Restoration plan for Mr. Ladera's Farm

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Acronyms

LFPI	Landcare Foundation of the Philippines, Inc.
PAMB	Protected Area Management Board
PASu	Protected Area Superintendent
DENR	Department of Environment and Natural Resources
PA	Protected Area
IKS	Indigenous Knowledge Systems
NTFPs	Non-timber forest products
MKRNP	Mt. Kitanglad Range Natural Park

1 The demonstration farm

The demonstration farm of Martino Ladera, Jr. is located at Sitio Bol-ogan Songco, Lantapan, Bukidnon. Specifically, it is 8.066040°N; 124.928535°E; 1462 masl. It is approximately 0.66 km from the Village Center of Sitio Bol-ogan, along the old logging road to Mt. Kitanglad Range Natural Park (MKRNP) and is approximately 1.2 ha. Based on the information gathered from the farmer, the farm was bought for a price of PhP 100,000.

2 Farmer socioeconomic status and institutional circumstance

A brief summary of the farmer's socioeconomic profile is shown in Table 1. ln essence, Mr. Ladera has moderate resilience and adaptive capacity to cope with adverse impacts of climate change considering his above subsistence socioeconomic status as having more than one (1) source of livelihood and income with little family savings. His decision to take part in the forest and landscape restoration of Alanib sub-watershed convinced him to gradually transform his sloping vegetable farm into conservation farming system towards tree-based cropping. Such engagement in forest and landscape restoration can be sustained by the provision of production subsidies, discounted or free seedling, production loans at minimal interest, crop insurance, price and market security, and training. The prospect of linking his farm to agroforestry and mountain trekking ecotourism at Mt. Kintanglad could be an added incentive for pursuing his vision towards this end.

Table 1: Farmer socioeconomic profile

No.	Parameter	Indicator	Description
1	**Socioeconomic status**	a. Average monthly income	More than P12,000 but less than P20,000
		b. Land holding (ha) and tenure	More than one land holding of sizes less than 1.0 Ha. to 3.0 ha and usually not titled lot
		c. Income Source (s)	Farming and out-of-farm livelihood
		d. Capitalization Capacity	Personal and sometimes resort to borrowings with exorbitant interest
2	**Farmer category**	Typology: Within or Above Subsistence	• Less vulnerable to capital lender's usurious practices for farming capitalization because has little savings but not regular • Food and education are the main household's expenses • Some have other sources of income aside from farming
3	**Institutional circumstance**	Inherent resource endowment	Usufruct lands with Tax Declaration
4	**Forest and Landscape Restoration scheme**	Agroecological transformation pathway	Conservation farming with mixed-tree-based cropping system link to farm ecotourism
5	**Appropriate incentive system for sustained participation**	Driving motivation for sustained engagement	• Production subsidies • Discounted or free seedlings • Production loans at minimal interest • Crop insurance

No.	Parameter	Indicator	Description
			• Price and market security • Training
6	**Climate change adaptation level**	Level of resilience and adaptability to CC impacts	Medium adaptive capacity because farming household has more than one livelihood sources (off-farm) along with small family savings

3 Site description

This farm is located in Brgy. Songco, Municipality of Lantapan, Province of Bukidnon. Songco is an upland village which partly occupies MKRNP. The Park was created by virtue of Republic Act 8978 in 2000 . Similarly, it was declared as an ASEAN Heritage Park in 2009. The Park is home to 661 plant species belonging to 264 genera and 106 families (Amoroso *et. al*., 2011). It shelters 58 mammals including bats, squirrels, mice and rats, civets, deer, etc., all of which combined makes its mammal diversity higher than Mt. Apo's (Heaney *et. al*., 2006). In terms of importance, the Park is home to 92 threatened plant species, 82 rare plant species, 108 endemic plant, 50 economically important plant species, and 56 newly recorded plant species in the locality, and 20 newly recorded plant species in the Philippines (Amoroso *et al*., 2011). The critically endangered Philippine Eagle and the world second largest flower, *Rafflesia schadenbergiana*, is also found in the Park (DENR-B+WISER, 2015). Other ecosystem services provided by the Park includes its cultural services, being home to ethnic groups Talaandigs, Higaonon, and Bukidnon, provisioning services such medicine, non-timber and timber forest products, and fresh water. For instance, it is source of water for domestic, agricultural, industrial, and commercial uses in low-lying areas.

Currently, the farm has some hedgerows (natural vegetation strips) and planted to vegetables (Figure 1 and Figure 2). In addition, there are some coffee and grazing area in the upper portion of the farm. To the west of the farm particularly on the steep slopes leading to the creek below is remnant forest. The site has steep slopes and would require enhancement of the current hedgerows. In the upper portions of the farm where the steeper slopes are located, terracing could stabilized this portion of the farm.

