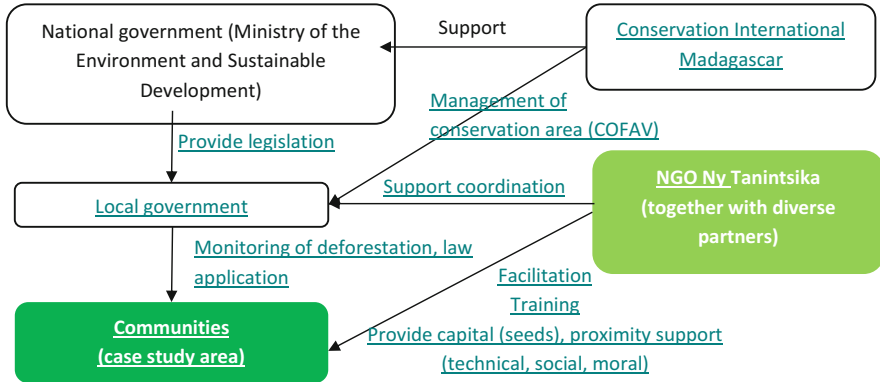
Since the villagers were initially so dependent upon the rainforest to sustain their daily needs, the challenge was to produce food, raw materials, fruit trees and firewood close to the village. To do so, Ny Tanintsika supported the Ambondro community (Fig. 3.1) to develop agroforestry as a solution—not only for landscape restoration but also for food security (Randriatsara 2016; Randriamboavonjy 2015).

### 3.3 Challenges and Opportunities

The Ambohimahasina rural municipality borders the rainforest corridor that runs along the eastern side of Madagascar. It is the remnant of a dense humid tropical forest that the Malagasy ancestors thought would never disappear; there was even a common saying “*when will the eastern forest run out?*” Nevertheless, this forest has been subject to excessive exploitation by people outside of the village over the last two decades, exposing it to unprecedented threats. Primary causes of forest loss include slash-and-burn culture and corruption (Dumont and Sinclair 2015).

Law 96-025, established on 30 September 1996, stipulated the transfer of natural resources management to the grassroots communities (Ratsifandrihamanana 2018). This law describes in depth the responsibility of forest administration and local community management. Basic community terms of reference detail the responsibilities to be carried out in the face of crimes and abusive exploitation of natural resources by internal or external persons, including immediate report to the forest administration that is in charge of prosecution and law enforcement. However, the weakness of the local management structure prevented it from playing an effective role as a Civil Society Organisation (CSO), and it easily fell into the trap of the big exploiters who are principal corrupters. Diverse NGOs and local government joined in an effort to enhance the capacity of community-based managers by providing some training on forest legislation, forest monitoring, communication and leadership skills. Figure 3.3 shows the inter-relationships between different stakeholders involved in this project. We note NT worked closely with these diverse entities to promote community development.

In order to conserve the rest of the forest, numerous nature protection organisations have supported communities to adopt environmentally-friendly behaviours towards sustainable natural resource management. Each organisation has developed its own strategy, but all of the actions have the common goal of forest conservation. Activities have included promotion of income generation initiatives, the establishment of community associations to manage local natural resources, the enforcement of rules in the case of illegal activity, and reforestation. Despite all these actions, poverty, combined with corruption, has contributed to a continual shrinking of the forest. Impacts are starting to be felt by local inhabitants and the landscape in general.



**Fig. 3.3** Roles and relationships of stakeholders related to this project (Source: Author)

Ny Tanintsika, sister organisation of the Feedback Madagascar NGO ([www.feedbackmadagascar.net](http://www.feedbackmadagascar.net)), started working in the Ambohimahasina municipality on projects to improve reproductive health and maternal and child health. Always concerned by the sustainability of actions and the well-being of the target community, Ny Tanintsika never hesitated to look for opportunities to develop partnerships and expanded the work in other development areas like water supply, women's empowerment, nutrition promotion, agroforestry and forest restoration. In light of our experience with these communities, different approaches have been adopted which take into consideration traditions, pride, management of life, family farm management, family planning, human rights, collective learning and inter-generational exchange. The following sections give more details on the approaches and processes that were followed as well as the results and lessons learnt.

