

MONITORING REPORT FOR TIST PROGRAM IN KENYA VCS 005, VERIFICATION 03



Document Prepared by Clean Air Action Corporation

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	www.aenor.com
GHG Accounting/Crediting Period	30 years starting 01-January-2004 and ending 31-December-2033
Monitoring Period of this Report	09 November 2016 – 22 May 2020
History of CCB Status	Validated as KE-CCB-002 (Second Edition): 22-Dec-2011 First Verification as KE-CCB-002 (Second Edition): 01 January 2004 to 08 June 2011. Verification report dated 22-Dec-2011 Second Verification as KE-CCB-005 (Third Edition): 09 June 2011 to 08 November 2016. Verification report dated 04 October 2017 Third Verification as KE-VCS-005 (Third Edition): This report
Gold Level Criteria	Climate Change Adaptation Benefits The TIST KE 005 has removed more than a million tonnes of CO₂ from the atmosphere. TIST members are trained in Conservation Farming to help address climate resiliency. This PD documents 3,224,459 trees that help retain soil moisture, provide shade and prevent erosion. TIST provides new community organization in the form of Clusters and Small Groups. Exceptional Community Benefits Demonstrated to be pro-poor in a poor area and with net positive impacts on community. Farmer members generate and receive short- and long term benefits. TIST trains farmers in many sustainable development programs that when implemented generate benefits to well-being. They grow trees and receive a share of the carbon revenues. They determine where to grow their tree, what species to grow that will be most beneficial to their well-being and how many to plant. During this period, the average farmer has received \$6,619 in monetized benefits. As separate classes, the average vulnerable and women member has received \$1,365 and \$6,268, respectively. Exceptional Biodiversity Benefits <i>Vitex keniensis</i> (Meru Oak) is endemic to the Mount Kenya region and is listed as endangered on the IUCN Red List. The population trend is assessed as decreasing. TIST farmers in this PD have planted and maintain 22,017 <i>Vitex keniensis</i>, a clear, direct benefit to the species.

Table of Contents

1	Summary of Project Benefits	4
1.1	Unique Project Benefits	4
1.2	Standardized Benefit Metrics	4
2	General	9
2.1	Project Description	9
2.2	Project Implementation Status	13
2.3	Stakeholder Engagement.....	23
2.4	Management Capacity	31
2.5	Legal Status and Property Rights	33
3	Climate	36
3.1	Monitoring GHG Emission Reductions and Removals	36
3.2	Quantification of GHG Emission Reductions and Removals	44
3.3	Optional Criterion: Climate Change Adaptation Benefits	48
4	Community	49
4.1	Net Positive Community Impacts	49
4.2	Other Stakeholder Impacts	52
4.3	Community Impact Monitoring	53
4.4	Optional Criterion: Exceptional Community Benefits	55
5	Biodiversity	62
5.1	Net Positive Biodiversity Impacts	62
5.2	Offsite Biodiversity Impacts.....	68
5.3	Biodiversity Impact Monitoring	68
5.4	Optional Criterion: Exceptional Biodiversity Benefits	72
6	Additional Project Implementation Information.....	73
7	Additonal project Impact Information.....	73
8	Appendicies	73

1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
1) Carbon payments to all TIST KE members.	\$168,202	4.3.1	\$1,037,699
2) Members in PD	35,776 people; 14,866 women; 20,563 men; remainder undifferentiated	4.3.1	36,582 people; 13,734 women; 18,684 men; remainder undifferentiated
3) Total monetized benefits to the average (generally poor) TIST member.	\$6,619	4.4	\$9,227
4) Total monetized benefits to the average vulnerable TIST member.	\$1,365	4.4.2	\$2,033
5) Total monetized benefits to the average female TIST member.	\$6,268	4.4.3	\$8,758

1.2 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	506,087 this period	3.2.4	1,108,743
	Net estimated emission reductions in the project area, measured against the without-project scenario	not applicable	na	not applicable

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	not applicable	na	not applicable
	For ARR ³ projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	1,216 decrease	3.1.4	9,806 ha
Improved land management	Number of hectares of existing production forest land in which IFM ⁴ practices have occurred as a result of the project's activities, measured against the without-project scenario	not applicable	na	not applicable
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	1,216 decrease	3.1.4	9,806 ha
Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	35,776 people; 14,866 women; 20,563 men; remainder undifferentiated	4.3.1	36,582 people; 13,734 women; 18,684 men; remainder undifferentiated

¹ Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (*VCS Program Definitions*)

² Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (*VCS Program Definitions*)

³ Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (*VCS Program Definitions*)

⁴ Improved forest management (IFM) - Activities that change forest management practices and increase carbon stock on forest lands managed for wood products such as saw timber, pulpwood and fuelwood (*VCS Program Definitions*)

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	14,866 women	4.3.1	14,866 women
Employment	Total number of people employed in project activities, ⁵ expressed as number of full time employees ⁶	2 full time 6 independent contractors (IC) in Leadership council 66 (IC) Cluster servants 35,776 farmers receiving benefits	4.3.1	2 full time 6 independent contractors (IC) in Leadership council 66 (IC) Cluster servants 36,582 farmers receiving benefits
	Number of women employed in project activities, expressed as number of full time employees	0 full time women 4 independent contractors (IC) in Leadership council 39 (IC) Cluster servants 14,866 females received benefits	4.3.1	0 full time women 4 independent contractors (IC) in Leadership council 39 (IC) Cluster servants 14,866 females received benefits
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	35,776 people	4.3.1	36,582 people
	Number of women with improved livelihoods or income generated as a result of project activities	14,866 women	4.3.1	14,866 women

⁵ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.

⁶ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])

⁷ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. The Sustainable Livelihood Approach to Poverty Reduction. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	not applicable	na	not applicable
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	not applicable	na	not applicable
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	not applicable	na	not applicable
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	not applicable	na	not applicable
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	not applicable	na	not applicable
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project	not applicable	na	not applicable

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	scenario			
Well-being	Total number of community members whose well-being ⁸ was improved as a result of project activities	35,776 people	4.3.1	36,582 people
	Number of women whose well-being was improved as a result of project activities	14,866 women	4.3.1	14,866 women
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, ⁹ measured against the without-project scenario	1,216 decrease	5.3.1	9,806 ha
	Number of globally Critically Endangered or Endangered species ¹⁰ benefiting from reduced threats as a result of project activities, ¹¹ measured against the without-project scenario	22,017 Vitex keniensis	5.4.1	22,017 Vitex keniensis

⁸ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

⁹ Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

¹⁰ Per IUCN's Red List of Threatened Species

¹¹ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 GENERAL

2.1 Project Description

2.1.1 Implementation Description

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 92,000 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-005 is a small scale grouped 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 1,179 of the Small Groups, 8,692 members, 6,710 project areas and 2,556 ha. The KE PD-VCS-005 and the associated CCB PDD (KE-CCB-002) were validated and first verified on 22-December-2011 by Environmental Services, Inc. (ESI). The verification period was 01-January-2004 to 08-June-2011. KE-CCB-002 was verified as community gold.

KE PD-VCS-005 and KE-CCB-005 were verified a second time 04-October-2017 by Epic Sustainability (CCB community gold). Due to the addition of new instances as a grouped project it was verified under the 3rd Edition of CCB and the name was changed to be the same as its VCS counterpart, KE PD-VCS-005. The verification period was 09-June-2011 to 08-November-2016. The monitoring report demonstrated 20,412 active project areas, 11,022 active ha and 3,332,324 active trees. KE-CCB-005 was verified as community gold.

This is the third verification of the combined VCS and CCB PD, KE PD-VCS-005. It was verified by AENOR Internacional, S.A.U. The verification period was 09-November-2016 to 22-May-2020. The monitoring demonstrated 19,073 active project areas, 9,806 ha and 3,224,459 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	22-Dec-11	01-Jan-04 to 08-Jun-11	68,636	6,864	54,909
Verif 02	04-Oct-17	09-Jun-11 to 08-Nov-16	534,020	53,402	480,617
Verif 03	Pending	09-Nov-16 to 22-May-20	506,087	50,609	455,478

As discussed more thoroughly in Section 3.2.3, no further leakage monitoring is required. Permanence is addressed through the risk buffer. A Non-Permanence Risk Report was prepared under VCS 4.0 and provided to the Verifier (Appendix 12).¹²

2.1.2 Project Category and Activity Type

This project is an Afforestation, Reforestation and Revegetation (ARR) project and has been developed in compliance VCS Standard version 4.0. KE-VCS-005 is a grouped project.

2.1.3 Project Proponent(s)

Organization name	Clean Air Action Corporation (CAAC)
Contact person	Charles E. Williams
Title	Vice President
Address	Clean Air Action Corporation (CAAC) 4112 Timbervale Drive Evergreen CO, USA 80439
Telephone	Telephone 720-394-2112
Email	CharlieWilliams@CleanAirAction.com

2.1.4 Other Entities Involved in the Project

Organization name	Institute for Environmental Innovation (I4EI)
Role in the project	Has provided funding for sustainable development programs
Contact person	Catherine Campbell
Title	Executive Director
Address	Institute for Environmental Innovation 250 Old Harbor Rd Vinalhaven, ME 04863
Telephone	Telephone 202-309-1356
Email	catherinecampbell@tist.org

¹² Appendix 12 Risk Analysis: TIST KE PD-VCS-005m App12 Verif 03 Risk Analysis 200522.docx, at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

Organization name	United States Agency for International Development (USAID)
Role in the project	Provided funding for sustainable development components until 2014. No longer active.
Contact person	Enoch Kanyanga
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

2.1.5 Project Start Date (G1.9)

01-January-2004.

2.1.6 Project Crediting Period (G1.9)

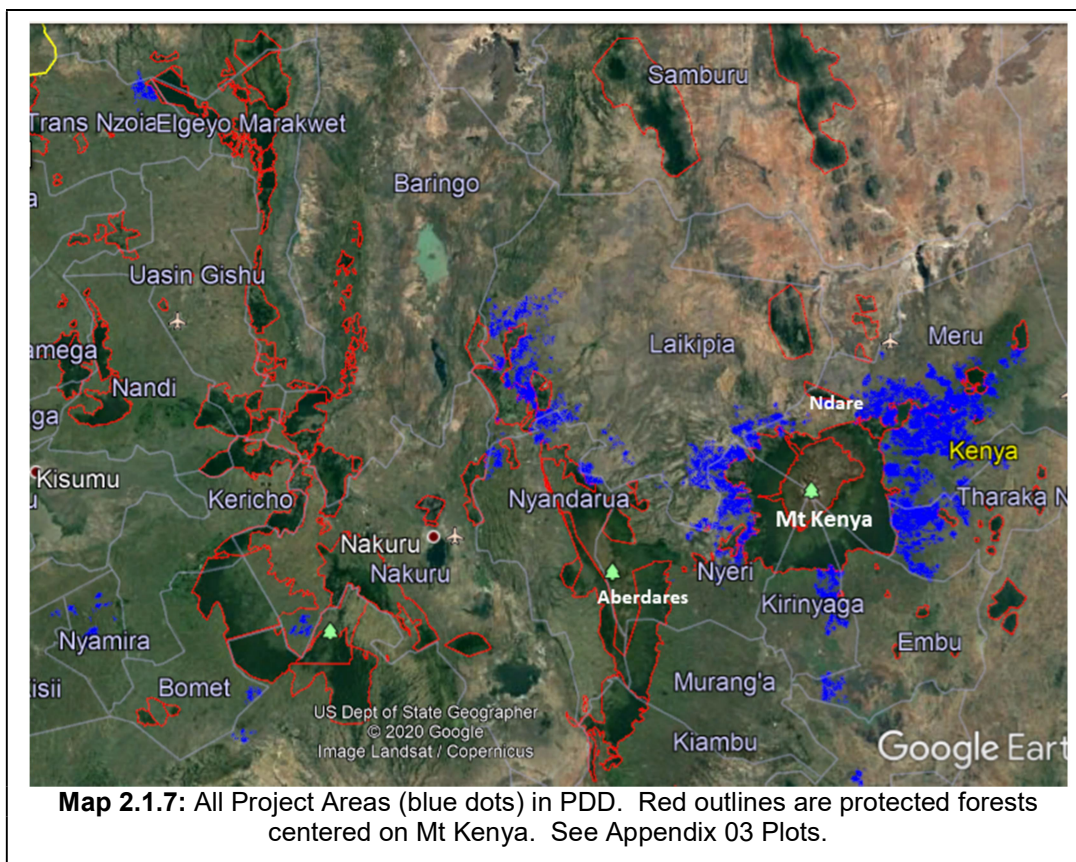
30 years starting 01-January-2004 and ending 31-December-2033

2.1.7 Project Location

There are 19,073 Project Areas, covering 9,806 active ha. The PAs of this PDD are located in central Kenya, mostly in the vicinity of Meru and Nanyuki. The individual Project Areas, their location and their boundaries are presented in Map 2.1.7 and Appendix 03 PA Plots.¹³ In addition, a latitude and longitude for each project area is indicated on the monitoring spreadsheets, Appendix 14.¹⁴

¹³ Appendix 03 PA Plots: TIST KE PD-VCS-005d App03a PA Plots 200626.kml, TIST KE PD-VCS-005d App03b PA Plots 200626.kml and TIST KE PD-VCS-005d App03c PA Plots 200626.kml at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>. (note: the subsets of the PA plot files do not correspond with the subsets of the Monitoring Data files).

¹⁴ Appendix 14 Monitoring Data: TIST KE PD-VCS-005o App14a Verif 03 Monitor Data 200522.xlsx, TIST KE PD-VCS-005o App14b Verif 03 Monitor Data 200522.xlsx and TIST KE PD-VCS-005o App14c Verif 03 Monitor Data 200522.xlsx at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.



2.1.8 Title and Reference of Methodology

The monitoring methodology used by the Project is CDM AR-AMS0001 Version 06: "Simplified baseline and monitoring methodologies for small-scale A/R CDM project activities implemented on grasslands or croplands with limited displacement of pre-project activities" and the associated tools. AFOLU Non-Permanence Risk Report version 4.0 was also used. No other tools or methodologies were used for this verification report.

2.1.9 Other Programs (G5.9)

The Project is certified under Climate, Community and Biodiversity Standard (CCBA) as "TIST Program in Kenya VCS-005" ("TIST Program in Kenya CCB-002" in the validation and first verification). 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.

2.1.10 Sustainable Development

Kenya's nationally stated sustainable development priorities are the 17 SDG developed at the UNGA Sustainable Development Summit. The following are the sustainable development goals that TIST addresses.

- Goal 1, No Poverty: TIST provides cash income from carbon credits and sustainable development benefits monetized at over KES 988,219 (\$9,227) over the project lifetime (average per person).
- Goal 2, Zero Hunger: TIST promotes Conservation Farming to improve crop yields and planting fruit and nut trees as part of the tree planting program.
- Goal 3, Good Health and Well-being: TIST provides training in many health topics including HIV/AIDS, malaria, clean water, hygiene and indoor air pollution.
- Goal 5, 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.
- Goal 6, 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.
- Goal 7, Affordable and Clean Energy: TIST trains in the building and use of more energy efficient cook stoves.
- Goal 13, Climate Action: TIST is a climate mitigation program.
- Goal 15, Life on Land: TIST provides biodiversity benefits by adding indigenous tree, fruit trees, nut trees and canopy. TIST farmers are trained in biodiversity. TIST project areas provide linkage and buffers with high conservation value areas.

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.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (G1.9)

Date	Milestone(s) in the project's development and implementation
2004	Initial field visit, consultation with local stakeholders, hold initial seminars, registration of initial Small Group members, deploy monitoring system, hire local staff, hire and train Quantifiers, begin training trainers.
2004-2010	Planting of first trees. Project expansion focused on adding new groups, members and trees. Continue with regular monitoring and training. Hold regular seminars. Ongoing and regular consultation with stakeholders.
2010-2011	VCS and CCB validation and first verification.
2012-2033	Periodic verifications to be held in accordance with the minimums required by the CCB and VCS standards. Continue with regular monitoring and training. Hold regular seminars. Ongoing and regular consultation with stakeholders.

