Monitoring Report
TIST PROGRAM IN KENYA
VCS-001, Verification 03

Document Prepared by Clean Air Action Corporation

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Prepared By	Charlie Williams, Vice President
Contact	Clean Air Action Corporation 250 Old Harbor Rd, Vinalhaven, ME 04863 Telephone 720-394-2112 CharlieWilliams@CleanAirAction.com Tist.org

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The International Small Group and Tree Planting Program (TIST) empowers Small Groups of subsistence farmers in Kenya, Uganda, India and Tanzania to combat the devastating effects of deforestation, poverty and drought. Combining sustainable development with carbon sequestration, TIST supports the reforestation and biodiversity efforts of over 95,000 subsistence farmers, worldwide. Carbon credit sales generate participant income and provide project funding to address agricultural, HIV/AIDS, nutritional and fuel challenges. As TIST expands to more groups and more areas, it ensures more trees, more biodiversity, more climate change benefit and more income for more people.

Since its inception in 1999, TIST participants organized into over 13,000 TIST Small Groups members have planted over 19 million trees on their own and community lands. GhG sequestration is creating a long-term income stream and is supporting sustainable environments and livelihoods. TIST in Kenya began in 2004 and has grown to nearly 72,000 TIST participants in over 10,000 Small Groups.

KE PD-VCS-001 is a small scale AFOLU project, eligible under the Afforestation, Reforestation and Revegetation (ARR) category. It is a subset of the TIST project in Kenya and initially applied to 117 of the Small Groups, 853 members, 484 project areas and 354 ha. The PD was validated and first verified on 11-April-2011 by Environmental Services, Inc. (ESI). The verification period was 01-January-2004 to 31-December-2010.

KE PD-VCS-001 was verified a second time 24-March-2016 by Epic Sustainability. The verification period was 01-January-2011 to 11-August-2015. The monitoring report demonstrated 92 active project areas, 262 active ha and 274,473 active trees.

This is the third verification of KE PD-VCS-001 and was conducted by AENOR Internacional, S.A.U. The verification period was 12-August-2015 to 22-May- 2020. The monitoring demonstrated 321 project areas, 115.2 ha and 39,717 active trees.

The following is the verification history, including the total GHG removals generated in this monitoring period:

Verification Number	Date	Monitoring Period	Period Reductions	Buffer	Issuance
Verif 01	11-Apr-11	01-Jan-04 to 31-Dec-10	39,094	7,819	31,275
Verif 02	16-Dec-14	01-Jan-11 to 11-Aug-15	34,032	3,403	30,628
Verif 03	Pending	12-Aug-15 to 22-May-20	-48,837	na	**na**

A loss report has been submitted to Verra (See Section 7 of this MR and Exhibit 43[1]).

1.2 Sectoral Scope and Project Type

This project is registered under the Verified Carbon Standard (VCS, 3.2) as an Afforestation, Reforestation and Revegetation (ARR) project and has been developed in compliance with the VCS Guidance for Agriculture, Forestry and Other Land Use Projects (VCS Version 3.3) for the VCS Standard v4.0. It is not a grouped project.

1.3 Project Proponent

Organization name	Clean Air Action Corporation (CAAC)
Contact person	Charles E. Williams
Title	Vice President
Address	250 Old Harbor Rd, Vinalhaven, ME 04863
Telephone	720-394-2112
Email	*CharlieWilliams@CleanAirAction.com*

1.4 Other Entities Involved in the Project

Organization name	Institute for Environmental Innovation (I4EI)
Role in the Project	Manages sustainable development components of TIST
Contact person	Catherine Campbell
Title	Executive Director
Address	250 Old Harbor Rd, Vinalhaven, ME 04863
Telephone	202-309-1356
Email	*catherine.b.campbell@gmail.com*

Organization name	United States Agency for International Development (USAID)
Role in the Project	Provides funding for sustainable development components. No longer active.
Contact person	Enoch Kanyanga

[1] TIST KE PD-VCS-Ex43 Loss Event Report 200807.pdf at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php.

Title	Technical Officer
Address	USAID-Kenya c/o American Embassy United Nations Avenue, Gigiri, P. O. Box 629, Village Market-00621 Nairobi, Kenya
Telephone	+ 254-20-862-2000
Email	*ekanyanya@usaid.gov*

1.5 Project Start Date

01-January-2004

1.6 Project Crediting Period

30 years starting 01-January-2004 and ending 31-December-2033

1.7 Project Location

The TIST Kenya Project is located in central Kenya in the Central, Rift Valley and Eastern Provinces. Most of the project activity is centered around Meru and Nanyuki. The individual project areas, their location and their boundaries are presented in a KML file, Appendix 03[2].

1.8 Title and Reference of Methodology

The monitoring methodology used by the Project is CDM AR-AMS0001 Version 05: "Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands" and the associated tools. AFOLU Non-Permanence Risk Tool version 4.0 was also used. No other tools or methodologies were used for this verification report.

1.9 Participation under other GHG Programs

The Project is certified under Climate, Community and Biodiversity Standard (CCBA) as "TIST Program in Kenya CCB-001." CCBA does not issue GhG credits. The Project does not participate in any emission trading programs, other binding limits, other forms of social or environmental credit or any other GHG program.

[2] Appendix 03 PA Plots: TIST KE PD-VCS-001d App03 PA Plots 200626.kml at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

1.10 Other Forms of Credit

"TIST Program in Kenya VCS-001" is included in the TIST Program in Kenya CCB 001. The Project does not participate in any emission trading programs, other binding limits, other forms of social or environmental credit or any other GHG program.

1.11 Sustainable Development

The following are the sustainable development goals that TIST addresses.[3]

- No Poverty: TIST has provided cash income from carbon credits and sustainable development benefits monetized at over KES 988,219 ($9,227) from the start of the project.
- Zero Hunger: TIST promotes Conservation Farming to improve crop yields and planting fruit and nut trees as part of the tree planting program. TIST counts all TIST trees by species and surveys adoption of Conservation Farming.
- Good Health and Well-being: TIST provides training in many health topics including HIV/AIDS, malaria, clean water, hygiene and indoor air pollution. TIST has regular Cluster meetings where training is held and uses the Mazingira Bora newsletter to help communicate issues.
- Gender Equality: TIST creates an environment for gender equality whereby women are given the same opportunities as men. It is enforced by ensuring there is a gender balance in employment, leadership and representation. TIST monitors the gender of participants, employees and Quantifiers.
- Clean Water and Sanitation: TIST provides training in clean water and hygiene. TIST also trains and encourages tree planting along water courses to reduce run-off and erosion. TIST has regular Cluster meetings where training is held and uses the Mazingira Bora newsletter to help communicate issues.
- Affordable and Clean Energy: TIST trains in the building and use of more energy efficient cook stoves. TIST surveys the benefits of energy efficient stoves.
- Climate Action: TIST is a climate mitigation program. This PD demonstrates its effectiveness.
- Life on Land: TIST provides biodiversity benefits by adding indigenous trees, fruit trees, nut trees and canopy. TIST farmers are trained in biodiversity. TIST project areas provide linkage and buffers with high conservation value areas. TIST has regular Cluster meetings where training is held and uses the Mazingira Bora newsletter to help communicate issues.

