AGROFORESTRY AND REFORESTATION WITH SMALL-SCALE FARMERS IN UGANDA

Document Prepared by PUR Projet

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| Prepared By | PUR Projet |
| Contact | 4, rue de la Pierre Levée, 75011 Paris<br>(+33) 1 55 28 98 05<br>contact@purprojet.com<br>www.purprojet.com |

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# 1 PROJECT DETAILS

## 1.1 Summary Description of the Project

**Project's purpose and principles**

'Agroforestry and reforestation with small-scale farmers in Uganda' is a grouped afforestation and reforestation project initiated by PUR Projet in 2016 in the coffee regions.

Uganda is the second-largest coffee producer in Africa. 77% of its coffee is Robusta which is produced in central Uganda and 23% is Arabica which is produced mostly in the southwest, northwest and East. Uganda has the 3rd highest deforestation rate worldwide[1] with around 1.8% per year. Conversion to agricultural land has been a major driver of this development. The country now suffers from climate hazards such as floods and rainfalls causing land degradations in the communities hence the coffee parcels (erosion of farmland). The production is managed mostly by very smallholder farmers. 90% of producers own less than 0.5 ha in Uganda. Communities lack cash and access to finance and do not have access to good processing facilities. Several producers grow different cash crops (coffee, vanilla, cocoa) as well as food crops. With this in mind, PUR Projet started the project in 2016 directly working with the Rwenzori Cooperative Union (RFCU), in Rwenzori region. New partners are now part of the project such as Agrievolve. Future location and new partners will be added as the project scales-up.

In this context, the purpose of the project is to reforest this land and promote sustainable agroforestry with small-scale farmers located in coffee and vanilla area in Uganda. PUR Projet is an international organisation specialised in the development of ecosystem restoration and conservation projects, within agricultural supply chains like coffee, cocoa and vanilla. PUR Projet also assists companies in insetting their supply chains and managing their socio-environmental commitments.

The main objective of the project are then the following:

- Increase climate change resilience of coffee parcels, diversify incomes and restore ecosystem services by supporting agroforestry practices, inside and around coffee parcels.
- Increase coffee yields and quality by implementing Good Agricultural Practices (GAP).
- Reduce firewood consumption, the amount of time spent cooking and collecting firewood, as well as improve indoor air quality by implementing improved cookstoves (ongoing study, implementation planned next year)

[1] https://cgspace.cgiar.org/bitstream/handle/10568/101331/Uganda%20Coffee%20brief.pdf?sequence=1

**Project Achievement**

The project consists in tree planting rolled-out over annual planting waves. The duration of project activities (planting, monitoring, maintenance) is planned to be 35 years. Everything possible will be put in place in order to minimise as much as possible the harvesting that won't happen until trees reach maturity (expected 15 years).

Mitigation measures will be put in place in order to convince smallholder farmers not to harvest more than 1%/year, and do replanting whenever harvesting is envisaged.

Between 2016 & 2019, around 275,000 trees have been planted over 611 ha and working with over 1,000 farmers. For those plantations, the average annual Emission Removals is 1214 tCO2e and the Total Estimated Emission Removal 42,524 tCO2e over the 35 years of the project duration.

**A progressive scale-up strategy**

From 2020 to 2030, the project expects a scale-up of at least 2,195,000 new trees planted and new partnership and areas being part of the project.
The sequestration of the carbon in the planted trees will allow the generation of GHG emission removal.

## 1.2 Sectoral Scope and Project Type

Sectoral scope: AFOLU

AFOLU project category: ARR

Grouped Project: The Project is a grouped project.

Activities (CDM classification):

- Grassland to forested land
- Cropland to forested land
- Degraded fallow to forest land

## *1.3* Project Eligibility

The Ugandan Government defines forests[2] as land with:

- A minimum area of 0.5 hectares
- A minimum tree crowns cover of 10%

[2] http://www.fao.org/3/az362e/az362e.pdf

- A minimum tree height of 5 metres.

As described in 1.11, the plantations are done on parcels of one of the following land-use: degraded land, cocoa, coffee or vanilla parcels, pastures and annual crops. These land-uses fall into the grassland or cropland categories and none of them fall in the forest definition.

During their first visit to the parcel to be planted, the project technicians collect information on the historical land-use for this specific parcel, and conduct an assessment of the existing tree cover, to ensure the parcel to be planted meets the eligibility criteria. This data is saved in the planting registry.

The proposed planting models include planting forest trees at densities from 70 - 1111 trees/ha, and therefore lead to the restoration of a crown cover above 5 metres and with higher coverage than 10%.

The proposed activity is hence a reforestation activity, according to the Ugandan definition of a forest, and increases carbon sequestration by establishing biomass cover through the planting of trees.

a) The land subject to the project activity does not fall in wetland categories;

The proposed project activities are only implemented on croplands, pastures, or fallows and degraded lands.

b) Project activities are implemented on lands where <10% of the total surface project area is disturbed as result of soil preparation for planting;

Land preparation only consists of digging a 30 cm x 30 cm x 30 cm hole for each tree. Maximum soil disturbance is reached with highest planting density in model B – mixed stand (1111 trees/ha). The total area disturbed therefore amounts to 100 m2 per hectare, i.e 1% of the surface. On top of this, this plantation model is only implemented on 31% of the total project area, the other models leading to even fewer disturbances.

Furthermore, the existing trees will not be removed for soil preparation before planting.

Therefore, fewer than 10% of the total surface project is disturbed as result of soil preparation for planting.

## 1.4 Project Design

The project is developed as a grouped project designed to expand and scale progressively over the project lifetime, with the following criteria for the inclusion of future projects instances.

**Instance location**:All project instances will be located in the Republic of Uganda suitable for Robusta and Arabica coffee production see (see table 2).

All the parcels must comply with the following requirements to be involved in the project instances:

- owned by small holders (fewer than 20 hectares)
- not deforested in the last 10 years
- not be cleared of native ecosystems within the 10-year period prior to the project start date, as set out in section 3.1.6. of the VCS AFOLU requirements
- not falling under 'forest'
- owner has clear land-use rights with no land tenure conflicts

**Entities should be:**

- Any entity working with smallholder farmers, for example:
    - A community-based organisation with on-going participatory processes (general assembly, elections at least) such as cooperatives, farmers associations, community associations, native communities.
    - District Municipality, operating the project through a dedicated team of professionals, under the supervision and control of Pur Projet, and following the project's proceedings communicated by Pur Projet

**Beneficiaries:** Small-scale farmers owner of a multi-purpose farmland within the Rwenzori region other regions where Arabica and Robusta coffee can grow and affiliated to one of the Project Entities.

**Proceedings:** The future project entities will apply Pur Projet's proceedings for the project, which include (not exhaustive) participative approach involving beneficiaries, application of defined planting models, training curriculum and technical assistance, monitoring and traceability proceedings, contracts signed with each beneficiary, and contract signed between Pur Projet and the Entity.

**Quality Control:** final quality control of monitoring data and deliverables done by Pur Projet.

## 1.5 Project Proponent

| | |
|---|---|
| **Organisation name** | PUR Development Pte. Ltd. hereinafter referred to as 'PUR Projet' |
| **Contact person** | Aurélien Cartal |
| **Title** | Carbon Senior Manager |

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|---|---|
| **Address** | 336 Smith Street, #07-302, New Bridge Center, Singapore (050336) |
| **Telephone** | (+33) 1 55 28 98 05 |
| **Email** | carbon@purprojet.com<br>www.purprojet.com |

The Project Proponent PUR Projet is the project developer, which started the project on the field, set-up the plantations and the monitoring processes, and built-up the local management team. PUR Projet is in charge of the overall forestry component's design and management, the proceedings definition, the reporting, the certification, and the coordination of all activities related to trees plantation (technical assistance given to farmers on this topic, workshops, training, capability development, planting, monitoring). PUR Projet's team is financed for this work with the project's funds. PUR Projet wants to build a large-scale model project with coffee farmers, that would stand as a success model to be duplicated, thus promoting the roll-out of agroforestry practices across the world.