## 3.4 Methodology

### 3.4.1 Selection of Community and Landscape to Target

Ny Tanintsika first defined certain criteria in order to select the site to be the target of the project on promoting agroforestry landscaping. In particular, a village with a high level of vulnerability and marginalism of community members, particularly vulnerability as regards to land, food, information, basic social services and limited access to other human needs, was sought.

The selected project site consists of mountain, hill and valley landscapes. As a result of deforestation and the practice of using fires to create grazing pastures, the landscape is highly degraded and has lost its main characteristics and functions in water retention (Messerli 2003). Erosion has also impoverished the soils. Because of this loss of productivity, the landscape was abandoned by the owners of the land. For

the agroforestry restoration landscape, we chose a part of this land completely degraded and abandoned for a long time, in order to be able to show the changes.

### 3.4.2 *Community Change Indicators*

Indicators were chosen that are easy-to-use for the community members themselves, such as landscape change, improvements in agricultural yields, food source diversification, number of farmers adopting agroforestry techniques, number of fruit trees planted per household, the evolution of social cohesion and the emergence of community initiatives. We invited the community to establish a database for each indicator and also to measure and appreciate changes, thus facilitating community empowerment and the appropriation of change—a means towards sustainability.

Transformative change was assessed through the following indicators:

- Environmental indicators: Landscape design, landscape changes, and landscape features (soil occupation change, landscape management at the household and community levels, number of seedlings produced in tree nursery, number of trees planted, etc.);
- Economic indicators: Improved livelihoods, increased income, food diversification, and food security.
- Social indicators: enhancement and strengthening of social cohesion, community pride, and health services access.

### 3.4.3 *Stakeholders' Roles*

The role of each stakeholder was decided at the start of the process as follows:

- The Ny Tanintsika NGO ensured financial (e.g. pay for social outreach technician, travel expenses, and training costs), technical and social support to the community, and continual encouragement—acting as a mentor and advisor.
- The governmental agency was in charge of providing training on forest legislation and its application ([www.environnement.mg](http://www.environnement.mg)).
- The private company BIONEXX ([www.bionexx.com](http://www.bionexx.com)) provided *Cinchona sp* seedlings for experimentation as an agroforestry species. *Cinchona officinalis* is a medicinal plant used for the production of quinine, which is a fever-reducing agent. It is especially useful in the prevention and treatment of malaria. Other alkaloids that are extracted from this tree include cinchonine, cinchonidine and quinidine.
- The community members were the masters of their actions, their organisation, their choices and their decisions on the development of households and their village.



- Each household was a stakeholder, with its own household goal and action plan for a defined period.
- Women leaders were in charge of ten households each, providing training and monitoring.
- The agroforestry village technician implemented the model farm with the help of the community, taking note of all actions carried out in the field school.
- Two student groups from World Challenge UK ([weareworldchallenge.com](http://weareworldchallenge.com)), Kingsmead College and Maidstone Grammar School, also provided help and some financial support, and worked with the community to build the granary storeroom during school holidays in 2018.

### 3.5 Activities and Community Initiatives

#### 3.5.1 *Community Problem Analysis and Self-assessment*

A community meeting was held initially, with the participation of the entire community of Ambondro village—including elders, women, men, young people and even children. During the meeting, Pierre RAMOMA called also the *Ray amandreny lehibe* (the elder, the holder of the sacred mountain key, the owner of words, habits and customs) testified about the change in natural resources over time. He did not hesitate to say that a lot of change has happened over a short time—whether with regards to natural resources, food or lifestyle. He sounded the alarm to the whole community, especially young people, about the preservation of tradition, encouraging people to effectively take responsibility for stopping the scourge. He noted that society has changed and did not hide his concern for the loss of people’s identity alongside the loss of natural resources. He invited people to imitate chameleons, who always look behind and forward simultaneously before taking a step, meaning that they must learn from lessons of the past, what was done, how people acted, what were the results of actions in daily life, whilst looking to the future—what will happen to our descendants, what can we do, what should we change?

At first, hearing about the changes in natural resources, food, the poor soil and low yield, the people were perplexed. They were convinced that conservation is important, but they did not know what to do and thought that nature conservation would require big resources that surely, they did not have. After a range of exchanges, the community made decisions at the end of this meeting that were to be translated into tangible actions. It was decided to carry out a collective experiment and to learn about the practice of agroforestry and landscape management using degraded soil and abandoned land as a farmer field school.