Kenya is developing their SGD program and TIST will participate as required. Verra's has developed the SDVista program for validating and verify SDG goals. TIST was one of pilot program but at this time, we are not seeking SDVista certification.

[3] CCBA Monitoring Report: TIST KE PD-CCB-001l App11 Verif 03 Monitoring Rpt 200522.doc at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php.

2 SAFEGUARDS

2.1 No Net Harm

TIST has conducted numerous evaluations of the program in Kenya under CCB and has determined that there are minimal negative environmental or socio-economic impacts. The program was designed to be beneficial to the farmers and environment.

The PD list several negative impacts. They are addressed as follows:

- *High expectations from farmers which TIST may not be able to meet or are outside its scope of coverage*. TIST continues to provide awareness of the scope of the program through Cluster meeting, seminars and the newsletter. No major issues have been reported.
- *Farmers' dissatisfaction due to delayed payment*. Due to the volume of vouchers, this remains a problem. TIST has moved to a mobile payment system (Mpesa) and is using the Cluster meetings for distribution of the vouchers and making payment. Since the system is designed to catch up on late payments and because the Small Groups are receiving profit sharing payments, we are continuing to address this issue.
- *Inadequate information dissemination of information between TIST staff and group members*. This has been addressed with monthly Cluster meetings and a monthly newsletters.
- *Poor awareness among farmers on how to join TIST activities leads them to believe that they have been excluded from TIST activities*. This has been addressed with monthly Cluster meetings and a monthly newsletters.
- *Possible negative changes in soil properties as litter becomes dominated by one or a few tree species and decomposition dynamics are altered*. This can result from allelopathic trees such as eucalyptus. We advise the farmers not to plant these. They can plant what they want but we have seen decreases in their inventory.
- *Farmers resistant to retain chemical fertilizers and pesticides utilization for perceived high yields. Errata: it should be "give up", not "retain".* TIST promotes awareness on usefulness and benefits derived from organic fertilizers and pesticides. Few farmers can afford chemical fertilizers or pesticides.

2.2 Local Stakeholder Consultation

TIST was formed in response to problems expressed by Tanzanian subsistence farmers who participated in Small Group seminars starting in 1999. These problems – recurrent famine, declining soil fertility, disease, and lack of shade and firewood – are shared by millions of smallholder farmers in Kenya. When TIST was invited by USAID to expand to Kenya, we used the same consultation approach to build a program that worked for Kenyan farmers.

TIST Kenya began with a trip around Mt Kenya, where community leaders in Meru and Nyeri were briefed on TIST to gauge the level interest that local farmers might have. The first TIST seminar of TIST Kenya was held in Nanyuki from February 21, 2005 to February 26, 2005.

The seminar began with the process of customizing TIST to the desires and needs of farmers in the Meru and Nanyuki areas. Seventy-three people attended; 40 men and 33 women. This consultation is documented in the first TIST Kenya newsletter, the February 2005 issue of Mazingira Bora.[4] Subsequent consultations are documented in the April 2005 Mazingira Bora.[5] Because TIST is for the farmers and by the farmers, the consultations are ongoing. A full library of Mazingira Boras is available to demonstrate what has transpired in the program.[6]

This PD has been verified twice as CCB gold for exceptional community benefits and is seeking verification for the third time for this monitoring period. As part of the CCB process, we held public meetings on 10 March, 2011; 02 September, 2011; 06 August, 2012; 09 January, 2013; 04 September, 2014; 19 October, 2015; and 04 April, 2017. Due to the COVID pandemic, a public meeting will not be held this year.

There is also a public comment period for the CCB process. It is announced by email to stakeholder and in the newspaper. We have not received any negative comments that have required a change in the program. In the past, we have sent stakeholders notice of the VVB field visits. Due to the COVID pandemic, there was no field visit.

Using our administrative structure, thousands of Cluster meetings have been held where TIST farmers receive training on the program and program components. Seminars are also held periodically.

There have not been any relevant changes to risks, costs and benefits that the project brings to local stakeholders. There have not been any relevant changes to relevant laws and regulations covering workers' right in the host country.

2.3 AFOLU-Specific Safeguards

The activities implemented to mitigate risks to local stakeholders due to project implementation are program design and training.

TIST was designed to improve the lives and livelihoods of the subsistence farmer members. TIST does not acquire their land or dictate what trees to plant, where to plant them, or which programs to adopt. TIST farmers maintain all of their property and property rights. They select which trees to plant and maintain ownership of the trees and their products. They make their own choices based on their own life experiences, therefore reducing project risk.

[4] Exhibit 19 Newsletter 1: TIST KE PD-VCS-Ex19 Mazingira Bora 050201.pdf at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

[5] Exhibit 20 Newsletter 2: TIST KE PD-VCS-Ex20 Mazingira Bora 050401.pdfat http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

[6] http://www.tist.org/i2/moreinfo.php

TIST provides training to the farmers on project implementation. TIST trains on tree species and their benefits. The farmers are trained on the greenhouse gas business and how much they will receive for planting and maintaining trees. They are also trained that the fruit, nuts and fodder from the trees, Conservation Farming practices and the use of more fuel efficient stoves will bring them more value than the carbon credits. They are also trained in the importance of food security. This all reduces project risk.

This information is communicated using the Mazingira Bora newsletter and at Cluster meetings. The newsletter is published generally every month and 10s of thousands are distributed to the Small Groups every year. Cluster meetings are general monthly. There are hundreds of Clusters where training is held, often times using the newsletter for training material. Thousands of Cluster meeting were held during the monitoring period, where farmers have an opportunity to raise grievances.

TIST has a grievance policy.[7] No grievances were raised during this monitoring period.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project has been fully operational since 2004. The project was implemented in accordance with the PD and the validation report. No new incidences have been added.

As discussed more thoroughly in Section 5.3, no further leakage monitoring is required.

Permanence is addressed through the risk buffer. A Non-Permanence Risk Report was prepared under version 4.0 and provided to the Verifier.[8]

[7] Exhibit 33 Grievance Policy: TIST KE PD-VCS-Ex33 Grievance Policy 170120.doc at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

[8] Appendix 12 Risk Analysis: TIST KE PD-VCS-001m App12 Verif 03 Risk Analysis 200522.doc at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

3.2 Deviations

3.2.1 Methodology Deviations

PD KE VCS 001, Section 2.1 Methodology applied to the project activity

Two methodology deviations were addressed in the PD. The first was what we are including PAs below the minimum area of 0.1 hectares defined by Kenya's definition of a forest. The second deviation relates to the 30% crown cover at maturity that is part of Kenya's definition of a forest. The PD explains that our monitoring program is capable of handling both these situations and the PD was validated with these deviations.