## 1.6 Other Entities Involved in the Project

For the implementation of the project and tree planting activities, PUR Projet relies at this stage on 2 main agricultural cooperatives:

The RFCU originally started as Mubuku Vanilla Moringa Farmers Association (MVFA) in 2005, bringing together farmers who wanted to intervene in vanilla production when communities lost hope in the crop due to low prices. It registered as a Union in 2014.

This umbrella organisation represents the interests of 16 primary cooperative societies from the districts of Kasese, Kabarole, Ntoroko and Bundibugyo in the Rwenzori region of western Uganda.

The RFCU gathers a total membership of 3,200 vanilla, cocoa and coffee farmers. It is fair-trade certified and some of its vanilla members are also organic certified.

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|---|---|
| **Organisation name** | Rwenzori Farmers Cooperatives Union |
| **Role in the project** | Implementing partner |
| **Contact person** | Jimmy Police |
| **Title** | General manager |

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|---|---|
| **Address** | Kogere road, Kilembe Quarter's Kasese Municipality P.O. BOX 414 KASESE |
| **Telephone** | +,256,782,466,226 |
| **Email** | pobaji@gmail.com, rfcul2014@gmail.com |

Agrievolve, with support from Volcafé Ltd, started operations in the Rwenzori Region in 2015 and implemented a reliable coffee governance built around promoter farmers to accompany farmers in the production of better-quality coffee. By coordinating a group of about 30 producers whom they visit regularly, promoter farmers foster a better connection with farmers, building fidelity within the supply chain. They are responsible for the purchase of the coffee as well as its transport to buying centres, thus ensuring traceability.

Since 2020, PUR Projet is partnering with Agrievolve to work in the north part of the Rwenzori Area known as Fort Portal.

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|---|---|
| **Organisation name** | Agri Evolve |
| **Role in the project** | Implementing partner |
| **Contact person** | Jonny Rowland |
| **Title** | General manager |
| **Address** | Stockdale Cottage, Longsleddale, Kendal, Cumbria LA8 9BE and at Kisinga Coffee Station in Kasese District of Uganda |
| **Telephone** | +256776249720 |
| **Email** | jonny.rowland@agrievolve.com |

## 1.7 Ownership

### Right of Use

In Uganda, Article 237(1) of the Constitution of Uganda states that land belongs to the citizens of Uganda and according to Article 237 (3) of the 1995 Constitution of Uganda and Section 2 of the Land Act there is 4 types of recognised tenure systems:

- Mailo land tenure:
- Freehold land tenure
- Customary land tenure:
- Leasehold land tenure :

Customary land Tenure is where the land is owned based on the norms and traditions of a given society or community. One can even own land individually under customary tenure as long as it has been handed down from generation to generation using that society's customs. Special protection is accorded to the rights of women, children and persons with a disability to own, occupy or use customary land. (Section 27 of the Land Act). In 2015, the government of Uganda introduced Certificates of Customary Ownership (CCOs) for owners of customary land. Still today, few owners of customary land have the certificate. Some of the land owners have sales agreements to prove ownership and others do not have any document to prove their ownership as they inherited the land from their deceased's relatives.

In Uganda, it is not common that farmers have formal land tenure documents as approximately over 75% of land holdings in Uganda is owned through customary land tenure arrangements, especially smallholder farmers[3].

Most of the farmers participating in the project occupy and cultivate their land for several years and thus fall in the definition of customary land tenure. Even without a formal land title, they fully own the land and hence the 'carbon rights' related to their land.

A customary land owner can apply for a CCO as proof of ownership of the land. Any person, family or community holding land under customary tenure on former public land may acquire a certificate of customary ownership in respect of that land.

Throughout the project, PUR Projet plans to implement activities to sensitize farmers to land tenure topics and help them to get their title through specific training and support.

**Transfer of the emission rights**

Every farmer participating in the program signs a contract with one of the cooperatives in charge of tree planting activities of the project, setting the conditions of their participation in the program, in which they agree to transfer all of their emission rights to the Entity.

[3] http://www.fao.org/gender-landrights-database/country-profiles/countries-list/land-tenure-and-related-institutions/prevailing-systems-of-land-tenure/en/?country_iso3=UGA

On the other hand, each cooperative participating to the project signs a contract with PUR Projet (project proponent), where they agree to transfer all carbon rights they have collected from farmers to PUR Projet.

### Emissions Trading Programs and Other Binding Limits

The VCUs generated by the GHG emission removal of the project will be sold exclusively on the voluntary market, to private or public entities who want to have a positive impact on climate on a voluntary basis.

The Project Proponent itself nor its clients do not have any binding limits on GHG emissions and does not look for any compliance with any emissions trading program.

To date there is no emissions trading program in Uganda. Ugandan NDCs include forestry activities but it is not decided yet if the Government will provide corresponding adjustment for private projects implemented on voluntary schemes.

## 1.8 Project Start Date

The start date of the project is 13/04/2016, date on which the 2016 planting wave started.

## 1.9 Project Crediting Period

TThe crediting period is from 13/04/2016 to 13/04/2051. The length of the crediting period is 35 years.

## 1.10 Project Scale and Estimated GHG Emission Reductions or Removals

| Project Scale | |
|---|---|
| Project | X |
| Large project | |

| Year | Estimated GHG emission reductions or removal ($tCO_2e$) |
|---|---|
| 2016 | 0 |
| 2017 | 352 |
| 2018 | 1 084 |
| 2019 | 2 069 |
| 2020 | 3 482 |
| 2021 | 5 109 |
| 2022 | 6 743 |
| 2023 | 8 397 |
| 2024 | 10 099 |
| 2025 | 11 805 |
| 2026 | 13 521 |
| 2027 | 15 173 |
| 2028 | 16 740 |
| 2029 | 18 241 |
| 2030 | 19 584 |
| 2031 | 20 903 |
| 2032 | 22 199 |
| 2033 | 23 418 |
| 2034 | 24 612 |
| 2035 | 25 786 |
| 2036 | 26 938 |
| 2037 | 28 071 |
| 2038 | 29 184 |
| 2039 | 30 278 |
| 2040 | 31 353 |
| 2041 | 32 405 |

| | |
|---|---|
| 2042 | 33 432 |
| 2043 | 34 433 |
| 2044 | 35 407 |
| 2045 | 36 363 |
| 2046 | 37 299 |
| 2047 | 38 212 |
| 2048 | 39 111 |
| 2049 | 39 994 |
| 2050 | 40 855 |
| 2051 | 41 697 |
| 2052 | 42 524 |
| | |
| **Total estimated ERs** | 42 524 |
| **Total number of crediting years** | 35 |
| **Average annual ERs** | 1214 |

## 1.11 Description of the Project Activity

### 1.11.1 Project's purpose and principles

In 2016, PUR Projet started the development of the agroforestry and reforestation project in Uganda in the Rwenzori with smallholder coffee farmers, focusing on agroforestry, reforestation, as well as other activities such as Good Agricultural Practices training and the start of the distribution of Improved Cookstoves.

All activities aim at having a positive impact on ecosystems and farmers' livelihoods at the same time.

PUR Projet has been working directly with smallholder farmers with the help of the partners. While the project started with one single cooperative, RFCU, in 2016, it has progressively expanded to other partners in 2020 (Agri Evolve) and expects to have more partners in the years to come in different regions suitable for robusta or arabica coffee.

The project is not located within the jurisdiction of the REDD+ program.

All activities are rolled-out in a coordinated way and correspond to a holistic approach to ecosystem restoration and livelihood improvement in the area. While agroforestry remains the core activities and the source of carbon sequestration, the other activities implemented aim at complementing and reinforcing the effects of agroforestry while key needs of the coffee-growing community.