The following Gantt charts show the timing of annual events for the project. The numbers along the top of each chart are years. Where "project" is indicated in the title, it is for the 30-year project life. Where "project area" is indicated, it is for events that might take place within a project area and the year one may be an event, rather than the beginning project date. With all the

different project areas, species, farmers and planting schedules, these charts are very general and subject to change.

Contacting and contracting with farmers: TIST Kenya has continued to expand since inception. After year 15 it expected that new expansion will go into a new PD.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Main planting schedule (project). Main planting has taken place, but additional planting may take place in individual project areas, over the next few years, where the original planting density is low and due to expansion.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Replacement planting schedule (project). As trees die, farmers are to replant for 20 years. Replanting can start as soon as the second year. Replanting is shown for 20 years because of the staggered start of individual project areas.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Monitoring (project). Monitoring is ongoing. The internal goal is to quantify each grove annually. Whether that is achieved or not, the Quantifiers are out in the field, all the time, visiting the multitude of project areas.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Validation and verification (project). Validation takes place around year six, when project areas have been established and trees are already in the ground and growing. It is expected that the initial verification will take place at the same time. While it is a cost trade off, because the monitoring is ongoing, it is possible that verification could take place as frequently as annually.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Thinning (project area). Thinning is allowed, because it improves tree growth. Because of the different species and their different growth rates, the different planting schedules, the different original spacing and different farmers, thinning can begin in as early as four years, where an early harvest for poles or firewood is made.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Fruit and nut harvest (project area). Most of the trees won't bear any fruits, nuts or other products for five or six years. After that, harvest will be annual.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

Deadwood harvest (project areas). Farmers may harvest deadwood any time it exists. For those that lose trees in the first year, it will come in year one. However, it is expected that most deadwood harvest will take place in later years as larger trees are lost, or branches die.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

2.2.2 Methodology Deviations

None

2.2.3 Minor Changes to Project Description (*Rules 3.5.6*)

PD KE CCB 005, Section CM2.3 Net Well-being Impacts of the Project are Positive

Section CM2.3 of the PD states, "Section CM1.2 itemizes the positive benefits our different programs and trainings". This is an error and should reference Section CM2.1.

PD KE CCB 005, Section CM4.1 Develop Community Monitoring Plan

The last paragraph of Section CM4.1 state the Quantifiers will "count fuel efficient stoves". This is not a reported metric and no stoves were counted during the monitoring period. We were not seeing a significant uptake of new stoves during the last monitoring period and focused more on quantifying trees. During this monitoring period, we gave some of our top Cluster Servants (Quantifiers) stove kits to use with the hope that this will inspire training so that we can reinvigorate the program.

2.2.4 Project Description Deviations (*Rules 3.5.7 – 3.5.10*)

PD KE VCS 005, Section 4.3.1 Monitoring roles and responsibilities

In the second paragraph of Section 4.1.3 of the PD KE VCS 005 we stated, "the operational processes for monitoring the actual GHG removal by the sinks are for TIST Quantifiers to visit each grove 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 and not all PAs are visited with in the five year period.

Quantification Every Year: While counting trees and collecting circumference every five years is a requirement of the methodology, 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 in Section 4.3.5 of PD KE VCS 005, "Multiple Quantifications: TIST's internal goal is to quantify each project area once per year."

There are tens of thousands of PAs in Kenya. Unfortunately, visiting every PA every year proved to be too costly to maintain. TIST program in Kenya is 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 payment, 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.¹⁵ This allows us to get the same

¹⁵ 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.

information that a Quantifier might get on a non-quantification visit (i.e. the annual visit) by asking members 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.

Quantification Every Five Years: During preparation of the monitoring report, all PAs that have not been monitored within five years are identified. Because they are outside the time frame stated in the PD, they are not eligible for carbon credits. This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome of the deviation is that the PAs remain in the PD but, until they are monitored within five years of the next verification, their removals will be considered zero. This means that remaining PAs must first make up the carbon loss before any new credits can be issued.

PD KE VCS 005, 4.3.3. (Beneficial "leakage" from project activities)

Removing Project Activity Instances: Section 4.3.3 (last paragraph) states, "since ex post carbon calculations are based on current tree counts, any trees lost to harvest, etc., are automatically excluded from the calculation". While it was expected that there would be a loss of trees from the PD due to harvest, etc., the loss of PAs was not addressed. TIST has addressed it, thusly. 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 m through y in Section 2.2.5 of the MR, 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. Included in the "Status V3" column are PAs that were identified as overlapping with other PAs. These were considered double registration and have been removed. By zeroing the carbon, all of the carbon credits previously issued from the PA are replaced by carbon demonstrated by this verification.

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.

PD KE VCS 005, 3.5 Optional Criterion: Climate Change Adaptation Benefits

This Project Description Deviation is to apply for the optional gold level for Climate Change Adaption Benefits. The PD was written prior to the current CCB Template for CCB Version 3 and Section 3.5 refers to the CCB PD Template 3.0 Issued: 21 June 2017. This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome is that PD is applying for the CCB Climate Change Adaption Benefit.

3.5.1 Regional Climate Change Scenarios

Climate Change is impacting local land use scenarios in numerous ways:

Drought: From 2014-Present, Kenya has been experiencing severe drought.¹⁶ Climate change contributes to this dynamic. The impact of drought is felt acutely in certain regions where this project is active. These include Nanyuki, Mara, and Machakos.

¹⁶ "Kenya: Drought - 2014-2020." *ReliefWeb*, reliefweb.int/disaster/dr-2014-000131-ken, accessed February 10, 2020

Fire: Drought in turn has led to the prevalence of wildfires in Kenya. This has impacted various regions, including widespread fires in and around Mount Kenya National Park in 2019.

Irregular Rainfall: In addition to acute drought, irregular rainfall dramatically impacts farmers' ability to grow food.

High Wind: Climate change is contributing to unpredictable wind patterns in Kenya.

In the absence of the project, these impacts could have significant impact on the land-use scenario of project participants. High winds can damage buildings and harm agriculture, while contributing to erosion. Similarly, drought, fire, and unpredictable rainfall could potentially render agricultural land less productive. Some farmers have reported having to move their crops up the hillsides to seek cooler temperatures for traditional crops. TIST has received anecdotal reports of flooding and landslides caused by irregular rainfall. Some farmers have reported a total loss of their maize crop in dry years where they have farmers using traditional methods. Through TIST, farmers are able to identify, share, and implement strategies to mitigate these risks.

3.5.2 Climate Change Impacts

The threats described in Section 3.5.1 are already having an impact on both community well-being and biodiversity conservation status. Drought and/or irregular rainfall impact TIST participants' ability to grow food. In the worst cases, this can lead to widespread famine. More mild cases lead to food shortages and diminished economic prospects. Changes in weather negatively impact HCVs and many of the flora and fauna listed in Section CM1.2.

Fires are less pervasive but have a more dramatic impact on affected communities and ecosystems. As climate change accelerates, it is likely that fires will become more widespread, causing health, economic, and environmental challenges to TIST farmers.

3.5.3 Measures Needed and Designed for Adaptation

Project design helps to mitigate the impacts of climate change in several ways:

Drawdown of CO₂: Ultimately, climate change must be addressed through the removal of CO₂ from the atmosphere. Thus far, TIST farmers in Kenya have removed more than 5M tonnes of CO₂.

Conservation Farming: TIST trains farmers on climate resilient agricultural techniques. Education of FAO Conservation Farming techniques allows farmers to gather minimal rainfall in specially dug and spaced holes. Even in times of drought or limited rainfall, this technique allows crops to grow.

Trees: Trees retain moisture and create microclimates on TIST participants farms. Trees provide shade to cool farms and introduce new organic matter to restore soil health. This makes farms more productive in adverse conditions. Trees prevent erosion and can serve as windbreaks when planted near structures.

Community Organization: TIST farmers organize themselves in local and regional groups that share knowledge in monthly meetings. These meetings provide an opportunity for farmers to share experiences and find locally appropriate solutions to local issues. This organization makes TIST farmers better able to navigate the challenges posed by climate change.

PD KE VCS 005, 5.5 Optional Criterion: Exceptional Biodiversity Benefits

This Project Description Deviation is to apply for the optional gold level for Exceptional Biodiversity Benefits. The PD was written prior to the current CCB Template for CCB Version 3 and Section 5.5 refers to the CCB PD Template 3.0 Issued: 21 June 2017. This deviation does not impact the methodology applicability, additionality or the baseline scenario. The outcome is that PD is applying for the CCB Exceptional Biodiversity Benefit.

5.5.1 High Biodiversity Conservation Priority Status

TIST has a direct impact on the *Vitex keniensis* (Meru Oak), an endangered species in the Mount Kenya region.

5.5.2 Trigger Species Population Trends

Trigger Species	<i>Vitex keniensis</i> (Meru Oak)
Population Trend at Start of Project	The IUCN is not able to provide population estimates. However, the IUCN Red List assesses a continuing decline in the habitat and ecology of <i>Vitex keniensis</i> ; they further report a continuing decline of mature individuals and a decreasing population. The species was listed as vulnerable in 1998, and in 2018 (the most recent reporting year) was listed as endangered.
Without-project Scenario	Without the project, farmers would not be planting thousands of <i>Vitex keniensis</i> . Furthermore, farmers in the Mount Kenya region would have increased needs to harvest forest products from within Mount Kenya National Park. The IUCN reports potential exploitation of the species within the park.
With-project Scenario	Farmers are choosing to plant thousands of <i>Vitex keniensis</i> on their farms through TIST.

2.2.5 Grouped Projects

1) New Project Areas and Communities (G1.13)

No new PAs or communities were added during this monitoring period.

2) Removed Project Areas and Communities (G1.13)

At the last verification there were 21,692 PAs. In this one there are 19,073. The reasons for the losses are many and they are identified in the Status V3 column, PA Summary worksheet of Appendix 14.

2,619 Project Areas have been removed from the PD since the last monitoring period. In addition, 2,390 PAs have been put 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, their 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:** These 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:** These PAs 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 grove were taken at one location, but the farmer decided to plant somewhere else. Due to the rules of VCS, the groves 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 groves to be treated separately. If the new owners want to keep their groves in the PD, they are eligible.
- c. **Pending-Fire:** These groves 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, they had a misunderstanding with another member. A group can rejoin if they change their mind and rejoin before the next verification.
- e. **Pending-Grove 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 groves were

- set to zero. If the PAs are un-merged and are re-quantified properly, they can become eligible in a subsequent verification.
- h. Pending-Needs re-quantification. These are groves that are still active, but we do not believe the quantification to be accurate. Most are groves that had no trees at the time of the first verification and have not been re-quantified. 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 PAs. 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 groves were lost to pest or disease fire. If the member replants the trees will be eligible under this PD.
 - l. Remove-Baseline error. These are groves where baseline trees were erroneously marked as TIST trees. These trees have been removed 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 grove 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 grove boundary overlapped with another grove boundary. These groves have been removed to avoid double counting.
 - t. Remove-Registration error. These are groves that the farmers say 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 grove.
- v. Remove-Unauthorized registration: These are cases where an unauthorized person registered the grove for TIST. Sometimes it is the wife joining and the husband later refusing.

Loss of a few PAs was discussed in the External Risk section of the Non-Permanence Risk Report. It was considered possible but of minimal risk to the carbon asset. Since this monitoring report has determined that the total carbon stocks have increased from the previous one, the loss has not caused a loss event or reversal.

3) Eligibility Criteria for Grouped Projects (G1.14)

No new PAs or communities were added during this monitoring period.

4) Scalability Limits for Grouped Projects (G1.15)

Any scalability limits with regard to TIST are embedded limits established by the methodology (16,000 tonnes per year average) and the definition of the grouped projects (1% of the limits set by the methodology). There is no limit to the number of instances. TIST has taken advantage of the ability to grow using the PA size limits by going from 40 Small Groups (less than 300 people) when it started in 2000, to over 11,000 Small Groups and over 92,000 members in four countries in 2020

5) Risk Mitigation for Grouped Projects (G1.15)

Since the major activity is planting trees, an activity that is beneficial to the environment on a local and global scale, the expansion of TIST, or TIST-like programs, is deemed beneficial. As long as there is a carbon market to support these programs, there is a potential to reach more subsistence farmers, plant more trees, sequester more carbon, provide more training, improve food security, address deforestation, provide sustainable fuel wood supplies, make more islands of biodiversity and provide health benefits and training.

6) Project Zone Map (G1.13)

No new PAs or communities were added during this monitoring period.

7) Changes to Management (G4.1)

No new PAs or communities were added during this monitoring period and there have not been any changes to the management structure, roles, and/or responsibilities.

2.2.6 Risks to the Project (G1.10)

The risks to the expected climate, community and biodiversity benefits are basically dependent on the continued participation in the program of the members. If the program ends, the farmers will no longer receive the benefits that provide the incentive to be a member. Since they receive cash from the GHG program and because CAAC uses its share of the revenues from the sale of GHG credits to operate the program, the greatest risk is the lack of a carbon market.

The long-term sustainability of TIST is dependent upon a carbon market for afforestation/reforestation credits. As of the date of this PD, the market for CDM-based AR credits is essentially nonexistent. AR credits have been locked out of the largest trading system (i.e. the EUETS) and buyers have no practical use for the currency (i.e. tCERs). The market for VCS credits exists but, by definition, is dependent upon the entities buying credits to voluntarily offset their carbon emissions. An expected US market may, or may not, materialize and, if it does, may or may not allow AR credits.

TIST is different than most AR projects in that it was created for small-scale subsistence farmers. Because of the rules of CDM, many of the farmers in this PD have Project Areas too small to meet the Host Country definition of a forest. Should VCS, or a possible US program, put the same limitation on size, many of the farmers in TIST will no longer be eligible to participate in the carbon market and will lose the financial incentive to participate in the program. TIST has mitigated this risk by achieving what it has at the lowest costs possible. Rather than using expensive Western experts, it has deployed a sophisticated, yet easy to use, monitoring system and relies on capacity building with the Small Group members and their desire to improve their lives.

Another risk is that farmers will drop out of the program. This is mitigated by the fact that there are thousands of individuals involved and the fact that the individual trees grow and sequester more carbon. Loss of a grove will result in a loss of that carbon but in aggregate the remaining groves increase the carbon in the PD. While there have been many project areas removed during this monitoring period, the overall volume of carbon has increased.

Natural risks include drought, pestilence and fire. These, however, are mitigated by the fact there are thousands of individual PAs spread over thousands of square kilometers.

As part of the VCS requirements, a risk analysis was conducted.¹⁷ Based on their tool, this project has a risk of 1.0, which is exceptionally low.

2.2.7 Benefit Permanence (G1.11)

TIST is a comprehensive program that includes training in climate change, sustainable development practices and biodiversity. The expectation is that training, followed by years of implementation, will demonstrate that the economic and environmental teachings learned from TIST can be practiced without cost to the farmers and will continue to improve their lives. The following describes some of the trainings and their benefits.

- Training in the benefits of specific tree species will result in more trees selected that have a value other than as harvested wood, or for carbon revenue. Planting fruit, nut and fodder trees will have financial and food security benefit well beyond the financial benefits of the carbon market and will continue to sequester carbon.
- Training in the maintenance of a sustainable woodlot. Wood and charcoal are some of the greatest expenses for subsistence farmers. Learning the value and convenience of a sustainable woodlot will ensure that it is maintained beyond the life of the project.
- Training in the benefits of biodiversity will help the farmers make the choice to keep trees, rather than cut them down. The benefits include more productive soil, return of edible

¹⁷ Appendix 12 Risk Analysis.

indigenous plants, enhanced area ecotourism, and return of native wildlife that is useful to them personally (e.g. bees).