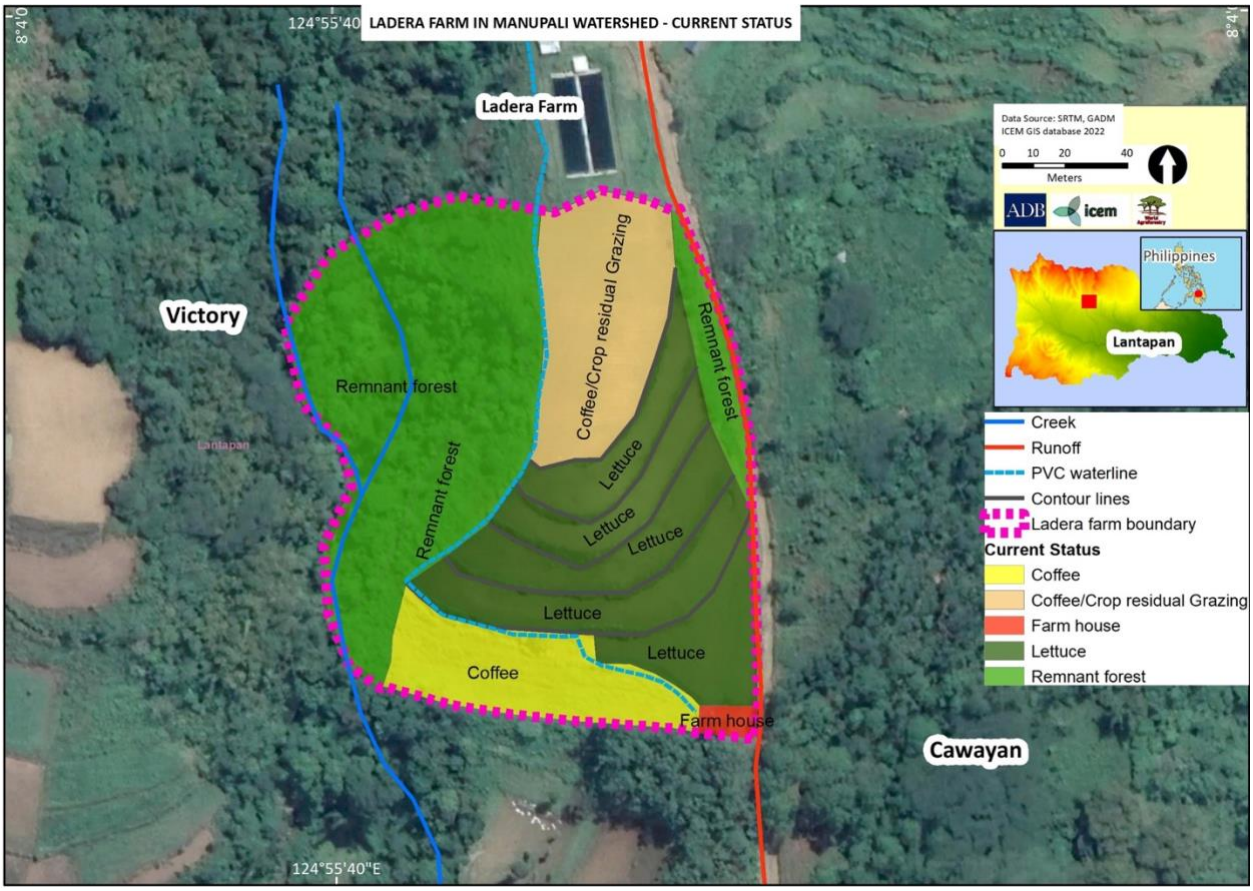


Figure 1. The current land use status of the demonstration site of the Ladera Farm in the Songco Lantapan, Bukidnon as of July 2022.

Figure 2. Perspective view of the Ladera Farm showing the hedgerows and the steep slope that could accelerate soil loss. This condition reveals the imperatives of enhancing the soil and water conservation measures in the demo farm.

Figure 3. The view of the Ladera demo farm from the top portion.
Notice the steep slope. Additionally, the landscape shows remnant forests and plantation forests.

Figure 4. Another portion of the Ladera Farm which depicts the steep slope.
The hedgerows also show the need for reinforcement to better control and prevent soil loss.

Figure 5. The remnant forest adjacent to the Ladera Farm.
The slope is steeper towards the creek below.

4 Goal of restoration

The end goal of the Ladera Farm demonstration site is to demonstrate the restoration of ecological integrity and enhancement of human well-being towards the creation of climate-resilient ecosystems. The proposed interventions are geared towards achieving both conservation and economic objectives through combination of agroforestry and ecotourism approaches.

5 Objectives

As a privately-owned farm lot, the Ladera demo farm will be an opportunity to showcase to other small-holder tree farmers an economically and ecologically sustainable farming system in the MKRNP. Specifically, the demonstration farm will:

- Conserve the remnant natural forests
- Protect the hydrological system in the MKRNP
- Develop a productive farm that could support ecotourism adventure in the MKRNP
- Enhance livelihoods of the forest community

6 Actions

Based on the identified objectives of the demo farm the following actions are planned:

a) Accelerate restoration of native vegetation through enrichment planting in the farm and adjacent remnant natural forest.
b) Enhance soil and water conservation measures in the farm using double hedgerows of natural vegetative strip (NVS) and economically important fruits trees and crops
c) Introduction of commercially valuable timber crop trees
d) Crop rotation of high value vegetable crops
e) Gradual shift to complex tree-based agroforestry system

As of to date, three major consultations and discussions with the farmer have been conducted (July 2022, October 2022 and April 2023). These yielded restoration plans which are described in this document. The initial plan was the output when a team of international experts together with the national experts met and discussed with the farmer, the possible restoration pathway that his farm could take based on the current configuration (Figure 6 and Figure 7). Subsequently, the national team had another consultation with the farmer last October 2022 and recently in April 2023. In all of these visits, the farmer appears to have new ideas and desires for his farm. The experience highlights the importance of a strong engagement and very flexible restoration plan that will allow the farmer periods to reflect upon the plan and even consult/discuss with his family. The October 2022 configuration is presented in Figure 9. The newest revisions will be described in the next section.