### Agroforestry on Coffee parcels

'*Agroforestry is a collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence*' (FAO, 2015)

For PUR Projet, the principle of agroforestry goes beyond the simple planting of trees in plots; it is a philosophy in which the farmer appropriates the activity and in consequence the farmer household will benefit directly on a daily basis.

Therefore the strategy is to both regenerate local ecosystems and support local communities by protecting and regenerating the coffee fields with improved shade, while providing additional economic benefits to farmers from agroforestry products (ex: fruits, timber).

In Uganda, it is visible that most land is deforested, or has been destroyed by climate change. Moreover, most farmers often cultivate coffee which is monoculture and fully exposed to the sun.

This impacts coffee yields and ecosystems, exacerbates the effects of climate change, and increases the dependence of farmers to one single price-fluctuating crop.

Therefore the objective of agroforestry is to plant trees around and/or among crops in order to provide multiple ecosystem services:

- At crop level, trees provide much needed shade for the coffee tree and increase crop resilience to climate change.
- At community level, agroforestry helps secure crop yields and provides secondary products such as fuelwood, fruit, timber and fodder.
- At landscape level, agroforestry models help restore the tree cover and local biodiversity.

**Activities**

The dedicated technical team hired by the local cooperative and trained by PUR Projet is in charge of leading group training on agroforestry and monitoring farmers' progress individually.

Farmers and cooperatives are at the heart of the project: they actively participate to building the project, defining its rules, choosing planting species, etc.

Key tree types:


**Targeted volume**

From 2016 to 2019, around 275,000 trees have been planted over 611 ha and working with over 1000 farmers.

From 2020 to 2025, the project expects a high scale-up 2,195,000 new trees planted over 5 years and new partnership and area being part of the project.

Pur Projet also developed other activities such as Good agricultural activities and awareness raising to strengthen the project that are explain in appendix 1

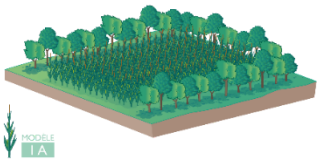
The project is not located within the jurisdiction of the REDD+ program.

### 1.11.2 Agroforestry Project: Plantation models

The project consists in tree planting rolled-out over annual planting waves. The length of the project activities (planting, monitoring, maintenance, pruning, thinning, harvesting) is 35 years from the first planting wave in 2016. As part of the income diversification objective, the project will include a sustainable harvesting plan to ensure the permanence of forest cover and carbon sinks.

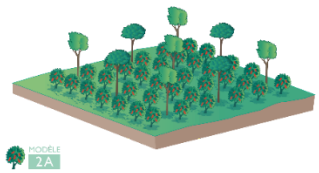
Mitigation measures will be put in place in order to convince smallholder farmers to don't harvest more than 1%/year such as sensitisation, training and sharing of experiences on the long-term benefit of trees by species. In addition, harvest of timber will be done in accordance with a sustainable harvesting plan defined by the project. Plus, to ensure sustainability, each farmer receives an incentive for each tree planted and maintained, and is trained throughout the years by the technician team hired by each Project Entity.
The loss of carbon due to harvest is taken into account as part of the quantification of the overall net GHG emission reduction/removal.

4 planted models are proposed to the participating farmers



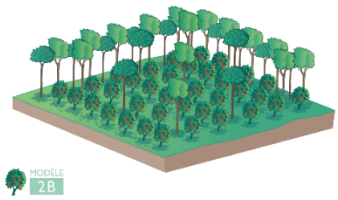

**HEDGEROWS**

150 trees per ha. Trees planted on the boundaries of the parcel, or on a line combining slow-, medium- and fast-growing trees. Trees provide a windbreak; they also limit the spread of diseases and pests among crops. They limit access to people and wild animals and enhance soil stability




**INTERCROPPING SHADING**

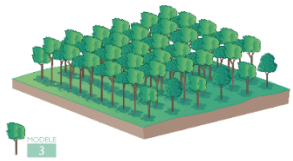
70-120 trees per ha. Trees are planted among crops combining slow-, medium- and fast-growing trees. Trees provide shade, improve soil quality, prevent soil erosion, regulate water and protect crops from the wind.




**INTERCROPPING SHADING + PERIMETER**

200-300 trees per ha. Trees are planted among crops and on parcel borders. They provide shade, fertilize the soil, regulate water, provide windbreaks as well as limit the spread of diseases and access to people and wild animals.

**PLANTATION FULL STAND**




High tree density (1000 trees/ha) to restore degraded and unused lands, combining slow-, medium- and fast-growing trees. This model provides ecosystem regeneration and protection at the landscape level, increases biodiversity, prevents erosion and regenerates the soil. Optimal for timber or fruit production and carbon storage.

### 1.11.3 Species and varieties selected

Tree species were selected based on farmers' knowledge, adaptability with perennial crops (coffee, cocoa and vanilla) timber value, adaptability to the area (e.g. altitude, rainfall). The project remains open to consider other species to include in future instances.

The choice of species is based on site evaluations and according to farmers' needs. Tree selection depends on proven suitability for the specific site conditions and purposes of trees in the agroforestry or forestry systems (timber production, shade, soil improvement, etc). Only native species will be used for the project activity.

Table 1: Species Slanted in Uganda

| SPECIE (Local name) | SPECIE (Scientific name) | MAIN USE | MATURITY | HEIGHT |
|---|---|---|---|---|
| Mucizi | Maesopsis eminii | Shade, Timber | 10 years | 20 m |
| Prunus | Prunus africana | Timber, medical | 15 years | 20 m |
| Albizia | Albizia coreana | Shade | 10 years | 20 m |
| Muvule | Milicia excelsa | Timber | 30 years | 30 m |
| Bathidivia | | Shade | 20 years | 30 m |
| Omukohwa | Erythrina abyssinica | Timber | - | - |
| Uganda flame | Spathodea campanulata | Timber | - | - |
| Khaya Senegalensis | African mahogany | Timber | 25 years | 30 m |
| Jackfruit | Artocarpus heterophyllus | Fruits | - | - |
| Guava | Psidium guajava | Fruits | - | - |
| Avocado | Persea americana | Fruits | - | 10 -15 m |
| Orange | | Fruits | - | - |

### 1.11.4 Technology employed in the activity

PUR Projet implemented its standard procedures for reforestation projects with smallholder farmers.

**Identification and free prior informed consent consultation (Socialization of the activity)**

In this beginning phase of the activity, the PUR Projet team with the help of the technicians of the cooperatives organize meetings with the farmers. This meeting is called the socialization of the activity as it has an objective to present the project objective and concept of the activity to the community as well as train the community regarding tree planting benefits and agroforestry. At the end of this socialization, voluntary farmers register to enter the project.

**Farm visits (Pre-registry/Monitoring 1 and 2)**

During the first two years, farmers receive at least three individual visits: one visit before the plantation (pre-registry), one visits a few months after the plantation (registry and monitoring 1) and one visit around 1 year after the plantation (monitoring 2). Then, the technical team visits every parcel at least once a year. During their visits, technicians monitor the plantation and provide technical assistance on maintenance and agroforestry techniques (pruning, shade management, etc.).

Technicians also monitor the compliance with the plantation contract during the various stages of project implementation. In case of non-compliance, the technical team refers to PUR Projet's local project coordinator.

**Seedlings Purchase**

Seedlings are bought from various suppliers well known for their experience in the production and logistics of tree seedlings, such as BENCO and Toro botanic. Seedlings are transported by truck to farmers' communities.

Pur Projet also developed community nurseries started in 2020 with 4 nurseries at Balimi, Gatyanga, Kajwenge & Kihasa and 3 additional one for 2021 located in Kasemire, Kinyangoko and Nyabwina

**Training and technical assistance**

Farmers receive training on reforestation/agroforestry and ecosystem benefits, so as on deforestation and its consequences (soil erosion, water availability decrease, landscape degradation, biodiversity decrease, etc.). Training also focus on planting and maintenance techniques.

