KIJANI FORESTRY SMALLHOLDER FARMER FORESTRY PROJECT

Document Prepared by

and

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1 PROJECT DETAILS

1.1 Summary Description of the Project

Kijani Forestry is a social enterprise founded in 2019, located in Uganda. Kijani's mission is to empower smallholder farmers to generate income and combat climate change through the establishment of sustainable wood lots. As of 2022, Kijani has planted over 5 million trees with over 8,000 farmers throughout northern Uganda. Kijani works in partnership with local communities, government agencies, international non-governmental agencies, universities, and other stakeholders to implement sustainable land use practices and agroforestry management systems. Through these partnerships, Kijani aims to build capacity and establish a foundation for sustainable development in Uganda through growing trees that provide income-generating opportunities for farmers.

Kijani works through a network of thousands of organized small groups across Uganda to establish small-scale nurseries, train farmers in nursery management, and mobilize farmers to establish fuelwood lots on their private land. Kijani's unique approach addresses many of the barriers faced by rural farmers who wish to plant trees; Kijani provides all inputs needed for a productive tree nursery, including properly sourced seeds, potting bags, equipment for maintenance, and materials needed to care for seedlings. Kijani's field staff are stationed in the communities full-time, and provide regular training to groups on nursery establishment and maintenance, seedling care, pest management, agroforestry practices, and fuelwood lot establishment and management. At any given moment, a Kijani staff member is no more than a bicycle ride away from a Kijani nursery. Kiiani's continuous presence, and strong relationships, in the community is critical to the long-term success of the project. In addition to its reforestation efforts, Kijani provides training and support to communities to help them establish sustainable forest management practices and create economic opportunities through various forest products. This includes training in sustainable harvesting techniques including coppicing, pollarding, FMNR, and the development of markets for forest products.

Kijani's planting efforts are focused on planting primarily indigenous and a small proportion of nativized, non-indigenous tree species on degraded land, which helps to restore soil fertility, prevent soil erosion, and promote biodiversity. By planting trees, Kijani aims to sequester carbon and mitigate the impacts of climate change alongside partnering with the people who are most affected by climate change.

A mixture of indigenous and exotic non-invasive species are planted, with an emphasis on fast-growing species that coppice well for regeneration and biomass accumulation after being harvested for fuelwood. This ensures that a fuelwood lot will be able to sustainably produce fuelwood on a rotational basis for decades to come, if properly managed according to Kijani's standards. Kijani places careful consideration on species selection, only planting species that have no known negative impacts on the local environment and have multiple benefits for the smallholder farmers. Species are added to Kijani's selection all the time, but currently the most common species include *Melia volkensii, Gmelina arborea, Maesopsis eminii, Terminalia glaucensis, Senegalia polyacantha,* and a variety of indigenous acacia species.

Smallholder farmers possess a huge amount of land in Uganda, and collectively represent enormous potential to combat deforestation and drawdown carbon. The only requirement for a smallholder farmer to participate in Kijani's program is a willingness to learn and land available to plant trees on - no cash investment is needed, and all technical training and inputs are provided by Kijani. Additionally, this project is aligned with the National Development Plan which aims to increase Uganda's forestland to 15% by 2025 (from 1986 to 2020, the forest areas in Uganda went from 20% to 9.5% of the total area).

The project area will include Kijani's planting areas in northern Uganda, in Kitgum and Agago District.

The first instance will involve three gardens which comprise 0.49 hectares in total:

- Anyeko Monica; 0.23 ha – 171 trees planted.
- Opira Bosco: 0.16 ha – 350 trees planted.
- Kinyera Paul: 0.1 ha – 300 trees planted.

These farms have planted 821 trees in 2022 using different species: *Senna siamea, Gmelina arborea, Senegalia polycantha, Feidherbia albida*, *Melia volkensii,* among others. This results in the total sequestration of 51 tCO2eq.

However, this is developed as a grouped project with the target of planting a total of 942 million trees by 2030 (approximately 602,000 ha) which represent 37.4 million tCO2eq resulting in 62.05 tCO2eq/ha.

The project is seeking verification under Verified Carbon Standard (VCS), which ensures that Kijani's reforestation efforts meet rigorous environmental and social standards. Verification under VCS will provide Kijani with a valuable tool to demonstrate the environmental and social benefits of its project and access the voluntary carbon market to support its continued growth and impact.

1.2 Sectoral Scope and Project Type

The activity implemented by the project participant consists in the establishment of forests on land that had previously been grassland for hundreds of years, and therefore corresponds to the VCS scope 14: "Agriculture, Forestry and Other Land Use (AFOLU)" as an Afforestation, Reforestation and Revegetation (ARR)".

The project is developed as a grouped project.

1.3 Project Eligibility

The present project is eligible under the latest version of the VCS Standard (v4.4, January 2023). The project is an Afforestation and Reforestation and Revegetation (ARR) activity that corresponds to the sectoral scope AFOLU. This ARR activity increases carbon sequestration by establishing forest cover through the planting of woody species. This project includes timber harvesting in its management plan.

1.4 Project Design

☐ *The project includes a single location or installation only*

☐ *The project includes multiple locations or project activity instances, but is not being developed as a grouped project*

☒ *The project is a grouped project*

The project is designed as a grouped project with multiple locations within the limits of Uganda.

1.4.1 Eligibility Criteria

All new projects instances that want to join the grouped project must comply the eligibility criteria defined here, additionality demonstration and baseline conditions.

All areas to be incorporated into the grouped project must meet the technical land eligibility criteria for carbon forest projects. Therefore, any project that wants to be part of the group project must meet the following conditions.

1. Must apply for AFLOU activity as an Afforestation, Reforestation and Revegetation (ARR) The methodology used is AR-ACM 0003 'Afforestation and reforestation of lands except wetlands'.
2. The project must comply with the conditions of eligibility, additionality and baseline scenario of the grouped project.
3. The activity must be located within the boundaries of Uganda.
4. The activities must be in line with the local laws and regulations for afforestation activities, with the necessary documentation up to date.
5. The activities must include the reforestation with woody species and must be part of the Kijani's Forest program.
6. Compliance with the requirements of the VCS Standard, therefore:
    a. Planting must not have happened before the project start date (2022 – 01 – 01)
    b. The baseline must be continuation of the preexistent activity which does not include the presence of planted trees.
    c. No previous native ecosystem conversion (at least in the 10 years before the project's start date).
7. Meet the requirements of the project methodology and tools (see Sections 3.1 and 3.2):
    a. The project area cannot include wetlands or take place over organic soils as per the definition given in the methodology.
    b. The level of inputs at baseline must be low or null
8. The area must not be already involved in another GHG program or receive another form of credit for these activities that would end in a redundancy or double accounting of the carbon removals.

1.5 Project Proponent

Organization name	Kijani Forestry
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1.6 Other Entities Involved in the Project

Organization name	CLIMIT
Role in the project	CLIMIT is a consultancy firm in Uruguay, specialized in climate change mitigation projects. CLIMIT is responsible for the carbon estimation, project documentation preparation and acting as the consultant to Kijani Forestry in relation to the carbon credit generation project.
Contact person	Agustin Inthamoussu
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1.7 Ownership

The landowners of the project's gardens, who participate in tree nursery activities and oversee planting, maintaining, and harvesting the trees, have the ownership of the carbon credits.

All instances of this project are developed on private land and through direct involvement of the landowner. Due to data privacy concerns the original documents supporting this are not presented in this public document, however they will be available for the auditor responsible for the validation and verification of the project.

1.8 Project Start Date

The project start date is on January 1st, 2022.

1.9 Project Crediting Period

The project crediting period lasts for 30 years, from the January 1st, 2022 to December 31st, 2052.