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

Stakeholders are given access to the full project documentation in several ways:

- The CCB project documents are posted with the CCB as part of the 30-day comment period.
- The VCS and CCB verification is published in newspapers.
- Emails to stakeholders listed in Exhibit 14 with a link to the CCB project web page and a link to all of the CCB and VCS documentation¹⁸ and a summary of the project.
- CCB Support Document 14i¹⁹ provides copies of the notices.

2.3.2 Dissemination of Summary Project Documents (G3.1)

The summary project documentation and summary information on monitoring results, has been published in the TIST KE newsletter, Mazingira Bora.²⁰ The newsletter is distributed at Cluster meetings and is the subject of discussion.

2.3.3 Informational Meetings with Stakeholders (G3.1)

Informational meetings with communities and local stakeholders are conducted three ways. First, as described in Section 2.3.7, when TIST comes to a new area, we contact stakeholders directly. Since these are generally introductory meeting to determine interest, there is no publication of the meeting. Second, are at the Cluster meetings. These are publicized and known to the Small Groups and are announced at the previous Cluster meeting. Third are the formal announcements for CCB certification as noted in Section 2.3.1.

2.3.4 Community Costs, Risks, and Benefits (G3.2)

TIST membership is voluntary and members join one of two ways. The first is as part of a major expansion, such as when TIST comes to a new country (such as Kenya in 2004). The second is by forming, or joining a new Small Group, in an existing Cluster.

When TIST enters a new area, we make contact with the village leaders and other stakeholders to learn about the farming around the village. Meetings are held to describe the program and to see if there is an interest from the farmers. Information about the costs, risks and benefits are explained. Interested farmers tell their friends and if enough interest is shown, they begin forming Small Groups.

If a Cluster has already been formed in an area, new members can join an existing Small Group, or get with other like-minded farmers and form a new one.

¹⁸ <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

¹⁹ Exhibit 14 Public Comments: TIST KE PD-VCS-Ex14i Public Comments CCB-001, 005, 009 V03.docx. at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

²⁰ October 2020 at <http://www.tist.org/i2/moreinfo.php>

When a farmer, or Small Group, decides to join they begin the application and registration process. It involves training, application, site visit and grove baseline, signing the GHG contract, and registration.

The interested farmer needs to attend a Cluster meeting. The Cluster representative will explain TIST eligibility requirements and what the TIST program is about. The farmers should then form a Small Group and the group should attend the next Cluster meeting. SGs should attend at least two TIST Cluster meetings, before receiving a TIST Application Packet.

The Application Packet includes these materials:

- Introduction to TIST²¹
- TIST Values²²
- TIST Eligibility Requirements²³
- GHG Contract²⁴
- TIST Small Group Application²⁵

Groups will receive training on the most important topics in the TIST program during the application phase. The trainings will take place in monthly Cluster meetings, in monthly Small Group training meetings. The trainings include:

- What is TIST? How does it work?
- TIST Eligibility Requirements
- TIST Values and why they matter
- Small Group Best Practices
- Tree species and their benefits
- Starting and maintaining a nursery
- Conservation Farming
- GHG Contract

Before the grove baselines are done, the Cluster representative should get to know the group members, asking them questions about how they know each other, what they have learned at TIST trainings, and their plans for tree planting with TIST. The following are some of the questions asked:

- Does the Small Group have 6-12 members?
- Are the Small Group members from at least three different households?

²¹ Exhibit 36 TIST FAQ: TIST KE PD-VCS-Ex36 TIST Intro FAQ 161001.docx at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

²² Exhibit 39 TIST Values: TIST KE PD-VCS-Ex39 TIST Values 160726.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

²³ Exhibit 37 TIST Eligibility: TIST KE PD-VCS-Ex37 TIST SG Eligibility Requirements.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

²⁴ Exhibit 03 and Exhibit 04, GHG contracts: TIST KE PD-VCS-Ex03 GHG Contract 050418.doc and TIST KE PD-VCS-Ex04 GHG Contract 080428.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

²⁵ Exhibit 38 TIST Membership: TIST KE PD-VCS-Ex38 TIST SG Membership Application.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

- Have at least two members of the Small Group attended one or more trainings on each of the eight required topics?
- Has the Small Group met weekly for at least 10 of the past 12 weeks?
- Have all of the group members attended at least half of the weekly Small Group meetings held in the last 12 weeks?
- Has the Small Group practiced rotating leadership in weekly meetings?
- Does the group have at least two hectares (or five acres) of land on which they plan to plant trees?
- Have each of the Small Group members visited all of the proposed grove sites?
- Does the group have proof of land rights for each grove they intend to register?
- Have all of the proposed groves been without forest for at least 10 years?
- Do all of the Small Group members know the TIST Values and agree to follow them?
- Do all of the Small Group members know the TIST Eligibility Requirements?
- Do all of the members know TIST's requirements on tree spacing, species selection, and harvest?
- Do all members have a plan for planting 5,000 trees in five years?
- Does the group have at least one nursery?

When the Group Application and Group Interview have been completed and synched, the TIST database will generate a TIST ID number, and the Group will be listed in the database as an Applying Group.

The Group is then informed that they will be contacted by a baseline Quantifier to schedule a field visit, and that all group members must be present for the visit. The Cluster Representative should ask the group for a Primary Contact, who will help the baseline Quantifier coordinate the field visit.

The baseline Quantifier will be given a list of Small Groups that need to be visited with the Group Name, TIST ID number, the Group's primary contact, and the Small Groups' Applications. When the baseline Quantifier visits the Group in the field, they will first need to walk around the potential groves to see if the representations in the Application are accurate, and if the grove sizes are large enough to qualify. If the groves qualify, the baseline Quantifier should complete the baseline. If the grove baselines show that the group has at least two hectares (or five acres) of land where they plan to plant trees, the land meets TIST requirements (not forested in the last 10 years), and the Group has at least one nursery, the group is eligible to sign the TIST GHG Contract and be registered as an official TIST Small Group. The baseline Quantifier reviews the GHG contract with the members to be sure they understand it.

Once all the steps above are complete, the baseliner can officially "sign-off" on the Small Group Registration and submit the registration on the Palm. The Small Group will be officially registered as a TIST group and they should write their TIST ID number on their Application form, GHG contract, and TIST folder.

The entire process takes about six months, so there is ample opportunity for the members to learn about the potential costs to the members (which is designed to be zero), risks (which should be minimal) and benefits (which should be significant). Membership is voluntary, so the farmers can withdraw any time before they register and sign the GHG contract.

2.3.5 Information to Stakeholder on Verification Process (G3.3)

This has been done at Public Meetings, which have been held for every CCB verification,²⁶ through the email sent to stakeholders described in Section 2.3.1. and from the CCB web site that is reference as part of the CB comment period.

Previous public meetings were held 02 September 2011 and 04 April 2017

An email was sent to the stakeholders on 29 September 2020 announcing that the project was seeking accreditation under CCBA and that the public comment period was open until 25 October 2020.²⁷ Attached was a file describing the monitoring report. A notice of the comment period and the results of the monitoring plan were published in the October TIST Kenya newsletter, Mazingira Bora. The Mazingira Bora is circulated by paper to the Small Groups at the Cluster meeting and is available on-line. No comments were submitted to CCBA.

2.3.6 Site Visit Information and Opportunities to Communicate with Auditor (G3.3)

Due to the COVID 19 pandemic, the site visit was not possible. Instead, the VVB held interviews with six farmers and one Cluster Servant/Quantifier. In addition, videos interviews using the VVBs questionnaire were recorded of 29 farmers by TIST personnel and sent to the VVB.

2.3.7 Stakeholder Consultation (G3.4)

The original TIST program was started in Tanzania in late 1999 to meet local needs in a sustainable way, while at the same time addressing climate change. In February 2004, TIST was invited to begin the project in Kenya. At that time, a trip was made around Mt Kenya where community leaders in Meru and Nyeri were briefed on TIST to gauge the level interest that local farmers might have. They were asked to spread the word about the program and if there was grassroots interest, prospective members were invited to begin planting trees. Between February 2004 and February 2005, additional meetings were held with community leaders and government offices such as the Forest Department.

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. A second training seminar was held April 11, 2005 to April 14, 2005 at the Gitoro Conference Centre in Meru. Seventy-five people attended, 39 men and 36 women.

In February 2005, the first “Mazingira Bora” was published and circulated within the communities to TIST members and those interested in the program. Since that time, TIST has published regular newsletters that document an ongoing dialogue and support with members of the community, both inside and outside the program. These documents are available to the public in a transparent form on the internet at [tist.org](http://www.tist.org).²⁸ TIST also has a collection of written stakeholder comments (see PDD).

At the Cluster level, member farmers meet with TIST representatives regularly, where they have an opportunity to ask more questions and make more comments. Since one of TIST’s main

²⁶ The world is in the coronavirus pandemic and we will not have a public meeting for this verification.

²⁷ Exhibit 14i Public Comments: TIST KE PD-VCS-Ex14i Public Comments CCB-001, 005, 009 V03.docx

²⁸ <http://www.tist.org/moreinfo.php>

focuses is adopting Best Practices, these are forums to review what is working about the program and how it can be improved. Changes to the program are announced in the newsletter.

The result of this stakeholder process has led to numerous invitations for TIST to come to new villages and numerous positive comments about TIST.

Other stakeholders are NGOs and government entities we have identified from their activities in the Project Zone. TIST has been active in Kenya since 2004, has seven VCS PDs (including this one) and four CCB PDDs (including this one). TIST had held numerous public meetings that we announced in several Kenya national newspapers. We have collected the names of interested stakeholders in the multiple versions of Exhibit 14 (a-i).

2.3.8 Continued Consultation and Adaptive Management (G3.4)

TIST Kenya holds regular Cluster meetings where farmers can provide input. Since TIST Kenya has been operational for 16 years and because they are bound by the rules of the VCS and CCB standard, there have been few documented changes during this verification period. The main one was the distribution of the TIST profit share to the eligible farmers.

2.3.9 Stakeholder Consultation Channels (G3.5)

As noted in the other sections regarding stakeholder consultations, TIST Kenya holds thousands of Cluster meetings each year. There are over 300 Clusters, and each holds multiple meetings each year (as many as 12 per year). There were over 4,600 meetings in Kenya in 2019. The Clusters are located among the Small Groups so that the members can walk to them. During the meetings they receive training and information about TIST and have ample opportunity to ask questions and provide input. Our justification that adequate levels of information sharing has occurred is the close proximity of the Cluster to the Small Groups, the frequency of meetings and the fact that we encourage attendance.

2.3.10 Stakeholder Participation in Decision-Making and Implementation (G3.6)

Given that the project has been operational for so long and the rules related to VCS and CCB, there is not much opportunity for a farmer or other stakeholder to change the overall project. Farmers, however, are in full control of how they themselves participate. They are the ones making the decision about where to plant, what to plant and which sustainable development activities to adopt. As such, they are the “culture”; what is done by them as individuals and Small Groups is done voluntarily and, therefore, within their cultural norms.

Regarding gender, TIST is gender sensitive. The leadership council is 50% women. The Cluster Servants are over 59% women. Section 4.4.3 provides a full demonstration of the way women benefit from TIST.

2.3.11 Anti-Discrimination Assurance (G3.7)

TIST has a sexual harassment policy²⁹ and non-discrimination policy.³⁰ These policies are available on TIST Mobile,³¹ shared at the Cluster meetings and with the staff. There have been no complaints filed with TIST Kenya.

²⁹ Exhibit 34, Sexual Harassment: TIST KE PD-VCS-Ex34 Sexual Harassment 170120.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

2.3.12 Grievances (G3.8)

All grievances will be guided by the TIST Grievance Procedure.³² Grievances will first be brought to the attention of the Kenya Staff, where the issues can be compared to standard TIST policy, TIST values³³ and/or the Greenhouse Gas agreement among the Small Group members and CAAC. The policies and values are the subject of training at seminars, in the field and are published in the newsletter. Unresolved issues will be presented to TIST Management. Where precedence or policy exists, they will be used in final decision-making. Where new issues arise that are outside the existing precedence, or policy, decisions will be made by Kenya Staff and TIST Management. If conflicts or grievances cannot be resolved internally, CAAC will submit to arbitration in accordance with the Kenya Arbitration and Conciliation Act, 2000 within 30 days of notice by the aggrieved party indicating they wish to appeal the internal process.

TIST has not received any formal grievances during this monitoring period.

2.3.13 Worker Training (G3.9)

TIST begins in an area with a series of orientation seminars. TIST members are introduced to the program and participate in the customization of the program to the locale. Virtually all the local staff is hired from the TIST membership. All Quantifiers and trainers are from the local membership. Staff and Quantifiers are hired based on ability, not gender, tribe, cultural background, or level of education. Training is passed on to new workers through the seminars and working with an experienced TIST member.

Quantifiers receive ongoing training as needed and attend training seminars. They are given access to the Quantifier Manual.³⁴ During the seminars, they are trained on the TIST monitoring plan, which includes use of the smartphones with GPS, use of the custom data collection software, how to maintain their data, synchronizing their data with the TIST server, the importance of good data, taking tracks of the Project Area perimeters, taking secondary tracks of the Project Area perimeters, counting trees, the importance of proper tree counts, identifying tree species and tree ages, taking proper circumference measurements, keeping accurate expenses, GHG contracts and any new program initiated.

Small Groups training is ongoing. The Small Groups are all assigned to "Clusters", an administrative unit within walking distance of a central meeting place. The Cluster meetings are supposed to be held monthly. While attendance is voluntary, Small Groups are encouraged to send one man and one woman representative to every meeting. Training includes biodiversity, the GHG contract, climate change, selecting tree species, the benefits of different species, preparing nurseries, tree management, HIV/AIDS and other subjects of interest to the members.

³⁰ Exhibit 35, Non-discrimination: TIST KE PD-VCS-Ex35 Non-Discrimination 170120.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

³¹ <https://www.tist.org/mobile/secure/login.php?ses=gea0rj8ej2odmk314l6dofd7q3> , login required.

³² Exhibit 33 Grievance Policy: TIST KE PD-VCS-Ex33 Grievance Policy 170120.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

³³ Exhibit 39 TIST Values. We are Honest. We are Accurate. We are Mutually Accountable. We are Transparent. We are Servants to each other.

³⁴ Exhibit 40 Quantifier Manual: TIST KE PD-VCS-Ex40 Quantifier Manual 101221.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

2.3.14 Community Employment Opportunities (G3.10)

TIST does not have an expatriate staff. Although the main management staff and computer development are in the US, the Kenya program is run by Kenyans. The Quantifiers are TIST farmers trained to use the monitoring system. The land and trees planted belong to the TIST farmers. The TIST farmers work together to establish the best practices for their area (whereas the Ugandan and Indian farmers establish their own best practices more suitable to their areas). The local managers (Leadership Council) are from Kenya. Cluster meetings and Small Group meetings are run by Kenyans. All TIST members have an opportunity to be group leaders, regardless of education or gender. TIST members are utilized as employees based on achievement, not gender, education or social status. TIST holds regular training seminars for Quantifiers and conducts regular audits to make sure their skills are honed.

We also have teams of specialists, all of whom are TIST members. The tech support and QAQC is led by TIST members that rose through the program based on their abilities. They are in charge of daily desk reviews and keeping the field monitoring system operational. Voucher payments are handled by a team of TIST farmers that have proven their ability. The expansion team is responsible for expanding TIST to new areas. There are about 74 people that serve as leaders and Cluster Servants (Quantifier, trainers and liaison for one or more Clusters). The team consists of 43 women.

2.3.15 Relevant Laws and Regulations Related to Worker's Rights (G3.11)

The employment laws are listed below. CAAC uses Kenya counsel to advise on issues relating to employment. CAAC is not in violation of these laws.