**Site preparation**

Plantation sites are prepared by the farmers to enhance the early growth and development of the seedlings, in accordance with project recommendations:

Weeding: 50cm-diameter-circle around the planting point.

Hole preparation: 30 cm x 30 cm x 30 cm hole dug by hand, using a shovel. CO2 emissions are not significant due to the low soil disturbance caused by this form of site preparation.

**Planting**

Farmers oversee tree plantations.

- They plant trees according to the plantation model they chose and the advice they received from the technical team.
- Planting is done by hand, during the rainy season, between September to October

**Maintenance premium**

Farmers receive a premium after each of the first two fields monitoring. Field monitoring enables assessment – among other indicators- tree mortality and farmers receive a premium for each tree alive. The premium ensures farmers' commitment on the long run and the good maintenance of trees during the first years. In a period of climate change, severe droughts and irregular rains, it seems more needed than ever. The premium is thus a way to minimise the cost per living tree – by reducing tree mortality - rather than being a subsidy to beneficiaries.

As defined and collectively approved by farmers' organisations: when the farmers plant trees on their own land, each farmer receives 500 UGX to 1,000 UGX per tree planted and alive and does not pay for the seedlings.

**Plantation management**

All plantations are managed by farmers themselves according to technical recommendations provided by the project's technical team during farm visits and group training.

- Weed control

Weed control is important to ensure the good development of trees. Weeds are controlled manually during the first years of growth

- Thinning and Pruning.

Pruning: to ensure a high-quality timber, trees will be pruned manually, according to the characteristics of each species.

Thinning: thinning will be operated manually, with an axe or a chain saw, according to the characteristics of each species and the project's timber management plan.

- Measurements of tree survival in planting waves

Technicians estimate average heights during monitoring visits, by measuring a selection of trees in the planted parcels. These estimations will help the project team to estimate tree growth, biomass increase, and volumes of timber standing.

### 1.11.5 Transfer of technology/know-how

Capacity building and transfer of technology and know-how are primordial for the implementation and the success of the project.

**Farmers' organisation empowerment**

The grouped project focuses on solid and well-organised entities that will be further trained and empowered by PUR Projet on agroforestry, project proceedings, traceability, monitoring, data management, certifications, forestry. This progressive training and empowerment process, rolled out over several years, is critical for the complete assimilation and appropriation of the agroforestry and forestry activities by the Entities and the farmers. Each project Entity has its own project technical

team, trained by PUR Projet and/or the Entity, in charge of the project implementation. The size of the dedicated team depends on the Entity and the size of the plantations managed by each Entity.

**Community Empowerment**

Smaller communities and farmers' associations that will participate in the project without acting as project's entities will not have a dedicated technical team. However, the project will roll-out a system of 'community managers' which aims at identifying, training and empowering one of the community members (chosen by the community) to be a local facilitator and relay of the Entity's technical team. This system ensures a close linkage with the communities and a facilitated communication and transfer of the project's information and recommendations. It's also a powerful way to empower the community members and communities as a whole (democratic election of the 'community manager', information meetings, etc.)

**The Farmers**

Farmers under the Entities are the most important stakeholders for the success of the project implementation. The project therefore includes a training curriculum with group training modules done by the Entities technical teams, as well as individual technical assistance during individual farm visits.

- **Group trainings** are both theoretical and practical trainings on a specific topic. Depending on the topic, it's a two to five hours training, where the farmers in groups share their knowledge on the topics, the technician/engineer teaches using various supporting material (presentations, drawings, posters, videos, games, etc.), and where, for relevant topics, the farmers get to observe and practise in the field. Group trainings are usually done by cooperative committee, or by community (for small communities)
- **Individual visits:** In addition to group trainings, all parcels are individually visited at least 3 times in the first year and a half (before planting to assess parcel eligibility, define planting schemes, choose species; after planting twice in the first year to monitor the planted parcel and tree survival); and then at least once a year by one of the Entity's technicians to check the state of the parcels and provide recommendations to the farmer.

**A large-scale vision and strategy**

The grouped project targets the whole area of Uganda suitable for arabica and robusta coffee, as this region presents a consistency in terms of ecosystems, agricultural profile (small-scale agriculture – frequently coffee, cacao, vanilla), and economic.

The project is fully integrated into a long-term vision of 25 years which matches the pace of trees growth and ecosystems regeneration: farmers' organisations will follow-up on the tree plantations, monitor the impacts and ecosystem services, and develop value chains for trees' co-products (fruits,

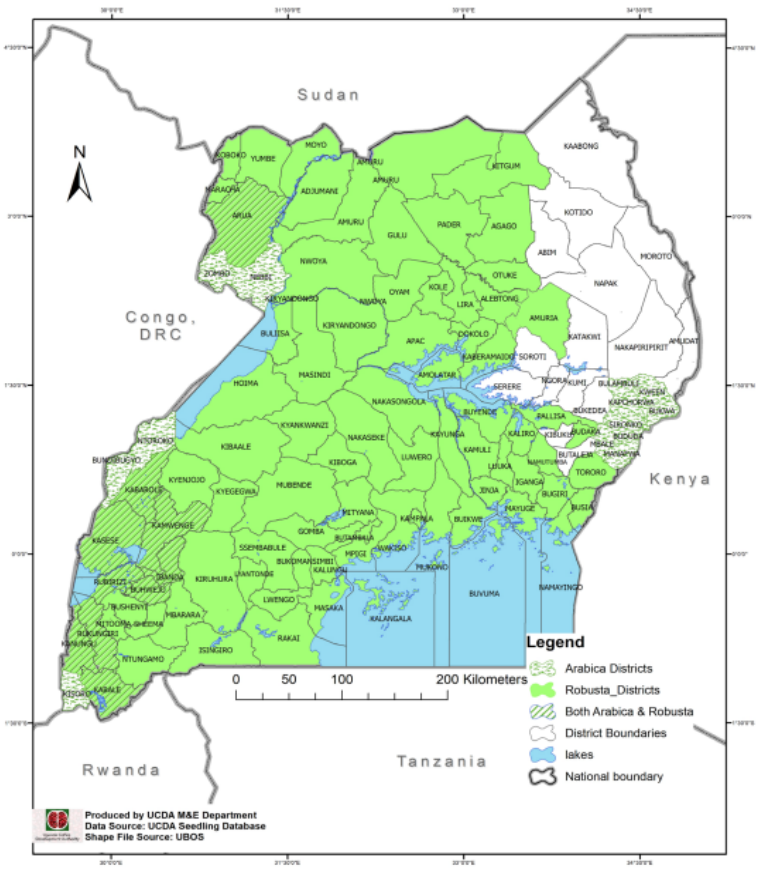
timber, fuelwood). Technical assistance will be provided for these activities and funded by additional PUR Projet's investments in the long run.

## 1.12 Project Location

### 1.12.1 Groups project location

All project instances will be located in the Republic of Uganda suitable for Robusta and Arabica coffee production see in on the following map.

Table 2: Coffee Regions in Uganda




### 1.12.2 Initial project instances

The first project instance is constituted by the reunion of all parcels planted in the Rwenzori region, circled in the table below, a few kilometers from the western border with the Congo democratic Republic between Rwenzori National Park and Queen Elisabeth National Park, from 2016 to 2021.