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

The estimated annual GHG emission reductions/removals of the project are:

☐ <20,000 tCO_2e/year

☐ 20,000 – 100,000 tCO_2e/year

☐ 100,001 – 1,000,000 tCO_2e/year

☒ >1,000,000 tCO_2e/year

Project Scale	
Project	
Large project	X

Year	Estimated GHG emission reductions or removals (tCO_2e)

2022	3,306
2023	60,201
2024	266,182
2025	769,397
2026	1,838,103
2027	3,731,934
2028	6,423,513
2029	10,209,244
2030	15,272,907
2031	20,658,423
2032	27,412,171
2033	34,840,346
2034	41,135,147
2035	47,737,009
2036	52,261,508
2037	53,393,905
2038	54,194,350
2039	55,245,012
2040	56,689,988
2041	58,101,432
2042	59,130,316
2043	59,460,094

2044	59,006,027
2045	57,853,685
2046	56,255,445
2047	54,627,717
2048	53,599,220
2049	54,232,094
2050	54,763,416
2051	55,092,079
2052	55,599,857
Total estimated ERs	37,414,969
Total number of crediting years	30
Average annual ERs	1,247,165

1.11 Description of the Project Activity

According to the Ministry of Water and Environment[1], from 2010 to 2015 Uganda lost 1.8 million ha of forests which represents an average annual loss of 4%. Between 1986/87 and 2020, forests in Uganda went from representing 20% of the total area of Uganda to 9.5% in 2017/18. The loss of the forest cover had a negative impact on Uganda's economic activities such as tourism and agriculture. It is expected to increase the forestland to 15% by 2025[2]. Kijani Forestry operates in different regions of Uganda, focusing on planting income-generating trees with smallholder farmers through Kijani's Nursery Hub model. The Nursery Hub model establishes nurseries with rural communities and provides inputs and training to grow seedlings in partnership with farmers. The project provides ongoing training and follow up for smallholder farmers to grow trees on their own land, which will not be purchased or leased by Kijani. Seedlings, if available, are unaffordable to the rural household that earns a self-reported income of $155/year for a household of 6. But these seedlings are often in shortage throughout the region, so even

[1] Investing in forests and protected areas for climate-smart development, 2020 – 2026. Ministry of Water and Environment with support from the World Bank.

[2] Third National Development Plan (NDPIII) 2020/21 – 2024/25

if farmers wished to have seedlings delivered from urban centers, there would not be sufficient seedlings available.

To address this issue, Kijani establishes thousands of rural nurseries in partnership with farmer groups to address the inability for rural farmers to afford and access seedlings. Farmers will grow and plant trees that they will be able to harvest in the future to use as fuelwood, charcoal production, or timber production. All fuelwood species planted will coppice after harvesting and farmers will be trained and equipped to do the necessary intervention to accomplish this technique.

Kijani's Nursery Hub model starts by hiring local community members to be trained through a three month paid internship training on all of the details of every aspect of the tree planting cycle through a hands-on approach focusing on indigenous species rather than exotics, which has been the focus of other tree planting initiatives. Kijani's Community Mobilization team introduces Kijani's work to all the local communities and gives them the chance to ask questions and decide if they want to participate in Kijani's Nursery Hub training.

After the internship program, those extension workers, named Parish Coordinators, are assigned to work with a handful of groups that comprise 10-15 farmers each who expressed interest in partnering with Kijani Forestry to plant the trees. These Parish Coordinators will then move into the parishes assigned to them and become permanent part of the communities and partake in the group's meetings on a weekly basis. This helps ensure every aspect of the partnership goes smoothly, from collecting the native species' seeds, to raising the seedlings from seedbed, to planting the trees in the ground.

In addition to the smallholder farmer model, Kijani also engages with landowners that have larger plots of land and financial means to hire external labor to plant the trees. These landowners are not required to go through the same training as the smallholder farmers and instead will purchase seedlings in lieu of contributing their own labor to the seedlings production process. The follow-up and ongoing tracking and engagement with these farmers will be similar to that of the smallholder farmers after the trees have been planted.

Kijani has a robust data collection and monitoring team M&E team that conducts audits and oversight visits of nurseries to ensure that standards are being met and that production is meeting targets. Additionally, this team will visit each individual farmer's garden after planting, to collect GPS polygons and attribute data points about the variety and quantity of tree species planted. After this initial visit, every garden is visited after a period of 18 months to conduct a thorough survival check and provide support to the farm in plantation management, such as pruning. The project has a significant impact on the environment by reducing greenhouse gas emissions, mitigating climate change, regenerating microclimates, improving soil health, protecting native, old-growth forests, and increasing biodiversity. The core of this project is focused on the smallholder farmers, ensuring everything is holistically accounting for their needs and best ways to partner with them in the future.

Moreover, the project is aligned with the objectives stated by Uganda's Third National Development Plan (NDP III) which aim to promote economic growth and strengthen the country's regional and international competitiveness by creating new skilled labor positions and increasing capacity and opportunity for local

villages by supporting the sustainable forestry industry. One of the NDP III Programs is Natural Resources, Environment, Climate Change, Land and Water Management which 'aims to stop, reduce and reverse environmental degradation and the adverse effects of climate change as well as improve utilization of natural resources for sustainable economic growth and livelihood security'. One of the objectives of this program is to increase the forest cover which is aligned with Kijani's objective.

Kijani selects tree species that are suitable for each region based on their adaptability to the local climate, soil type, and landscape. The project team works closely with local communities and stakeholders to identify the most appropriate tree species to plant. The project promotes the use of indigenous tree species in lieu of exotic pine and eucalyptus, despite government interventions promoting these exotic timber species.

Kijani ensures the success of the tree planting activities by providing training and follow up for farmers to carry out site preparation, which involves removing weeds and debris, constructing firebreaks, and digging planting pits. The training includes details regarding tree planting techniques, including proper planting depth, watering, and mulching. This approach ensures that the trees are planted correctly and have the best chance of survival. Uganda typically has two planting seasons with priority placed on the first planting season. Then, any trees that don't survive the first season have the opportunity to be spot planted with a new seedling in the second planting season. This ensures a higher tree density than if a single season of planting has occurred, thereby maximizing land utilization.

After planting the trees, Kijani monitors their growth and provides ongoing maintenance, including weeding, pruning, mulching, and watering during the critical first period of tree growth. Kijani also trains local communities on tree care and management practices to ensure that the trees continue to thrive.

Kijani understands that the success of the forestry project depends on the involvement and engagement of local communities. The project collaborates with local communities to develop forest products including fuelwood for home consumption, biomass for charcoal production, timber for sale, fruit for consumption, and fodder trees for livestock feed. The project helps local communities to establish sustainable livelihoods through the production and sale of these forest products.

The project's focus on involving local communities in the management and care of the trees is an essential aspect of its success. By providing training and workshops on sustainable tree management techniques, Kijani empowers local communities to become active participants in decision-making, ensuring the long-term success and sustainability of the project.

In conclusion, the Kijani Forestry project is a sustainable solution to environmental degradation and climate change. The project combines reforestation and afforestation initiatives with the use of sustainable forest management practices to improve the livelihoods of local communities while protecting and preserving the environment.

In this opportunity, three instances of the project will be included. One of them is located in Kitgum and the other two in Agago.

Instance 1) Anyeko Monica

The first instance of the project involves a farm of 0.23 ha where 171 trees have already been planted in 2022.

The farm is located in Agago district, Northern Uganda.

The number of trees per species is presented in the following table:

ID	Species	Initial number planted	
Anyeko monica - Agago | Lapono | Wagwoko lim - Gardener - Garden 1	Musizi | *Maesopsis eminii*	12	7.0%
	Melia | *Melia volkensii*	50	29.2%
	Gmelina | *Gmelina arborea*	109	63.7%

Table 1. Anyeko Monica – number of trees per species

Instance 2) Opira Bosco

The second instance of the project involves a farm of 0.16 ha where 350 trees have already been planted in 2022.

The farm is located in Agago district, Northern Uganda.

The number of trees per species is presented in the following table:

ID	Species	Initial number planted	
Opira bosco - Agago | Lapono | Wagwoko lim - Gardener - Garden 1	Musizi | *Maesopsis eminii*	38	10.9%
	Melia | *Melia volkensii*	100	28.6%
	Gmelina | *Gmelina arborea*	212	60.6%

Table 2. Opira Bosco – number of trees per species

Instance 3) Kinyera Paul

The third instance of the project involves a farm of 0.1 ha where 300 trees have already been planted in 2022.

The farm is located in Kitgum district, Northern Uganda.