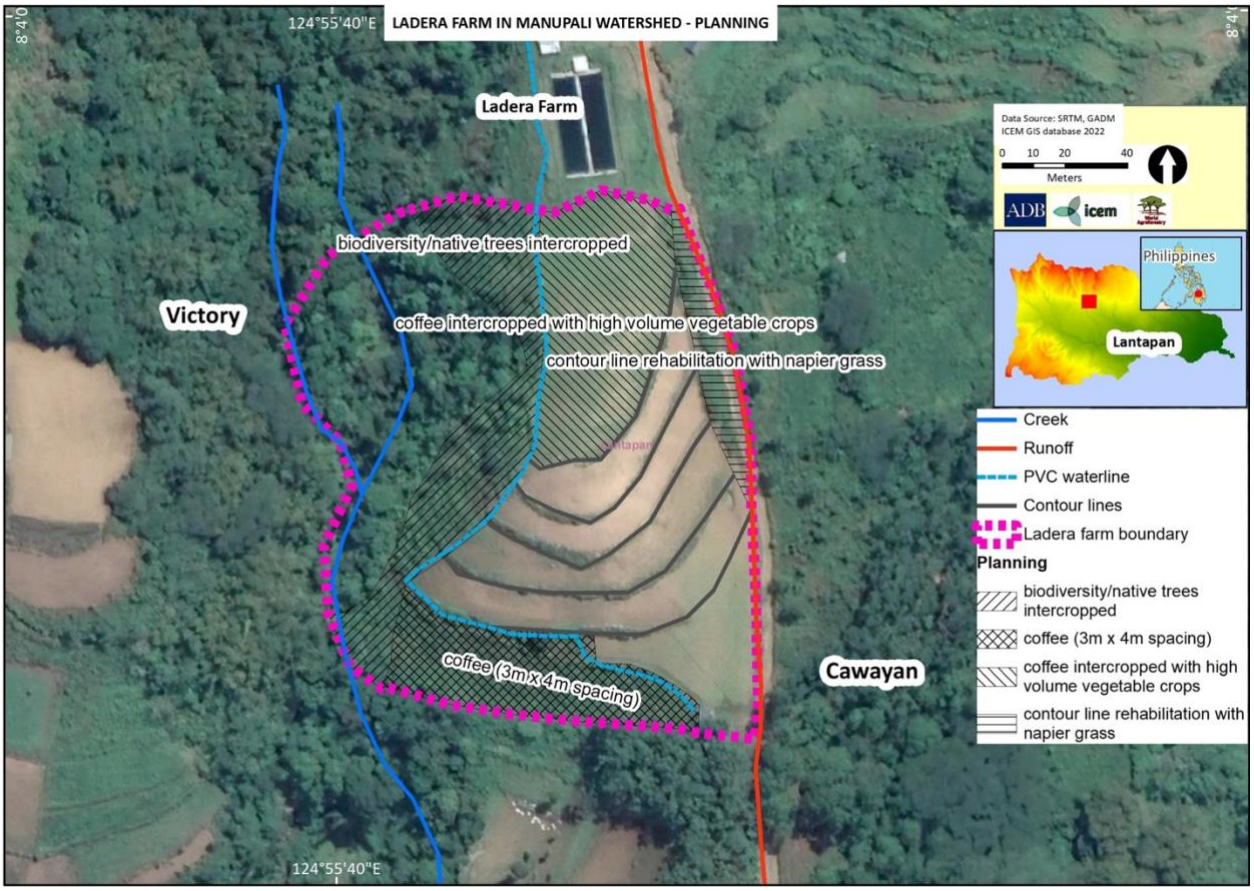


Figure 6. The planned land use status of the demonstration site of the Ladera Farm in the Songco Lantapan, Bukidnon based on the workshop held last July 29, 2022.

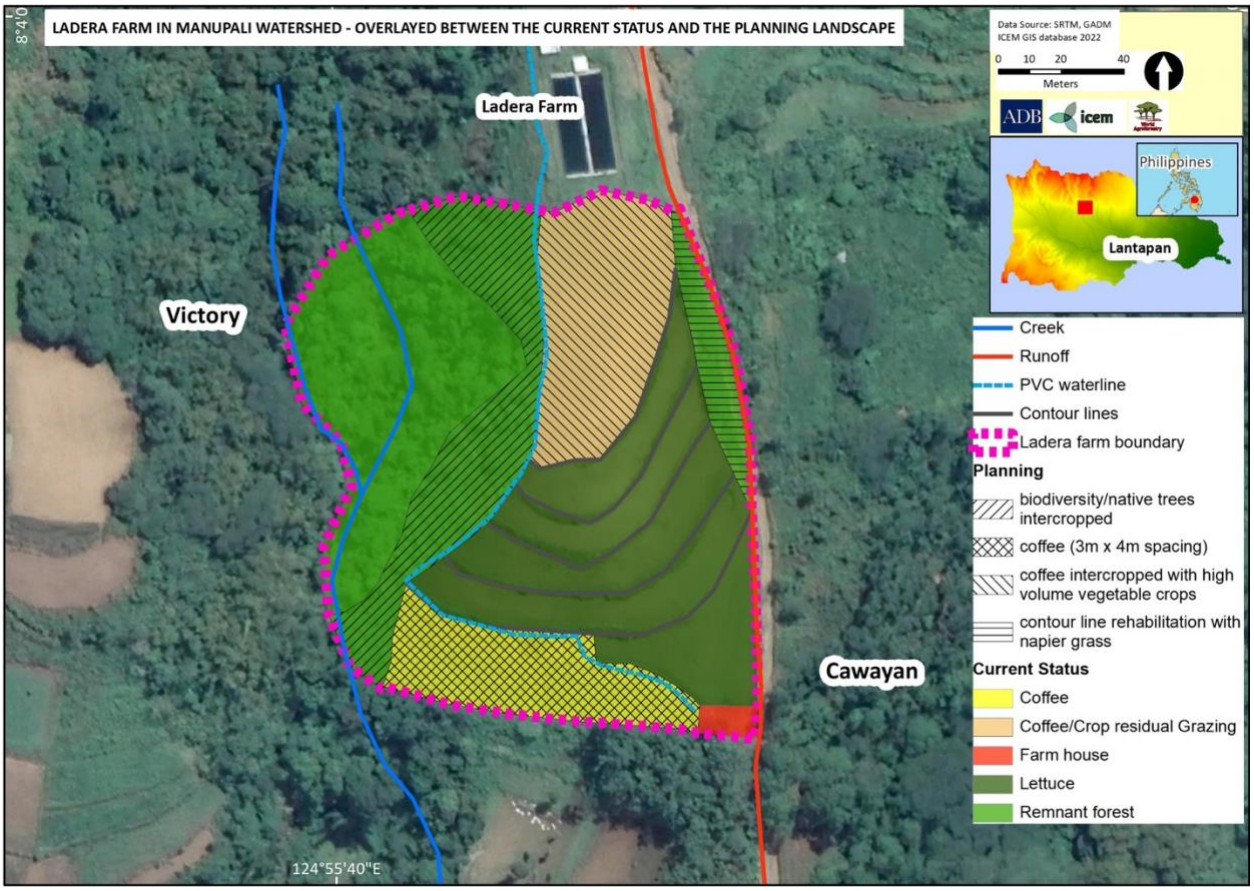


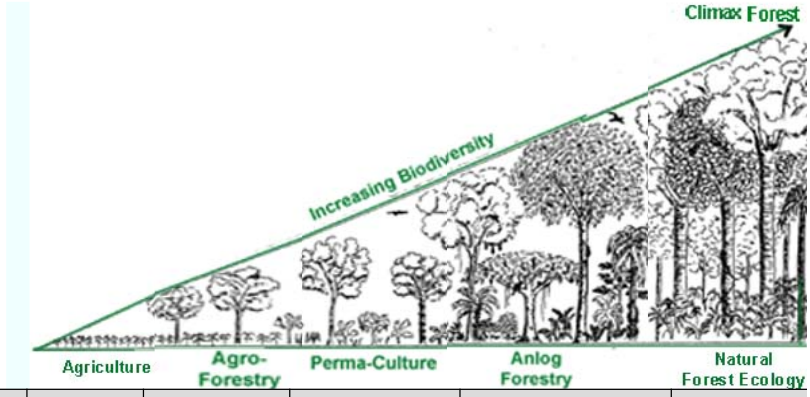
Figure 7. The combined land use (current and planned) of the Ladera Farm in the Songco Lantapan, Bukidnon based on the workshop held last July 29, 2022.