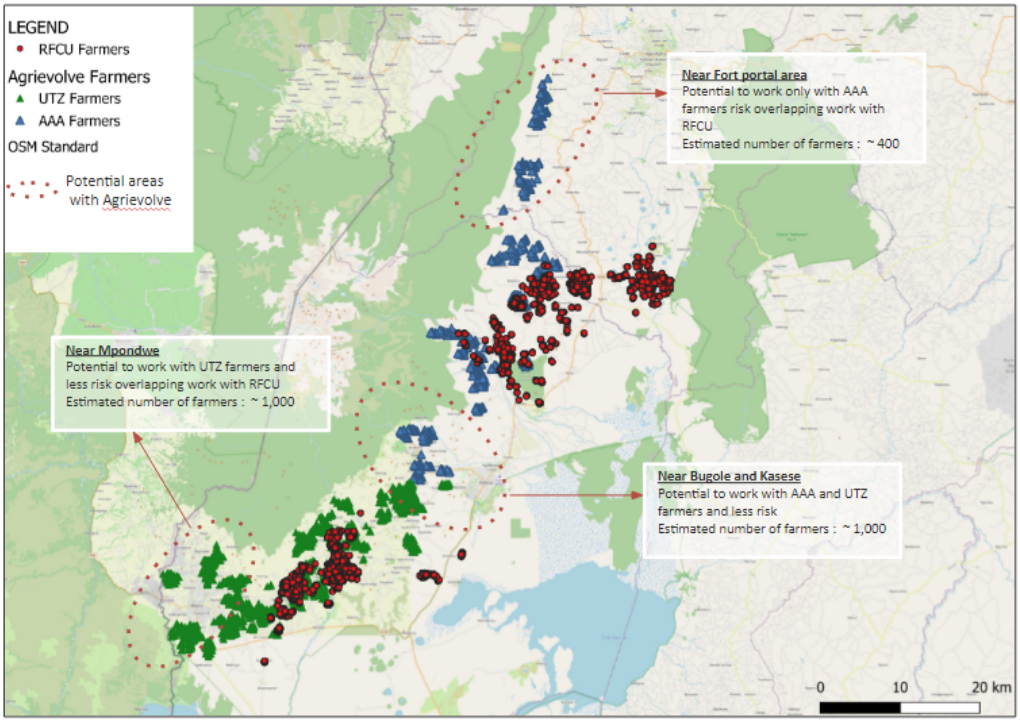
Table 3: First intense: Rwenzori Region


**Project's achievement**

Table 4: Trees Planted per Cooperative and per Year

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Cooperative | RFCU | RFCU | RFCU | RFCU | RFCU |
| **Trees delivered** | **50,029** | **107,500** | **100,000** | **133,802** | **160,000** |
| **KPIs** | | | | | |
| Trees delivered | 50,029 | 107,500 | 100,000 | 133,802 | |
| Trees alive M1 | 46,368 | 98,901 | 91,179 | 119,401 | |
| Trees alive M2 | 44,952 | 92,729 | 89,027 | | |
| # Beneficiaries | 265 | 406 | 291 | 384 | |
| # Female | 51 | 72 | 41 | 79 | |
| Area (Ha) | 175.62 | 279.49 | 247.76 | | |

Table 5: Potential Plantation area in Rwenzori Region




## 1.13 Conditions Prior to Project Initiation

### 1.13.1 Land use before planting

As part of the initial field visit, before registering the parcel for the project, the technician of the technical team assesses the historical land-use and farm context in order to determine eligibility and relevance for inclusion in the project.

List of different types of pre-project land-uses in the parcels reforested in the scope of the project:

- Perennial crops (Coffee, vanilla, cocoa)
- Annual Crops (corn)
- Pasture
- Degraded land

Parcels reforested are either degraded areas or productive coffee, cocoa or vanilla fields that have been deforested and used for agriculture for 15 to 40 years.

As part of the initial field visit, before registering the parcel for the project, the technician of the technical team assesses the historical land-use of the parcel and ensures that the parcel was not deforested for the purpose of replanting trees.

No deforestation activity is therefore triggered by the project with the objective of reclaiming the GHG removals of the reforested biomass. The project is only claiming GHG removals due to reforestation and sequestration of carbon in the trees biomass. The project has therefore not generated GHG emission for the purpose of their subsequent removal.

### 1.13.2 Environmental conditions of the project area

**Climate**

Uganda is located on the Equator and has a tropical climate. The average annual temperature is about 26° Celsius. The rainy season is from March till May and October till November. Light rain season falls in November and December. Dry seasons are from December to February and June to August. Most of the areas receive between 750 mm and 2,100 mm of rain annually[4].

The proposed A/R CDM project activity takes place in the tropical moist (IPCC, 2006 – Chapter 4: Forest Land; GPG LULUCF 2006, IPCC)[5].

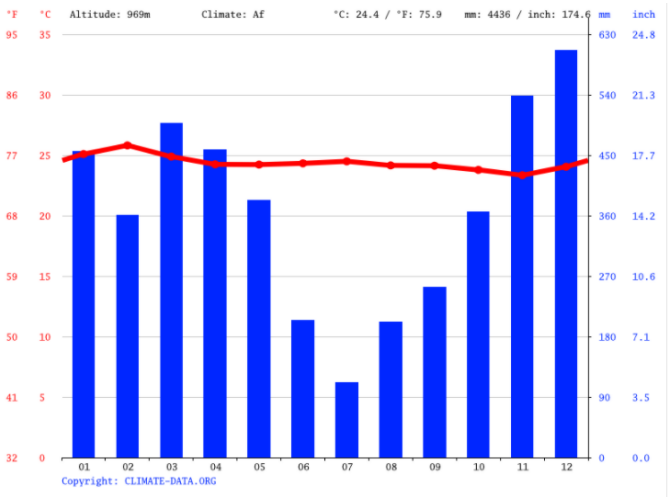
To be more precise:

- The first instance located in Rwenzori region (Around Kasese[6]) is characterised by

- Average month temperature between 24°C, regular in the year.
- Annual precipitation is around 4400 mm. (Min in July with 112 mm, max in December with 600 mm)

[4] http://www.ico.org/documents/cy2018-19/icc-124-8e-profile-uganda.pdf
[5] https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf
[6] https://fr.climate-data.org/afrique/ouganda/western-region/kasese-924472/

Table 6: Climate in Rwenzori region (kasese district)




**Biodiversity**

Uganda is one of the most biodiversity rich countries in the world (Winterbottom & Eilu, 2006). The diverse flora and fauna of Uganda are distributed across a variety of natural terrestrial and aquatic ecosystems, including; forest, mountain, savannah, wetlands, lake and river ecosystems. It is particularly rich in bird life over half of all bird species in Africa can be found in Uganda, and has Though one endemic bird (Fox's Weaver), 23 Albertine endemics occur here which are rarely observed elsewhere. These include the Handsome Francolin, Rwenzori Turaco, Rwenzori Nightjar, Dwarf Honeyguide, African Green Broadbill, Archer's Robin-Chat, Grauer's Rush Warbler, Short-tailed Warbler, Grauer's Warbler, Collared Apalis, Regal Sunbird, Strange Weaver, Dusky Crimsonwing, and Shelley's Crimsonwing among others.

To be more specific: in the first instance in Rwenzori region[7]:

- 70 species of mammal, including six Albertine Rift endemics; four are endemic to the park and three are rare species. Other mammals include the elephant, chimpanzee, Rwenzori otter and leopard.
- 217 bird species including several Albertine Rift endemics. Among these are 17 species that are endemic to the park making Rwenzori an important birding area (IBA). The forest zone at 1800m contains a diversity of birds including the Rwenzori Turaco, Barred Long-tailed Cuckoo, Long-eared Owl, Handsome Francolin, Cinnamon-chested Bee-eater, Archers' Robin-chat, White-starred Robin, Rwenzori Batis, Montane Sooty Boubou, Lagden's Bush Shrike, Slender-billed Starling, Blue-headed Sunbird, Golden-winged Sunbird, Strange

[7] https://www.ugandawildlife.org/wildlife-and-birding-summary-rmnp

Weaver and several varieties of Barbets, Greenbuls, Apalises, Illadopsis, Flycatchers and Crimsonwings

**Water**

One commonly quoted issue is the diminishing presence of water in the soil as the dry seasons extend, thus limiting the growth and production of permanent crops. Severe deforestation of the hills (bare hills now) surrounding farms reduces drastically the capacity of the soil and vegetation to regulate water flow, and retain water for the dry season. This creates the other opposite extreme in the rainy season with major floods whose devastating effects can be observed in the area (bridges destruction, farms destroyed near river beds).