### 3.5.2 *Natural Leader Emergence*

A Malagasy proverb says, “An animal without a head cannot move” (*ny biby tsy misy loha ny tsy mandeha*). After the community meeting, Pierre RASIJA (also called “Rapiera”, Fig. 3.4) volunteered to pilot the experiment and collective learning for agroforestry practice and landscape management. He made available to the community part of his fields that were already degraded, sterile and populated by *Erica sp.*, which he had abandoned for several years. Since then, he has played the role of Community Agroforestry Technician or TAC.

### 3.5.3 *Learning by Practising and Believing by Seeing*

Previous experience shows that it is not easy for farmers to understand a lot of theory taught in a classroom setting or to sit through long training sessions, and that learning through action is the best way of training. Capacity-building sessions in agroforestry management were held for community members in the village of Ambondro with practical training carried out directly in the field school (the degraded land). Villagers joined hands to develop the degraded land. Ploughing



**Fig. 3.4** Pierre RASIJA, the natural leader in the degraded landscape (photo: Author)

and working the fields together, they had a regular schedule for gathering and for knowledge sharing. Participation in the field work was not compulsory; people were free to participate or not according to their will. This type of training helped everyone to deepen their understanding in different methodologies of landscaping, which they could then reproduce in their own fields. They learnt from their own experiences and accordingly, they were more likely to believe in the benefits of new techniques after seeing for themselves the differences in yields acquired. Training on topics such as leadership, yield management, health, family planning, water, sanitation and hygiene, and healthy food was also given during the process.

### ***3.5.4 Women's Empowerment and Household Nutrition***

In ancestral Malagasy culture, decision-making on matters of land use and management of natural resources is reserved for men, and women are merely required to adhere to the decisions made. Yet the kitchen is mostly reserved for women. We seized this opportunity as a gateway to involving women in decision-making in terms of improving family nutrition, a step towards empowering women.

As women are in charge of cooking and preparing food in the household, they are in the best position to apprehend the satisfaction of their families in terms of food, sufficient firewood and drinking water. Women were invited to carry out a simple analysis of the level of satisfaction with their household food situation, and encouraged to formulate their wishes for the future. As a consequence, two situations arose out of their analysis and reflections, which they translated into action plans for their respective families. Exchanges were held with women leaders on the daily management of food at the household level.

The results of this self-assessment show that households faced difficulties related to firewood scarcity (as there is a restriction on collecting from the natural forest), lack of food security, lack of money obligating them to borrow from rich people, shortage of seeds, and agricultural production insufficiency (amount produced insufficient to cover food year round).

The project's strategy was to enhance women's leadership, so it adopted a "cascade approach". This approach transfers competences. To boost women's leadership and empowerment, first four women leaders (Fig. 3.5) were identified by the community. The responsibilities of the women leaders were explained in depth to community members, and they were free to choose or design their women leaders according to their own criteria. The four women leaders identified by community members were trained in family life management, household and production management, leadership, healthy and balanced nutrition, reproductive health and community health. These women were empowered to be catalysers of change through this capacity building on life skills, and they were made responsible for transmitting the knowledge acquired to others, particularly for explaining the importance of the links between health, the well-being of the population, the countryside and the environment. After her training, each woman was responsible for monitoring and

**Fig. 3.5** Razana, a woman leader of Ambondro village (photo: Author)



supporting another ten women. A self-assessment was carried out during the training on household food security to determine what is lacking and how problems could be resolved. Then we returned to the issue of land use, and participants learned from their experiences. Each household was invited to fix their goals for food security using the available land in their possession. Women leaders were trained to share with other women and help each other. A traditional proverb was used to promote community unification: “Those who are united form stones, and those who separate are sand”. In general, participants were happy as this approach gave them something to be proud of, highlighting their importance for community development.

### ***3.5.5 Sufficient Seeds for All***

A lack of seeds, resulting from poor management of agricultural production, is one of the frequent problems encountered at the community level. At the beginning of the project, certified vegetable seeds were provided by the NGO to households who had decided to experiment with the landscaping agroforestry techniques

(Randriamboavonjy 2015). To facilitate the learning process, farmers were asked to compare results obtained from traditional and new agricultural techniques by dividing their land into two parts, thereby letting comparison of yield will show the difference.