3.2.2 Project Description Deviations

PD KE VCS 001, Section 3.2 Monitoring approach

Section 3.2 of the PD states, "the operational processes for monitoring the actual GhG removal by the sinks are for TIST Quantifiers to visit each PA once per year and, at minimum, once every five years to count trees and collect circumference, GPS and other data". TIST Quantifiers are not visiting each PA (grove) once per year.

While counting trees and collecting circumference every five years is a requirement of the methodology (and followed by the Project), visiting every PA every year was simply an operational goal. Not making annual visits does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario. That it was an operational goal was clearly stated. Section 3.2 (Multiple Quantifications) of the PD states, "TIST's internal goal is to quantify each project area once per year."

There are thousands of PAs in TIST Kenya. Unfortunately, visiting every PA every year proved to be too costly to maintain. Instead, the entire TIST program in Kenya was modified and centered on a "Cluster" administrative structure. A Cluster is a group of Small Groups within walking distance that has their own local leadership. It is where Small Groups receive training, voucher payments, share "best practices," share news and newsletters and discuss quantification issues. A Quantifier is assigned to each Cluster and their scope has been broadened to include training and assisting Cluster leaders as they rotate into new positions. The Cluster provides an alternate method of gathering intelligence about what is happening at the Small Group level and to individual groves including information that might assist in monitoring the actual GhG removal.[9] This allows us to get the same information that a Quantifier might get on a non-quantification visit (i.e. the annual visit) by asking members

[9] This includes examples such as if an SG or an SG member has quit or if there has been a major loss from fire, pest, harvest, etc. The type of information collected is reflected in the monitoring spreadsheets where we have indicated an issue with the project area (removed or pending) and zeroed out the carbon for this verification.

and their neighbors about changes, at a more sustainable cost. The ideal schedule for Cluster meetings is one per month, increasing the frequency of opportunity to learn about changes at the grove level.

PD KE VCS 001, Section 3.3 Data and parameters monitored

Table 3.3, Data to be Monitored: Included in the table is the monitoring of Area displaced, Grazing animals displaced, and Roaming animals displaced. The comment column states, "Monitoring only in first crediting period". It should have stated "Monitoring only in first verification period." No further monitoring of these items was required or done.

This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome is that this corrects a typo in the PD.

PD KE VCS 001, Section 3.4 Description of the monitoring plan

Removing Project Activity Instances: While the 'Beneficial "leakage" from project activities' paragraph discusses expected tree loss from the PD due to harvest, etc., the loss of PAs was not addressed. When a member or Small Group quits or harvests their trees, or if a PA is found to fall within one of the "remove" categories in Section 5.2 of the MR (Change in PA Status, below), they are no longer active in the PD. The name of the grove is kept on the monitoring spreadsheet (Appendix 14), the reason for the removal is given in the "Status V3" column of the "PA Summary" worksheet of Appendix 14, and the carbon sequestered from the PA is zeroed out. By zeroing the carbon, all of the carbon credits previously issued from the PA are replaced.

This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome is that the loss of a PA is acknowledged and its accrued GHG removals are considered zero.

Loss Event: As noted in section 1, there was a loss in the amount of removals and a Loss Event report was submitted (See Section 7 of this MR). During the preparation of this monitoring report, it was learned that there was a significant loss of carbon removals, due to the harvesting of trees by a large land owner and his family. Although the land owner was under contract to maintain the trees for 60 years, the family violated the contract and cut down the trees. There were 168,169 trees, in 12 PAs, present during the second verification that covered the monitoring period 01-January-11 to 11-August-2015. This represented 68,342 VCUs that were issued and subsequently sold (less the buffer). While preparing the monitoring reports for the third verification, this loss was first recognized and triggered further investigation on the ground. The loss of the 68,342 tonnes of removal has been confirmed and has caused a 48,837 tonne loss for the third monitoring period, 12-August-2015 to 22-May-2020.

This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome is that the loss of carbon stocks is acknowledged and reported.

3.3 Grouped Projects

Not applicable.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	Location of project area
Data unit	Latitude and longitude
Description	Single point location of the area where project activity has been implemented
Source of data	GPS
Value applied	See "PA Summary" worksheet, Appendix 04,[10] for each result
Justification of choice of data or description of measurement methods and procedures applied	GPS is the modern standard for determining geographic coordinates.
Purpose of Data	Baseline
Comments	None

Data / Parameter	Boundary of project area
Data unit	Latitude and longitude
Description	Multiple points of latitude and longitude that describe the boundary of a discrete project area
Source of data	GPS
Value applied	See KML file, Appendix 03,[11] for all results
Justification of choice of data or description	GPS is the modern standard for determining geographic coordinates.

[10] Appendix 04, Validation Spreadsheet: TIST KE PD-VCS-001e App04 Data 100826 Chugu.xls at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

[11] Appendix 03, PA plots: TIST KE PD-VCS-004d App03 PA Plots 200626.kml at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

of measurement methods and procedures applied	
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Area of project area**
Data unit	Hectares
Description	Size of the area where the project activity has been implemented
Source of data	GPS
Value applied	See "PA Summary" worksheet, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	GPS is the modern standard for determining geographic coordinates.
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Ownership of project area**
Data unit	Name
Description	Ownership of land of project area
Source of data	“Carbon Credit Sale Agreement”
Value applied	See "PA Summary" worksheet, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	TIST representatives ask if there is a change in ownership when they visit the PA.
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Baseline trees**
Data unit	Baseline Trees
Description	The number of trees existing in a project area is counted, before the planting of project trees.
Source of data	Trees are physically counted in the field

Value applied	See "Baseline Strata" worksheet, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	A physical count provides the most accurate information possible.
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Baseline tree circumference**
Data unit	Centimeters
Description	The circumference of trees existing in a project area, before the planting of project trees, is counted
Source of data	Trees are physically measured in the field
Value applied	See "Baseline Strata" worksheet, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	The circumference of a sample of trees are measured with a tape. The results are used to put the tree size in a bin for estimating mass.
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Baseline strata**
Data unit	Hectares
Description	The area of cropland or grassland at baseline
Source of data	Estimate based on visual field observations
Value applied	See "Grove Summary" worksheet, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	The area of the PA was measured using a GPS. The percent cropland and grass land was estimated by an experienced TIST Quantifier.
Purpose of Data	Baseline
Comments	None

Data / Parameter	**Project trees**

Data unit	Count of tree
Description	The number of trees per age and species strata in each project area
Source of data	Trees are physically counted in the field.
Value applied	See "Grove Summary" and "Strata" worksheets, Appendix 04, for each result
Justification of choice of data or description of measurement methods and procedures applied	The trees were all counted by an experienced TIST Quantifier.
Purpose of Data	The tree count by strata is used to extrapolate the ex-ante GhG removals
Comments	None

Table 1 of the methodology (CDM AR-AMS0001) also lists “height of tree”, "location of the permanent sample plots” and "basic wood density" as data variables. The project does not collect “height of tree” data or "basic wood density." As noted in paragraph 42, Step 2 of the methodology, the option is given to "measure the diameter at breast height (DBH) or DBH and tree height, as appropriate." The validated PD stated "height will not be used in the allometric equations" because project monitoring relies solely on allometric equations that only require DBH. "Basic wood densities" are not used because they are assumed in the allometric equations. This approach was implicit in the validated PD. Because all the trees are counted in each project area, each project area is a "permanent sample plot.”