**Soil**

In the coffee area in Uganda, generally soils are poor in nutrients. Regarding the first instance area Calcium and nitrogen are the demoniac deficiency nutrients[8]. In addition, soil erosion can be significant in case of the absence of tree or vegetation cover. Also, repeated washing off of the surrounding bare hills leaves very little soil on those hills, progressively diminishing the source of organic matter for farms lower in the valleys.

## 1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project operates through legally constituted local partners complying with all applicable laws in Uganda. All workers engaged on the project are hired legally following all labour laws applicable in Uganda.

More specifically, the design of our project is respecting all the main rules provided by The National Forestry and Tree Planting Act 8/2003, notably the project is not threatening existing forest nor implemented on forest reserves nor conservation area nor national parks.

## 1.15 Participation under Other GHG Programs

### 1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

The project has not been registered under any other GHG programs and is not seeking registration under any other GHG programs.

[8] IITA-LEADreport.pdf

### 1.15.2 Projects Rejected by Other GHG Programs

The project has not participated in any other GHG programs and has therefore not been rejected by any of them.

## 1.16 Other Forms of Credit

### 1.16.1 Emissions Trading Programs and Other Binding Limits

### 1.16.2 Other Forms of Environmental Credit

There is no other form of environmental credits included in the project framework or currently ongoing in the project area.

The project has not participated in any other program of environmental crediting for GHG emission removal.

The project does not intend to generate any other kind of environmental credit other than through the VCS Program. The Project Proponent aims to finance the project through the sales of VERs issued under the VCS program only to private companies buying VERs as voluntary offsetting of their emissions. Any other form of environmental credit for GHG removal would not be valued extra by the companies offsetting voluntarily their emissions and would therefore not be foreseen by the Project Proponent.

## 1.17 Additional Information Relevant to the Project

### Leakage Management

*Where applicable, describe the leakage management plan and implementation of leakage and risk mitigation measures.*

### Commercially Sensitive Information

*Indicate whether any commercially sensitive information has been excluded from the public version of the project description and briefly describe the items to which such information pertains.*

*Note - Information related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring of GHG emission reductions and removals (including operational and capital expenditures) cannot be considered to be commercially sensitive and must be provided in the public versions of the project documents.*

### Sustainable Development

*Describe how the project contributes to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting same.*

### Further Information

*Include any additional relevant legislative, technical, economic, sectoral, social, environmental, geographic, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.*

# 2 SAFEGUARDS

## 2.1 No Net Harm

*Summarize any potential negative environmental and socio-economic impacts and the steps taken to mitigate them.*

## 2.2 Local Stakeholder Consultation

*Describe the process for, and the outcomes from, the local stakeholder consultation conducted prior to validation. Include details on the following:*

- *The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought).*
- *The procedures or methods used for documenting the outcomes of the local stakeholder consultation.*
- *The mechanism for on-going communication with local stakeholders.*
- *How due account of all and any input received during the consultation has been taken. Include details on any updates to the project design or justify why updates are not appropriate.*

*For AFOLU projects, also demonstrate how the project has or will communicate the following:*

- *The project design and implementation, including the results of monitoring.*
- *The risks, costs and benefits the project may bring to local stakeholders.*
- *All relevant laws and regulations covering workers' rights in the host country.*

- *The process of VCS Program validation and verification and the validation/verification body's site visit.*

## 2.3 Environmental Impact

*Summarize any environmental impact assessments carried out with respect to the project, where applicable.*

## 2.4 Public Comments

*Demonstrate how due account of all and any comments received during the public comment period has been taken. Include details on any updates to the project design or demonstrate the insignificance or irrelevance of comments.*

## 2.5 AFOLU-Specific Safeguards

*For AFOLU projects, provide details on the following:*

- *Local stakeholder identification process and a description of results.*
- *Risks to local stakeholders due to project implementation and how the project will mitigate such risks.*
- *Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including the plans to ensure the project will not impact local stakeholder's property rights without the free, prior and informed consent.*
- *Processes to ensure ongoing communication and consultation with local stakeholders, including a grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders.*

*For AFOLU projects with no impacts on local stakeholders, provide evidence of such.*

*For non-AFOLU projects, this section is not required.*

# 3 Application of Methodology

## 3.1 Title and Reference of Methodology

Methodology applied: AR-AMS0007: A/R Small-scale Methodology - Afforestation and reforestation project activities implemented on lands other than wetlands – version 03.1.

Methodology Tools applied in the document:

CDM – AR TOOL 14 – Version 04.2: Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities

Others Tools applied in the document:

Calculation of the number of sample plots for measurements within A/R CDM project activities

## 3.2 Applicability of Methodology

The project activity meets the applicability conditions of the AR-AMS0007 methodology used by the project.

### 3.2.1 Activity Eligibility

The Ugandan Government defines forests[9] as land with:

- A minimum area of 0.5 hectares
- A minimum tree crowns cover of 10%
- A minimum tree height of 5 metres.

As described at 1.11, the plantations are done on parcels of one of the following land-use: degraded land, cocoa, coffee or vanilla parcels, pastures and annual crops. These land-uses fall into the grassland or cropland categories and none of them fall in the forest definition (less than 10% over 5 metres or susceptible to grow over 5 metres – cocoa and coffee trees pruned, cleared in rotation schemes or too degraded to grow beyond grasses and bushes).

During their first visit to the parcel to be planted, the project technicians collect information on the historical land-use for this specific parcel, and conduct an assessment of the existing tree cover, to ensure the parcel to be planted meets the eligibility criteria. This data is saved in the planting registry.

The proposed planting models include planting forest trees at densities from 70 - 1111 trees/ha, and therefore lead to the restoration of a crown cover above 5 metres and with higher coverage than 10%.

The proposed activity is hence a reforestation activity, according to the Ugandan definition of a forest, and increases carbon sequestration by establishing vegetative cover through the planting of woody plantations.

a) The land subject to the project activity does not fall in wetland categories;

The proposed project activities are only implemented on croplands, pastures, or fallows and degraded lands.

[9] http://www.fao.org/3/az362e/az362e.pdf

b) Project activities are implemented on lands where <10% of the total surface project area is disturbed as result of soil preparation for planting;

Land preparation only consists of digging a 30 cm x 30 cm x 30 cm hole for each tree. Maximum soil disturbance is reached with highest planting density in model B – mixed stand (1111 trees/ha). The total area disturbed therefore amounts to 100 m2 per hectare, i.e 1% of the surface. On top of this, this plantation model is only implemented on 31% of the total project area, the other models leading to even fewer disturbances.

Furthermore, the existing trees will not be removed for soil preparation before planting. Therefore, fewer than 10% of the total surface project is disturbed as a result of soil preparation for planting.

### 3.2.2 Applicability of Tools used

CDM – AR TOOL 14 – Version 04.2: Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities: this tool is used for estimation for ex-ante estimation of carbon and change in carbon stock in living biomass of trees and shrubs in the project, as defined in the scopes of the tools: the tool has no applicability conditions

Calculation of the number of sample plots for measurements within A/R CDM projects activities: this tool has no applicability conditions

## 3.3 Project Boundary

| Carbon pools | Included? | Justification/Explanation |
|---|---|---|
| Above ground biomass | Yes | According to AR-AMS0007/version 03.1, Section 5.: 'Carbon pools to be considered by these methodologies are above- and below-ground tree and woody perennial biomass and below-ground biomass of grasslands (i.e. living biomass)' |
| Below ground biomass | Yes | |

| | | |
|---|---|---|
| Dead wood | No | |
| Litter | No | |
| Soil organic carbon | No | |

| Emission sources | Gas | Included? | Justification/Explanation |
|---|---|---|---|
| Burning of woody biomass | $CO_2$ | No | As indicated by AR-AMS007 |

| | | | |
|---|---|---|---|
| | $CH_4$ | Yes | According the methodological tool 'Estimation of non-$CO_2$ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity' which identifies three possible sources of non-CO2 GHG emissions: 1. site preparation, 2. to clear the land of the harvest residue prior to replanting and 3. from forest fires<br><br>Given the pre-planting land-uses and planting models, there is no possible burning of woody biomass for site preparation:<br>- For the following pre-planting land-uses: grassland, annual crops, pastures, there is no woody biomass on the planting site<br><br>- For perennial parcels, trees are planted in intercropped models and do not require sisal or coffee trees removal.<br><br>Additionally, the project does not allow for burning to clear any land. |
| | $N_2O$ | Yes | |

## 3.4 Baseline Scenario

### 3.4.1 baseline stratification

Baseline stratification is done as follows:

- Selected areas are first stratified according to land-use types.
- Each stratum is then further divided in two according to the planting model. Planting model 3 (full stand ) is distinguished from the others as it will eventually lead to the disappearance of pre-project biomass, replaced by the trees planted.