7 Phasing approach

The plan is to cover the entire target site. But resources available to the project are limited. The planned actions should be prioritized with the most important implemented first and others left to later stages. This section sets out the proposed stages assuming it will take time for the partners to attract additional resources to ensure sustainability of plan implementation.

Table 1. Phasing of activities in the Ladera Farm.

Sources of income	1-3 years	3-5 years	5 years +++
Short-term	Vegetables (tomato/ carrots/ lettuce) Rootcrops		
Medium-term		Coffee Jackfruit Avocado Rimas Kamansi	
Long-term			Benguet pine Musizi Eucalyptus Aquilaria Kalingag



Evolution Period	0	3-5 years	5-20 years	20 + years	50 +years
Vegetation	Vegetables	Mixed	Tree-based	Native timber & fruit trees + perennial + rootcrops + NTFPs	Restoration of natural forest
Combinations	Tomato/ carrots/ lettuce	Pine+ jackfruit+ avocado+ coffee+ vegetables + rootcrops	Kalingag+ musizi+ eucalyptus+ pine+ jackfruit+ avocado+ rimas+ kamansi+ coffee+ NTFPs	Kalingag+ musizi+ eucalyptus+ pine+ jackfruit+ avocado+ rimas+ kamansi+ coffee+ NTFPs	Kalingag+ jackfruit+ avocado+ rimas+ kamansi+ coffee+ NTFPs
Function	Food+cash	Food+cash+SWC	Food+cash+ES	Food+cash+ES+ biodiversity	Food+cash+ES+ biodiversity

Figure 8. Projected succession of vegetation in the Ladera Farm including the objectives of the farming operations.

8 Planting guidance

8.1 Spatial configuration

To date there had been three consultations and revisions of the demo farm plan with the farmers e (July and October 2022 and April 2023). These revisions and refinements are reflective of the participatory planning and engagement process employed by the project. Figure 9 is the spatial configuration for the farm based on the October 2022 farmer and team consultations and discussions. The hedgerows will be a complex NVS with crops and fruit trees.

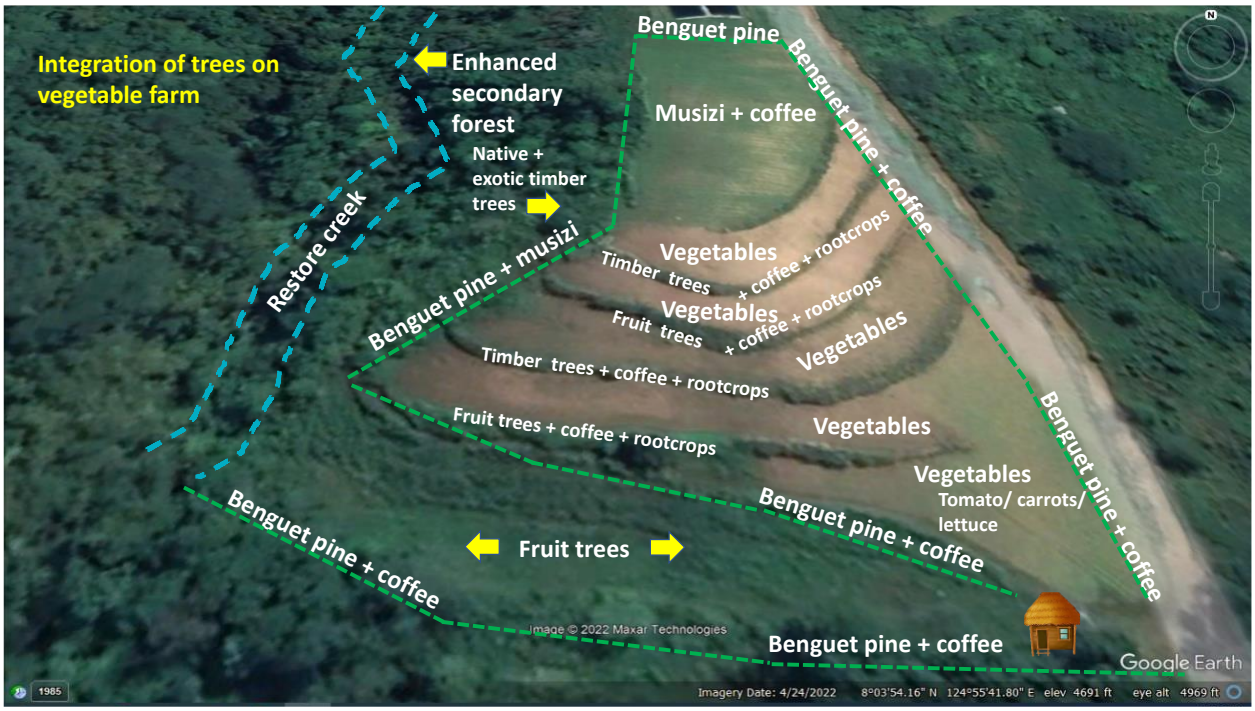


Figure 9. Spatial configuration of the farmer and team consultation last October 2022.

8.2 Species allocation by block

The tree component of the proposed complex tree-based agroforestry system is detailed in Table 2, Table 3, Table 4, Table 5, Figure 9 and Figure 10.

For the perimeter planting, several native tree species are proposed: Benguet pine, Lapnisan, kalingag, Philippine chestnut, almaciga, kalamagan and bagamanas. Pine trees although not native to the MKRNP, has shown to grow successfully in the Bukidnon province particularly in high elevations. The species produces excellent timber wood. It is spaced at 10 x 10 m. Apart from the boundary planting, B. pine were also planted in the hedgerows (Figure 11). For the lapnisan (*Aquilaria malaccensis*), it is valuable tree native species that is currently classified as critically endangered by The International Union for Conservation of Nature (IUCN) Red List (https://www.iucnredlist.org/search?query=Aquilaria%20malaccensiS&searchType=species). The species is highly sought for its economic value, but little efforts are underway to increase its planting, thus incorporating this in the demo farm would promote its adaption as a plantation species by smallholder tree farmers particularly in the MKRNP. It is proposed to be planted at a 3 x 3 m spacing with approximately 120 pieces. Additionally, kalingag (Mindanao cinnamon, *Cinnamomum mindanense* or *C. mercadoi*). It is useful as flavoring for foods, beverages; as a stomachic beverage, medicinal treatment for a number of ailments (nausea, flatulent, dyspepsia, coughs, diarrhea, gripe and malaria). The oil