The above table also includes a parameter not found in the methodology, "ownership of project area." This was added at the request of the first verifier, ESI, to acknowledge the fact that virtually every PA is owned by a different farmer.

4.2 Data and Parameters Monitored

Data / Parameter	**Number of trees**
Data unit	Trees
Description	Number of trees in a project area by strata
Source of data	Physical counts
Description of measurement methods and procedures to be applied	Physical count of the trees in each stratum by Quantifiers with each visit

Frequency of monitoring/recording	Ongoing measurement taken by Quantifiers as they visit project areas. Each PA could be visited as much as once per year.
Value monitored	See "Ex-post Strata" worksheet of Appendix 14[12]
Monitoring equipment	Customized smartphone
QA/QC procedures to be applied	Part of overall QA/QC procedures discussed in Section 4.3
Purpose of the data	Calculation of project emissions
Calculation method	Not applicable
Comments	None

Data / Parameter	**DBH**
Data unit	Centimeters
Description	Diameter of tree at breast height (1.30 m)
Source of data	Physical measurements
Description of measurement methods and procedures to be applied	TIST measures DBH of up to 20 representative trees of each age/species stratum in different project area
Frequency of monitoring/recording	Ongoing measurement taken by Quantifiers as they visit project areas
Value monitored	See "Circ" worksheet of Appendix 14
Monitoring equipment	Measuring tape and customized smartphone
QA/QC procedures to be applied	Part of overall QA/QC procedures discussed in Section 4.3
Purpose of the data	Calculation of project emissions
Calculation method	Not applicable
Comments	None

Data / Parameter	**Total CO2**
Data unit	Tonnes

[12] Appendix 14 Monitoring Data V3: TIST KE PD-VCS-001o App14 Verif 03 Monitor Data 200522-2.xlsx at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

Description	Total CO2 sequestered by the trees
Source of data	Calculation
Description of measurement methods and procedures to be applied	Allometric equations are assigned to each stratum. DBH values are applied to the allometric. Average biomass of a tree in each stratum is calculated and multiplied by number of trees in each stratum. Biomass is converted to CO_2e and the CO_2e of the stratum are totaled.
Frequency of monitoring/recording	Calculation takes place with each monitoring report
Value monitored	See "Ex-post Strata" worksheet of Appendix 14
Monitoring equipment	Computer and database
QA/QC procedures to be applied	Part of overall QA/QC procedures discussed in Section 4.3
Purpose of the data	Calculation of project emissions
Calculation method	Not applicable
Comments	None

4.3 Monitoring Plan

4.3.1 Organization and Responsibilities

The Small Groups manage themselves based on a covenant among the members of each Small Group. They manage and oversee their own trees. They contract with Clean Air Action Corporation (CAAC) to sell their carbon, receive payments, and receive training. The GhG component of TIST is managed by CAAC, who developed the database, web site, and procedures for monitoring the GhG. CAAC was responsible for the PD, monitoring plan and for selling any GhG that becomes available.

The operational processes for monitoring the actual GhG removal by the sinks are for TIST Quantifiers to visit each grove, at minimum, once every five years, to count trees and collect circumference, GPS, and other data. Quantifiers are audited by the TIST Kenya staff. Quantifiers transmit the monitoring data via the Internet to the TIST website, where it is managed by CAAC. CAAC oversees the data and conducts QA/QC reviews. Feedback is provided to the TIST's Quantifiers and office staff. CAAC is responsible for tabulating carbon stocks.

The TIST Data System stores all of the current and archived data. CAAC managers use customized reports to analyze the data and look for trends, missing data or obvious errors. TIST managers visit selected project areas and observe quantifications and audits.

4.3.2 Data Management and QA/QC

TIST uses the following QA/QC procedures:

- **Quantifier Training:** Quantifiers receive explicit training in regard to TIST's Standard Operating Procedures, so that quantifications are performed in a standard and regular fashion. Quantifiers generally meet monthly to discuss questions or problems that they may have and receive training and software updates when necessary. Quantifiers are not dedicated to a grove for the life of that grove and may be rotated to other groves. They use smartphones with a custom app to record data and transmit it to the TIST server.

- **Staff Audits:** TIST staff members are trained to quantify groves and have smartphones that are programmed to conduct audits. A requirement of their job is to periodically audit Quantifiers, including an independent sampling of tree counts and circumference measurement.

- **Multiple Quantifications:** TIST's internal goal is to quantify each project area at least once every five years. Inaccurate data and errors are self-correcting with the subsequent visits. If trees have died or have been removed, a new count will reflect the current population. The growth of the trees, as indicated by increased DBH, is monitored with these subsequent visits. If a species is mislabeled, it will arise as a conflict when different Quantifiers attempt to perform tree counts for that grove that do not match the previous one. Comparisons are made over time, to determine whether a particular quantification, or tree count, appears unrealistic.

- **Cluster Meeting Updates:** The Cluster provides an alternate method of gathering intelligence about what is happening at the Small Group level and to individual groves, including information that might assist in monitoring the actual GhG removal.

- **Multiple Tracks:** In order to ensure that the location and perimeter of each PA is accurate, two GPS tracks are taken at baseline. Tracks are also taken during subsequent quantifications.

- **Double Counting:** To ensure that the same project area is not counted more than once, an overlap script was used that compares the outline of all project areas. If an overlap was detected, the project areas were visually compared. If an overlap was determined, the overlapping project areas were removed from the PD.

- **Data Quality:** TIST Quantifiers count every tree in each PA. Counting each tree is 100% sampling and provides greater than 10% precision at the 95% confidence level. Up to 20 circumference readings for each stratum in a PA are taken and archived, to develop a localized database of growth data by strata. This sampling exceeds the 10% precision at the 95% confidence level required by the methodology.

- **TIST Data System:** The data system is an integral part of TIST's quality assurance and quality control plan. The smartphones are programmed in a manner that requires the data to be collected in a step-by-step manner, increasing the likelihood that all the data

will be collected. Data field characteristics are defined to force the use of numbers, text or special formats. Drop down menus are used to restrict answers to certain subsets (e.g. a TIST Small Group name comes from a drop down menu). Some data fields are restricted to a range of data (e.g. negative numbers are not allowed). The data is uploaded within a few days to the main database, providing timely reporting and secure storage of the data.