The resulting stratification of the baseline area is thus the following:

| Stratum | Initial Land-use | Reforestation model |
|---|---|---|
| SB1 a | Perennial plantations | Model 1 - 2a - 2b |
| SB1 b | Perennial plantations | Model 3 |
| SB2 a | Annual Crops | Model 1 - 2a - 2b |

| | | |
|---|---|---|
| SB2 b | Annual Crops | Model 3 |
| SB3 a | Pasture/grassland | Model 1 - 2a - 2b |
| SB3 b | Pasture/grassland | Model 3 |
| SB4 a | Degraded fallow | Model 1 - 2a - 2b |
| SB4 b | Degraded fallow | Model 3 |

- **SB1:Perennial plantations**

This concerned coffee, cocoa and vanilla fields are in installation (that is to say less than two years old) or already in production. The coffee tree height is from 1 to 3m high and the crown cover up to 100%.

- **SB2: Annual Crops**

The annual crops are typically corn, bananas or other annual crops. Because of past intensive use, soil fertility is low. After the harvest, the land will typically remain as fallow for several years.

- **SB3: Pasture/grassland**

In the area, livestock is the activity that spread most significantly above 1,800 m a.s.l. Cattle herd size varies between very small (1 to 9) to medium (20 to 49) in a number of cattle per production site. This activity is considered as first responsible for deforestation, including in the region. The practice in the region is extensive and we model pasture as permanent grassland without overgrazing pressure.

- **SB4:Abandoned Degraded Area**

According to the A/R Methodological tool 'Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R Project activities' and CIFOR, 2006, this stratum corresponds to former agricultural highly degraded land with low height of vegetation (1 to 5 m, crown cover up to 20%). Such lands are cyclically used as annual crops and fallow.

### 3.4.2 baseline scenario

**Degraded Area, Pasture and Annual Crops**

The degraded lands are highly unproductive and will not regenerate without a drastic change in farming and land-use practices in the area which is very unlikely to happen without external support

and project implementation. Natural regeneration is very slow due to strong deterioration of the soils, and even when the soils are left over a long period and could start regeneration, parcels are reused for an annual crops cultivation cycle. Leaving their land unproductive for many years for regeneration purposes is a luxury that smallholder farmers targeted by the project cannot afford.

- Traditional cultivation patterns and historic land use is to periodically slash and burn these areas (typically 2-3 years of corn cultivation, then 5-10 years left as fallow for regeneration), thus preventing any growth of carbon stocks on these parcels above the average carbon stock of grasslands.

No significant changes in the carbon stocks, and the belowground biomass of grasslands, are therefore expected to occur in the absence of the project activity.

**Perennial crops**

The coffee and vanilla tree plantations are supposed to remain coffee tree plantations, as it's a perennial crop and coffee bushes are pruned regularly and maintained at a given height. No significant positive changes in the carbon stocks within the project boundary would occur considering that reforestation is facing the barriers outlined.

As a result, in the absence of the reforestation project, no changes in carbon stocks in the living biomass of woody perennials and the below-ground biomass are expected to occur.

## 3.5 Additionality

The demonstration and assessment of additionality is done hereafter using the approved VCS tool VT0001 'Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities'

**Identification of alternative land use scenarios to the proposed VCS AFOLU project activity**

Sub-step 1a. Credible alternative land-use scenarios

The project area is constituted by land parcels owned by small-scale cocoa, vanilla and coffee farmers. In this project area, there are currently 4 types of land-uses:

- Perennials crops land use (coffee, cocoa, vanilla)
- Degraded land
- Annual crops
- Pasture and Grassland

In the absence of the project, there could be several credible land-use scenarios:

a) Continuation of pre-project activities ; perennial corps, cocoa ,vanilla, coffee, degraded lands, annual crops, pastures
b) Transformation of some annual crops into perennial crops, cocoa/vanilla/coffee fields
c) Transformation of degraded lands into perennial crops. cocoa/vanilla/coffee fields
d) Transformation of pasture into perennial crops vanilla/coffee fields
e) Use of degraded land for annual crops
f) Use of pasture for annual crops

Transformation of perennial crops cocoa, coffee, vanilla fields into another land-use or crop type is not a credible alternative as they are currently the most profitable crops for small-scale farmers in this region. In the last 10 years, there have been no other significant land-uses within the project area than the ones described above.

Sub-step 1b. Consistency with laws and regulations

The 6 scenarios identified are obviously compliant with all mandatory applicable legal and regulatory requirements. They are subsistence farming activities for the local farmers, approved by the government.

Sub-step 1c. Selection of the baseline scenario

According to the AR-AMS0007 methodology (version 03.1) (5.2. paragraph 14), “The baseline scenario of a small-scale A/R CDM project activity implemented under this methodology is continuation of the preproject land use.” This is consistent with the credible alternatives:

- Option c/ is not likely to occur as the degraded lands are abandoned because of loss of fertility due to repeated use for annual crops. Vanilla and coffee trees would not grow easily in such degraded soils.
- Option e/ might occur but on a non-frequent basis because of loss of fertility of the soils. Degraded land are actually most of the time fallow land, and farmers have to wait from 5 to 20 years to be able to cultivate them again, for one year, before they turn it back into fallow again. Over the long term, they won’t be turned into permanent crops with permanent significant carbon stock.
- Option b/, for the same reason, is unlikely to occur as lands currently used for annual crops have most of the time been used for annual crop farming for some time on a fallow/crop scheme which degrade soil fertility. It is unlikely that the soil would be fertile enough for coffee and vanilla.

**The changes in carbon stocks are thus nil in the absence of the project activity.**

For local stakeholders (partners, farmers), other barriers prevent reforestation in the project area:

**(a) Investment barriers**

It is estimated that for a smallholder farmer in Uganda earns on average per capita is 0.85 USD[10] daily which is half of the international poverty line. In addition 77% of the population in rural Uganda have no access to banking systems. Therefore, for a smallholder in Uganda, invest time and money (around 50c USD per tree) in tree planting that will take decades to deliver impacts and ROI is simply not an option.

Considering their size and subsistence pattern, few farmers have the possibility, or put as a priority, to purchase seedlings and invest some time and money for benefits that will be generated over years.

**(b) Barriers relating to local tradition**

Most farmers have been growing vanilla, cocoa, coffee without shade (apart from high banana shade sometimes). Farmers have little knowledge of potential tree species with high benefits that would combine well with the crops. Also, most farmers to date thinks of their farms with a short-term vision, and are not thinking far enough to consider the value of investing in seedlings purchase and planting now for benefits over the medium to long term. A reforestation projects would help considerably switching the farmer vision from a short term to longer-term perspective.

Technical knowledge: Many farmers have little knowledge on agroforestry systems, planting techniques, maintenance techniques for timber or fruit trees. This lack of knowledge discourages them from planting these trees.