and oleoresin is used in soap and perfume manufacturing, a source of timber (http://www.stuartxchange.org/Kami.html). The Philippine chestnut (possibly *Lithocarpus mindanaensis*) is another native tree species growing in the MKRNP and according to the IUCN Red list is near threatened (https://www.iucnredlist.org/species/138596343/138598500). The tree species has not been widely domesticated but similar to its chestnut relative, its potential as a fruit remains unexplored but is promising. Accordingly, the fruit is eaten by wild boars. Another species that will be planted is Almaciga (*Agathis dammara* or *A. philippinensis*) which is classified as vulnerable (https://www.iucnredlist.org/species/202906/2757847). The tree is an excellent timber tree and its resin (Manila copal) is highly valued manufacturing varnishes, lacquer, soap, paint, printing inks, linoleum, shoe polish, floor wax, plastic, water proofing materials, paper sizing, and other products (https://www.searca.org/news/ips-learn-sustainable-community-based-almaciga-resin-tapping#:~:text=It%20is%20highly%20valued%20for,paper%20sizing%2C%20and%20other%20products). Its domestication has been very slow despite its enormous economic and ecological importance. Another native tree species found in MKRNP that will be planted is kalamagan (some call it white maple). The tree accordingly produces for its nectar that attracts bees. Passion fruit is also proposed to planted. Some root crops are proposed to be planted, e.g. gabi, camote and cassava. On the western boundary of the farm is a steep slope towards a small creek, enrichment planting with native trees is planned. Last July 6, 2023, some 200 rattan seedlings were planted at a spacing of 2 x 3 m in this perimeter side.

Figure 10. The spatial distribution of the different tree and crop species in the Ladera Farm.

Table 2. Details of the planting plan in the Ladera demo farm.

Planting location (number of hedges)	Length (m)	Crop(s) to be planted	Spacing	Planting notes	Number of crops[a]	Source of planting stock	Cost (Php/ seedling)[b]

Planting location (number of hedges)	Length (m)	Crop(s) to be planted	Spacing	Planting notes	Number of crops[a]	Source of planting stock	Cost (Php/ seedling)[b]
Hedges (5)	40 + 50 + 60 + 70 + 80 = **300**	*Kamansi* / breadnut	10m. Alternating between species of fruit trees	Select among fruit trees every 10m	30	Vards Estrada / purchase	75
		Rimas / breadfruit				Vards Estrada / purchase	75
		Avocado				BAFF / purchase	75
		Jackfruit				BAFF / purchase	75
		Cardava Banana				Tissue cultured / Davao de Oro – Barlaan / purchase	75
		Gabi	1m	Along hedgerow	300	Local variety	10
		Camote	1m	1m above gabi	300	Local	10
		Cassava	1m	1m above camote	300	Local	10

[a] Excluding mortality allowance

[b] Including handling to planting site, excluding planting costs

Table 3. Details of the planting plan of the perimeter and forested area in the Ladera demo farm.

Planting location	Length (m)	Crop(s) to be planted	Spacing	Planting notes	Number of crops[a]	Source of planting stock	Cost (Php/ seedling)[b]
Perimeter and previous forest	60 + 100 + 80 + 100 =	Benguet Pine Tree	3m x 3m	Preferred by farmer	115 minimum	BAFF / purchase	75
		Lapnisan / Aquilaria	3m x 3m	Philippine native	TBD	Bohol / purchase	250

Planting location	Length (m)	Crop(s) to be planted	Spacing	Planting notes	Number of crops[a]	Source of planting stock	Cost (Php/ seedling)[b]
area	**340**	*malasensis*		trees			
		Kalingag / cinnamon	3m x 3m			Vards Estrada / purchase	75
		Philippine Chestnut	3m x 3m			Vards Estrada / purchase	75
		Almaciga	3m x 3m			Vards Estrada / purchase	75
		Kalamagan	3m x 3m			Local / wildlings	75
		Bagamanas	3m x 3m			Local / wildlings	75

[a] **Excluding mortality allowance**
[b] **Including handling to planting site, excluding planting costs**

To augment the farmer's income, high value crops (vegetables) will continue to be planted in the short term period (Table 4). This will include carrots, broccoli, and lettuce. These will be raised from seeds and supplemented with chicken dung and organic nutrient supplement to boost growth.

Table 4. Details of the planting plan of the vegetable area in the Ladera demo farm.

Planting location hedges)	Length (m)	Crop(s) to be planted	Spacing	Planting notes	Number of crops[a]	Source of planting stock	Cost (Php/ seedling)[b]
Vegetable area		Carrots		Seeds	1 quart		1500
				Chicken dung	100 sacks		150/sack
				Organic nutrient supplement	1 gal FPJ 1 gal FFJ 1 gal CalPhos 1 gal OHN 1 gal IMO		1000/gal = 5000
		Broccoli		Seeds	1 quart		1500
				Chicken dung	100 sacks		150/sack
				Organic nutrient supplement	1 gal FPJ 1 gal FFJ 1 gal CalPhos 1 gal OHN 1 gal IMO		1000/gal = 5000
		Lettuce		Seeds	1 quart		1500
				Chicken dung	100 sacks		150/sack
				Organic nutrient supplement	1 gal FPJ 1 gal FFJ 1 gal CalPhos 1 gal OHN 1 gal IMO		1000/gal = 5000

[a] Excluding mortality allowance

[b] Including handling to planting site, excluding planting costs

The fruit tree component of the agroforestry scheme is detailed in Table 5. These include breadnut, breadfruit, avocado, jackfruit and also abaca. All the fruit trees will be spaced at 8 x 8 m as shown in Figure 10.

Table 5. Details of the planting plan of the fruit tree area in the Ladera Demo Farm.

Planting location	**Length (m)**	**Crop(s) to be planted**	**Spacing**	**Planting notes**	**Number of crops[a]**	**Source of planting stock**	**Cost (Php/ seedling)+**
Fruit tree area	80 x 20 = 1600m^2	*Kamansi* / breadnut	8m x 8m		25	Vards Estrada / purchase	75
		Rimas / breadfruit				Vards Estrada / purchase	75
		Avocado				BAFF / purchase	75
		Jackfruit				BAFF / purchase	75
		Abaca	~2m	Fit 2 abaca per fruit tree space	50	Purchase	75

[a] Excluding mortality allowance
[b] Including handling to planting site, excluding planting costs

Figure 11. Benguet pine seedlings planted in the hedgerows with the cash crops/vegetable crops last April 13, 2023.