- The Employment Act, 2007
- Regulation of Wages and Conditions of Employment Act
- National Hospital Insurance Fund Act, 1998

2.3.16 Occupational Safety Assessment (G3.12)

TIST members are conducting activities that they normally do, i.e. farming using manual labor. TIST workers such as Cluster Servants walk or use public transportation. Their job does not require them to engage in activities that are inherently unsafe. The risks facing TIST workers are minimal and no different than those affecting anyone living in the area. Such risks and mitigation factors are:

- Matatus and Boda-bodas. Do not take rides if the driver appears to be intoxicated or drives in a reckless manner. If the driver is driving too fast or unsafe tell the driver to drive slower and safer. If it persists, ask to be let out or off the vehicle. In case of a robbery, do not resist and surrender the TIST equipment if it is demanded. Report the incident to the UG Team within 24 hours.
- Snakes. Be aware when moving through areas where you cannot see where you are placing your foot. If unsure, use a long stick to prod the bushes or grass to identify the presence of snakes. If a poisonous snake is seen, leave the area and notify the farmer. There are NO first aid treatments for poisonous snake bites. If you are bitten by a poisonous snake you must go to the nearest hospital for anti-venom. The bite may be fatal if not treated. You could lose a limb or suffer permanent injury if bitten. You, your partner or the farmer should try to

identify the type of snake so that the correct anti-venom can be selected. Even if the snake is killed it can still bite!

- Elephants. Elephants are extremely dangerous. The best way to avoid an elephant attack is to not get in that situation. If an elephant is present in a project area, back away trying not to disturb it. If it attacked, your choices are:
 - i) stand your ground, it may be a bluff charge.
 - ii) if you are close enough to shelter (house, vehicle, fence, large tree), try to back away slowly (keep facing the elephant) and move to the shelter. Elephants run much faster than humans so if you cannot reach shelter, running may just trigger an aggressive response.
- Encountering dangerous people. Should you encounter hostile or dangerous TIST or community members, leave the area and try to get to a place where there are other people present. Do not engage in arguments or physical confrontation. If you are with a partner, stay together and support each other. In case of a robbery, do not resist and surrender the TIST equipment if it is demanded.
- Sexual Assaults. Females should work with a partner in new areas to avoid sexual assaults. If you end up in a situation where you fear an assault, leave the area and try to get to a place where there are other people present. If attacked, yell for help. Report any assault to the police and to the UG Team.
- Dogs. If a hostile dog is present or you are concerned about a dog that is present, ask the farmer to secure it until you finish quantifying. If the farmer refuses, leave the area and notify the TIST Team. If bitten by a dog, go to the doctor. Since dogs can carry rabies, try to determine who owns the dog for in case it needs to be tested. Rabies are fatal without treatment and treatment is necessary within days.
- Bees. The effects of bees stings can range from annoying and painful to fatal, depending on whether you are allergic to the venom. Avoid being stung by avoiding swarming bees and try to remain calm if they are present. Do not agitate the bees. Avoid wearing perfume or scents. If stung, remove the stinger as soon as possible because the longer it stays in the body, the more severe the reaction. If you know you are allergic to bee stings; get stung in the mouth, nose or throat; have shortness of breath; or have severe swelling or swelling away from the site of the sting; get medical help immediately. If you know you have severe allergic actions to bees stings, you should carry an epi-pen (ask a doctor about this).
- Crossing rivers. Do not attempt to cross rivers with high, fast flowing water. You could drowned.
- Working on Steep Slopes. Take extra care when working on steep slope. Do not put yourself in a situation where a fall could hurt or kill you.

TIST has a Standard Operating Procedure to address safety. To ensure that safety policy and safety issues are understood, each Quantifier are briefed on the safety policy annually.³⁵

To date there has only been one reported accident. In September 2015, outside the monitoring period, a quantifier slipped in a steep area of a PA and broke her leg. She was treated at a hospital and released.

³⁵ Exhibit 15 Quantifier Safety: TIST KE PD-VCS-Ex15 Quantifier Safety 110110.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

2.4 Management Capacity

2.4.1 Required Technical Skills (G4.2)

The required technical skills are community engagement, biodiversity assessment and carbon measurement and monitoring skills. These were brought to TIST Kenya under the leadership of the two founders of CAAC. Together they have over 90 years combined experience in energy, natural resources, monitoring, quality control, transportation, biofuels, pollution control technologies, emission trading, trading program development, third party due diligence, computer technology and management. They began CAAC in 1993 and helped develop emission trading programs in the US and Canada and were responsible for many firsts in innovative emission control (See CAAC [website](#)).

TIST was established by the founders of CAAC in direct response to the needs developed and expressed by Small Groups of Tanzanian subsistence farmers in 1999 and 2000. Attending a Small Group training seminar organized by the Anglican Diocese of Mpwapwa in July 1999, one of CAAC's founders participated in a visioning exercise with local subsistence farmers. They expressed deep concern about recurrent famine, poor crops, lack of shade and firewood, declining rainfall, declining soil fertility, poor access to water for personal and agricultural use, poor diet, regular health problems including TB and Malaria, lack of economic opportunity, poor cattle forage on eroded lands, and the decline of wildlife due to over hunting and lack of forests. The Small Group seminar, however, did not stop with identifying the local problems; participants established the goals of starting hundreds of Small Groups to plant trees, reduce poverty, improve health, and prevent famine. They decided the groups should work together with each other, and with resources in the US and the UK, to share “njia bora” (best practices) and to start achieving the goals.

With CAAC's involvement with nascent GHG trading in Canada, there was an obvious way to bring these improvements to the farmers using carbon credits as a financial tool.

TIST has been operating successfully for over 20 years and has expanded to four countries, 93,000 farmers and planted over 20,000,000 documented trees. The monitoring system they developed won a Computerworld Honors Laureate in 2007. TIST has 14 VCS PDs, many of which have gone through three verifications. TIST has validated and verified seven CCB PDs under the 2nd edition, two under the third edition, and all are CCB Gold for exceptional community benefits. TIST was the first project to be verified under CCB. Its successes with CCB demonstrate it has the skills required to implement the project successfully, including community engagement, biodiversity assessment and carbon measurement and monitoring skills.

The management team has chosen to train local TIST members and build local capacity rather than use expat specialists.

2.4.2 Management Team Experience (G4.2)

The following summarizes CAAC GHG project development experience:

- TIST Program, Tanzania, a small-hold farmer A/R project. It began in 1999, with the first tree planting in 2000. The project is centered around Mpwapwa and Morogoro and includes over 1,300 farmers.

- TIST Program, India, a small-hold farmer A/R project. It began in 2002, in the rural area outside of Chennai, Tamil Nadu. There are about 6,800 farmers and 1.8 million trees. A subset of the Project Areas has been validated and registered as a CDM project (subsequently withdrawn due to a lack of markets for tCERs). There is one validated and verified VCS project, which has been validated and verified under CCB (IN 001).
- TIST Program, Uganda, a small-hold farmer A/R project. It began in 2003 and is centered around three towns in southwest Uganda (Bushenyi, Kabale and Kanungu). There are about 20,000 farmers and over seven million trees. The DNA approved the project contingent on submitting a PD based on an approved methodology. They also approved the EIA. There are six validated and verified VCS projects, all of which have been validated and verified under CCB (Gold for exceptional community benefits) and all of which have undergone a third successful verification.
- TIST Program, Kenya, a series of small-hold farmer A/R projects. The project started in 2004 and is centered around Mt Kenya. There are about 76,000 farmers and 10 million trees. The project has been accepted by the forest department and DNA for CDM. An EIA was accepted by the National Environmental Management Authority (NEMA). TIST Kenya has seven validated and verified VCS projects, all of which were also validated and verified under CCB (Gold for exceptional community benefits) and all of which have undergone a second successful verification.
- Sulfur Hexafluoride emission reductions from electric power equipment in substations of Duquesne Light Company. Reductions were made at numerous locations in Pennsylvania from 1996 through 1999. The reductions were approved as credits under the Pilot Emissions Reduction Trading Program (PERT) in Ontario Canada. CAAC managed the project.
- Methane emission reductions through the recovery of landfill gas from the Lancaster Landfill in Lancaster, New York. Reductions were made 1995 through 1998. The reductions were approved as credits under the Pilot Emissions Reduction Trading Program (PERT) in Ontario Canada. CAAC managed the project.

The Kenya Leadership Council are all Kenyans and are in charge of day-to-day operations. Several of the positions are rotational, giving new people a chance and place to learn. Many have been with TIST for over 10 years.

2.4.3 Project Management Partnerships/Team Development (G4.2)

This PD was developed internally by CAAC and TIST Kenya. Due to the existing skill set, no outside partners were needed. No gaps were identified in the previous CCB validation and verification.

2.4.4 Financial Health of Implementing Organization(s) (G4.3)

CAAC has been in business since 1993 and has operated TIST for over 20 years. CAAC is profitable after all TIST expenses and is currently sharing 70% of the profits with the Small Group members. Financial statements and a financial plan (confidential) have been made available to the Verifier.

TIST began, in late 1999, on the expectation that once the trees were large enough, the project would be self-funding. A series of financial projections were developed that showed that after 6 to 10 years (depending on different financial cases regarding market price, growth rate, tree mortality, etc.) the project would be sustainable based solely on carbon revenues. The key to

success was very low costs. TIST has designed the program to minimize cost, developing an award winning monitoring system, building Host Country capacity and relying on voluntary effort. Still, there was a cash shortfall in the early years of the project. This was made up by external sources. CAAC has provided funding to make up this shortfall on the carbon side, through its own profits and advanced sales of credits. I4EI has provided sustainable development funding that offsets much of the project cost, obtaining funding through USAID (Kenya and Tanzania) and private donors. The fact that TIST is in its 20th year demonstrates its longevity.

2.4.5 Avoidance of Corruption and Other Unethical Behavior (G4.3)

The Project Proponent, or any of the other entities involved in project design and implementation, are not involved in, or are not complicit in any form of corruption such as bribery, embezzlement, fraud, favoritism, cronyism, nepotism, extortion, or collusion. CAAC is a small company. It's CEO and Vice President are active in the day to day operation and are very familiar with the financial aspects of CAAC and TIST and are aware of no instances of the aforementioned types of corruption within either organization. The USAID grants also contained prohibitions of these types of corruption. USAID completed an audit of TIST Kenya in 2016 and found no evidence that these have occurred.

2.4.6 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

The financial plan, Exhibit 09 is confidential.

2.5 Legal Status and Property Rights

2.5.1 Recognition of Property Rights (G5.1)

Land tenure is mostly by registered deed to the individual members participating in TIST. The Project Proponent has no rights to the land; all land is owned by the farmers.

No land disputes have been identified. As part of the GHG contract agreement, Small Group members attest their ownership and/or right to use the land where they plant trees. Additionally, TIST meetings and seminars are open to the public. While there have been cases of land disputes, it was between farmers and family and did not involve TIST.

The demonstration that all Property Rights are recognized, respected, and supported is based on the fact that TIST does not interfere with the farmer's tenure.

2.5.2 Free, Prior and Informed Consent (G5.2)

The following demonstrations are provided:

- The project will not encroach uninvited on private property, community property, or Government property. TIST is voluntary and does not take any lands or encroach on any lands. The lands are controlled by the farmers. By the GHG contract, they maintain ownership of the land and trees.
- The Free, Prior, and Informed Consent has been obtained of those whose property rights are affected by the project through a transparent, agreed process. As noted in this report, TIST has a series of trainings for the farmers about the project before they register and sign the GHG contract. The contract was vetted by DLA Piper as a pro bono action on behalf of the

farmers. The farmers only sign the contract and join if they chose to. If they join, they choose the trees they plant, where they are planted and what programs they wish to implement.

- Appropriate restitution or compensation has been allocated to any parties whose lands have been, or will be affected, by the project. By contract, they receive an advanced carbon payment (tree payment), 70% of the profits from the sale of their carbon and all the tree products. They keep the trees and land and any other benefits that they derive from membership.

2.5.3 Property Right Protection (G5.3)

Land tenure is by registered deed to the individual members participating in TIST. The Project Proponent has no rights to the land; all land is owned by the farmers.

The demonstration that all Property Rights are recognized, respected, and supported is based on the fact that TIST does not interfere with the farmer's tenure and clearly states in the GHG contract with the farmer that TIST does not infringe on their ownership.

2.5.4 Identification of Illegal Activity (G5.4)

The Project Zone is the land owned or controlled by the farmers and no illegal activity (e.g. illegal logging) has been identified. The farmers own the trees and can choose to cut them down. However, if the trees are TIST trees, they will be in violation of the GHG contract wherein they have promised to maintain them. Since this is the source of TIST's GHG revenues and the removal has to be offset by other trees, TIST continues to train the members in the GHG contract and the benefits of keeping the trees.

2.5.5 Ongoing Disputes (G5.5)

A few land disputes have been identified. They were among other farmers or family members, not TIST. As part of the GHG contract agreement Small Group members attest their ownership and/or right to use the land where they plant trees. Additionally, TIST meetings and seminars are open to the public. Where there is a dispute over grove ownership that can't be resolved, the farmers are released from their GHG contract and removed from TIST.

2.5.6 National and Local Laws (G5.6)

As a tree-planting program that takes place voluntarily on existing farmland, there are few laws that are relevant to TIST. They are, however:

- The employment laws listed herein (Section 2.3.15).
- Companies Act, (Law of Kenya Cap. 486). CAAC is registered as a branch and must remain in good standing to operate in Kenya.
- Environmental Management and Co-ordination Act, 1999.³⁶ In conformance with the Act, TIST submitted an EIA to the National Environmental Management Authority (NEMA) and

³⁶ Exhibit 01 and Exhibit 02. Environmental Co-ordination and Management Act states that all Kenyans have the right to a clean and healthy environment and sets up the administrative and legal structure to provide it. It sets up the National Environmental Management Authority (NEMA) to oversee this effort. It requires a national environmental plan and district plans. It also requires environmental impact

because it received no further communication from NEMA, completed all of its obligations under the Act.

- Kenya Forest Act of 2005. Establishes that all forest in Kenya other than private and local authority forests are vested in the state, and gives the duty of oversight to Kenya Forest Service.

As a recipient of a USAID award, I4EI was subject to:

1. Applicability of 22 CFR Part 226 (MAY 2005)
2. Ineligible Countries (MAY 1986)
3. Nondiscrimination (MAY 1986)
4. Nonliability (NOV 1985)
5. Amendment (NOV 1985)
6. Notices (NOV 1985)
7. Subagreements (JUN 1999)
8. OMB Approval Under the Paperwork Reduction Act (DEC 2003)
9. USAID Eligibility Rules for Goods and Services (APR 1998)
10. Debarment, Suspension, and Other Responsibility Matters (JAN 2004)
11. Drug-Free Workplace (JAN 2004)
12. Equal Protection of the Laws for Faith-Based and Community Organizations (FEB 2004)
13. Implementation of E.O. 13224 -- Executive Order on Terrorist Financing (MAR 2002)
14. Marking Under USAID-Funded Assistance Instruments (DEC 2005)
15. Regulations Governing Employees (AUG 1992)
16. Conversion of United States Dollars to Local Currency (NOV 1985)
17. Use of Pouch Facilities (AUG 1992)
18. International Air Travel and Transportation (JUN 1999)
19. Ocean Shipment of Goods (JUN 1999)
20. Local Procurement (APR 1998)
21. Voluntary Population Planning Activities – Mandatory Requirements (MAY 2006)

I4EI was subject to audit by the US government.