The number of trees per species is presented in the following table:

ID	Species	Initial number planted	
Kinyera Paul - Kitgum | Orom East | Atek ki lwak - Gardener - Garden 1	Melia | *Melia volkensii*	100	33.3%
	Gmelina | *Gmelina arborea*	50	16.7%
	Senna | *Senna siamea*	50	16.7%
	Faidherbia | *Faidherbia albida*	50	16.7%

	Ongono | *Senegalia polycantha*	50	16.7%

Table 3. Kinyera Paul – number of trees per species

These species present a wide variety of uses: from structural timber for construction to fuelwood uses and animal fodder.

1.12 Project Location

The project will be located within the boundaries of Uganda. The first three instances of this project take place in Northern Uganda, more specifically in Kitgum and Agago districts.

The following maps show the general location of these gardens.

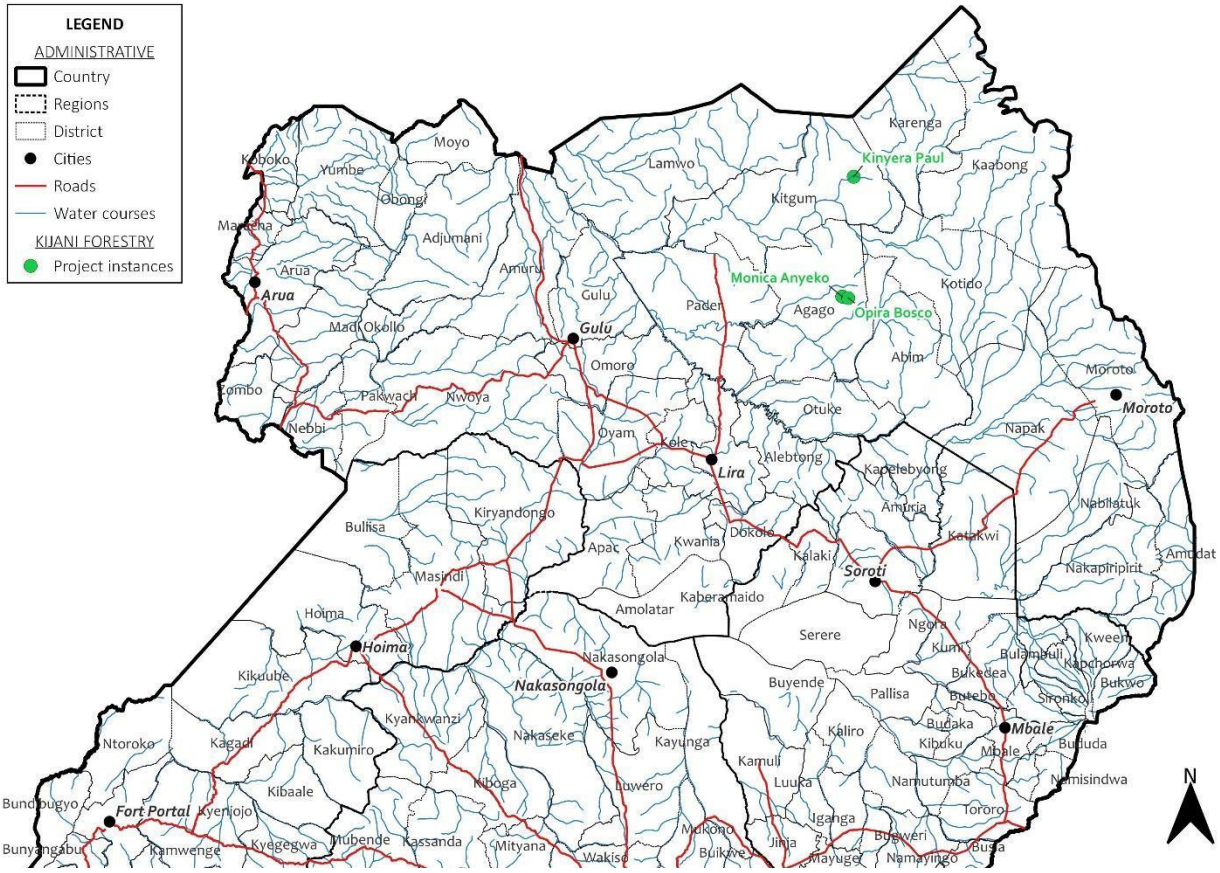

Figure 1. Location of Kijani's Project Instances in Uganda

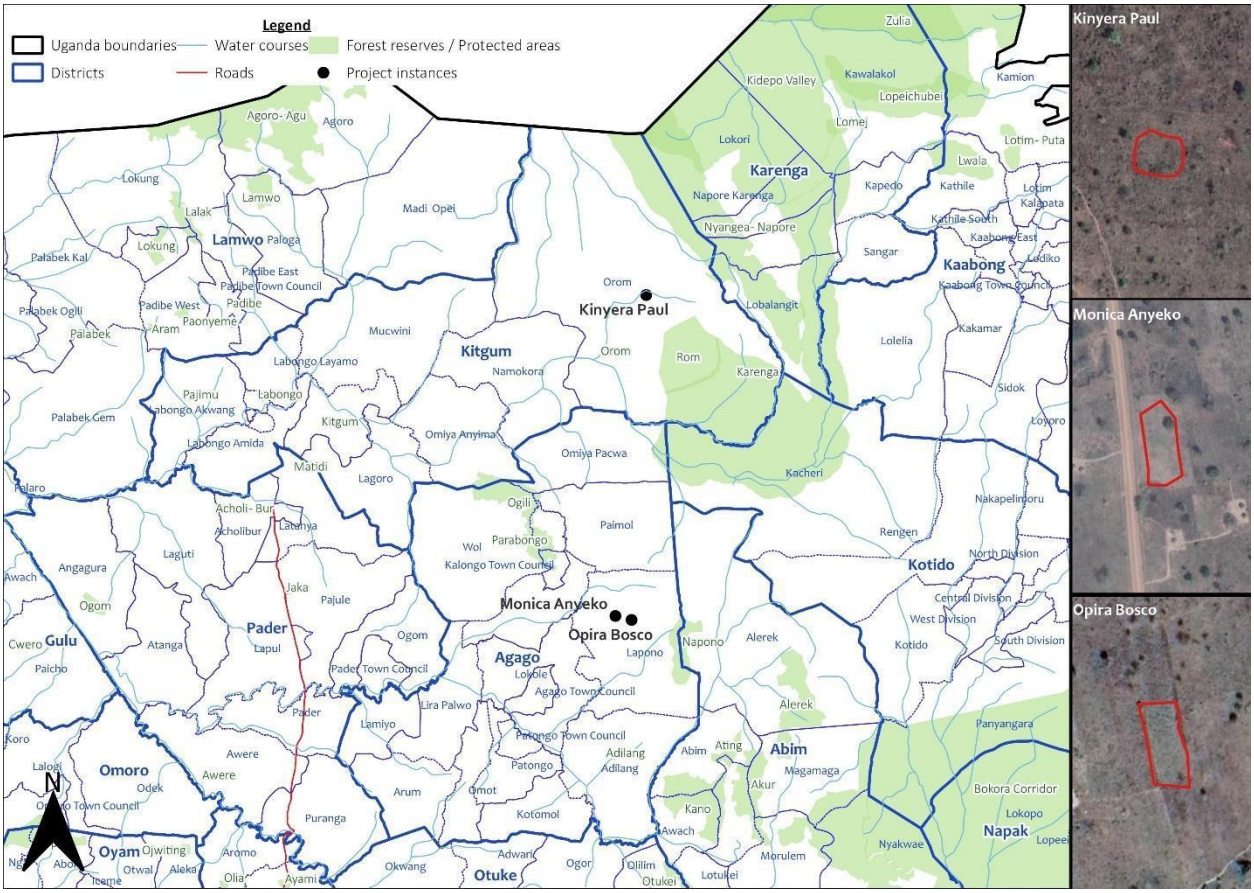

Figure 2. Detailed location of Kijani's Project instances in Northern Uganda

1.13 Conditions Prior to Project Initiation

- **Ecosystem type:**

Before the initiation of the project, the area consisted of eroded, degraded lands because of unsustainable agricultural practices which also included deforestation and overgrazing.