The diversity of tree and crop species that are planned to be planted in the Ladera Farm is expected to enrich biodiversity and contribute to the increase productivity eventually contributing to farmer's income. Likewise, resilience could be promoted to address the changing environment and markets.

8.3 Planting stock production and procurement

Based on Landcare Foundation of the Philippines, Inc.'s (LFPI) plan the planting stocks will be predominantly obtained from existing nurseries which are contacts of LFPI. Information about the species, source and prices are indicated in **Error! Reference source not found.** and **Error! Reference source not found.**. The time frame of the project does not allow the establishment of new nursery (ies) including the time required to raise plantable stocks. However, the long-term plan will be to develop personal or community nurseries to support the expansion of the restoration works in the watershed.

Only healthy, sturdy, vigorously growing seedlings will be purchased and transported. Large planting stocks will be preferred to maximize survival and subsequent growth and development. When seedlings are delivered, these will be acclimatized to reduce the transport shock.

9 Establishment of the demo farm

9.1 Site preparation

Contour lining will be performed in the portions of the farm which is steep and devoted for crops. An improvised A-frame will be utilized for the purpose. For spot plantings (e.g. trees and other seedlings), spot weeding will be conducted. Weeds and vines will be removed to prevent unnecessary competition with the planted seedlings.

9.2 Staking and hole digging

Staking will only be made for trees to be planted, but none for the rest of the crops identified to be planted in the demo farm. Depending on the size of the plastic bags/container, the hole should be dug wide and deep enough to facilitate the quick settling of the ball of earth of the containerized seedlings. This will be true for the NTFPs that were earlier described.

9.3 Planting

The seedlings could be either hauled manually (volunteers, e.g. students on field practice, others) or through carabao-powered sleds or horses which are the means of farmers to haul inputs or produce to and from the farm. Care should be exercised so as not to injure or unduly stress the seedlings during the transport process.

9.4 Replanting

Mortalities after planting the trees will be assessed at least a month after. To ensure that the planting plan is followed, seedling mortalities especially of trees should be immediately replaced within the planting season.

10 Maintenance of the demo farm

10.1 Weeding

Removal of unnecessary competitions like those from entwining vines or other weeds should be checked as early as possible as these could hamper the growth and development of the planted seedlings.

10.2 Fertilization

When available, fertilizers to boost the growth of the crops and trees will be applied. As an alternative, decomposed manure could be used.

10.3 Irrigation

During drought periods (presumably this year, when a moderate El Niño is predicted), the farmer may use an overhead rotary sprinkler which provides water by gravity.

10.4 Pests and diseases control

The presence of pests or diseases in the crops or trees should be carefully observed and noted/recorded. This should be part of the monitoring and evaluation for the demo farms. Crop rotation and diversity of crops will be part of the integrated pest management scheme that the farmer will practice.

10.5 Indigenous practices

The Talaandigs practice a religious ritual before any planting activity (Figure 12) which seeks the spirits of the "gods" to be pleased to prosper the planting operations. Likewise, the ritual seeks protection for all those involved in the planting operations. Indigenous practices such as this recognizes the "spirits" in nature which is part of the cultural beliefs of the Talaandigs.

Figure 12. The chicken offering which is part of the Talaandig's religious offerings prior to any planting activity.

10.6 Other silvicultural practices

Other silvicultural treatments or practices particularly protection shall be ensured. This will include protection from stray animals or wildlife. In addition, the native trees for timber production, e.g. almaciga shall be pruned as long as the height of man allows. Likewise, when the density of the trees become a limiting factor for further growth, particularly diameter growth, thinning should be employed to promote increased growth particularly of the long-lived (late succession) native trees.

11 Monitoring and evaluation

Monitoring of the demonstration farm will be done for two purposes. The first is to evaluate the progress of the learning site within the Project's duration, while the second is to measure ecosystem changes and assess the effectiveness of the restoration actions at farm level beyond the Project's duration. These will be done by the LFPI and Village Government, respectively. Appropriate trainings will be conducted to implement monitoring.

The learning farm's progress and livelihood monitoring form is presented in Appendix 1, and will be used monthly within the project period. For monitoring of ecosystem services beyond the project, the indicators of the ecosystem services will be identified participatorily with the villagers. The indicators of ecosystem changes should be easily measurable, relevant, and practical. The results and lessons will be communicated with all the members of the local community based on the communications plan of the Project. The success of shifting to a tree-based system hinges on the generation of information that manifests the economic and ecological superiority of the proposed schemes in the demo farm. This could be demonstrated through the robust data collection that the demo farm can generate.

12 Institutional Arrangements

The legal status of Mr. Ladera's farm is a usufruct area with tenurial classification as Alienable and Disposal (A&D) Land. In the absence of a Land Title yet, the farmer's only basis of continually cultivating the area is the yearly Tax Declaration he pays at the Lantapan LGU Municipal Hall. In this case, there is no pressure on him to venture into tree-based cropping system as a condition for his continuous vegetable cultivation in his farm. However, in order for him to adopt conservation farming and tree-based cropping system, the prospect of agroforestry farm tourism may be a good incentive for him in the long-run. Hence, there should be a close interagency partnership and collaboration, first, at the Lantapan LGU level, then, the provincial and regional bodies, with tourism as the main banner program to trigger other community-based income generating enterprises such as food processing, ecological camping with ecotourism and cultural tourism, construction of homestays and promoting the sites for conference venues, etc...

13 References

Amoroso, V.B., Laraga, S.H., & Calzada, B.V. 2011. Diversity and assessment of plants in Mt. Kitanglad Range Natural Park, Bukidnon, Southern Philippines. *Garden's Bulletin Singapore, 63* (1&2), p219-236. https://api.semanticscholar.org/CorpusID:131089918.

Heaney, L.R., Blas Jr, B.R., Rickart, E. & Balete, Danilo, S.B., & Ingle, N.R. (2006). The Mammals of Mt. Kitanglad Nature Park, Mindanao, Philippines. *Fieldiana Zoology, 112*, p1-63. 10.3158/0015-0754(2006)186[1:TMOMKN]2.0.CO;2.