- **Desk Audit:** TIST has developed analytical tools for reviewing data as it comes in from the field to look at track data, tree counts, and completeness of data.
- **Transparency:** By providing the quantification data online and available to anyone with an Internet connection, TIST is open to audit by anyone at any time. By providing the location, boundaries, tree count by species and circumference, any interested party can field check TIST data. This transparency and the actual visits that have already taken place provide a further motive to make sure the field data is correct.
- **Data Storage:** The data is being stored in an electronic format on the TIST server. Currently, the server hardware is operated by a third party company that specializes in web and data hosting. The Amazon Cloud was used during this verification period. However, CAAC could, in the future, change hosts or choose to host the server at its offices.

4.3.3 Monitoring and Carbon Calculations

The overall plan employs TIST Quantifiers going to each PA, counting each tree by stratum and taking circumference measurements of up to 20 trees in a stratum. The data is recorded on a smartphone using a custom database. The data is uploaded to the TIST database via the Internet where it is incorporated with all the other monitoring data. Selected data is displayed on the TIST website (tist.org). This is an ongoing process that takes place almost every day. As each PA is revisited, the old data is archived and the results of the new quantification are displayed on the website. The data used in this monitoring report is the most current information from each PA. It was accessed from the database by the proponent and used in the carbon calculations.

The steps used to calculate the carbon removals are in section 5.2.

4.3.4 Accuracy

Precision at 95% confidence level: The methodology required showing that the stratification approach could achieve a targeted precision level of ±10% of the mean at a 95% confidence level. This demonstration was made in the "Statistics" worksheet of Appendix 14.

The "Statistics" worksheet reads all of the circumference readings from the "Circ" worksheets. This was accomplished by using the database functions of Excel (DSUM, DCOUNT, etc.). Columns G through M are the results based on all of the Circ data. A

modification has been added to identify circumference outliers. We revised the Statistics and Circ worksheets to enable us to identify the circumference measurements of every stratum that is in the 4th standard deviation above the mean. The 4th SD is identified in column M of the Statistics worksheet. Column P of the Circ worksheet compares these thresholds with each circumference measurement. If the value is in the 4th SD it is excluded. Columns O through U of the Statistics worksheet are the statistics for this subset. The new mean is calculated in Column P.

The results are that when the strata are combined to the project level, the data meets the precision requirement of the methodology (95% confidence level of 10% of the mean).

No zero values for trees less than breast height: The project counts all trees, but no circumference measurements are taken if the trees are less than breast height. We learned that during the early stages of the program, that instead of entering a zero in the circumference field Quantifiers sometimes left it null. To make sure this did not bias the results, a conservative approach was adopted and the circumference of all one-year-old trees was set at zero.

Cordia Africana: The field observation indicated that the *Cordia africana* were subject to extensive pruning in order to get the main trunk growing straight. There was concern that use of circumference measurements from these trees in the allometric equations could have a material effect on the total carbon calculated. This was tested by examining the effect of removing the cordia from the CO_2 calculations. In the "Misc Calc" worksheet of Appendix 14, the CO_2 of all the cordia was determined to be below the 5% materiality threshold and the cordia strata received no special treatment.

No circumference sample if less than 20 trees in PA: In spite of the thousands of circumference readings taken for the project, circumference readings were rarely taken in project areas where the tree count was less than twenty. There was concern this could have a material effect on the total carbon calculated. This was tested by looking at the total number of trees that are affected by this issue. As shown in the "Misc Calc" worksheet of Appendix 14,[13] 0.6% of the trees have less than 20 trees. Therefore, this issue is well below the 5% materiality threshold.

Conclusion: In conclusion, the Project meets the precision required by the methodology. In addition, the issue regarding one-year-old trees was addressed by assuming one-year-olds had zero biomass. The remaining issues of concern were shown to be both individually and cumulatively below a 5% materiality threshold.

[13] Appendix 14 Monitoring Data V3: TIST UG PD-VCS-001o App14 Verif 03 Monitoring Data 200522.xlsx at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

No monitoring of the baseline is required. As demonstrated in Section 4.2 of the PD, the change in baseline carbons stocks is below the threshold that would require monitoring. Because only the trees planted as part of the project are counted in the estimation of project removals, the baseline carbon stocks are fixed at zero.

5.2 Project Emissions

Emissions Caused by the Project

The emissions caused by the Project are considered zero. As addressed in the PD, this is due to the manner in which the Project is operated, such as: no vehicles, manual labor conducted by the small-hold farmers on their own land, restrictions on chemical fertilizers, no clearing of baseline trees and minimal disturbance of the ground for planting.

Project Removal Calculations

The following provides the step-by-step procedure used to determine the Project GHG removals:

Step 1. Because of the difference in species and age of the trees and location, ownership and management of the project areas, each project area is monitored. They are documented in the "PA Summary" worksheet of Appendix 14. The location of each PA was obtained with a GPS and is also provided in the "PA Summary" worksheet of Appendix 14. The boundary of each project area was obtained using a GPS and provided in PD Appendix 03. The area was calculated and is listed with each project area in the "PA Summary" worksheet of Appendix 14.

Step 2. The strata for the ex-post estimation of the actual net greenhouse gas removals was done by species and year similar to the ex-ante estimate as described in PD Section 3.2. Stratification was done within each individual project areas. The area of a stratum in a project area ("Area of a Stratum (ha)") was determined by multiplying the area of project area (see Step 1) by the percentage of trees of that stratum in the respective project area. The results are provided in the "Ex-post Strata" worksheet of Appendix 14.

Step 3. Where a tree species exceeded 10% of the total tree inventory, it was assigned to a Major Strata. All other tree species were assigned to an "Other" strata. Based on the tabulations in Appendix 14, there are four major strata: eucalyptus, grevillea, cypress and other.

Step 4. Allometric equations were used to convert DBH values to biomass. An allometric equation for each Major Strata was identified. If a species specific equation for a Major Strata was unavailable, it used the "Other" equation as a default. Allometric equations were researched and the most appropriate ones identified by the Proponent were assigned to the major strata. Because no better allometric equation could be found for grevillea and cypress, they were assigned to the "Other" equation. The following is the assignment.

Eucalyptus[14]: $Log\ Y = -2.43 + 2.58\ Log\ C$
Grevillea: no species specific equations, will use "Other" equation
Cupressus: no species specific equations, will use "Other" equation
Other (default)[15]: $Y = (0.2035 \times DBH^{2.3196}) \times 1.2$

Where:

Y= aboveground dry matter, kg (tree)-1
DBH = diameter at breast height, cm
C = circumference at breast height, cm
ln = natural logarithm
exp = e raised to the power of
1.2 = expansion factor to go from bole biomass to tree biomass

The result is that there are only two Allometric Strata: eucalyptus and other. See "Circ" worksheet, Appendix 14.