A seed revolving strategy was adopted to resolve the problem of lack of seeds or unavailability of seeds for vulnerable households. Everyone who received free seeds from the NGO agreed to return three times the quantity at harvest time so that seeds could be given to three other farmers who requested help. In this way, all interested villagers had access to seeds and were able to boost production.

Seeing positive results from the pioneer participants, the number of households adopting agroforestry landscaping techniques increased progressively. To avoid seed consumption during lean periods, community members agreed to store their seeds in one place—a small space in RASJA Pierre’s house (owner of the farm school). However, as production increased, this space was no longer sufficient. Proud of the progress in their production, people requested help for the construction of a storage house (Fig. 3.6) for produce which was to double as a meeting and training room. Collaboration with groups of foreign students who finance community micro-projects during their holiday period resolved this need. The community now has a storehouse. The seeds (as well as some products) are stored until the arrival of the next cultivation period when they are given to all community members.

### **3.5.6 One Child, One Tree**

“What you study is what you live”. This was the slogan adopted to raise awareness amongst school pupils to apply and live their new knowhow in their households, daily lives and communities. NT had the prior experience of working with the Ministry of Education ([www.education.gov.mg](http://www.education.gov.mg)) to implement the “Child for Community” approach, which brought positive impacts, particularly in relation to promoting WASH (water, sanitation and hygiene) at the school level. For this approach, the children served as the messengers between school and their respective families, the village and other children. Thus, this same approach was used in relation to environmental protection, particularly tree-planting. Pupils were asked to each bring a sampling of a fruit tree that they found growing near their home (Fig. 3.7), to plant during a tree-planting operation held on National School Day on the school grounds (Fig. 3.8). Each pupil also brought one basket of compost. This helped to promote environmentally friendly behavioural habits adapted to the local context, such as preserving fruit seeds rather than throwing them away after eating fruit. The effort also sought to promote the mindset of finding local solutions rather than relying on purchasing of trees. There was close collaboration with the parents of students, who were in charge of digging the holes for tree-planting.



**Fig. 3.6** Seed storage in the store room (photo: Author)

### ***3.5.7 Natural Forest Restoration***

Restoring degraded landscapes and developing landscapes around villages are challenges faced in meeting the daily needs of households and the community in terms of food and firewood. These basic needs contribute to forest loss. In addition to village agroforestry landscape planning activities, forest restoration is another major challenge (Dupin 2011). Pierre RASIJA, the farm school owner and also the nature conservation advocate in charge of the tree nursery, and Ndrasana, a young person from the community, were provided with training in phenological monitoring and seed collection from indigenous forest trees, the pre-treatment of these seeds (including seed selection, drying, soaking, etc.), their sowing and the production of indigenous seedlings in nurseries. The species that were chosen are those most used and liked by the community.





**Fig. 3.7** Pupils from Ankarinomby Primary School, in Sahabe, with their own fruit-tree seedlings (photo: H.F.RAHARILALAO)

During the tree planting season, the communities organised themselves for the transportation and transplantation of native plant seedlings in the forest, sharing meals together during the work. This was a sign of their unity and commitment to forest restoration, a key part of their heritage.

### **3.5.8 Local Support and Partnership Development**

The Ny Tanintsika community outreach technician provides support to the community on a continual basis (Fig. 3.9). Her role involves sharing information with communities and giving technical advice (Dumont and Sinclair 2015) whilst respecting social rules and traditions (including rules set with the community for collaboration, or social customs in the area).

Ny Tanintsika sought other partnerships in order to build further community support and, in particular, to boost income generation. A trial Cinchona (*Cinchona officinalis*) plantation was the fruit of collaboration between the communities and the company BIONEXX/QUIMPEXX. This shrub (Fig. 3.10), known for its anti-malarial properties, is more adapted and grown in degraded fields for agroforestry and for income generation from the sale of its bark. The results from initial trials on

**Fig. 3.8** “I plant fruit trees, I’m happy, I will apply this to my own home.” (photo: H.F.RAHARILALAO)



the model farm have been very promising, with good survival and growth rates, and these cinchona providing shade to crops grown below them. Other community members are now keen to plant these trees on their own land, and are in the process of negotiating for an expansion.