Directive regarding Eucalyptus and Riparian Lands. In March 2011, NEMA issued an Order on wetlands whereby "those encroaching into wetlands and adjacent riparian land to vacate." Pertinent to TIST is the instruction to remove "Eucalyptus trees from riparian land." NEMA directed the Water Resource Management Authority to "peg, mark and secure" all riparian lands subject to this order within 3 months of the issuance date (by June 2011). At this time, almost 10 years after the deadline, no TIST PAs have been designated riparian lands and no TIST farmers have been told to remove any eucalyptus trees. In addition, a review of the PA boundaries with the WRI Kenya wetland database and Appendix 14 indicates there are six TIST PAs that overlap with a wetland area but none have any eucalyptus trees.³⁷

assessments conducted by an authorized consultant for any project that is "out of character with its surroundings." Included in this category is "reforestation and afforestation." Relying on Section 59.8 and 59.9 of the Act, if there is no response from NEMA within 6 months of submitting the EIA, the proponent may begin its undertaking.

³⁷ <https://datasets.wri.org/dataset/wetlands-in-kenya>

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation

Data / Parameter	<i>Location of project area</i>
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 14, ³⁸ 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 the data	Calculation of baseline emissions
Comments	None

Data / Parameter	<i>Boundary of project area</i>
Data unit	Latitude and longitude
Description	Multiple points of latitude and longitude that describe the boundary of a discrete project area
Source of data	See KML file, Appendix 3 ³⁹ , for all results
Value applied	See KML file, Appendix 3
Justification of choice of data or description of measurement methods and procedures applied	GPS is the modern standard for determining geographic coordinates.
Purpose of the data	Calculation of baseline emissions
Comments	None

³⁸ Appendix 14 Monitor Data

³⁹ Appendix 03 PA Plots

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 14, 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 the data	Calculation of baseline emissions
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 14, 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 the data	Calculation of baseline emissions
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, ⁴⁰ for each result

⁴⁰ Appendix 4 PD Data: TIST KE PD-VCS-005e App04a Data 111102 Group.xls (original PAs) and TIST KE PD-VCS-005e App04b Data 161130.xlsx (new instances, second verification)
<http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

Justification of choice of data or description of measurement methods and procedures applied	A physical count provides the most accurate information possible.
Purpose of the data	Calculation of baseline emissions
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 circumferences 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 the data	Calculation of baseline emissions
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 grassland was estimated by an experienced TIST Quantifier.
Purpose of the data	Calculation of baseline emissions
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 the 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.

3.1.2 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	Ongoing measurement taken by Quantifiers as they visit

monitoring/recording	project areas. Each PA could be visited as much as once per year and as little as every five years, the minimum allowed by the methodology.
Value monitored	See "Ex post Strata" worksheet of Appendix 14
Monitoring equipment	Customized smartphone
QA/QC procedures to be applied	Part of overall QA/QC procedures discussed in Section 3.1.3
Purpose of the data	Calculation of baseline 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 areas, using circumference as a proxy for diameter.
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 3.1.3
Purpose of the data	Calculation of project emissions
Calculation method	Not applicable
Comments	None

Data / 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 ₂ e and the CO ₂ e 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 3.1.3
Purpose of the data	Calculation of project emissions
Calculation method	See Section 3.1.3
Comments	None

3.1.3 Monitoring Plan

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. Kenya LC members and auditors visit selected project areas and observe quantifications and audits.

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 and 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 achieved, 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 3.2.2.

Data Management and QA/QC

TIST uses the following QA/QC procedures:

Quantifier Training: Quantifiers receive explicit training in regard to TIST's Quantifier Manual,⁴¹ so that quantifications are performed in a standard and regular fashion. Quantifiers meet periodically 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.

Staff Audits: TIST staff members are trained to quantify groves and have custom 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 be corrected with the new visit.

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 discrete project area is accurate, each GPS track of the parcel was measured at least twice, or until two tracks that reliably define the project area, are obtained. Quantifiers re-trace the track with each quantification to verify that they are at the correct project area and that they are counting the correct trees.

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 area is removed from the PD.

Data Quality: TIST Quantifiers counted every tree in each discrete project area. 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 project area were taken and archived, to develop a localized database of growth data by strata. This data provided the circumference data for each stratum. 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 customized 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

⁴¹ Exhibit 40 Quantifier Manual

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. They were on the Amazon Cloud (AWS) during the monitoring period. However, CAAC could, in the future, change hosts or choose to host the server at its offices.

Accuracy

Precision at 95% confidence level: The methodology required showing that the stratification approach could achieve a targeted precision level of $\pm 10\%$ 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 O 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 the confidence level at 95% of the mean are 0.62%, 0.46% and 0.44% for the three Appendix 14 spreadsheets (14a, 14b and 14c). The data meets the precision requirement of the methodology.

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 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.

No circumference sample if less than 20 trees in PA: In spite of the thousands of circumference readings taken for the project, there are cases where the circumference readings were not 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, less than 0.65% (14a), 0.67% (14b) and 0.39% (14c) 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 the 5% materiality threshold.

3.1.4 Dissemination of Monitoring Plan and Results (CL4.2)

All of the CCB and VCS documents including the results of the monitoring plan are available on the respective CCB and VCS project web sites. CAAC also makes all of the documentation available to the public on a dedicated web page.⁴² Stakeholders are informed of this when they receive the email⁴³ advising them of the CCB project, through reading this report that will be made public on the CCB project page and through reading the VCS registry posting.

A full monitoring plan was developed prior to the first verification. The following provides the monitoring results as of the end of the monitoring period. Worksheet references are to Appendix 14, the monitoring data spreadsheets used for the VCS verifications that apply to the monitoring period.

1. Total hectares of the project: 9,806 hectares (active/pending, "PA Summary" worksheets).
2. Number of discrete project areas (PAs): 19,073 total project areas (active/pending, "PA Summary" worksheets).
3. Location and boundary of project areas:
4. See Appendix 03, track files of each PA in KML format (Google Earth).
5. See "PA Summary" worksheet, "Latitude" and "Longitude" columns.
6. List of PAs including administrative information, tree counts, area and last monitoring date: See "PA Summary" worksheets.
7. Circumference Data: See "Circ" worksheets.
8. Tree data including count and species: Tree count is 3,224,459 See "Ex post Strata" worksheets for species detail.
9. Carbon sequestration data by Strata: See "Ex post Strata" worksheets.
10. Total Carbon Sequestered. Total: 1,108,743.4 (gross). PIR Period: 506,087 (pre buffer).

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions

No monitoring of the baseline is required. As demonstrated in Section 3.1 of the VCS 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.

3.2.2 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

⁴² <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁴³ Exhibit 14 Public Comments

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 area. 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.

Eucalyptus⁴⁴: $\text{Log } Y = -2.43 + 2.58 \text{ Log } C$

Grevillea: no species specific equations, will use "Other" equation

Cupressus: no species specific equations, will use "Other" equation

Other (default)⁴⁵: $Y = (0.2035 \times \text{DBH}^{2.3196}) \times 1.2$

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

⁴⁴ 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>

⁴⁵ 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-005%20Documents.php>.

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.⁴⁶

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.

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.⁴⁷

Step 10. The total carbon stocks (CO₂e) 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.

⁴⁶ 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.

⁴⁷ 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-005%20Documents.php>.

$$P(t) = \sum_{i=1}^I (PA(t)_i + PB(t)_i) * A_i * (44/12)$$

Where:

$P(t)$ = carbon stocks within the project boundary at time t achieved by the project activity (t CO₂e)

$PA(t)_i$ = 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.

A_i = project activity area of stratum i (ha) from Step 2.

I = stratum i (I = total number of strata)

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 CO₂. 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 3.2.4, the removals from the previous monitoring periods must be subtracted.

3.2.3 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.

3.2.4 Net GHG Emission Reductions and Removals

The equation for calculating the Net GHG Removals is:

Project removals – Baseline emissions – Leakage = Net Removals

Table 3.2.4a: Removals by Vintage

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2016	0	20,793	0	20,793
2017	0	143,195	0	143,195
2018	0	143,195	0	143,195
2019	0	143,195	0	143,195

2020	0	55,709	0	55,709
Total	0	506,087	0	506,087

The net GHG emissions reductions can be found in PA Summary worksheet of Appendix 14. It reflects the emission reductions calculated from the "Ex post Strata" worksheet, less the Pending and Removed groves.

The non-permanence risk rating is 1.0 and the required buffer is 10%.⁴⁸

Table 3.2.4b: Issuance by Spreadsheet Subset

Appendix 14 Subsets	Gross Reductions	Buffer	Available for Issuance
KE005a	58,781	5,878	52,903
KE005b	183,698	18,370	165,328
KE005c	263,607	26,361	237,246
Total	506,087	50,609	455,478

Table 3.2.4c: Buffer by Vintage

Year	Net GHG removals (tCO ₂ e)	Buffer pool allocation	VCUs eligible for issuance
2016	20,793	2,079	18,714
2017	143,195	14,320	128,875
2018	143,195	14,320	128,875
2019	143,195	14,320	128,875
2020	55,709	5,570	50,139
Total	506,087	50,609	455,478

3.3 Optional Criterion: Climate Change Adaptation Benefits

3.3.1 Activities and/or processes implemented for Adaptation (GL1.3)

Over the course of the project, several activities have been implemented to assist farmers in adapting to climate change. Below are those activities and how they assisted communities to adapt to the probable impacts of climate change.

Drawdown of CO₂: Ultimately, climate change must be addressed through the removal of CO₂ from the atmosphere. By planting tree, TIST farmers have removed more than 5M tonnes of CO₂. This PD had removed 1,108,743 tonnes of CO₂ since project start.

Conservation Farming: TIST trains farmers on climate resilient agricultural techniques. Education of FAO Conservation Farming techniques allows farmers to gather minimal rainfall in specially dug and spaced holes. Even in times of drought or limited rainfall, this technique allows crops to grow. More than 217,005 person-training sessions were conducted in Conservation Farming during the monitoring period. In TIST seminars, TIST farmers have reported over double

⁴⁸ Appendix 12 Risk Report

the yield when using conservation farming and still having a crop in dry years when their traditional plots failed.

Trees: Trees retain moisture and create microclimates on TIST participants farms. Trees provide shade to cool farms and introduce new organic matter to restore soil health. This makes farms more productive in adverse conditions. Trees prevent erosion and can serve as windbreaks when planted near structures. Landslides are prevalent in Kenya. There are 3,224,459 trees in this PD.

Community Organization: TIST farmers organize themselves in local and regional groups that share knowledge in monthly Cluster meetings. These meetings provide an opportunity for farmers to share experiences and find locally appropriate solutions to local issues. This organization makes TIST farmers better able to navigate the challenges posed by climate change. There are 304 active Clusters in TIST Kenya that held 20,323 meetings during the monitoring period..

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CM2.1)

Community Group	TIST members in Kenya
Impact	New job opportunities
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	Direct employment went from six on the Leadership Council last monitoring period to eight this period and 60 Cluster Servants last period to 66 this period. TIST requires a Host Country staff to operate. TIST personnel travel by public transportation and buy food and supplies from local merchants, bolstering the local economy. TIST uses Host Country professionals such as accountants and lawyers. TIST staff is trained to use the handheld computers and GPS and how to collect data. Source of data: administrative records

Community Group	TIST members in Kenya
Impact	Direct Effects to Small Groups
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	Carbon payments to members went from \$869,497 in the last monitoring period to \$1,037,699 in this period, an increase of \$168,202. Number of members receiving carbon payments went from 31,136 (12,908 women and 18,228 men) in the last monitoring period to 42,926 (17,498 women; 25,428 men) in this period, an increase of 11,790. TIST benefits thousands of Small Group members by providing

	a new source of income. Small Group members are paid for each tree they plant and maintain. When the project became self-funding from the sale of carbon credits this monitoring period, they began to receive 70% of the net carbon revenues. Source of data: database query
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Community Group	TIST members in PD
Impact	Small Group Structure
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	Number of Small Group members in the PD went from 36,582 in the last monitoring period to 35,776 in this period, a loss of 806. There are 5,168 Small Groups in this PD. Empowerment of Small Groups and creation of “best practices” improves farm production, health, and farmer life. Small Groups use “rotating leadership” which supports gender equality and develops the capacities of each member. The visible success of the TIST groups and the availability of wood, shade, lumber, fruit, and improved crop yields provide the entire community with positive examples. Source of data: database query

Community Group	TIST members in PD
Impact	Fruits and nuts from tree plantings
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	Number of fruit and nut trees went from 259,582 in the last monitoring period to 305,097 in this period, an increase of 44,515. The members select the trees to plant on their land and retain ownership of the trees and their products. To the extent that they plant fruit or nut trees, they will gain the food security and economic benefits the trees provide. Source of data: Appendix 14

Community Group	TIST members in PD
Impact	Wood products and limited timber from trees
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	There are 3,224,459 trees in the PD, representing 160 different species. Table 5.1.6 lists the exotic trees and their attributes. Many, such as <i>Grevillea robusta</i> and <i>Cupressus</i> spp. can be pruned and used for firewood. <i>Eucalyptus grandis</i> can provide poles. Source of data: Table 5.1.6

Community Group	TIST members in PD
Impact	Natural medicines, insecticides and other benefits from trees
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	There are at least 76,000 trees from 14 species that fall in this category. This includes medicinal trees such as <i>Azadirachta indica</i> trees, multi-use trees such as <i>Moringa oleifera</i> and ornamental trees such as <i>Callistemon</i> spp. Source of data: Table 5.1.6

Community Group	TIST members in Kenya
Impact	Capacity building on agricultural improvements, business skills, nursery development, and reforestation
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	TIST has provided the following person-session training since the project start date. Conservation Farming: 217,533 Nursery development: 179,578 Reforestation and natural resource management: 621,935 Climate change: 126,323 Biodiversity: 276,568 Health topics: 132,878 Source of data: Cluster meeting data

Community Group	Small Groups in PD
Impact	Address social and economic problems
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	TIST provided training in Conservation Farming and health topics during the monitoring period. Source of data: database query, Table 5.1.6

Community Group	TIST members in PD
Impact	Improved beauty of the landscape
Type of Benefit/Cost/Risk	Actual direct benefit
Change in Well-being	There are 3,224,459 trees in the PD that re-green the landscape with 160 species. Source of data: Table 5.1.6, Table 5.3.1

Community Group	TIST members in Kenya
Impact	No High Conservation Values negatively affected
Type of Benefit/Cost/Risk	Actual direct benefit

Change in Well-being	No TIST PAs have encroached on HCV areas. TIST tree planting activities provide alternative sources of wood resources reducing external pressure on the HCV areas. Source of data: Appendix 03 PA Plots, Table 5.1.6, Table 5.3.1
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4.1.2 Negative Community Impact Mitigation (CM2.2)

Because the project takes place on private lands and the tree planting is by the landowners, and because the planting of trees is akin to the farming that has taken place on the lands for generations, no negative impacts were identified. The addition of trees on private land benefits the HCVs by reducing the pressure on them.

4.1.3 Net Positive Community Well-Being (CM2.3, GL1.4)

Without the TIST program, the communities carry on as they have. They are subsistence farmers doing what they can to eke out a living. They grow their own crops and raise their own livestock. Most do not practice any kind of Conservation Farming, or use more fuel-efficient stoves. Many don't have a stream of cash income that can pay for needed items such as other food and livestock, or even school fees for their children. Many are ignorant of AIDs and HIV, ways to avoid malaria and issues regarding clean water and air. TIST was designed to address these issues. Section 4.1.1 itemizes the positive benefits our different programs and trainings. Each one is available to the members at zero cost.

Many of these programs are also covered in the Gold Level community survey (Section 4.4) and monetized. It demonstrates that the program has a net financial benefit to each farmer and that virtually all the members have received some training.

On the negative side, are the eucalyptus trees. However, although they are perceived to have a negative environmental impact, they are actually a good economic choice for most of the farmers. They grow fast and there is a cash market in poles and fuel wood. Training has reduced the number of eucalyptus trees.