DENR-B+WISER. 2015. Mount Kitanglad Range Natural Park. https://forestry.denr.gov.ph/b+wiser/index.php/sites/mount-kitanglad-range-natural-park. Accessed September 12, 2023.

14 Appendices

Appendix 1. Proposed monitoring and evaluation tool for the progress of the Demonstration Farms.

Farm progress and livelihood monitoring tool

This farm progress monitoring form is a tool to assess the status of the demonstration farm within the indicated monitoring

period. This aims to inform the farmer and the concerned staff, typically the project proponents on the progress of the farm to ensure that the desired outcomes be realized.

In cases where "warnings" (issues and challenges) are observed, the person monitoring must notify the Landcare Foundation of the Philippines, Inc. for immediate action. Depending on the complexity of the issue, the Watershed Management Committee, World Agroforestry, and International Center for Environmental Management may also be commissioned for help. External actors such as the Municipal Agriculturist Office, the Protected Area Superintendent, and the Community Environment and Natural Resources Office can also be tapped depending on the needs of the farm.

A time series analysis on the survival rate, growth rate, and health status can be conducted to understand if considerable progress on farm status has been achieved.

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* I. Basic Information

*** 1a. Demonstration farm**

- ◯ Buffer zone, Mr. Yam-oc
- ◯ Bol-ogan, Mr. Ladera
- ◯ Talaandig school, PTA Officials
- ◯ Natural Forest, Mr. Jamito
- ◯ Protected Area, Mr. Valdueza

*** 1b. Watershed**

- ◯ Alanib
- ◯ Maagnao

*** 2. Name of Farmer**

_____

3. Name of Assisting Technical Staff

Write NA if not applicable

_____

4. Year of farm establishment

_____

5. Area developed

Indicate unit

_____

6. Progress monitoring period

In month, year. Example: October 01- December 31, 2023

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* II. Farm Progress Monitoring Tool

* » 1. Activities Conducted

7. What are the activities you conducted within the monitoring period?

- ☐ Clearing/Brushing
- ☐ Contour lay-outing and sticking
- ☐ Contour line establishment (manual)
- ☐ Contour line establishment (with draft animal)
- ☐ Plowing
- ☐ Furrowing
- ☐ Hole digging
- ☐ Planting
- ☐ Replanting
- ☐ Weeding/Ring weeding
- ☐ Watering
- ☐ Maintenance contour
- ☐ Mulching
- ☐ Fertilizer application
- ☐ Pesticide application (includes fungicide, insectice, herbicide)
- ☐ Others

* **Specify other:**

Put 96 if not applicable.

_____

8. If 'Planting' is conducted, what are the crops and trees you planted within this monitoring period?

example: mahogany, gmelina. Put 'None' if not applicable.

_____

9. If 'Replanting' is conducted, what are the crops and trees you re-planted within this monitoring period? If not applicable, write 'None.'

example: mahogany, gmelina. Put 'None' if not applicable.

_____

10. If 'Planting' and/or 'Replanting' are conducted, is the farm design (spacing, tree-crop combination) followed?

Yes
No

* **Why?**

_____

Why not?

_____

11. What are the farm inputs you applied within the monitoring period?

Select all that is applicable.

Organic fertilizer
Chemical fertilizer
Organic fungicide
Chemical fungicide
Organic insecticide
Chemical insecticide
Organic herbicide
Chemical herbicide
Others

Others, specify.

_____

* **12a.1. Indicate type and/or brand of organic fertilizer used within the indicated period**

example: vermicompost

_____

* **12a.2. Indicate number of times organic fertilizer was applied within the monitoring period.**

_____

* **12a.3. Indicate rate of application of organic fertilizer within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12b.1. Indicate type and/or brand of chemical fertilizer used within the indicated period**

example: urea, 14-14-14

_____

* **12b.2. Indicate number of times chemical fertilizer was applied within the monitoring period.**

_____

* **12b.3. Indicate rate of application of chemical fertilizer within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12c.1. Indicate type and/or brand of organic fungicide used within the indicated period**

example: neem oil

_____

* **12c.2. Indicate number of times organic fungicide was applied within the monitoring period.**

_____

* **12c.3. Indicate rate of application of organic fungicide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12d.1. Indicate type and/or brand of chemical fungicide used within the indicated period**

example: furadan

_____

* **12d.2. Indicate number of times chemical fungicide was applied within the monitoring period.**

_____

* **12d.3. Indicate rate of application of chemical fungicide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12e.1. Indicate type and/or brand of organic insecticide used within the indicated period**

example: neem oil

_____

* **12e.2. Indicate number of times organic insecticide was applied within the monitoring period.**

_____

* **12e.3. Indicate rate of application of organic insecticide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12f.1. Indicate type and/or brand of chemical insecticide used within the indicated period**

example: Amistar

_____

* **12f.2. Indicate number of times chemical pesticide was applied within the monitoring period.**

_____

* **12f.3. Indicate rate of application of chemical insecticide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12 g.1. Indicate type and/or brand of organic herbicide used within the indicated period**

_____

12g.2. Indicate number of times organic herbicide was applied within the monitoring period.

_____

* **12g.3. Indicate rate of application of organic herbicide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12h.1. Indicate type and/or brand of chemical herbicide used within the indicated period**

_____

* **12h.2. Indicate number of times chemical herbicide was applied within the monitoring period**

_____

* **12h.3. Indicate rate of application of chemical herbicide within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* **12i.1. Indicate type and/or brand used within the indicated period**

_____

* **12i.2. Indicate number of times applied within the monitoring period**

_____

* **123i.3. Indicate rate of application within the indicated period**

Use proper units (example: kg/ha or l/ha)

_____

* 2. Status of trees planted

» » What is the status of your trees planted

* **13a. Tree species planted**

_____

* **13b. Where on farm did you plant your tree?**

- ◯ Scattered in the farm
- ◯ Contour lines
- ◯ Farm boundary/live fence
- ◯ Woodlot
- ◯ Riverline section
- ◯ Fallow land
- ◯ Others

Specify others:

Put 96 if not applicable.

_____

* **13c. Number of trees planted**

Put 9999 if actual number cannot be remembered

_____

* **13d. Number of surviving trees**

Put 9999 if actual number cannot be remembered

_____

* **13e. Percent (%) survival**

For those who cannot remember actual number, indicate the highest estimated range.