## 3.6 Results

### 3.6.1 *Yield Improvement*

After 4 years of the agroforestry landscaping experiment, communities saw a marked improvement in production with their harvest increasing threefold. This motivated them to continue efforts.

The staple Malagasy food is rice. Those who do not have enough ricefields are considered to be vulnerable people in the countryside. As previously mentioned, this is a vulnerable community that has very few ricefields. In the majority of cases, the most vulnerable work for others to get money to buy rice, and sometimes they





**Fig. 3.9** Hortense, showing that we can develop and restore degraded land (photo: Author)

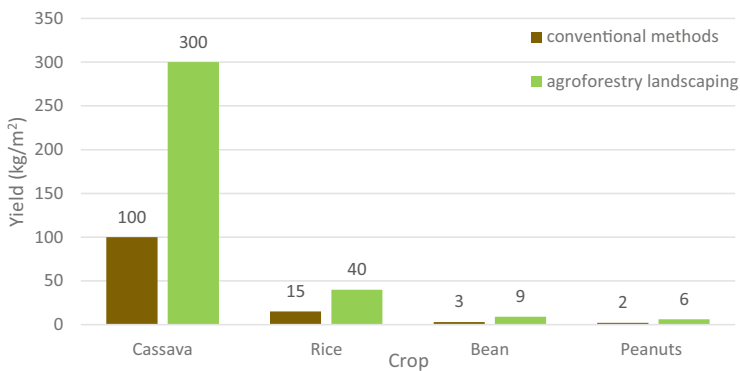
must borrow rice that they pay back in double during the harvesting period, causing their lives to remain difficult. Our intervention was designed to help them change their ideas about food, and to ensure food security by promoting the cultivation of other crops such as cassava. Community members grew cassava in their landscaping fields (wider area than rice fields), explaining the big change in yield. For rice farming, new techniques were applied after training in available fields in an aim to improve the rice yield, which produced some results (Fig. 3.11).

### ***3.6.2 Diversification of Income Sources***

Some community members have begun to diversify their sources of income for the betterment of their well-being in relation to natural environment. Marie Claire RASOANANDRASANA called Ra-Claire, single mother, 48 (Fig. 3.12), has reproduced the model field in her own fields and has been able to develop her turkey-farming activity. She is proud because she no longer has a debt problem. Previously she had to borrow money from loan sharks that she paid back at high interest rates after harvest. Now, her production is enough to feed her family, and a portion of income from sales has allowed her to buy young turkeys. She is



**Fig. 3.10** Hortense, Ny Tanintsika Community Outreach Technician in the Cinchona plantation (photo: Author)



**Fig. 3.11** Yield of major crops by conventional methods and landscaping methods Source: Data collection by Hortense (NT Community Outreach Technician)

multiplying the turkeys, and most importantly, she and her family built their own house in 2015.

Before this initiative, Raibida (a young man), one of the most vulnerable in the village, fed his family by stealing poultry and crops. Following the collective learning activities, he decided to work the land applying agroforestry landscaping



**Fig. 3.12** Marie Claire RASOANANDRASANA fields, yields and turkeys (photo: H.F. RAHARILALAO)

techniques and stopped his bad habits. In 2016, he started to harvest his crops and money earned by selling corn and beans allowed him to buy a calf, and currently he can feed his family. He is an example of major change, and community members attest that “Raibida has changed”.

The NGO team’s role was advisory, always encouraging the whole community to have a clear vision for their future, define objectives for each activity or initiative, and continually improve and develop continually their livelihoods initiative. A special advice was given for the breeding activity such as taking care of the animal



health and insuring their vaccinations on time. Finally, to help them to open their market vision we also provided an entrepreneurship development training.

### 3.6.3 *Snowball Effect*

Ny Tanintsika focused on promoting the efforts of joint work in Ambondro village, where the model farm school is located. A community sensitisation and information campaign on agroforestry was carried out. If a person was interested in learning more about agroforestry landscaping techniques, they were invited to come to Ambondro village and join in the efforts to practice. Women leaders that returned to their own villages ensured peer sensitisation, and they reproduced the model farm according to lessons learned there. Villagers, surprised by the success of the experiment, hastened to copy the techniques, even on a small scale, in their respective fields. That is exactly “**Believing by seeing**”. Another factor that contributed to replication was people’s enthusiasm for tree planting, in particular fruit tree planting and agroforestry techniques.