- **Current and historical land-use:**

Before the Kijani Forestry project, the land where the project is currently located was heavily degraded due to deforestation, overgrazing, and unsustainable agricultural practices. The areas suffered from severe soil erosion, loss of biodiversity, and decreased water quality and availability. The local communities, who rely on natural resources for their livelihoods, faced challenges such as food insecurity, low income, and limited access to basic services such as healthcare and education.

Most of Uganda's northern region was cleared many years ago to produce food, charcoal and the establishment of families along the territory. Ten years ago, most of the area was under croplands,

shrublands, grasslands and open tree cover. The following map shows the land cover in Uganda's northern region in 2012[3].

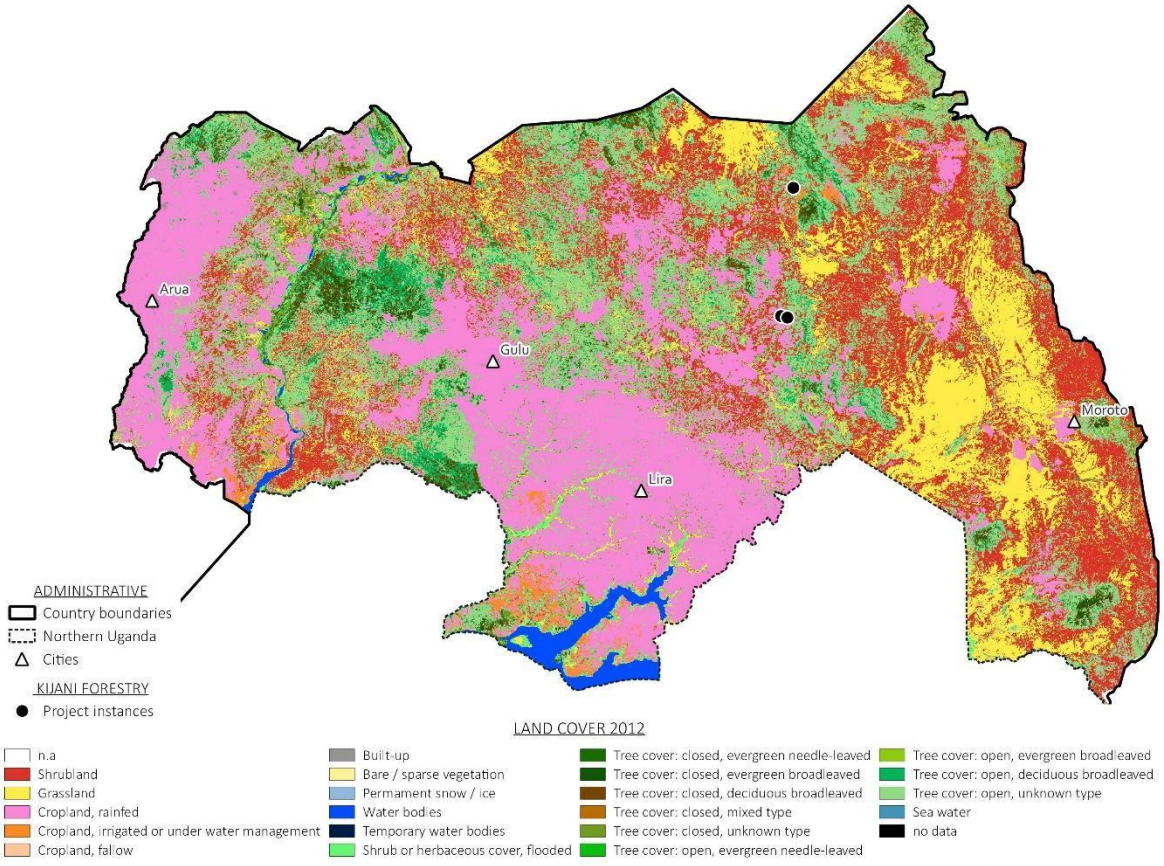

Figure 3. Land Cover Northern Uganda, year 2012.

According to figure 3, the land cover for the project instances 10 years ago was irrigated croplands and rainfed croplands.

Kijani Forestry aims to address these challenges by restoring degraded land and forests, enhancing biodiversity, improving water quality, and promoting sustainable livelihoods for local communities. By planting trees and implementing sustainable land use practices, the project is helping to restore the degraded ecosystem and enhance its resilience. Additionally, the project is providing alternative sources of income for local communities through activities such as sustainable charcoal production, timber growing, and livestock enhancement through fodder availability during dry seasons. In the future, Kijani Forestry looks to expand the network to include other income-generating activities such as beekeeping, fruit farming, or biochar production, which increase their income and climate resiliency.

[3] Source: FAO; Land Cover Classification Africa and Near East 100m resolution, from January 2009 to present. https://wapor.apps.fao.org/catalog/WaPOR_2/2/L2_LCC_A

A baseline survey is conducted at each instance to ensure that it meets eligibility criteria, this includes geotagged photos showing the state of the landscape before intervention, and analysis of land use via GIS assessment using polygons of the proposed instance, all of this complemented by the judgment of a local expert on the matter. Any existing trees on the landscape are noted and excluded from future calculations.

- **Has the land been cleared of native ecosystems within 10 years of the project start date?**

☐ Yes ☒ No

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks.

The project activities comply with Uganda's laws and regulations. The documents will be available for the VVB auditors as required.

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 or is seeking registration under any other GHG programs.

1.15.2 Projects Rejected by Other GHG Programs

The project has not been rejected by any other GHG programs.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

Does the project reduce GHG emissions from activities that are included in an emissions trading program or any other mechanism that includes GHG allowance trading?

☐ Yes ☒ No

1.16.2 Other Forms of Environmental Credit

Has the project sought or received another form of GHG-related credit, including renewable energy certificates?

☐ Yes ☒ No

1.16.3 Supply Chain (Scope 3) Emissions

N/A

1.17 Sustainable Development Contributions

The Kijani Forestry project contributes to several of the United Nations' Sustainable Development Goals (SDGs).

- **SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.** This project looks forward to promote sustainable activities, restoring soils and woody ecosystems. No deforestation will be caused by this project activities. This project will contribute to stop climate change. Flora and fauna diversity will be promoted by the preservation of local species and the utilization of different tree species depending on the local conditions (soils, topography, climate). At the same time, local sources of labor will be generated for men and women, not only because of direct impact such as nurseries, plantation, and harvest activities but also because of secondary services provided by the forests such as the production of honey, fruit, or potentially biochar from agriculture waste. This will generate a new source of family income which will help to end hunger and achieve food security in the decentralized rural communities in which Kijani operates.
- **SDG 6: Ensure availability and sustainable management of water and sanitation for all.** The project contributes to the protection of water resources by improving soil quality and preventing erosion, which reduces the risk of sedimentation and contamination of water bodies, thus helping to ensure access to clean water. Forests act as a filter of sediments and polluting substances and help recycling rainfall water. Forests also help prevent floodings. The project also promotes sustainable land use practices, which helps to maintain water quality and quantity and ensures the availability of water resources for local communities. Even when the trees are harvested, root structures will remain in the soils and trees will regenerate, thereby maintaining soil erosion control. Chemical products will be used as least as possible and only when strictly necessary and using the minimum necessary doses for the correct development of the forests (eg. Ants control, weeds control).
- **SDG 8: Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all.** The project promotes sustainable livelihoods and economic growth in local communities by engaging them in tree planting and forest management activities, providing employment opportunities, and enhancing the value of forest resources. The project also supports the development of sustainable supply chains for forest products, which promotes local economic growth and contributes to the achievement of sustainable development. Local sources of work are also generated in the secondary and third sectors because timber must be industrialized/processed and commercialized as well as charcoal produced, transported, and sold. Also, the forests provide other services and secondary products such as honey and medicinal plants which also generate new sources of labor. The project's focus on involving local communities in the management and care of the trees is an essential aspect of its success. By providing training and workshops on sustainable forest management techniques, Kijani empowers local communities to become active participants in decision-making, ensuring the long-term sustainability of the project.
- **SDG 13: Take urgent action to combat climate change and its impacts.** The Kijani Forestry project helps mitigate climate change by sequestering carbon through reforestation and afforestation, reducing greenhouse gas emissions, and contributing to global efforts to limit global temperature

rise. The project also promotes sustainable forest management practices, which helps to reduce deforestation and forest degradation and maintain forest carbon stocks. Uganda is the largest refugee hosting country in Africa because of conflict and instability in neighbor countries such as Congo and South Sudan. The presence of refugees has increased the pressure to the environment and generated an increase in deforestation activities and land-use change. [4] Kijani project will help revert this situation by the restoration of soils and woody ecosystems implementing a sustainable forest management plan. No native forests will be cleared for this purpose.