4.1.4 Protection of High Conservation Values (CM2.4)

The project will not have a negative effect on the HCV areas. The project takes place on private lands that have been under human habitation and agriculture for generations. The planting of trees for the program will not cause displacement or move activities to the HCV areas. On the contrary, the two greatest threats to the HCV areas are deforestation and loss of biodiversity. The planting of new trees and availability of some of the biomass for use by the participants reduces deforestation pressure. The planting of woodlots on farms, especially where indigenous trees are planted, improves biodiversity and helps connect dispersed HCV areas with canopy.

4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

The PD mentions two possible negative impacts of TIST:

- If TIST training and program adoption is extremely successful, it could lower food cost, which would have a negative effect on food vendors.

- If TIST farmers are extremely successful, it could lower fuelwood cost, which would have a negative effect on fuelwood vendors.

There have been no reports of either of these happening.

4.2.2 Net Impacts on Other Stakeholders (CM3.3)

The positive effects on the well-being of the Other Stakeholders are:

- Improved food security. TIST farmers practicing Conservation Farming and growing fruit and nut trees are increasing the local food supply.
- TIST members undergo training and adopt sustainable development programs that have a positive influence on the community. This is supported by the increase of Kenya membership during the monitoring period. It went from 63,119 to 76,319 through word of mouth recommendation by family, friends and neighbors.
- More locally sourced fuelwood. As the TIST trees grow, some of the farmers will have sustainable woodlots. Others will have more fuel wood from pruning, thinning and natural mortality. Some will have an excess that they can sell. The overall reduction in demand by TIST farmers means more supply for the Other Stakeholders.

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan (CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

The monitoring is of the TIST members, both within this PD and of TIST Kenya as a whole.

The following are the results of the Community Impact Monitoring plan.

1. Number of Small Group members in PD: 35,776 people (14,866 women and 20,563 men; remainder undifferentiated).
2. Number of Small Groups in PD: 5,168.
3. Number of community members in TIST Kenya (male and female): 77,813 people (31,364 women and 45,828 men; remainder undifferentiated).
4. Number of Small Groups in TIST Kenya: 10,781.
5. Number of community members active in TIST Kenya: 76,319 people
6. Number of community members adopting natural resource management practices in TIST Kenya: 61,024 people (25,006 women and 36,018 men).
7. Number of community members with greenhouse gas agreements in TIST Kenya: 58,208 people (23,797 women and 34,411 men).
8. Total payments to community in TIST Kenya: US\$1,037,699 since project start. US\$168,202 this monitoring period.
9. Number of community members adopting Conservation Farming in TIST Kenya: 11,073 people.
10. Number of person-training sessions on climate change in TIST Kenya: Project Lifetime 125,730 people (52,604 women and 73,126 men). Monitoring Period 74,686 people (30,750 women and 43,936 men).
11. Number of person-training sessions on HIV/AIDS and health in TIST Kenya: Project Lifetime 132,878 people (69,088 women and 63,790 men). Monitoring Period 5,138 people (2,170 women and 2,968 men).

12. Number of person-training sessions on biodiversity in TIST Kenya: Project Lifetime 276,032 people (163,590 women and 112,442 men). Monitoring Period 81,339 people (36,267 women and 45,072 men).
13. Number of live trees planted by TIST Small Groups: 10,479,470 trees.
14. Number of trees in PD: 3,224,459 trees.
15. Number of fruit or nut trees in PD: 305,097 trees.
16. Number of eucalyptus trees in PD: 500,641 trees.
17. Number of people employed by TIST or under contract to deliver services: 74 people (43 women and 31 men).

In addition, more program components, such as GPS tracts of all the Project Areas, have been obtained in the climate change monitoring plan.

Data is collected by TIST Quantifiers as they visit each Small Group, to count trees by species, count and measure Conservation Farming plots and count fuel efficient stoves. The data reported is collected periodically and at different times for each PA. Only the most recent data is used. The monitoring date is can be found in Column N, PA Summary worksheet, Appendix 14 Monitoring Data.

Training data is based on data collected at the Cluster meetings and uploaded to the TIST server. The metric for training is person-sessions, meaning the numbers reported are expected to exceed the number of members. The frequency of the meetings and monitoring are about once per month per Cluster. The dates and monitoring data are in Exhibit 42.⁴⁹

Contracts are collected and recorded by the administrative staff. The number of people employed, or under contract, with TIST and the amount of GHG payments to Small Groups is obtained from administrative records.

Field data is recorded on custom programmed smartphones and uploaded to the TIST database. Data will be kept at least three years from the end of the reporting period.

4.3.2 Monitoring Plan Dissemination (CM4.3)

All of the CCB and VCS documents, including the results of the monitoring plan, are available on the respective CCB and VCS project web sites. CAAC also makes all of the documentation available to the public on a dedicated web page.⁵⁰ Stakeholders were informed of this when they received the email⁵¹ advising them of the effort to recertify this PDD.

For those TIST members without internet, the project has developed its Mobile TIST website that is low bandwidth and designed to work with a mobile phone.⁵² For those without a smartphone, they can see the results of their Small Group's quantification on their vouchers or discuss the results when the Quantifier is monitoring their PAs or come to the monthly cluster meetings and ask. For those with no other access, they can also go to a local cyber café and see the full reports on-line. The monitoring results have also been published in the TIST Kenya newsletter.⁵³

⁴⁹ Exhibit 42 Training Master:

⁵⁰ <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁵¹ Exhibit 14 Public Comments

⁵² TIST Mobile: <https://www.tist.org/mobile/secure/login.php?ses=gea0rj8ej2odmk314l6dofd7q3>

⁵³ Mazingira Bora October 2020 at <http://www.tist.org/i2/moreinfo.php>

4.4 Optional Criterion: Exceptional Community Benefits

4.4.1 Short-term and Long-term Community Benefits (GL2.2)

For the purpose of demonstrating Gold Level for exceptional community benefits, TIST members were surveyed to identify some of the positive and negative impacts they experienced from participating in TIST. The survey has been conducted twice in Kenya. The first was of 124 random TIST members between June and August 2011. The interview tool consisted of 39 questions. The instructions for the survey⁵⁴, the survey form⁵⁵ and survey results are available⁵⁶ on the PD web page. The four main topic areas of the survey were:

1. demographic/basic information (including literacy, income);
2. TIST membership and participation information (including barriers to participation);
3. benefits from TIST activities (economic, environmental, and social, quantitative and perceptual) and negative impacts; and
4. Conservation Farming and food security.

The indicators were measured in order to differentiate between poorer and more vulnerable households using the Sustainable Livelihoods Approach and to identify and assess whether positive and negative impacts of the program are affecting households equally.

In March 2015, a similar survey was conducted for TIST by Yale School of Forestry & Environmental Studies and New England College. The number of members surveyed was 61. The survey questionnaire⁵⁷ and results⁵⁸ are on the PD web page.

Project Explicitly Pro-Poor: The original survey indicates that 35.5% of the respondents make less than KES 12,000 (US\$112) per year and a cumulative total of 85% make less than 60,000 Ksh (US\$560) per year. The Yale/NEC survey indicates 16% of the respondents make less than KES 12,857 per year (US\$120) and more than 72% make less than KES 64,286 (US\$600) per year. Since income level for abject poverty varies between US\$365 per year (\$1/day) and US\$730 per year (\$2/day), it is clear that most of the members of TIST are poor. Further analysis in the original report identified 15% of TIST members as particularly vulnerable, meaning they met the following criteria:

- their animal ownership is in the lowest quartile (6 animals or less);
- their land ownership is in the lowest quartile (2 acres or less);
- there is only one adult living in the household, or single marital status.

The Yale/NEC survey only identified a single respondent (2%) that met the income criteria and the three vulnerability criteria. This person was in the KES 1,000-5000 income bracket. For the

⁵⁴ Exhibit 21 Survey 01 Overview: TIST KE PD-VCS-Ex21 GL2 Survey Overview.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁵⁵ Exhibit 22 Survey 01 Questionnaire: TIST KE PD-VCS-Ex22 GL2 Community Benefits Survey.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁵⁶ Exhibit 23 Survey 01 Results: TIST KE PD-VCS-Ex23 GL2 Community Survey Result.pdf at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁵⁷ Exhibit 24 Survey 02 Questionnaire: TIST KE PD-VCS-Ex24 YaleNEC Benefits Survey.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁵⁸ Exhibit 25 Survey 02 Results: TIST KE PD-VCS-Ex25 YaleNEC Benefits Results.xls at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

purpose of this analysis, this person is classified as Vulnerable 1. The Survey also identified five respondents (8%) in the "less than KES 1000" income bracket that fell below that animal ownership and land ownership vulnerability criteria but were married. These respondents are classified as Vulnerable 2.

Benefits to the Poor. The surveys included questions to determine the benefits that the program provided to the members. In addition to the many trainings provided (see Community Impact Monitoring Report and the survey report), there are many cash and in-kind benefits. Since most of the members are poor, these indicators demonstrate how TIST benefits the poor.

Table 4.4.1a: Survey Results, Average KES Per Member

Benefit	Original Survey	Yale/NEC Survey
Carbon stipend	479	1,069
Incentive for work	465	454
Fruits/nuts	14,080	20,470
Firewood and Stove	758	24,174
Harvest fodder	6,034	10,805
Animal products	6,048	67,482
Improved Crops	1,960	7,483
Produce compost/manure	3,756	6,366
Honey/Bees	780	1,134
Produce seedlings	2,596	7,241
Total	36,956	146,678

The original survey was the cumulative benefits through 2011. The Yale/NEC benefits were for the year 2014. We believe these results remain valid. TIST has not changed its approach to continually train and incent members to adopt these core programs. We also know that the implementing farmers are continuing to receive some of these benefits: for example, we are paying the stipend, we are paying some of the farmers for TIST work, and quantification shows an inventory of fruit and nut trees. Extrapolating the lifetime benefits to date gives a total approximate cumulative value of TIST membership of KES 988,219 (\$9,227). Extrapolating the 2014 benefits, total approximate cumulative value of TIST membership during the monitoring period is KES 708,942 (\$6,619).

In addition to the above, FY 2018 and 2019 marked the first time the farmers were able to receive a profit share from carbon sale profit. In 2018, Kenya farmers with carbon in PDs shared \$142,284. In 2019, all of the farmers with carbon (in and out of a PD) will share \$280,017.

The surveys also collected data on the beneficial sustainable development training. The metric in the following table is the average training sessions per person.

Table 4.4.1b: Average TIST Training Sessions Per Person

Health topic	First Survey (n=46) Cum 2003-2011	Second Survey (n=120) 2014 only
HIV/AIDS	5.2	1.6
Malaria	5.0	1.4
Fuel efficient stoves	3.7	1.2
Hygiene	5.9	1.2
Clean drinking water	7.3	1.3
Nutrition	3.3	1.1
Other	2.1	0.6
Total	32.5	8.4

We have tabulated the person-session training since the beginning of TIST in Kenya. The following table includes the monitoring period.

Table 4.4.1c: TIST Cluster Person-Training Sessions, Project Lifetime

Training Topic	Total	Female	Male
Climate Change	125,730	52,604	73,126
HIV/AIDS	132,878	69,088	63,790
Biodiversity	276,032	163,590	112,442
Natural Resource Management	620,750	264,004	356,746
TIST Practices	426,076	182,705	243,371
Other Sustainable Development	159,484	77,593	81,891
Total Training	1,740,950	809,584	931,366

The following table represents the person-training session from the Cluster meetings during the monitoring period.

Table 4.4.1d: TIST Cluster Person-Training Sessions, Monitoring Period

Training Topic	Total	Female	Male
Climate Change	74,686	30,750	43,936
HIV/AIDS	5,138	2,170	2,968
Biodiversity	81,339	36,267	45,072
Natural Resource Management	286,546	130,980	155,566
TIST Practices	249,557	106,698	142,859
Other Sustainable Development	111,754	56,943	54,811
Total Training	809,020	363,808	445,212

Negative Impacts. Because TIST is voluntary, few negative impacts were identified. While there were several scalar response questions in the survey, only a few could result in a "negative" response. The others only provided an indication of the level of perceived benefits.

- When asked if they lose money participating in TIST:

Table 4.4.1e: Negative Impact, lose money

Response	All Surveys (n=124)	Vulnerable (n=19)	Women (n=61)
Very True	19%	21%	15%
Somewhat true	28%	26%	13%
Not at all true	58%	47%	59%

- When asked if they use too much land planting TIST trees and not enough for food and livestock:

Table 4.4.1f: Negative Impact, use too much land

Response	All Surveys (n=124)	Vulnerable (n=19)	Women (n=61)
Very True	5%	11%	3%
Somewhat true	15%	5%	16%
Not at all true	80%	84%	79%

- When asked if their families have less food to eat because of TIST:

Table 4.4.1g: Negative Impact, less food

Response	All Surveys (n=124)	Vulnerable (n=19)	Women (n=61)
Very True	10%	11%	10%
Somewhat true	10%	21%	16%
Not at all true	80%	68%	66%

- When asked if their friends and families were not happy that they were a members of TIST:

Table 4.4.1h: Negative Impact, families unhappy with TIST membership

Response	All Surveys (n=124)	Vulnerable (n=19)	Women (n=61)
Very True	12%	11%	14%
Somewhat true	18%	11%	24%
Not at all true	70%	78%	62%

- When asked if they were too busy with TIST to do the important things they need to do:

Table 4.4.1i: Negative Impact, too busy

Response	All Surveys (n=124)	Vulnerable (n=19)	Women (n=61)
Very True	10%	21%	11.5%
Somewhat true	16%	21%	11.5%
Not at all true	74%	53%	69%

Since TIST is voluntary and the amount of participation by the farmers is up to them, many of the “Very True” responses that appear to be negative, are actually in the hands of the farmers themselves. Unquestionably, TIST has set up structures like Small Group and Cluster meetings that take time to attend and encourages adoption of many sustainable development practices that require effort. These are voluntary and we believe the time and effort are well worth it. What is adopted and how much time is put in is up to the farmer. We have had farmers leave the program, which is certainly their prerogative. However, we still have over 70,000 farmers in Kenya, so it appears they believe they are receiving a net benefit.

In the Yale/NEC survey, the major negative issues centered on carbon payment. 25% of the respondents said they wanted more money for the carbon payments. At the time of the survey, the farmers only received a small tree stipend as an advance payment on the carbon. As noted above, the farmers are now sharing 70% of the profits from carbon sales. The profits share distributions will continue as long as the carbon market is robust. The market has been thin and the price low for many years, but we have seen a steady improvement since mid-2019, which means more future profits for the farmers.

25% of the respondents also wanted more timely payments. This points to a need to keep improving the Cluster payment system. Though we have changed the payment system several times, including being an early adopter of the Mpesa mobile phone payment system, paying 76,436 farmers on a timely basis remains a challenge. We are always looking for ways to improve the payment system.

In summary, though there are many ways we can continue to improve TIST; there do not seem to be any "negative" effects that actually harm the farmers.

Positive Net Benefit of TIST. A comparison of the monetized benefits and sustainable development training to the negative benefits discussed above confirms that TIST has a positive net benefit to the participant. They receive cash money, training that they can monetize into financial benefits, they improve their food security, re-green their farms, enrichen their soil and learn about health issues. On the negative side, they have to put in some time and effort to gain these. We believe the net benefit is positive. Since most of the members are poor, it can be further concluded that TIST has a net positive impact on poor subsistence farmers.

4.4.2 Marginalized and/or Vulnerable Community Groups (GL2.4)

Community Group	TIST Members
Net positive impacts	Total approximate cumulative value to Vulnerable TIST members during the monitoring period is KES 146,208 (\$1,365), plus they can receive ongoing sustainable development training.
Benefit access	TIST is designed to improve the livelihoods of all subsistence framers that participate. There is no restriction to participation
Negative impacts	No negative impacts have been identified. See Section 4.4.