Currently, farmers in five different villages (Sahabe, Sahabe Est, Ampia, Ankazondrano and Marovato) have adopted these techniques, covering a total area of landscape of 2330 hectares. NT will continue to provide proof for the other villages, and will await the snowball effect, learning step by step how changes are adopted in communities (Fig. 3.13). Our previous experience has shown that changes adopted by the communities themselves are more sustainable.

### 3.6.4 *Community Savings Initiative*

Exchange with farmers from other localities was another positive factor that demonstrated the importance of farmer-to-farmer sharing of knowhow and experiences. A project promoting integrated action on health, population and environment was able to fund a visit of farmers from the Vohitsaoka municipality, another area in Ambalavao district, to Ambondro village. The visitors learned about agroforestry landscaping, and they also shared their experiences and success on a savings and loan group. This exchange prompted Ambondro villagers to create their own group savings, named VOAMAHASOA (literally *goodness seed*). Their goal is to help each other and to meet the repetitive financial difficulties encountered, another cause of their vulnerability. Currently, VOAMAHASOA, led by Rasoa RAJOMA (Fig. 3.14), has 20 members from three villages who meet every 2 weeks. During this meeting member each pay their own part, and they can also borrow money, paying back these small loans with a low interest rate (1%). To promote solidarity, loans related to medical consultations and the purchase of medicines are interest-free.



**Fig. 3.13** Children in their field (Photo: H.F.RAHARILALAO)

### ***3.6.5 Indigenous Trees in Village Fields***

Rapiera (Pierre RASIJA), the village leader, the natural leader, the nature conservation advocate is also responsible for the production of native seedlings in the tree nursery (Fig. 3.15). He works closely with Ndrasana, the indigenous forest seed collector (Fig. 3.16). Whilst the majority of seedlings from the nursery are transplanted into the natural forest for restoration, some of them are also planted in village fields. Field experience has shown that *Harina* and *Rotrala* trees are most adapted to the village. These trees are the most commonly gathered from the rainforest for building materials.

### ***3.6.6 Positive Thinking As the Key to Change***

The main change in the community is the mentality. The people now have positive thinking about life in general. They realised that they can accomplish something with passion, unity and vision. Empathy, open-mindedness, confidence, observational ability and energetic activity are the main characteristics of the natural leaders who emerged.

**Fig. 3.14** Rasoa RAJOMA, woman leader and treasurer of the VOAMAHASOA group (photo: Author)



### 3.7 Lessons Learned and Challenges

This study suggests the following lessons and challenges to be addressed:

- Sustainable changes come from the community. We do not impose them; we are their coaches.
- Consideration of community knowledge is a driver of change. Our task is to align them with modern techniques to achieve major results and impacts.
- The success of changes depends on the quality of facilitation and is related to facilitator behavior and capacity.
- Simple observation of changes is not enough. Scientific and statistical data are required to measure the success and evolution.
- The fight against corruption and deforestation remains a big challenge.
- Changing the subsistence economy into a market economy also remains a big challenge.



**Fig. 3.15** Pierre RASIIA taking care of the tree nursery (photo: Author)

### **3.8 Conclusion**

This landscape management project has demonstrated the multiple benefits of ecosystem restoration and the various actions taken to bring about transformative change. Not only has it improved ecosystem service provision, but it has also reinforced community solidarity. It has shown how human engagement is the key to change. Managing SEPLS at the micro-level can be used as an example of community climate change mitigation and adaptation, ecosystem restoration, and social equity and rights.

The satisfaction of households who followed instructions and reproduced the field school practices in their own fields represents a good start for sustainable change. When combined with other activities, important effects on livelihoods, ecosystem restoration and biodiversity conservation can be achieved.

*“Feed the earth, then it can feed humanity”* is the main message conveyed by the village leader. *“Prioritise humanity over all action”* is another. Empowering communities to make decisions concerning their own development is a key element of this project. It took at least 7 years to restore a degraded landscape.





**Fig. 3.16** Ndrasana in his field (Photo: H.F.RAHARILALAO)

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