- **SDG 15: Protect, restore and promote sustainable use of territorial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.** The project contributes to the conservation of terrestrial ecosystems and the protection of biodiversity by planting indigenous tree species and restoring habitats for fauna and flora, thereby preserving local ecosystems and promoting biodiversity conservation. The trees harvested in this project will directly be saving other old-growth forests from being cut down to supply the energy needs of Uganda. The project also supports the protection of soils and prevents erosion, which helps to maintain the health of local ecosystems. This is also aligned with Uganda's NDP III which aims to increase the forest cover in the country and halt deforestation and biodiversity loss. Plantation activities will be held as to minimize as much as possible the soils conversion. Trees will be spot planted rather than a full tilling to minimize soil disturbance. Deforestation also has a very important negative impact in Uganda's tourism activities, which are strongly dependent on the country's natural ecosystems. The productive strategy will considerate aspects related with biodiversity and the conservation of local ecosystems.
- **SDG 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.** The project fosters partnerships and collaborations among different stakeholders, including local communities, government agencies, NGOs, universities, and private sector actors, to achieve sustainable development and mitigate climate change. The project also promotes knowledge sharing and capacity building activities, which helps to build the capacity of local communities and enhance their participation in sustainable development activities.

Moreover, the Kijani Forestry project is aligned with Uganda's national objectives stated in the NDP III. Kijani has worked closely with and has signed an MOU with the Ministry of Water and Environment with specific support to the Nursery Hub model.

Overall, the Kijani Forestry project contributes to multiple SDGs, demonstrating the interconnectedness and complexity of sustainable development and the importance of addressing climate change and biodiversity conservation through integrated and collaborative approaches.

1.18 Additional Information Relevant to the Project

1.18.1 Leakage Management

[4] Investing in forests and protected areas for climate-smart development, 2020 – 2026. Ministry of Water and Environment with support from the World Bank.

As per VCS Standard, the projects are encouraged to include leakage management zones as part of the overall project design. Leakage management zones are part of a leakage management plan, they can minimize the displacement of land use activities to areas outside the project area by maintaining the production of goods and services, such as agricultural products, within areas under the control of the project proponent or by addressing the socio-economic factors that drive land use change. Kijani Forestry carbon project has no need to include a leakage management plan or zone, since the pre-existing activity (mostly croplands) is a common activity in Uganda and does not generate leakage emissions when the project starts.

1.18.2 Commercially Sensitive Information

No commercially sensitive information has been excluded from the public version of the project description.

1.18.3 Further Information

This section is not applicable since the proposed project is being listed on the pipeline as under development.

2 SAFEGUARDS

2.1 No Net Harm

The present project in all its components and phases guarantees that there are not or will not be net harm to the environment neither to socio-economic aspects.

The project's species selection takes into consideration the native species in the region and focuses on indigenous species. In the case where a non-indigenous species is planted, it is never a new species introduced to the area but must have a history of growing in the area. Kijani performs extensive due diligence on any species being planted, ensuring it is a species that is available to be purchased through Uganda's National Forest Authority.

2.2 Local Stakeholder Consultation

The local stakeholder's consultation took place on the 28th February, 2023, in Orom, Uganda. The invitations were delivered to the stakeholders in different ways, but mostly with letters delivered by hand, as it can be seen in the figures below.

Figure 4. Stakeholders consultation invitation **delivered**

The stakeholder consultation started 9am and lasted approximately 4 hours. The following figure presents the agenda of that day event, a general overview of the event and part of the list of participants.

KIJANI FORESTRY

Stakeholder Consent Meeting

28th February 2023
Orom, Uganda

Agenda

Time	Topic	Responsible
9:00 am	Welcome, sign-in, name tags, allow for late arrival	-
10:00 am	Read agenda, opening prayer, and introduction	Cathy
10:15 am	Opening remarks & introduction	DFO/Cathy
10:30 am	Presentation	Cathy/Other
11:30 am	Tea Break	
11:45 am	Submit Questions	*Staff*
12:00 pm	Question & Response	Cathy/Beau
12:45 pm	Closing Remarks	Cathy
1:00 pm	End of meeting	

Figure 5. Stakeholders event agenda

Figure 6. General overview of the event and part of the list of participants

During the event, and as it can be seen in the agenda, there was room for questions and answers. They could be risen orally or handwriting, as it is shown in the figure below.

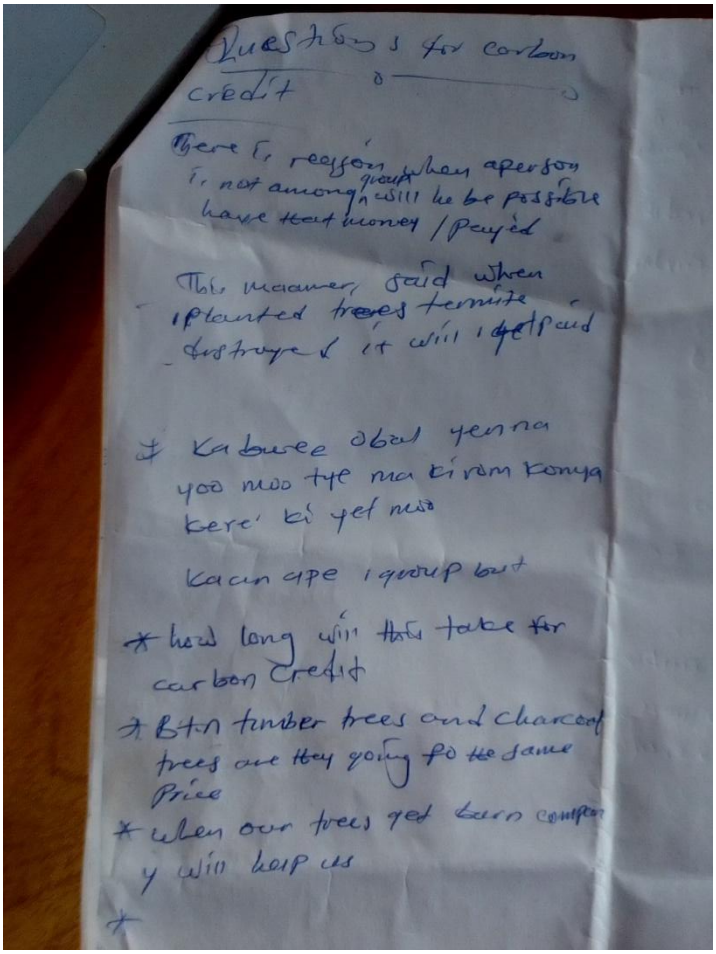

Figure 7. Part of the questions raised during the event.

2.3 Environmental Impact

This section is not applicable since the proposed project is being listed on the pipeline as under development.

2.4 Public Comments

The document has not been published so the Public Comments period has not been held yet (no comments to address).

2.5 AFOLU-Specific Safeguards

Kijani has a farmer support plan which provides permanent nurseries, training facilities and technical support for local communities and members of Kijani's project. The following figure shows the of the Nursery's Hub locations.