Marginalized and/or Vulnerable People. The original survey identified 15% of the respondents as vulnerable. Using the same criterion, the Yale/NEC survey only identified one respondent as most vulnerable (Vulnerable 1). However, we defined another subset of 8% by dropping the marital status criteria, and only including the "less than KES 1000" income bracket (Vulnerable 2). They report the following benefits:

Table 4.4.2a: Benefits to Vulnerable People (Avg. KES/Person)

Benefit	Original Survey	Yale NEC Vulnerable 1	Yale NEC Vulnerable 2
Carbon stipend	154	4,000	1,292
Incentive for work	5,014	0	233
Fruits/nuts	3,092	2,050	2,525
Firewood and Stove	With above	2,500	2,583
Harvest fodder	1,325	4,000	1,067
Animal products	Not collected	56,160	18,057
Improved Crops	1,350	2,500	3,177
Produce compost/manure	306	1,350	725
Honey/Bees	476	0	167
Produce seedlings	6,850	0	425
Total	18,567	72,560	30,251

Results show that these vulnerable households experienced a range of benefits. Notably, incremental livestock and their products and harvesting tree products such as fruit, nuts, fodder and firewood was important for this sub-group, with the surveys showing it has higher values than the cash payments. The lack of honey and seedling benefits for the single Vulnerable 1 respondent is interpreted as more a choice rather than a barrier.

As previously stated in the Benefits to the Poor section, TIST has not changed its approach to continually train and incent members to adopt these core programs. The original survey was the cumulative benefits through 2011. The Yale/NEC benefits were for the year 2014. Extrapolating the lifetime benefits to date gives a total approximate cumulative value of KES 217,735 (\$2,033) to Vulnerable TIST members. Extrapolating the 2014 benefits, the total approximate cumulative value to Vulnerable TIST members during the monitoring period is KES 146,208 (\$1,365). They, too, are eligible for the profit share payments in proportion of their sequestered carbon.

There also did not appear to be significant barriers to meeting attendance for these households. The average meeting attendance was 8.7 Cluster meetings per year and 1.4 Small Group meetings per month in the Original Survey. The meeting attendance of the Yale/NEC survey was 11.2 Cluster meetings for the last year and 2.3 Small Group meetings per month. The meeting attendance of the single Vulnerable 1 respondent was 12 Cluster meetings for the 2014 year and three Small Group meetings per month. The meeting attendance of the single Vulnerable 2 respondents was 9.8 Cluster meetings for 2014 year and 1.8 Small Group meetings per month. There was no significant difference in number of health trainings for the vulnerable households in the Original Survey versus survey pool, with an average of 5.3 health-training sessions since their time at TIST. In the Yale/NEC survey, the pool average was 22 training sessions per respondent, 21 sessions for the Vulnerable 1 respondent and 11 sessions for the Vulnerable 2 respondents. The lower number for the Vulnerable 2 was in part due to the survey responses being text answers ("yes", received training) rather than the number of sessions attended.

The Marginalized and Vulnerable members of TIST are eligible for all the training shown in Table 4.3.2c. Base on the surveys, it appears that they would have attended and received multiple trainings in most or all of the topics during the monitoring period.

4.4.3 Net Impacts on Women (GL2.5)

Impacts on Women. In the Original Survey, 61 out of 124 members were female. The economic benefits were tabulated separately (though not shown in the final report) and were

essentially the same as that of all the respondents; KES 36,748 for women and KES 36,958 for all members. There were 20 women respondents out of 61 total in the Yale/NEC Survey. The survey results are shown by topics:

Table 4.4.3a: Benefits to Women (Avg. KES/Person)

Benefit	Original Survey⁵⁹	Yale/NEC Survey
Carbon stipend	476	995
Incentive for work	462	240
Fruits/nuts	14,000	12,148
Firewood and Stove	754	5,300
Harvest fodder	6,000	11,008
Animal products	6,014	100,137
Improved Crops	1,949	5,036
Produce compost/manure	3,735	-90
Honey/Bees	776	648
Produce seedlings	2,582	3,473
Total	36,748	138,895

As previously stated in the Benefits to the Poor section, TIST has not changed its approach to continually train and incent members to adopt these core programs. The original survey was the cumulative benefits through 2011. The Yale/NEC benefits were for the year 2014. Extrapolating the lifetime benefits to date gives a total approximate cumulative value of KES 938,005 (\$8,758) to Women TIST members. Extrapolating the 2014 benefits, the total approximate cumulative value to Women TIST members during the monitoring period is KES 671,319 (\$6,268). They, too, are eligible for the profit share payments in proportion of their sequestered carbon.

The Original Survey showed that was no significant difference between male and female members who have held leadership positions and that there was no significant difference in Cluster meeting attendance by gender. It showed that females attended more Small Group meetings per week than males.

The Yale NEC Survey similarly showed that women and men attended meetings and received training at similar frequencies.

Table 4.4I: Training Attendance by Gender

Yale/NEC Survey Training Results	Women	Men
SG meetings/month attended	Avg 2.1 meetings	Avg 2.4 meetings
Cluster meetings/year attended	Avg 11.4 meetings	Avg 11.1 meetings
Health training sessions attended	Avg 23.6 sessions	Avg 21.9 sessions

Table 4.4.d indicates that women received 45% of all the Cluster training during the monitoring period. Based on the two surveys and Cluster training, women continue to attend meetings and receive training at nearly the same level as men.

As noted in other section, there are eight TIST farmers on the Leadership Council and four are women. There are 66 Cluster Servants and 39 are women.

No negative impacts were cited by women. Therefore, it has been demonstrated that TIST provides a net positive impact on women.

⁵⁹ Itemizes topics of Women's survey is based on a ratio of Original Survey from Table 4.3.2a.

4.4.4 Benefit Sharing Mechanisms (GL2.6)

All of the monetized benefits reported in Sections 4.4.1 to 4.4.3 are benefits received by the members. TIST Kenya and CAAC are only entitled to the rights to the carbon. The farmers keep all the other benefits including an advanced cash payment for carbon based on tree count and a 70% share of profits. The farmers are receiving these benefits.

4.4.5 Governance and Implementation Structures (GL2.8)

As noted throughout this document, TIST relies on self-governance. There are five people in the US management team. We do the marketing, PD work, provide funding for the Host Countries and provide guidance. TIST Kenya is overseen by the Leadership Council and Cluster Servants. All TIST Kenya personnel are Kenyans. Most are TIST farmers that have been trained.

Much of the major decision making is at the farm level, by the farmers. They own the land where the trees are planted, the trees and the tree products. They choose where to plant, how many trees to plant, which species to plant, which sustainable development activities to pursue, etc. TIST provides them with training to help them in their decision making process, but they are the ones that make the final decision.

The small holders are part of a Small Group. They generally meet weekly for training, to share best practices, review the results of quantification, plant trees, tend nurseries, review the payment vouchers and work together on projects too big for one person. They practice rotating leadership, so everyone gets a chance.

They are members of a Cluster. Clusters are generally scheduled to meet once per month at a location within walking distance of the members. Each Small Group sends two representatives to each Cluster meeting, where they receive training, get the payment vouchers, and get their carbon prepayment.

The TIST program has certain aspects that are un-changeable. The program and benefits to the farmers are based on the ability to create and market GhG credits and all governance decisions must be made with that in mind. Also, the voluntary carbon market demand and prices have been weak. Any discussion impacting the budget must involve US managers. We have many documents, including the TIST Values, to help the members manage the day-to-day operations.

4.4.6 Smallholders/Community Members Capacity Development (GL2.9)

The project relies on local membership and a locally trained staff. The TIST Small Group and Cluster structure was designed to provide training and capacity building for thousands of subsistence farmers. This is highlighted throughout in the PD.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (B2.1)

Change in Biodiversity	Trees planted by the project
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Monitored Change	Change with project : 3,224,459 trees Change this period: 199,652 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	Trees were planted as part of the program. The number of trees in each PA was counted by species. This is beneficial to biodiversity because they improve soil, provide food and cover for wildlife and reduce pressure to take illegal firewood.

Change in Biodiversity	Hectares in project
Monitored Change	Change with project: 9,806.3 hectares under tree cover Change this period: 1,216.0 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	Trees were planted as part of the program. The number of trees in each PA was counted. The area of each PA was determined by GPS. This is beneficial to biodiversity because these areas should all see improved soil, provide food and cover for wildlife and reduce pressure to take illegal firewood.

Change in Biodiversity	PAs with trees
Monitored Change	Change with project: 19,073 PAs with program trees. Change this period: 2,619 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	Trees were planted as part of the program. The number of PAs with trees was counted. This is beneficial to biodiversity because isolated PAs are stepping stones and buffers for wildlife.

Change in Biodiversity	Indigenous trees planted by the project
Monitored Change	Change with project: 411,068 indigenous trees Change this period: 9,305 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	These trees were planted as part of the program. The inventory was determined by a physical count. The count by species is provided in Table 5.3.1

Change in Biodiversity	Hectares of indigenous tree
Monitored Change	Change with project: 1,653.04 hectares of indigenous trees Change this period: 231 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	Indigenous trees were planted as part of the program. The number of trees in each PA was counted by species. The area of each PA was determined by GPS. The hectares of indigenous tree are the ration of indigenous trees over the total trees, times the area of the PA.

Change in Biodiversity	PAs with indigenous trees
Monitored Change	Change with project: 14,601 discrete PAs with indigenous trees. Change this period: 1,353 loss Actual direct change, positive for biodiversity, negative for monitoring period
Justification of Change	Indigenous trees were planted as part of the program. The number of PAs with indigenous trees was counted. This indicator is beneficial to biodiversity because isolated PAs with indigenous trees are stepping stones and buffers for wildlife.

5.1.2 Mitigation Actions (B2.3)

The project areas are grasslands or croplands on private lands owned by subsistence farmers. They have a history of farming and as such, the baseline biodiversity is extremely low. Natural wildlife populations were eliminated or driven off long ago and are currently restricted to transient animals. As such, the approach to improving biodiversity in the project areas must start with the basics and, in this case, means planting indigenous trees. Isolated woodlots with indigenous trees will improve the connectivity of wildlife between natural forests.

Given the without-project scenario, the negative impacts on biodiversity are di minimis. It might be said that the project could do more by planting more indigenous trees, but TIST needs to balance that with the needs of the farmer. A project that supplies long term resources for the farmer has a greater likelihood of being sustainable than a project that delivers greater biodiversity, at the cost of community benefits. As such, the only negative impacts we have identified are species selection, which is addressed below.

TIST does not have a negative effect on the HCVs. TIST activities do not take place inside those areas. TIST trees are being planted where deforestation has taken place. The addition of indigenous trees, tree cover and fruit trees enhance biodiversity by providing an expanded range for some of the animals that rely on the HCV area. In addition, the many discrete Project Areas help improve the wildlife corridors between HCV areas needed for healthy animal populations.

5.1.3 Net Positive Biodiversity Impacts (B2.2, GL1.4)

The without-project scenario is rather bleak for biodiversity. Generations of human occupation and farming have made the Project Area biodiversity-poor. With TIST it has improved. We have planted and maintained 411,068 indigenous trees, covering 1,653 ha and contained in 14,601 Project Areas. These are islands of biodiversity in a degraded landscape matrix that provide connectivity among the natural forests and other islands of biodiversity. There are over 19,073 total Project Areas operated by farmers that are receiving ongoing training in biodiversity and natural resource management. Those of these that do not have indigenous trees still provide forest cover. In addition, there are 305,097 fruit and nut trees covering 1,208.67 ha. These provide a source of food and nectar for bees, birds, small animals living on, or around, the farms and larger animals when present.

An Environmental Impact Audit was carried out by Natural Resources Management & Development Agency (NAREDA Consultants) in Meru and Nanyuki areas of Kenya,⁶⁰ to assess the environmental conditions and biodiversity of the area and to assess positive and negative environmental impacts of TIST project activities. The EIA and other assessments indicate that the Project Areas themselves were not areas rich in biodiversity. However, some areas border Mt Kenya and conserved forest, areas rich in biodiversity. By providing fuel wood from sustainable wood lots and improving livelihoods, the project should have a positive effect on biodiversity.

Promotion of Conservation Farming will further reduce pressure on forestland by increasing food productivity by, and consequently decreasing pressure for, land clearing for agriculture. Biodiversity is also enhanced directly through the planting of indigenous trees, both in specific riparian 'biodiversity' groves, and through dispersed inter-planting, homestead planting and woodlots. Increases in tree biodiversity should also enhance diversity of associated species, including pollinators, and other beneficial species, while protection of riparian areas will improve water quality and provide other important ecosystem services.

Comparing the without-project scenario and with-project conditions, it has been demonstrated that the project has a net positive impact on biodiversity.

5.1.4 High Conservation Values Protected (B2.4)

TIST does not have a negative effect on the Lower Imenti Forest. In fact, Kenya Forest Service recognized the benefit of using TIST farmers to clear the invasive vegetation and plant indigenous trees. In exchange, the farmers can interplant crop for three to five years, until the canopy cover inhibits farming.

TIST does not have a negative effect on the three HCVs near the TIST Project Areas, Mt Kenya, Aberdare and Meru National Parks. TIST activities do not take place inside those areas. TIST trees are being planted where deforestation has taken place. The addition of indigenous trees, tree cover and fruit trees enhance biodiversity by providing an expanded range for some of the animals that rely on the HCV area. In addition, the many discrete Project Areas help improve the wildlife corridors and act as "stepping stones" between HCV areas, needed for healthy animal populations.

⁶⁰ Exhibit 06 EIA Report: TIST KE PD-VCS-Ex06 KE EIA Report NAREDA 100506.doc at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

5.1.5 Invasive Species (B2.5)

All listed species have been screened against the global database of invasive species and reviewed with the Kenya Forest Service.⁶¹ None of the species above are included as invasive species in Kenya.

5.1.6 Impacts of Non-native Species (B2.6)

As noted, TIST farmers have the final say in the species of trees that they plant. TIST encourages the planting of indigenous trees and those with an economic benefit (fruit, nut, fodder, etc.). They also plant trees for firewood and while that is not ideal for an A/R project, the fact remain that firewood is the primary fuel for cooking and heat. TIST tries to balance the need for fuel with ongoing sequestration.

In the species selection training, we try to make sure the farmers understand the adverse effect that some species have. In the table below, unless indicated, none have any adverse effect.

Table 5.1.6: Non-native Species

Species	Trees	Strata Ha	Justification
Acacia mearnsii	17,126	56	wood products
Anacardium occidentale	593	3	fruit tree
Aniba rosaeodora	217	0	endangered hardwood
Annona muricata	337	2	fruit tree
Artocarpus heterophyllus	208	2	fruit tree
Azadirachta indica	6,168	55	medicinal tree
Bixa orellana	10	0	annatto seeds
Blighia unijugata	8,037	21	shade tree
Bombax ceiba	84	0	Ornamental
Brachychiton acerifolium	1,590	6	Ornamental
Callistemon spp.	60,464	199	Ornamental
Casimiroa edulis	3,094	13	fruit tree
Casuarina equisetifolia	26,374	68	firewood
Cedrela Odorata	7	0	termite resistant
Citrus aurantifolia	367	4	fruit tree
Citrus limonum	5,228	26	fruit tree
Citrus reticulata	943	5	fruit tree
Citrus sinensis	43,377	159	fruit tree
Cocos nucifera	85	0	fruit tree
Coffea arabica	1	0	fruit tree
Cupressus spp.	598,570	1,427	well established
Dendrocalamus giganteus	247	1	fast growing
Endiandra glauca	90	0	fruit tree
Eriobotrya japonica	113	0	fruit tree
Eucalyptus grandis	500,641	885	fast growing

⁶¹ International Union of Concerned Scientists, Global Invasive Species Database, Accessed 11 January, 2011 at <http://www.iucnqisd.org/qisd/>. Accessed April 09, 2017.