**(c) Technological Barriers**

Availability of seeds/seedlings: Although farmers still have some knowledge on which indigenous species could be of interest, there are very few nurseries in the project area and existing ones only sell perennial crops, Eucalyptus and Pine trees. Seeds and seedlings providers for the indigenous timber species are very difficult to find in the region, and smallholder farmers don't have transport facilities allowing them to travel far away to find seedlings.

## 3.6 Methodology Deviations

*Describe and justify any methodology deviations. Include evidence to demonstrate the following:*

- *The deviation will not negatively impact the conservativeness of the quantification of GHG emission reductions or removals.*

[10] https://cgspace.cgiar.org/bitstream/handle/10568/101331/Uganda%20Coffee%20brief.pdf?sequence=1

- *The deviation relates only to the criteria and procedures for monitoring or measurement, and does not relate to any other part of the methodology.*

# 4 Quantification of GHG Emission Reductions and Removals

## 4.1 Baseline Emissions

*Describe the procedure for quantification of baseline emissions and/or removals in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).*

## 4.2 Project Emissions

*Describe the procedure for quantification of project emissions and/or removals in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).*

## 4.3 Leakage

*Describe the procedure for quantification of leakage emissions in accordance with the applied methodology. Include all relevant equations, and explain and justify all relevant methodological choices (e.g., with respect to selection of emission factors and default values).*

## 4.4 Net GHG Emission Reductions and Removals

*Describe the procedure for quantification of net GHG emission reductions and removals. Include all relevant equations. For AFOLU projects, include equations for the quantification of net change in carbon stocks.*

*Provide the ex-ante calculation (estimate) of baseline emissions/removals, project emissions/removals, leakage emissions and net GHG emission reductions and removals in the table below.*

*For data and parameters monitored, use estimates. Document how each equation is applied, in a manner that enables the reader to reproduce the calculation. Provide*

*example calculations for all key equations, to allow the reader to reproduce the calculation of estimated net GHG emission reductions or removals.*

| Year | Estimated baseline emissions or removals ($tCO_2e$) | Estimated project emissions or removals ($tCO_2e$) | Estimated leakage emissions ($tCO_2e$) | Estimated net GHG emission reductions or removals ($tCO_2e$) |
|---|---|---|---|---|
| Year A | | | | |
| Year B | | | | |
| Year C | | | | |
| Year... | | | | |
| **Total** | | | | |

# 5 MONITORING

## 5.1 Data and Parameters Available at Validation

*Complete the table below for all data and parameters that are determined or available at validation, and remain fixed throughout the project crediting period (copy the table as necessary for each data/parameter). Data and parameters monitored during the operation of the project are included in Section 4.2 (Data and Parameters Monitored) below.*

| | |
|---|---|
| **Data/Parameter** | |
| **Data unit** | *Indicate the unit of measure* |
| **Description** | *Provide a brief description of the data/parameter* |
| **Source of data** | *Indicate the source(s) of data* |
| **Value applied** | *Provide the value applied* |
| **Justification of choice of data or description** | *Justify the choice of data source, providing references where applicable. Where values are based on measurement,* |

| | |
|---|---|
| **of measurement methods and procedures applied** | *include a description of the measurement methods and procedures applied (e.g., what standards or protocols have been followed), indicate the responsible person/entity that undertook the measurement, the date of the measurement and the measurement results. More detailed information may be provided in an appendix.* |
| **Purpose of Data** | *Indicate one of the following:*<br>• *Determination of baseline scenario (AFOLU projects only)*<br>• *Calculation of baseline emissions*<br>• *Calculation of project emissions*<br>• *Calculation of leakage* |
| **Comments** | *Provide any additional comments* |

## 5.2 Data and Parameters Monitored

*Complete the table below for all data and parameters that will be monitored during the project crediting period (copy the table as necessary for each data/parameter). Data and parameters determined or available at validation are included in Section 4.1 (Data and Parameters Available at Validation) above.*

| | |
|---|---|
| **Data/Parameter** | |
| **Data unit** | *Indicate the unit of measure* |
| **Description** | *Provide a brief description of the data/parameter* |
| **Source of data** | *Indicate the source(s) of data* |
| **Description of measurement methods and procedures to be applied** | *Specify the measurement methods and procedures, any standards or protocols to be followed, and the person/entity responsible for the measurement. Include any relevant information regarding the accuracy of the measurements (e.g., accuracy associated with meter equipment or laboratory tests).* |
| **Frequency of monitoring/recording** | *Specify measurement and recording frequency* |
| **Value applied** | *Provide an estimated value for the data/parameter* |

| | |
|---|---|
| **Monitoring equipment** | *Identify equipment used to monitor the data/parameter including type, accuracy class, and serial number of equipment, as appropriate.* |
| **QA/QC procedures to be applied** | *Describe the quality assurance and quality control (QA/QC) procedures to be applied, including the calibration procedures where applicable.* |
| **Purpose of data** | *Indicate one of the following:*<br>• *Calculation of baseline emissions*<br>• *Calculation of project emissions*<br>• *Calculation of leakage* |
| **Calculation method** | *Where relevant, provide the calculation method, including any equations, used to establish the data/parameter.* |
| **Comments** | *Provide any additional comments* |

## 5.3 Monitoring Plan

*Describe the process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters set out in Section 4.2 (Data and Parameters Monitored) above. Include details on the following:*

- *The methods for measuring, recording, storing, aggregating, collating and reporting data and parameters. Where relevant, include the procedures for calibrating monitoring equipment.*
- *The organizational structure, responsibilities and competencies of the personnel that will be carrying out monitoring activities.*
- *The policies for oversight and accountability of monitoring activities.*
- *The procedures for internal auditing and QA/QC.*
- *The procedures for handling non-conformances with the validated monitoring plan.*
- *Any sampling approaches used, including target precision levels, sample sizes, sample site locations, stratification, frequency of measurement and QA/QC procedures.*

*Where appropriate, include line diagrams to display the GHG data collection and management system.*

# APPENDIX

## Appendix 1

*Use appendices for supporting information. Delete this appendix (title and instructions) where no appendix is required.*

### Coffee Good Agricultural Practices

**Context**

According to the Uganda National Coffee Platform (2018), coffee production in Uganda is affected by poor canopy management (pruning and stumping) and threatened by pest and disease.

In the Rwenzori area, coffee trees are suffering from the lack of shade and agricultural management. Furthermore, many coffee parcels are showing decreasing yields and revenues and require rejuvenation.

**Objectives**

PUR Projet has developed a comprehensive training curriculum for smallholder coffee farmers consisting in 10 modules covering topics from land preparation to post-harvest practices in order to promote sustainable farming practices aiming to increase coffee yields and quality for potential higher incomes and ensure coffee trees maintenance over the long term.

**Activities**

Group trainings are carried out by the technician team (250 farmers for 1 technician).

These trainings are complemented by a system of Lead Farmers. Each Lead Farmer receives intensive training and oversees a group of 30 farmers: they are responsible for setting up demonstration plots, visiting the parcels of his group, and organizing informal sessions to review the practices learned during the trainings.

A baseline is established prior to the implementation of GAP trainings in order to monitor adoption after the trainings have been rolled out.

### Awareness Raising - Community theatre

**Context**

At the beginning of February community plays were performed in 15 different areas.

The play raised awareness about socio-economic and environmental challenges including the following:

Tree planting: encourage people from the communities to plant by themselves, ‘do it on your own and we'll support you in that way (nurseries, trainings on density, planting)’

Conservation: raise awareness about communities’ reliance on national parks and the importance to keep protecting it, while mentioning that communities could benefit from them through MoUs with National Park authorities

Income diversification: insist on the importance of revenue diversification ‘important not to earn money only from vanilla, take care of coffee as well

Vanilla: highlight the situation with thieves in a fun way

The plays were a great success with more than 18,000 people attending the shows, of which 30% were children

The audience widely recognised the ongoing severe deforestation in the area and showed enthusiasm to plant themselves.