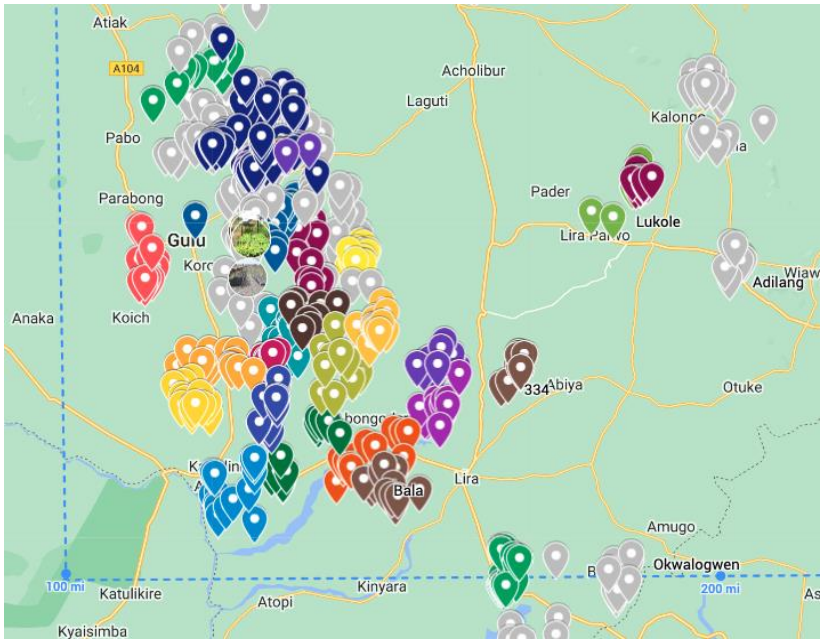

Figure 8. Nursery Hub Locations

Kijani's field staff are based on local communities and have full-time availability. They provide regular training to groups on forest activities such as nursery establishment and maintenance, seedling care, agroforestry practices, etc. Kiiani's continuous presence, and strong relationships, in the community is fundamental to achieve the long-term success of the project. In addition to its reforestation efforts, Kijani provides training and support to communities to help them establish sustainable forest management practices and create economic opportunities through various forest product.

"Kijani Forestry Smallholder Farmer Forestry Project" has an open and permanent consultation process with local stakeholders. As it is described before, there is a community relation strategy elaborated. One of the important elements and first step with local stakeholders was the elaboration of the "STAKEHOLDERS IDENTIFICATION AND CONSULTATION PROCESS PROTOCOL". It establishes how to identify a local stakeholder, its background, identification of their risks and respect for local stakeholders' resources.

In the "Communication and consultation mechanism for ongoing communication" section, it is stated that the project proponent will take all appropriate measures to communicate and consult with local stakeholders in an ongoing process for the life of the project. The goal is to allow stakeholders to raise concerns about potential negative impacts during project implementation on an ongoing communication channel where the project proponent will communicate, as far as possible:

- Project design and implementation, including results of monitoring.

- 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.

The process of the ongoing communication between the local stakeholder and the project proponent includes receiving, hearing, responding and attempting to resolve grievances within a reasonable time period, taking into account culturally appropriate conflict resolution methods.

The process of the ongoing communication will be based in:

- The dossier "Document for public communication" (electronic or physical format) will be sent to stakeholder with information of the project and will also include an email for consulting. This email will be used in a permanent way to receive comments through the whole life of the project. In case of receiving a negative comment, this will be automatically sent to the grievance redress procedure.
- Information of the project will be found in the webpage of the project proponent link: https://www.onecarbonworld.com/local-stakeholder-consultation and this link will also guide interested persons to the project link at Verra.
- Remote interviews with different stakeholders will be held in meetings (as it is demanded) where comments will be received, and the design of the project will be revised.

There will also be a system of registry of communication of the stakeholders, which will count with the identification of emails received as well as their reply. The concern/comment received will be registered in the System of Registry of communication with stakeholders.

As stated in the VCS Standard, the way of ongoing communication will depend on the culture of the country/region in which the project is being carried out, so as to perform in a culturally appropriate manner.

Some ways of communication that are proposed, in a parallel way, as the best for fluent communication between the two parties are:

- Whatsapp group chats
- Email
- Telephone line number available for any questions about the project
- Web page with forms to complete for a live FAQ

The "feedback management" is established once the concern/comment is received, it will be addressed to the local stakeholder that it has been started to take into consideration. This may result as an update to the project design or as a justification of why this concern is not appropriate. The action that will be considered depending on the local stakeholder consultation will be demonstrated to the validation/verification body.

If a concern raised results in a modification of the project, this will be updated in the project description leading to a new version of the project.

All in all, the project proponent will receive feedback form stakeholders, allowing the evaluation of impacts, their concerns, and elements to be included as part of the project design.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

The consolidated CDM methodology AR-ACM0003 "Afforestation and reforestation of lands except wetlands" (version 02.0) was applied. This methodology is applicable to large scale afforestation and reforestation projects, as per the CDM scale definition.

The following methodological tools, to which the selected methodology refers to, are used:

- Version 01 of "Combined tool to identify the baseline scenario and demonstrate the additionality in A/R CDM project activities".
- Version 04.0.0 of "Estimation of non-CO2 GHG emissions from burning of biomass attributable to a CDM A/R project activity".
- Version 02.0 of "Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity".
- Version 01.1.0 of "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities".
- Version 02.1.0 of "Calculation of the number of sample plots for measurements within A/R CDM project activities".
- Version 04.2 of "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activity"
- Version 03.1 of "Estimation of carbon stocks and change in carbon stocks in deadwood and litter in A/R CDM project activity"
- Version 01. 1 "Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities"

3.2 Applicability of Methodology

The project activity consists of introducing trees where there has not been any trees in the past. The activity is considered as afforestation.

(a) The land subject to the project activity does not fall in wetland category

According to the information found at national level, there is no presence of wetlands in the current project area.

(b) Soil disturbance attributable to the project activity does not cover more than 10 per cent of area in each of the following types of land, when these lands are included within the project boundary:

(i) Land containing organic soils.

(ii) Land which, in the baseline, is subjected to land-use and management practices and receives inputs listed in appendices 1 and 2 to this methodology.

The land preparation in this project is insignificant. The land preparation involves only the area where the tree will be installed. The farmers prepare the site with a hoe (or similar) by taking out the topsoil of an area of 30cm by 30cm (max) at a two or four meter spacing, depending on the tree type.

Applicability conditions from tool Soil Organic Carbon "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities", EB60.

This tool is applicable when the areas of land, the baseline scenario, and the project activity meet the following conditions:

(a) The areas of land to which this tool is applied:

(i) Do not fall into wetland category.

Methodology condition (see applicability of methodology above).

(ii) Do not contain organic soils as defined in Annex A: glossary of the IPCC GPG LULUCF 2003.

Methodology condition (see applicability of methodology above).

(iii) Are not subject to any of the land management practices and application of inputs as listed in the Tables 1 and 2

The areas applied are not subject to any of the land management practices and application of inputs listed in Tables 1 and 2 of the tools. Since the land use prior to project start is cropland, only Table 1 applies. For the tropical wet climate region corresponding to the project activity, none of the three combinations included in Table 1 are applicable, as is demonstrated in 3.4 baseline scenario.

(b) The A/R CDM project activity meets the following conditions:

(i) Litter remains on site and is not removed in the A/R CDM project activity, and

Litter will not be removed from the project site. Litter removal is not part of the list of project activities.

(ii) Soil disturbance attributable to the A/R CDM project activity, if any, is:

- **In accordance with appropriate soil conservation practices, e.g. follows the land contours.**
- **Limited to soil disturbance for site preparation before planting and such disturbance is not repeated in less than twenty years.**

Soil disturbance is in accordance with appropriate conservation practices, limited to site preparation and not repeated within 20 years.

Applicability conditions from tool "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities" (EB 35).

The tool is applicable under the following conditions:

- Forestation of the land within the proposed project boundary performed with or without being registered as the A/R CDM project activity shall not lead to violation of any applicable law even if the law is not enforced.

The forest activity is permitted by local and regional government.

This tool is not applicable to small - scale afforestation and reforestation project activities.

- This tool is not applicable to small - scale afforestation and reforestation project activities.

The project is not a small-scale project.

Applicability conditions from tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" (EB 65)

- The tool is applicable to all occurrence of fire within the project boundary.

The project will consider any occurrence of fire within the project boundary.

- Non-CO GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is ≥5% of the project area.

This will also be considered in the project.