* **13f. Average circumference, in centimeter**

* **13g. Average diamater, in centimeter**

* **13h. Climate-related problems this monitoring period**

- Drought
- High precipitation
- Flood
- Erosion
- Others

* **Others, specify.**

* 3. Climate-related problems

* **14a. What demo-site components (plants, trees, animals) are affected by climate-related problems?**

Add rows for multiple components affected climate-related problems

* **14b. Photo of the symptom and/or sign observed**

Click here to upload file. (< 5MB)

* **14c. Provide observed impacts**

* **14d. What is your action taken?**

Write 'none' if none

* **14e. What are the results observed after the action was taken?**

Write 'none' if none

» Challenges

* 15. Challenges **experienced**

Add more rows for multiple challenges

» Breakthroughs experienced

16. Breakthroughs experienced

Add more rows for multiple breakthroughs

» Photos

17. Landscape photo of the farm

Preferably using the Geocam to record coordinates and date taken.

Click here to upload file. (< 5MB)

Close up photos

Preferably using the Geocam to record coordinates and date taken.

Click here to upload file. (< 5MB)

Other relevant photo (3)

Click here to upload file. (< 5MB)

Other relevant photo (4)

Click here to upload file. (< 5MB)

Other relevant photo (5)

Click here to upload file. (< 5MB)

Did you harvest within this monitoring period?

It can be timber, non-timber, fruit, vegetables, and other crops

- ◯ Yes
- ◯ No

* II. Livelihood Monitoring Tool

This farm-level livelihood monitoring form is a tool to assess the effect of restoration interventions on the livelihood of the farmers within the indicated monitoring period. This aims to inform the farmer and the concerned staff of the project proponents in the livelihood status of the farmer. It provides the actual income the farmer is gaining from the farm, it identifies which sources of income are contributing most to his/her livelihood. The tool is likewise supplemented with context questions to find out how important forest products to the farmer. A time-series analysis of thehousehold income and proportion of household income sources can be conducted if a considerable increase in income hasbeen achieved.

---

18. » Livelihood in previous monitoring period

Please indicate the estimated 'net income' you received in previous monitoring period.

*** 18.a Sale of timber (previous monitoring period)**

*** 18.b Sale of non-timber forest products (previous monitoring period)**

* **18.c Sale of fruits (previous monitoring period)**

* **18.d Sale of vegetables, root crops and other non-fruit high value crops (previous monitoring period)**

* **18.e Sale of livestock and poultry (previous monitoring period)**

* **18.f Others (previous monitoring period)**

Example: labor, remittance, etc.

* **18.g Others, please specify.**

Use comma (,) for multiple answers

19. » Livelihood this monitoring period

Please indicate the estimated 'net income' you received this monitoring period.

* **19.a Sale of timber (this monitoring period)**

* **19.b Sale of non-timber forest products (this monitoring period)**

* **19.c Sale of fruits (this monitoring period)**

* **19.d Sale of vegetables, root crops and other non-fruit high value crops (this monitoring period)**

* **19.e Sale of livestock and poultry (this monitoring period)**

* **19.f Others (this monitoring period)**

Example: labor

* **19.g Others, please specify.**

Use comma (,) for multiple answers

20. Are you satisfied with the earnings you gained from restoration this monitoring period?

- ◯ Yes
- ◯ No

20.a If yes, cite the factors that have affected your satisfaction?

20.b If no, cite the factors that have affected your dissatisfaction?

21. Which of the following livelihood enhancement did you use for the postharvest?

Select all that is applicable.

- ☐ None
- ☐ Solar dryer pavement
- ☐ All weather/Plastic dryer
- ☐ Sorting shed/Warehouse facility
- ☐ Coffee Huller
- ☐ Abaca stripping machine
- ☐ Abaca decorticating machine
- ☐ Weighing scale
- ☐ Kitchen utensils for food processing
- ☐ Corn mill
- ☐ Corn sheller
- ☐ Cassava hammer mill
- ☐ Banana chipper
- ☐ Cacao processing equipment

- [ ] Bee keeping
- [ ] Others

***** **Others, specify.**

---

22. Is timber important to the community in terms of livelihood?

- ◯ The community makes no money out of timber
- ◯ The community makes a little, occasional money from the timber, but this is minimal
- ◯ Timber sales are quite important to the economics of the community, but it could be improved
- ◯ Timber sales are of key importance to our community and make us a lot of money
- ◯ Not applicable

23. List the main species of timber collected for selling

Write 'None' if none

---

24. Are the NTFPs important to the community in terms of livelihood?

- ◯ The community makes no money out of non-timber forest products
- ◯ The community makes a little, occasional money from the non-timber forest products, but this is minimal
- ◯ Non-timber forest products sales are quite important to the economics of the community, but it could be improved
- ◯ Non-timber forest products sales are of key importance to our community and make us a lot of money
- ◯ Not applicable

25. List the NTFPs collected for selling

---

26. Are the agroforestry products such as local fruits and other commodities such as cocoa, coffee, and rubberimportant to the community in terms of livelihood?

- ◯ The community makes no money out of agroforestry products
- ◯ The community makes a little, occasional money from agroforestry products, but this is minimal

◯ Agroforestry products obtained is quite important to the economics of the community, but it could be improved

◯ Agroforestry products is of key importance to our community and make us a lot of money

◯ Not applicable

27. List the agroforestry products collected for selling

_____

28. Is timber important to the community in terms of subsistence?

◯ The community does not use timber

◯ The community makes a little, occasional use of timber but this is minimal

◯ Timber is quite important to the subsistence of the community, but its usage could be increased

◯ Timber is of key importance to the subsistence of our community

◯ Not applicable

29. List the main species of timber collected for personal usage

_____

30. Are NTFPs important to the community in terms of subsistence?

◯ The community does not use non-timber forest products

◯ The community makes a little, occasional use of non-timber forest products but this is minimal

◯ Non-timber forest products are quite important to the subsistence of the community, but its usage could beincreased

◯ Non-timber forest products are of key importance to the subsistence of our community

◯ Not applicable

31. List the main NTFPs collected for personal usage.

_____

32. Are agroforestry products such as local fruits including commodities such as cocoa, coffee, and rubber importantto the community in terms of subsistence use?

◯ The community does not use agroforestry products

◯ The community make a little occasionally use of agroforestry products, but this is minimal

◯ Agroforestry products use are quite important to the subsistence of the community, but it could be increased

◯ Agroforestry products are of key importance to the subsistence of our community

◯ Not applicable

33. List the main agroforestry products collected for personal usage.

Additional note