Step 5. The DBH of up to 20 trees per stratum, per project area, were measured. The results of these measurements are presented in the "Circ (cm)" column of the "Circ" worksheet of Appendix 14. Each DBH value for each tree measured was applied to the appropriate allometric equation and the above ground biomass ("AG Biomass, kg") of each per tree in the stratum was obtained.[16]

The "Average Above Ground Biomass per Tree (kg)" of the "Ex-post Strata" worksheet was created by processing the "AG Biomass (kg)" values in the "Statistics" worksheet. The individual "AG Biomass" values were transferred by strata to the "Sample Data" section of the "Statistics" worksheet. To be conservative, where the strata age was one year, a zero was entered in the column. The "Statistics" worksheet has a row ("Mean, t BM"), which used the Excel "Average" function to derive the average biomass for each stratum.

[14] DH Ashton, "The Development of Even-aged Stands in Eucalyptus regnans F. Muell. in Central Victoria," Australian Journal of Botany, 24 (1976): 397-414, cited by Tim Pearson, Sandra Brown and David Shoch, in "Assessment of Methods and Background for Carbon Sequestration in the TIST Project in Tanzania," Report to Clean Air Action Corporation, (December 2004). https://www.publish.csiro.au/bt/BT9760397

[15] Exhibit 05 Winrock Report: Tim Pearson, Sandra Brown and David Shoch, in "Assessment of Methods and Background for Carbon Sequestration in the TIST Project in Tanzania," Report to Clean Air Action Corporation, (December 2004) at http://www.tist.org/PD-KE-VCS-001-004%20Documents.php.

[16] The "AG Biomass (kg)" column is the result of this operation. The "Code" function in the formula is looking for an "E" (ASCII 69) in the first letter of the entry in the "Allometric Strata" column to indicate eucalyptus. If the "Code" is E, then the first (eucalyptus) equation applies. If not, the "other" equation applies.

The values from "Mean, t BM" of each allometric/age strata were transferred to the "Biomass/ Tree, kg" column of the "Circ" worksheet using an Excel "Lookup" function.

Step 6. For each stratum in each project area, the average above ground biomass per tree ("Biomass/ Tree, kg" column "Ex-post Strata" worksheet) was multiplied times the number of trees, to yield the above ground biomass in stratum (kg), and divided by 1,000 to obtain above ground biomass in stratum ("AG Biomass in Stratum, t").

Step 7. The methodology requires the use of "tonnes of biomass per hectare" as a factor, in a subsequent step. It was determined by dividing the above ground biomass, in stratum (t), from Step 6, by the area of the stratum, from Step 2.

$$\text{Above Ground Biomass in Stratum (t/ha)} = \frac{\text{Above Ground Biomass in Stratum (t)}}{\text{Area of the Stratum (ha)}}$$

Step 8. The above ground biomass in stratum ("AG Biomass in Stratum, t/ha") was multiplied by 0.5 to convert biomass to carbon. The result is above ground carbon in stratum ("AG Carbon in Stratum, t/ha").

Step 9. The carbon stocks of the below ground biomass of each stratum ("BG Carbon in Stratum, t/ha") were calculated by multiplying "AG Biomass in Stratum, t/ha" by the appropriate roots to shoot ratio and by 0.5, the carbon fraction of the biomass. A root to shoot factor of 0.27 is used.[17]

Step 10. The total carbon stocks (CO_2e) are determined by adding the above and below ground carbon (C) of each stratum in each project area, multiplying each sum by the respective area of that stratum, converting the result to CO2e and summing the products. The following is the general equation required by the methodology.

$$P(t) = \sum_{i-I}^{I} (PA(t)\ i + PB(t)\ i) * Ai*(44/12)$$

Where:

$P_{(t)}$ = carbon stocks within the project boundary at time *t* achieved by the project activity (t CO_2e)
$PA_{(t)}I$ = carbon stocks in above-ground biomass at time *t* of stratum *i* achieved by the project activity during the monitoring interval (t C/ha) from Step 8.
PB(t)I = carbon stocks in below-ground biomass at time *t* of stratum *i* achieved by the project activity during the monitoring interval (t C/ha) from Step 9.
Ai = project activity area of stratum *i* (ha) from Step 2.
I = stratum *i* (*I* = total number of strata)

[17] Exhibit 10 GPG-LULUCF: TIST KE PD-VCS-Ex10 GPG-LULUCF 2003 Root-Shoot.pdf, Table 3.A.1.8, at http://www.tist.org/PD-KE-VCS-009%20Documents.php.

The first part of this equation required adding the "AG Biomass in Stratum, t/ha" and "BG Carbon in Stratum, t/ha" and multiplying the sum by the area of each stratum and by 44/12 to convert carbon to CO_2. This is accomplished in the "CO2 in Stratum (t)" column.

The second part of this formula required summing the values in the "CO2 in Stratum (t)" column. The result is in the "CO2 in Stratum (t)" column of the "Ex-Post Strata" worksheet on the "Project Total" row (bottom of worksheet).

The Steps 1 through 10 result in the cumulative removal from the trees as of the end of the current monitoring period. To obtain the Net GHG Emission Reductions and Removals for Section 5.4. the removals from the previous monitoring periods must be subtracted.

Change in PA Status

163 Project Areas have been removed from the PD since the last monitoring period. In addition, 111 PAs PAs remain in a "Pending" category. The status of each individual PA is addressed in Status V3 column, PA Summary worksheet of Appendix 14. If the column indicates something other than active, the status is given. The carbon of all non-active PAs has been set to zero. This means that remaining PAs must first make up the carbon loss before any new credits can be issued.

There are several reasons for the removal of the PA. The major categories are:

1. Active: These are PAs that are active in TIST and have valid tree counts and calculated carbon volumes. Only Active PAs contribute to the carbon volume of this verification.
2. 5 Year Rule: This Pending category are PAs have not been monitored in five years, which is outside the requirements of the methodology. In this monitoring period, the carbon volume is set to zero. During the next monitoring period they are expected to be monitored. If they are no longer present, they will be marked “removed”.
3. No Strata: This Pending category are PAs that do not appear on the strata query and the reasons need to be determined. In this monitoring period the carbon volume is set to zero. During the next monitoring period, they are expected to be monitored. If they are no longer present, they will be marked “removed”.
4. Pending: These are PAs that need to be reviewed to determine if they will continue as TIST PAs, or need a current quantification. They will still be listed on the PA Summary sheet to acknowledge they are currently part of the PD, but for this verification their trees and carbon are zero. Once their circumstances have been reviewed, they will either be removed or listed as active. If they are listed as active, we will reestablish the tree count and carbon in subsequent verifications.
5. Removed: These PAs are being permanently removed from the program. They will still be listed on the PA Summary sheet to acknowledge they were part of the PD, but their trees and carbon are zero. They will not participate in the future.