Applicability conditions from tool "Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity" (AR_TOOL 15).

- This tool is not applicable if the displacement of agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands.

The project activity will not cause any displacement of activities, as it will be demonstrated in chapter 4.3.

Finally, there are no applicability conditions for the following tools included in the methodology:

- Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.
- Calculation of the number of sample plots for measurements within A/R CDM project activities.
- Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities.

3.3 Project Boundary

Five carbon pools are selected in the baseline scenario and project: above-ground and below-ground biomass, dead wood, litter, and soil organic carbon. Harvested wood product (HWP) is not selected since is not eligible under the selected methodology.

Above-ground and below-ground biomass must be selected according to the methodology. All other carbon pools are optional, and they are also selected because they are expected to increase by the implementation of the proposed project activity. It is very clear in the case of dead wood and litter since these pools do not exist in the pre-project situation and will appear under forest. The establishment of forest is expected to cause an increase in net primary productivity and, therefore, in the turnover of plant residues into the soil, that would lead to a long-term increase in the soil organic carbon pool.

Table 4. Project boundaries

Source		Gas	Included?	Justification/Explanation
Project	Above and below ground biomass	CO_2	Yes	Carbon stocks in tree biomass is the main carbon pool affected by project activity. It is considered in the baseline scenario and project activity.
	Dead wood, litter and SOC	CO_2	Yes	These three forest carbon reservoirs are expected to increase due to project activities. It is considered in the baseline scenario and project activity.
	Burning of woody biomass	CO_2	Yes	Burning of woody biomass for site preparation is not part of forest management. Despite there were not forest fires since the beginning of the project, the occurrence of such event would be accounted indirectly as a change in the carbon stock. It is considered in the baseline scenario and project activity.
		CH_4 N_2O	No	Burning of woody biomass for site preparation is not part of forest management. Forest fires are considered under applicability conditions of the tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" (Version 04.0.0). Neither it is considered in the baseline scenario nor in the project activity.
	Harvested wood products	CO_2	No	This carbon pool in not eligible under selected methodology.
	Combustion in fossil fuel in vehicles and machinery	CO_2 CH_4 N_2O	No	Potential emissions are negligibly small and are not included as a source of GHG emissions
	Nitrogen based fertilizers	N_2O	No	Potential emissions are negligibly small and are not included as a source of GHG emissions

Project boundaries include all the areas of Kijani Forestry project that have been and will be afforested. These areas have been defined based on the criteria discussed below.

Forest area effectively planted is delineated using GPS technology and aerial photographs. Project boundaries are organized in GIS-format polygons. No visible landmarks have been established on the field. Map with project boundaries are shown in figures below.

The area included within project boundaries comply with the scope of the methodology, therefore there is no land that falls into the category of wetland. Also, complies with methodology applicability conditions: there is no land containing organic soils, neither land which is subjected to land-use and management practices in the baseline that receives inputs as listed in appendix 2 of the methodology. For an increased transparency and better understanding of the project, the project proponent clarifies there are no other areas to report, such as leakage management areas, or reference areas.

3.4 Baseline Scenario

This section is not applicable since the proposed project is being listed on the pipeline as under development.

3.5 Additionality

This section is not applicable since the proposed project is being listed on the pipeline as under development.

3.6 Methodology Deviations

There are no methodology deviations.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

This section is not applicable since the proposed project is being listed on the pipeline as under development.

4.2 Project Emissions

This section is not applicable since the proposed project is being listed on the pipeline as under development.

4.3 Leakage

This section is not applicable since the proposed project is being listed on the pipeline as under development.

4.4 Net GHG Emission Reductions and Removals

This section is not applicable since the proposed project is being listed on the pipeline as under development.

5 MONITORING

5.1 Data and Parameters Available at Validation

The table below are completed for all data and parameters that are determined or available at validation and remain fixed throughout the project crediting period. The values provided are used to estimate the net GHG emissions and removals for the project crediting period in Section 4 above.

Data / Parameter	A_i
Data unit	ha
Description	Area of stratum *i*
Source of data	Monitoring of strata and stand boundaries is done using a Geographical Information System (GIS) which allows for integrating data from different sources (including GPS coordinates and Remote Sensing data)
Value applied:	Variable according to stratum
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Determination of baseline scenario (AFOLU projects only) Calculation of baseline emissions Calculation of project emissions
Comments	N/A

Data / Parameter	BEF2,j

Data unit	Dimensionless
Description	Biomass expansion factor for conversion of stem biomass to above-ground biomass for tree species or group of species j
Source of data	Tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs" (Version 04.2)
Value applied:	1.15
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	CFj
Data unit	t C t-1 d.m.
Description	Carbon fraction of tree biomass for species or group of species j
Source of data	The IPCC default value of 0.47 t C t-1 d.m.
Value applied:	0.47
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	CO_2-e
Data unit	CO2
Description	The factor of 3.667 (44/12) is applied to convert the tree carbon sequestered to tree CO_2-e sequestered.
Source of data	The IPCC default value

Value applied:	3.667 (44/12)
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	Dj
Data unit	t d.m. m^3
Description	Basic wood density for species or group of species j
Source of data	Local source: XXX
Value applied:	XXX
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	R j
Data unit	Dimensionless
Description	Root-shoot ratio for species or group of species j
Source of data	Tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs" (Version 04.2)
Value applied:	XXX depending on the tree age
Justification of choice of data or description of measurement	N/A

methods and procedures applied	
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	V TREE j p i
Data unit	m^3
Description	Stem volume of trees of species or group of species j in plot p in stratum i
Source of data	XXXX
Value applied:	N/A
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	XXXX

Data / Parameter	Bark volume
Data unit	% of total stem volume
Description	Bark volume of trees of species
Source of data	Specific studies for each tree specie
Value applied:	XXX
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	fIN,i
Data unit	Dimensionless
Description	Relative stock change factor for baseline input regime (e.g. crop residue returns, manure) in stratum i of the areas of land
Source of data	Tables 6 of "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM Project" activities.
Value applied:	1
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	SOC REF
Data unit	t C ha-1
Description	Reference SOC stock corresponding to the reference condition in native lands (i.e. non-degraded, unimproved lands under native vegetation. normally forest) by climate region and soil type applicable to stratum i of the areas of land
Source of data	Table 3 of "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM Project" activities.
Value applied:	XX
Justification of choice of data or description of measurement methods and procedures applied	Default reference for tropical, wet climate region and soils with low activity clay (LAC)
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	fMG,i
Data unit	Dimensionless

Description	Relative stock change factor for baseline management regime in stratum i of the areas of land; dimensionless
Source of data	Table 6 of "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM Project" activities.
Value applied:	XX
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	fLU,i
Data unit	Dimensionless
Description	Relative stock change factor for baseline land-use in stratum i of the areas of land; dimensionless
Source of data	Tables 6 of "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM Project" activities.
Value applied:	1
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	Dead Wood
Data unit	t C ha-1
Description	Conservative default factor expressing carbon stock in dead wood as a percentage of carbon stock in tree biomass
Source of data	Tool "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities"

Value applied:	XX% of carbon stock in trees biomass
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

Data / Parameter	Litter
Data unit	t C ha-1
Description	Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass
Source of data	Tool "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities"
Value applied:	XX% of carbon stock in trees biomass
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of Data	Calculation of project emissions
Comments	N/A

5.2 Data and Parameters Monitored

The tables below are completed for all data and parameters to be monitored during the project crediting period.

Data / Parameter	DBH
Data unit	cm
Description	Diameter at breast height of tree (DBH)
Source of data	Field measurements in sample plots
Description of measurement methods and procedures applied	Measurement methods according to Work Manual. All the individuals within the sample plot will be measured.