	This tree has a reputation of using more water than others. In part, this is due to its rapid growth. It is widely planted and promoted in Kenya		
Eugenia caffra	4	0	medicinal tree
Ficus elastica	13	0	Ornamental
Fraxinus berlandieriana	4,355	12	fast growing long living
Fraxinus pennsylvanica	591	3	fast growing long living
Gmelina Arborea	2	0	drought tolerant
Grevillea robusta	1,178,481	3,841	resistant to wood rot
Jacaranda mimosifolia	6,478	24	Ornamental
Jatropha curcas	11	0	fruit tree
Leucaena leucocephala	1,324	6	soil fertility, fodder
	While considered by some to be invasive, KFS does not, in the context of planting on farms where the benefits to soil fertility are well known.		
Macadamia spp.	71,696	253	fruit tree
Mangifera indica	71,829	344	fruit tree
Melia azedarach	7	0	fodder
Moringa oleifera	351	2	herbal and edible seeds
Morus alba	161	1	fruit tree
Musa spp.	40	0	fruit tree
N/A	71,782	302	
Parkinsonia aculeata	18	0	drought tolerant
Persea americana	70,427	255	fruit tree
Phoenix dactylifera	2	0	fruit tree
Pinus Patula	711	3	popular tree
Pinus spp.	19,010	43	popular tree
Pithecelobium dulce	56	0	drought tolerant
Pouteria sapota	540	1	fruit tree
Prunus persica	286	1	fruit tree
Prunus spp.	734	3	fruit tree
Psidium guajava	21,408	74	fruit tree
	While considered by some to be invasive, KFS does not, in the context of planting on farms where its fruit is a mainstay of the Kenyan diet.		
Pterocarpus santalinus	19	0	exotic wood
Punica granatum	1	0	fruit tree
Rapanea melanophloeos	34	0	bird eat the berries
Schinus molle	391	3	fruit tree
Senna septemtrionalis	78	0	medicinal tree
Senna spectabilis	20	0	Ornamental
Sesbania grandiflora	92	0	medicinal, edible leaves
Swietenia mahagoni	57	0	exotic wood
Tectona grandis	97	0	valuable hardwood
Toona ciliata	14,866	40	fast growing shade tree
unknown	3,448	10	
Grand Total	2,813,391	8,153.29	

5.1.7 GMO Exclusion (B2.7)

The Project Proponent guarantees no GMOs will be used by the project to generate GHG emissions reductions or removals.

5.1.8 Inputs Justification (B2.8)

Table not applicable. It is TIST's policy to not use chemical fertilizers and pesticides. Farmers are trained to make and use their own compost and to use dung. In addition, the cost of chemical fertilizers and pesticides is prohibitive.

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Actions (B3.2)

No negative impacts have been identified and therefore no mitigation is needed.

5.2.2 Net Offsite Biodiversity Benefits (B3.3)

There should not be any negative impacts on biodiversity outside the Project Zone. TIST activity should actually help it by:

- Increasing the on-farm firewood inventory and therefore reducing pressure to take fuelwood from the natural forest.
- Increasing crop yields reducing pressure to clear natural forest for more farm land.
- Reduce fuelwood consumption from more fuel-efficient wood stoves, reducing pressure for fuelwood that might be taken illegally from the natural forests.
- Providing thousands of islands of biodiversity that help connect the natural forests that are separated by active farms.

5.3 Biodiversity Impact Monitoring

5.3.1 Biodiversity Monitoring Plan (B4.1, B4.2, GL1.4, GL3.4)

The plan uses TIST's strength in gathering, verifying, and analyzing field data to measure critical biodiversity metrics in the farms and groves where TIST farmers work and live. Trees are the main focus of biodiversity impact monitoring since they provide important habitat diversity and structural features for biodiversity. Tree biodiversity is expected to increase as a result of awareness raising, training and incentives. We monitor and report on the TIST website the species planted, number of trees of each species planted in each area, and, as the trees grow, the age and circumference of these trees. Quantification is a constant process and as a Project Area is monitored, new data populates the website. To qualify for "active" status and eligibility for VCUs, each site is monitored at least within the last five years.

Trends in landscape connectivity and forest fragmentation have been addressed, using the track data collected by the Quantifiers. The location, extent and area of each Project Area have been obtained. The location and perimeter of each Project Area will be presented.

The following are the results of the Monitoring Plan:

1. Number of trees: 3,224,459, See Appendix 14

2. Total hectares of the project: 9,806 hectares (active/pending, "PA Summary", App 14)
3. Number of project areas: 19,073, See Appendix 14
4. Number of trees and hectares by species: See Tables 5.1.6 and 5.3.1
5. Number of indigenous trees: 411,068, See Tables 5.3.1
6. Hectares of indigenous trees: 1,653, See Tables 5.3.1
7. Number of Project Areas with indigenous trees: 14,601 ("Strata Pivot", Appendix 14)
8. Number of indigenous trees and hectares by species: See Table 5.3.1, below.
9. The area and location of each Project Area: See "PA Summary", App 14
10. KML file that displays the name, location and boundary of each Project Area on Google Earth: See Appendix 03 PA Plots
11. The tree inventory of each Project Area: See "Ex post Strata", App 14.

As noted in Section 5.1.4, with the permission of the Kenya Forest Service, TIST has planted trees in the Lower Imenti Forest.

12. Number of indigenous trees in the Lower Imenti: 13,283
13. Hectares of indigenous trees in the Lower Imenti: 31.8
14. Number of Project Areas with indigenous trees in the Lower Imenti: 206
15. Number of indigenous trees and hectares by species in the Lower Imenti: See Table 5.3.1c
16. KML file that displays the name, location and boundary of each Lower Imenti Project Area on Google Earth. See Exhibit 41 Lower Imenti KML. [This link.](#)

Data is collected by TIST Quantifiers as they visit each Small Group, to count and measure trees by species. The data reported is collected periodically and at different times for each PA. Only the most recent data is used. The monitoring date is can be found in Column N, PA Summary worksheet, Appendix 14 Monitoring Data.

Table 5.3.1a lists the indigenous species in the PDD.

Table 5.3.1a: Indigenous Trees

Scientific Name	TreeCount	Hectares
Acacia albida	7	0.02
Acacia mellifera	22	0.02
Acacia albida	7	0.02
Acacia mellifera	22	0.02
Acacia nilotica	604	7.94
Acacia seyal	1,110	5.80
Acacia spp.	63,120	354.53
Acacia tanganyikensis	10	0.02
Acacia tortilis	24	0.08
Acokanthera schimperi	554	1.88
Adansonia digitata	43	0.31
Albizia gummifera	950	2.80
Annona senegalensis	409	1.16
Annona spp.	4,174	26.71
Bersama abyssinica	372	1.32
Boscia coriacea	2	0.01
Brachystegia spiciformis	201	0.68
Brachystegia spp.	1,207	8.82
Bridelia taitensis	42,289	119.61
Burkea africana	2,071	5.70

Scientific Name	TreeCount	Hectares
Canarium schweinfurthii	23	0.08
Celtis durandii	440	1.90
Combretum molle	9,926	48.65
Commiphora africana	330	2.07
Cordia Africana	32,264	140.44
Cordia monoica	3,071	17.12
Croton macrostachyus	17,201	61.03
Croton megalocarpus	41,396	169.85
Croton Sylvaticus	4,254	21.14
Cussonia holstii	200	0.82
Dalbergia lactea	107	0.17
Dichrostachys cinerea	2	0.01
Diospyros abyssinica	2	0.02
Diospyros mespiliformis	25	0.03
Dombeya rotundifolia	10,033	44.74
Dombeya spp.	880	3.56
Dovyalis abyssinica	119	0.60
Ehretia cymosa	1,823	5.15
Ensete ventricosum	3	0.02
Entada abyssinica	29	0.09
Erythrina abyssinica	14,277	40.28
Euclea divinorum	3,943	19.13
Faidherbia albida	10	0.11
Ficus sur	18	0.13
Ficus sycomorus	1,439	6.43
Ficus thonningii	6,661	22.07
Grewia bicolor	1	0.00
Hagenia abyssinica	226	0.81
Harungana spp.	4,584	8.90
Khaya nyasica	942	2.49
Kigelia africana	162	1.22
Landolphia Petersiana	6	0.01
Lonchocarpus capassa	43	0.05
Lovoa swynnertonii	232	0.38
Lumnitzera racemosa	15	0.05
Maesopsis eminii	1,747	6.23
Markhamia lutea	45,155	161.89
Melia volkensii	475	3.14
Myrianthus holstii	18	0.08
Newtonia buchananii	1,214	3.07
Ocotea kenyensis	34	0.13
Ocotea usambarensis	155	0.42
Olea capensis	8	0.02
Olea europaea	12,460	35.64
Olinia rochetiana	17	0.09
Ozoroa insignis	125	0.60
Pentas longiflora	64	0.13
Phoenix reclinata	5,985	24.18
Piptadeniastrum africanum	8	0.11
Podocarpus falcatus	4,436	12.86
Polyscias fulva	4,574	16.00
Prunus africana	12,710	34.55

Scientific Name	TreeCount	Hectares
Pterocarpus angolensis	380	1.78
Rhamnus spp.	48	0.08
Rhus vulgaris	60	0.17
Rubus spp.	2,202	6.59
Rumex usambarensis	1,326	7.31
Sapium ellipticum	2,728	8.79
Sesbania sesban	98	0.37
Solanum aculeastrum	355	1.99
Spathodea campanulata	1,488	3.88
Strychnos cocculoides	14	0.09
Strychnos henningsii	308	0.90
Strychnos madagascariensis	101	0.57
Syzygium cordatum	180	0.51
Syzygium guineense	1,821	4.13
Tamarindus indica	233	2.91
Teclea nobilis	522	1.45
Terminalia brownii	2,506	15.78
Terminalia catappa	10	0.07
Toddalia asiatica	5,232	45.20
Trichilia emetica	470	2.32
Vangueria infausta	5	0.05
Vangueria spp.	5,957	22.77
Vernonia brachycalyx	6	0.02
Vitex keniensis	22,017	58.11
Warburgia ugandensis	1,029	3.32
Withania somnifera	8	0.05
Ximenia americana	29	0.17
Zanthoxylum chalybeum	894	7.59
Grand Total	411,068	1,653.04

Table 5.3.1b: Indigenous Trees, Subtotal by Spreadsheet

Indigenous Trees by Spreadsheet	Tree Count	Hectares
Spreadsheet 005a	87,185	279.66
Spreadsheet 005b	156,877	706.47
Spreadsheet 005a	167,006	666.91
Grand Total	411,068	1,653.04

Table 5.3.1c lists the indigenous species in the Lower Imenti Forest.

Table 5.3.1c: Indigenous Trees in Lower Imenti Forest

Scientific Name	TreeCount	Hectares
Acacia spp.	1	0.00
Albizia gummifera	1	0.00
Bersama abyssinica	52	0.16
Bridelia taitensis	12	0.02
Celtis durandii	10	0.03
Cordia Africana	339	0.99
Cordia monoica	4	0.01
Croton macrostachyus	79	0.16
Croton megalocarpus	564	1.32

Scientific Name	TreeCount	Hectares
<i>Ehretia cymosa</i>	38	0.06
<i>Euclea divinorum</i>	56	0.48
<i>Ficus sycomorus</i>	1	0.01
<i>Kigelia africana</i>	1	0.00
<i>Lonchocarpus capassa</i>	43	0.05
<i>Lovoa swynnertonii</i>	20	0.04
<i>Maesopsis eminii</i>	9	0.02
<i>Markhamia lutea</i>	5,055	13.15
<i>Olea europaea</i>	13	0.02
<i>Phoenix reclinata</i>	2	0.00
<i>Polyscias fulva</i>	13	0.10
<i>Spathodea campanulata</i>	3	0.00
<i>Vangueria</i> spp.	236	0.88
Grand Total	6,552	17.50

5.3.2 Biodiversity Monitoring Plan Dissemination (B4.3)

All of the CCB and VCS documents, including the results of the monitoring plan, are available on the respective CCB and VCS project web sites. CAAC also makes all of the documentation available to the public on a dedicated web page.⁶² Stakeholders were informed of this when they receive the email⁶³ advising them of the effort to recertify this PD.

For those TIST members without internet, the project has developed its Mobile TIST website that is low bandwidth and designed to work with a mobile phone.⁶⁴ For those without a smartphone, they can see the results of their Small Group's quantification on their vouchers or discuss the results when the Quantifier is monitoring their PAs or come to the monthly cluster meetings and ask. For those with no other access, they can also go to a local cyber café and see the full reports on-line. The monitoring results have also been published in the TIST Kenya newsletter.⁶⁵

5.4 Optional Criterion: Exceptional Biodiversity Benefits

5.4.1 Trigger Species Population Trends (GL3.3)

Trigger Species	<i>Vitex keniensis</i> (Meru Oak)
With-project Scenario	The Meru Oak is endemic to the Mount Kenya region and is listed as endangered on the IUCN Red List. The population trend is assessed as decreasing. TIST farmers have planted and maintain 22,017 <i>vitex keniensis</i> , a clear, direct benefit to the species. As discussed, TIST operations also mitigate some of the pressures of deforestation.

⁶² <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

⁶³ Exhibit 14 Public Comments

⁶⁴ TIST Mobile: <https://www.tist.org/mobile/secure/login.php?ses=gea0rj8ej2odmk314l6dofd7q3>

⁶⁵ Mazingira Bora, October 2020

Vulnerable: The Meru Oak is a deciduous tree found only in Kenya. It is threatened by loss of habitat and is listed as endangered on the IUCN Red List.

Population Trend: As identified by the IUCN the population is decreasing. It has been over exploited for charcoal and timber and is facing a loss of habitat.

Enhancing the Population: TIST farmers are planting *Vitex keniensis* on their farms. In the PD, 22,017 trees were planted. Approximately 45,000 Meru Oaks have been planted by TIST farmers in the entire program.

Effectiveness of Measures: The direct planting and counting of *Vitex keniensis* is an effective measure because it ensures the new project-related trees are present. The Meru Oak has been included in the biodiversity monitoring plan.

6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

Not applicable

7 ADDITIONAL PROJECT IMPACT INFORMATION

Not applicable

8 APPENDICES

All Appendices are available at <http://www.tist.org/PD-KE-VCS-005%20Documents.php>.

Appendix 03 PA Plots (KML Plots of the Project Areas):

TIST KE PD-VCS-005d App03a PA Plots.kml (at validation)
TIST KE PD-VCS-005d App03b PA Plots.kml (at validation)
TIST KE PD-VCS-005d App03c PA Plots.kml (at validation)

TIST KE PD-VCS-005d App03a PA Plots 200626.kml (at verification 03)
TIST KE PD-VCS-005d App03b PA Plots 200626.kml (at verification 03)
TIST KE PD-VCS-005d App03c PA Plots 200626.kml (at verification 03)

Appendix 4, Validation Spreadsheets:

TIST KE PD-VCS-005e App04a Data 111102 Group.xls and
TIST KE PD-VCS-005e App04b Data 161130.xlsx.

Appendix 12, Non Permanence Risk Report:

TIST KE PD-VCS-005m App12 Verif 03 Risk Analysis 200522.docx.

Appendix 14, Monitoring Spreadsheet:

TIST KE PD-VCS-005o App14a Verif 03 Monitor Data 200522.xlsx,
TIST KE PD-VCS-005o App14b Verif 03 Monitor Data 200522.xlsx, and
TIST KE PD-VCS-005o App14c Verif 03 Monitor Data 200522.xlsx.

Exhibit 14, Public Comments:

TIST KE PD-VCS-Ex14i Public Comments CCB-001, 005, 009 V03.docx