The following describes the different categories and the way they are treated:

a. Pending-Baseline Error. These are cases where the baseline and boundaries of a PA were taken at one location, but the farmer decided to plant somewhere else. Due to

the rules of VCS, the PAs with the trees are not part of this PD. The baselined area can still be a project area if it is ever planted. Until that time, the tree and carbon will be set to zero.

b. Pending-Change in Ownership. This includes sale to others; transfer to family members that don't want to be in TIST; and subdividing to family members who want their PAs to be treated separately. If the new owners want to keep their PAs in the PD, they are eligible.
c. Pending-Fire. These PAs were lost to fire. If the member replants the trees, will be eligible under this PD.
d. Pending-Group Quit. Some groups have quit the program. Reasons include they registered in more than one group, they were too small to qualify for carbon payments, or they had a misunderstanding with another member. A group can rejoin if they change their mind.
e. Pending-PA Inaccessible. These PAs are too remote to be able to be serviced. If quantified in the future, they will be added in subsequent verifications.
f. Pending-Member Quit. Some members have quit. Reasons include, they refuse to be quantified so they are dropped from the program; they say they have not received any carbon payments; they had a misunderstanding with another member; they felt that participation was not in their best interest; because they did not want to participate; because they felt the carbon payment was not adequate and some for undisclosed reasons. Sometimes members change their minds about quitting so they are put in a pending category. If they don't change their minds by the next verification, they will be removed.
g. Pending-Merged with Another Grove. These are cases where there were two or more original tracks on a farm and in a subsequent quantification the Quantifier merged the groves into one. Since this is not allowed under VCS rules, the carbon and trees in these PAs were set to zero. If the PAs are un-merged and are requantified properly, they can become eligible in a subsequent verification.
h. Pending-Needs Requantification. These are PAs that are still active, but we do not believe the quantification to be accurate. Most are PAs that had no trees at the time of the first verification and have not been requantified. Their carbon was zero at the time of the first quantification and remains zero. Two other reasons for questioning the quantification are the data was lost during synchronization and poor quality of quantification.
i. Pending-Never planted. The members have not planted any trees in these PA. If they do, they will be included in subsequent verifications.
j. Pending-Ownership Dispute. This generally results when the farmer dies, and the family does not agree on the inheritance. These are pending because sometime the new owners decide they want to be in TIST. Since these PAs have been validated and the baseline and additionality are not affected, this change in ownership is permitted if the new owners decide they want to keep the PAs in TIST.
k. Pending-Pest. These PAs were lost to pests, disease or fire. If the member replants the trees will be eligible under this PD.
l. Remove-Baseline Error. These are PAs where baseline trees were erroneously marked as TIST trees. These trees have been removed from the data set and the PAs are not eligible under the PD.
m. Remove-Change in Ownership. This includes sale to others; transfer to family members that don't want to be in TIST; and subdividing to family members who want their groves to be treated separately. These are cases where new owners will not be eligible for membership.
n. Remove-Double Registration. These are cases where subsequent to validation we learned that the PA had been registered twice. This includes cases where the same

farmer registered the same grove in two different Small Groups and where the same grove was quantified under two different names.

o. Remove-Group Quit. Some groups have quit the program. Reasons include they registered in more than one group, they were too small to qualify for carbon payments or they had a misunderstanding with another member. We do not expect groups in this category to change their minds.
p. Remove-Harvest. While TIST allows beneficial thinning, we do not allow harvest. Those in this category have violated the contract and have been marked inactive. We expect most of them will be removed from TIST permanently. We have identified a few, however, that removed eucalyptus trees in order to plant indigenous trees. If that can be demonstrated, those PAs may be allowed to stay in the PD. In such a case, the carbon from the harvested trees will have been debited from the total carbon of the PA and only the carbon from the new trees will be counted.
q. Remove-Member Quit. Some members have quit. Reasons include, they refuse to be quantified so they are dropped from the program; they say they have not received any carbon payments; they had a misunderstanding with another member; they felt that participation was not in their best interest; because they did not want to participate; because they felt the carbon payment was not adequate and some for undisclosed reasons. We do not expect members in this category to change their minds.
r. Remove-Nursery, not a tree grove. This was a nursery mislabeled a grove.
s. Remove-Overlap. These are cases where subsequent to validation we learned that the PA boundary overlapped with another PA boundary. These PAs have been removed to avoid double counting.
t. Remove-Registration Error. These are PAs that the farmers says were not part of TIST. The likely cause is the Quantifier misunderstood the farmer during baseline and tracked the wrong area.
u. Remove-Trees Removed. These are PAs where trees were removed because the land was needed for cultivation, home construction, powerlines, road expansion or school expansion. The land is not expected be available in the future as a TIST PA.
v. Remove-Unauthorized Registration. These are cases where an unauthorized person registered the PA for TIST. Sometimes it is the wife joining and the husband later refusing.

Loss Event Calculation

As noted in Section 3.2.2 of this MR, VCS PD KE 001 suffered a loss during this monitoring periods due to the actions harvesting of trees by a large land owner and his family. The calculation of the loss is based on the Project Removal Calculations, above, and uses the exact same equations and methods.

The results during this monitoring period is a gross removal of 24,291 tonnes (See Appendix 14). The final step in Project Removal Calculations is “the removals from the previous monitoring periods must be subtracted”.

KE PD VCS 001 History	Tonnes
Total Removals to Date	24,291
Less: Removals Monitoring Period 01	**39,094**
Less: Removals Monitoring Period 02	**34,033**
Net Removals Monitoring Period 03	-48,837

5.3 Leakage

For ex-post leakage, the methodology requires the monitoring of cropland, domesticated grazing animals and domesticated roaming animals displaced by the project activity during the first crediting period. If the indicators were less than 10%, leakage is set to zero. The monitoring results provided in the PD indicated cropland and grazing leakage is below the thresholds that require further monitoring and that the ex-post leakage can be set at zero.

5.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)	Buffer pool allocation	VCUs eligible for issuance
Total	0	-48,837	0	-48,837	na	na

The net change in carbon stocks during the monitoring period was -48,837 tCO2e. The net GhG emissions reductions can be found at the bottom of the "PA Summary" worksheet. It reflects the emission reductions calculated from the "Ex-Post Strata" worksheet, less the Pending and Removed PAs.

Two non-permanence risk reports were prepared under Section 2.1.3 of the AFOLU Non-Permanence Risk Tool, v4.0. Due to the harvesting reported in this PD and the Loss Report, 12 PAs were evaluated separately from the remainder. That risk report, Non-Permanence Risk Sub-Report KE001-L, failed. But for the reversal in KE001-L, there would have been an increase of 19,505 tonnes in the remainder of the PD and the risk report for the remaining PAs had a risk of 1.0. However, since there was a reversal, KE VCS-001 is not eligible for any credits. The non-permanence risk reports are Appendix 12.