	DBH is measured at a height of 1.3 m from the base of the stem (on the ridge). DBH must be measured where the stem has a normal shape (5cm above in case of deformations). If the individuals find a double arrow (fork), the measurement of this variable will be made based on the length at which the bifurcation occurs (below 1.3 m each stem should be measured and listed as different individuals). Caliper and measuring tape will be the monitoring equipment.
Frequency of monitoring/recording	Before every verification event
Value applied:	N/A
Monitoring equipment	N/A
QA/QC procedures applied	QA/QC procedures according to Work Manual Measuring crew from a different contractor will be responsible for cross-checking over 20% of the installed plots. These are selected directly by the planning manager and delivered to the crew based on the following criteria: (1) plots near roads, native forest, water courses; (2) accessibility and proximity to operations center; (3) sector with the highest plot intensity. The following items are reviewed: (1) plot without location error; (2) complies with radius and surface; (3) it has a center and a plot number; (4) clockwise numbering; (5) all Individuals are numbered; (6) missing trees identified with a plate; (7) forked trees marked separately; (8) DBH mark located at 1.3 m. Data is recorded in the form: "Quality control format", where is obtained a compliance percentage. A plot is considered installed when it meets the following tolerance ranges: 1. Tolerance 0 ● plot with location errors, on tracks, native forest or mix of stands and species. ● it does not have the radius (12.62 m) and specific area (500 m^2). ● numbering of individuals within the plot does not follow a defined sense (clockwise) 2. Tolerance 20% ● individuals are not numbered. ● missing trees do not have a plate. ● forked trees were not marked separately. ● trees with DBH marking outside 1.3 m Cross-checking of data is done following these two parameters:

	1. Differential between years: it applies to those plots that have two measurements, where the measurement of the dendrometer parameters cannot be less than the data of the previous year. 2. Outliers: based on the diameter-height relationship, those data that do not represent the trend are tracked (e.g., thick, or tall trees with respect to their age) Once this information is traced, it is delivered to the measuring crew for verification. Checking is done firstly at a digital level, and then proceed to verify directly in the field.
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	H
Data unit	m
Description	Height of trees
Source of data	Field measurements in sample plots
Description of measurement methods and procedures applied	Measurement methods according to Work Manual. All the individuals within the sample plot will be measured. Trees to be measured must meet the following requirements: have its apex and base visible from the measurement point; belong to the plot; and not be strongly deformed or broken. Vertex hypsometer and Suunto clinometer will be the monitoring equipment. The distance from which the equipment is used must be as horizontal as possible. In cases of slope the correction must be made according to the table in Annex 1 of the Work Manual – permanent plots (2018). In the case of the use of a clinometer, it is not allowed to measure from a distance less than that indicated by the band used and then make corrections. It cannot exceed 45° or 100% slope. The observer must be located so that trees are perpendicular to the horizontal line. In sloping terrain, measurements should be prioritized from points that are sloping above the base of the tree.
Frequency of monitoring/recording	Before every verification event
Value applied:	N/A
Monitoring equipment	N/A

QA/QC procedures applied	QA/QC procedures according to Work Manual Measuring crew from a different contractor will be responsible for cross-checking over 20% of the installed plots. These are selected directly by the planning manager and delivered to the crew based on the following criteria: (1) plots near roads, native forest, water courses; (2) accessibility and proximity to operations center; (3) sector with the highest plot intensity. The following items are reviewed: (1) plot without location error; (2) complies with radius and surface; (3) it has a center and a plot number; (4) clockwise numbering; (5) all Individuals are numbered; (6) missing trees identified with a plate; (7) forked trees marked separately; (8) DBH mark located at 1.3 m. Data is recorded in the form: "Quality control format", where is obtained a compliance percentage. A plot is considered installed when it meets the following tolerance ranges: 1. Tolerance 0 ● plot with location errors, on tracks, native forest or mix of stands and species. ● it does not have the radius (12.62 m) and specific area (500 m^2). ● numbering of individuals within the plot does not follow a defined sense (clockwise) 2. Tolerance 20% ● individuals are not numbered. ● missing trees do not have a plate. ● forked trees were not marked separately. ● trees with DBH marking outside 1.3 m Cross-checking of data is done following these two parameters: 1. Differential between years: it applies to those plots that have two measurements, where the measurement of the dendrometer parameters cannot be less than the data of the previous year. 2. Outliers: based on the diameter-height relationship, those data that do not represent the trend are tracked (e.g., thick, or tall trees with respect to their age) Once this information is traced, it is delivered to the measuring crew for verification. Checking is done firstly at a digital level, and then proceed to verify directly in the field.
Purpose of data	Together with DBH (previous parameter), they are used to estimate the stem volume of trees of species j in plot p in stratum i. These variables: H and DBH after being used to estimate the stem volume of trees, are also used, together with other constants

	(carbon fraction, basic wood density, biomass expansion factor) to estimate the standard deviation of biomass stock in stratum I; t d.m. ha^{-1}.
Calculation method	N/A
Comments	N/A

Data / Parameter	T
Data unit	Year
Description	Time period elapsed between two successive estimations of carbon stock in trees and shrubs
Source of data	Recorded time
Description of measurement methods and procedures applied	N/A
Frequency of monitoring/recording	N/A
Value applied:	N/A
Monitoring equipment	N/A
QA/QC procedures applied	N/A
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	If the two successive estimations of carbon stock in trees are carried out at different points of time in year t2 and t1, (e.g., in the month of April in year t1 and in the month of September in year t2), then a fractional value is assigned to T

Data / Parameter	nj
Data unit	units
Description	Number of sample plots in stratum i
Source of data	Field work
Description of measurement methods and procedures applied	Measurement methods according to Work Manual.
Frequency of monitoring/recording	In every verification event

Value applied:	N/A
Monitoring equipment	GPS equipment
QA/QC procedures applied	N/A
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	N
Data unit	units
Description	Number of plots to be established in the project area
Source of data	Field work
Description of measurement methods and procedures applied	Measurement methods according to Work Manual
Frequency of monitoring/recording	In every verification event
Value applied:	N/A
Monitoring equipment	GPS equipment
QA/QC procedures applied	N/A
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	N/A

Data / Parameter	Ap,i
Data unit	ha
Description	Area of sample plot
Source of data	Field measurement
Description of measurement methods and procedures applied	Measurement methods according to Work Manual. All the individuals within the sample plot are measured.

Frequency of monitoring/recording	N/A
Value applied:	N/A
Monitoring equipment	N/A
QA/QC procedures applied	QA/QC procedures according to Work Manual. Measuring crew from a different contractor will be responsible for cross-checking over 20% of the installed plots. These are selected directly by the planning manager and delivered to the crew based on the following criteria: (1) plots near roads, native forest, water courses; (2) accessibility and proximity to operations center; (3) sector with the highest plot intensity. The following items are reviewed: (1) plot without location error; (2) complies with radius and surface; (3) it has a center and a plot number; (4) clockwise numbering; (5) all Individuals are numbered; (6) missing trees identified with a plate; (7) forked trees marked separately; (8) DBH mark located at 1.3 m. Data is recorded in the form: "Quality control format", where is obtained a compliance percentage. A plot is considered installed when it meets the following tolerance ranges: 1. Tolerance 0 ● plot with location errors, on tracks, native forest or mix of stands and species. ● it does not have the radius (12.62 m) and specific area (500 m^2). ● numbering of individuals within the plot does not follow a defined sense (clockwise) 2. Tolerance 20% ● individuals are not numbered. ● missing trees do not have a plate. ● forked trees were not marked separately. ● trees with DBH marking outside 1.3 m Cross-checking of data is done following these two parameters: 1. Differential between years: it applies to those plots that have two measurements, where the measurement of the dendrometer parameters cannot be less than the data of the previous year. 2. Outliers: based on the diameter-height relationship, those data that do not represent the trend are tracked (e.g., thick, or tall trees with respect to their age)

	Once this information is traced, it is delivered to the measuring crew for verification. Checking is done firstly at a digital level, and then proceed to verify directly in the field.
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	Sample plot location is registered with a GPS and marked on the project map

Data / Parameter	Ai
Data unit	ha
Description	Area of each stratum
Source of data	GIS Database
Description of measurement methods and procedures applied	Total ha for each stratum (specie and planting year)
Frequency of monitoring/recording	Continuously
Value applied:	NA
Monitoring equipment	NA
QA/QC procedures applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of project emissions
Calculation method	N/A
Comments	N/A

5.3 Monitoring Plan

This section is not applicable since the proposed project is being listed on the pipeline as under development.

6 APPENDIX

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