The following is the verification history of KE VCS-001:

Verification Number	Date	Monitoring Period	Period Reductions	Buffer	Issuance
Verif 01	11-Apr-11	01-Jan-04 to 31-Dec-10	39,094	7,819	31,275
Verif 02	16-Dec-14	01-Jan-11 to 11-Aug-15	34,032	3,403	30,628
Verif 03	Pending	12-Aug-15 to 22-May-20	-48,837	na	**na**

6 APPENDICES:

The following appendices can be found at: http://www.tist.org/PD-KE-VCS-001-004%20Documents.php

- Appendix 03 PA plots. TIST KE PD-VCS-001d App03 PA Plots.kml (validation)
- Appendix 03 PA plots. TIST KE PD-VCS-001d App03 PA Plots 200626.kml (third verification)
- Appendix 04 Validation Spreadsheet. TIST KE PD-VCS-001e App04 Data 100826 Chugu.xlsx
- Appendix 12a Non-Permanence Risk KE001: TIST KE PD-VCS-001m App12a Verif 03 Risk Analysis 200522.pdf
- Appendix 12b Non-Permanence Risk KE001-L : TIST KE PD-VCS-001m App12b Verif 03 Risk KE001-L 200522.pdf
- Appendix 14 Monitoring Spreadsheet V3: TIST KE PD-VCS-001o App14 Verif 03 Monitor Data 200522.xlsx

7 LOSS EVENT REPORT

Verified Carbon Standard

LOSS EVENT REPORT

FOR

TIST PROGRAM IN KENYA

VCS-001, VERIFICATION 03

TIST
The International Small Group & Tree Planting Program

Document Prepared by Clean Air Action Corporation

Contact Information: info@tist.org

Project Title	TIST Program in Kenya, VCS-001
Version	Version 01
Report ID	VCSPD594
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Monitoring Period	12-August-2015 to 22-May-2020
Prepared By	Charlie Williams, Vice President
Contact	Clean Air Action Corporation 250 Old Harbor Rd, Vinalhaven, ME 04863 Telephone 720-394-2112 CharlieWilliams@CleanAirAction.com Tist.org

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1 LOSS EVENT DETAILS

1.1 Summary Description of the Loss Event

During the preparation of the monitoring report for the third verification of KE001, it was learned that there was a significant loss of carbon removals, due to the harvesting of trees by a large land owner and his family. Although the land owner was under contract to maintain the trees for 60 years, the family violated the contract and cut down the trees. There were 168,169 trees, in 12 PAs, present during the second verification that covered the monitoring period 01-January-11 to 11-August-2015. This represented 68,342 VCUs that were issued and subsequently sold (less the buffer). While preparing the monitoring reports for the third verification, this loss was first recognized and triggered further investigation on the ground. The loss of the 68,342 tonnes of removal has been confirmed and has caused a 48,837 tonne loss for the third monitoring period, 12-August-2015 to 22-May-2020.

1.2 Date of Loss Event

12-August-2015 to 22-May-2020

1.3 Location of Loss Event

The PAs are located in the vicinity of Nkubu, Kenya, in Meru County, on the east flank of Mt. Kenya. The specific locations and area are provided in Exhibit 44.[18]

2 DATA AND PARAMETERS

2.1 Data and Parameters Monitored in Affected Area

Data Unit / Parameter	Number of trees
Data unit	Trees
Description	Number of trees in a project area by strata
Source of data	Physical counts
Description of measurement methods and procedures to be applied	Physical count of the trees in each stratum by Quantifiers with each visit.
Frequency of	Ongoing measurement taken by Quantifiers as they visit

[18] TIST KE PD-VCS-Ex44 Loss Event Report 200804.kml at

monitoring/recording	project areas. Each PA could be visited as much as once per year.
Value applied	Zero
Monitoring equipment	Customized smartphone
QA/QC procedures to be applied:	Observation by the Quantifier that harvest had taken place. Confirmation by looking at the KML files on Google Earth.
Purpose of data	The tree counts and DBH are used to calculate the tree biomass and then the carbon.
Calculation method	The tree counts were set to zero in the PAs, where the harvest took place.
Comments	None

Data Unit / Parameter	**Total CO2**
Data unit	Tonnes
Description	Total CO2 sequestered by the trees
Source of data	Calculation
Description of measurement methods and procedures to be applied	Allometric equations are assigned to each stratum. DBH values are applied to the allometric. Average biomass of a tree in each stratum is calculated and multiplied by number of trees in each stratum. Biomass is converted to CO_2e and the CO_2e of the stratum are totaled.
Frequency of monitoring/recording	Calculation takes place with each monitoring report
Value applied	Zero
Monitoring equipment	Computer and database
QA/QC procedures to be applied:	Observation by the Quantifier that harvest had taken place. Confirmation by looking at the KML files on Google Earth. On the ground confirmation.
Purpose of data	Cumulative project emissions of the observed PAs were set to zero.
Calculation method	Cumulative project emissions of the observed PAs were set to zero.
Comments	None

2.2 Description of Impact on Project Activities and Monitoring Plan

The impact on the PD was a loss of cumulated carbon due to the unapproved removal of project trees. It also led to an evaluation of the cause of the tree loss. This event does not impact the monitoring plan following the loss event.

3 QUANTIFICATION OF ESTIMATED LOSS

3.1 Carbon Stock at Previous Verification

The carbon stock at the end of the second monitoring period (01-January-11 to 11-August-2015) was 73,127.4 tonnes (pre buffer).

3.2 Carbon Stock after Loss Event

The carbon stock at the end of the third monitoring period (12-August-2015 to 22-May-2020) was 24,291.

3.3 Summary of Estimated Loss

The estimated loss is 48,837.

4 ADDITIONAL INFORMATION

The following is presented to provide a clearer picture of the loss:

- This was our first PD and the family joined fairly early in the Kenya program, 2007. Having a larger land owner join seemed like a good thing and they were readily signed up and registered. As it turns out, the value of our training, the tree payments and even the expectation of profit share was not enough to match the value of the trees once they were large enough to sell.

- During the first and second monitoring periods we held several meetings with the land owner about the possibility of him harvesting. Each time we were assured that the trees would remain.

- Most of the harvested tree were eucalyptus. As we began to observe, after about eight years of growth, the eucalyptus are prime candidates for early harvest. Our training has been focusing on not planting eucalyptus and we have seen a decrease in their inventory in Kenya.

- While this loss is devastating to this PD, we have 13 others that are robust and continue to build their carbon stocks. We have six others in Kenya ready for their third verification and their removals for the third verification are about 1.2 million tonnes. The total removal in Kenya is about 2.48 million tonnes.

- We have deposited 11,222 tonnes into the buffer for KE001. Our total buffer deposits for Kenya are 141,137, through the second verification. The third verification will increase the buffer to over 261,000 tonnes.

- TIST is operated as a program, not as individual PDs. We have no intentions of withdrawing KE001 and membership of the other members in this PD will continue uninterrupted. The farmers will continue to receive training, tree payments and profit share based on their trees and carbon.