CCBA Project Implementation Report
for
TIST Program in Uganda
CCB-001, Verification 02

for verification under
The Climate, Community and Biodiversity Standard
Second Edition

23 October, 2014

Project Title	TIST Program in Uganda, CCB-001
Project Location	Southwest Uganda: Bushenyi, Kabale, Kanungu
Project Proponent	Clean Air Action Corporation P.O. Box 4607 Tulsa OK, USA 74159 Telephone 918-747-8749 CharlieWilliams@CleanAirAction.com Tist.org
Auditor	Environmental Services, Inc. – Forestry, Carbon, and GHG Services Division 7220 Financial Way, Suite 100, Jacksonville, Florida 32256 – USA Phone: 904-470-2200 Fax: 904-470-2112 www.esicarbon.com
Project Life	30 years starting 01-January-2003 and ending 31-December-2032
PIR Period	07-October-2011 to 31-December-2013
CCB Status	**Validation:** 20-March-2012 **Verification 01 Period:** 01-January-2003 to 31-December-2011 **Verification 01 Issuance:** 115,306 VCUs on 25-May-2012
CCB Edition	Second Edition
Summary Benefits	**Climate:** 84,341 net reductions under VCS Standard during verification period. **Community:** New sustainable revenue streams; improved food security from Conservation Farming, fruits, nuts and honey; other tree products such as fodder, poles and fuel; capacity building; sustainable wood lots; health training; improved stoves. **Biodiversity:** New indigenous trees, improved connectivity with the protected forest, reduced pressure to take fuel wood from the protected forest, net improvement to biodiversity.
Gold Level	Exceptional Community Benefits: Demonstrated to be pro-poor in a poor area and with net positive impacts on community. Survey results show that participants experience a range of economic benefits and positive social impacts, regardless of socioeconomic status, gender or part of more vulnerable groups.
PIR Date	23-October-2014
PIR Version	Version 02 of the Verification 02

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Project Overview

The International Small Group and Tree Planting Program (TIST) empowers Small Groups of subsistence farmers in India, Kenya, Tanzania, and Uganda to combat the devastating effects of deforestation, poverty and drought. Combining sustainable development with carbon sequestration, TIST already supports the reforestation and biodiversity efforts of about 70,000 subsistence farmers. 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 9,000 TIST Small Groups have planted over 12 million trees, on their own and community lands. GhG sequestration is creating a potential long-term income stream and developing sustainable environments and livelihoods. TIST in Uganda began in 2003 and has grown to almost 7,000 TIST participants in over 1,050 Small Groups.

As a grassroots initiative, Small Groups are provided a structural network of training and communications that allows them to build on their own internal strengths and develop best practices. Small Groups benefit from a new income source; the sale of carbon credits that result from the sequestration of carbon from the atmosphere in the biomass of the trees and soil. These credits have been approved under the Voluntary Carbon Standard and, because they are tied to tree growth, will be sustainable. The carbon credits create a new 'virtual' cash crop for the participants who gain all the direct benefits of growing trees and also receive quarterly cash stipends based on the GhG benefits created by their efforts. The maturing trees and conservation farming will provide additional sustainable benefits that far exceed the carbon payments. These include improved crop yield, improved environment, and marketable commodities such as fruits, nuts, and honey. TIST utilizes a high-tech approach to quantify the benefits and report the results in a method transparent to the whole world, which includes palm computers, GPS, and a dynamic "real time" internet based database.

This project description is for a subset of the TIST Uganda program and corresponds to TIST VCS project description VCS-001, VCS-002, VCS-003 and VCS-004. It originally applied to 456 Small Groups 2,932 members, 1,645 project areas and 1,487.5 ha.

General Section

G1. Original Conditions in Project Area

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G1.3 General information, boundaries of the project area and the project zone. See PD.

G1.4 Climate Information, baseline carbon stocks. See PD.

G1.5 Community information, description of communities in project zone. See PD.

G1.6 Community Information, current land use and customary and legal property rights. The pre-project land use was agriculture. The current land use is tree planting and agriculture.

There are four main types of land tenure in Bushenyi District:[1]

- Customary tenure: This is the most widespread and oldest tenure known in the area. Under this system, the owner of land has rights to use and may dispose of it at will, including passing it on to his sons and daughters. This type of ownership was legally recognized in the Constitution (1995).
- Leasehold tenure: A leasehold is a contract for use of a parcel of land and has a maximum term of 99 years.
- Freehold tenure: Freehold is the absolute private ownership of interest in land, which can be transferred, without restriction, and is free of obligation to the state.
- Mailo land: This is a system where people were given land by traditional kings. Farmers living on Mailo land are considered tenants and do not have land ownerships rights. They pay a fixed annual rent set by the Ugandan Government.

No land disputes have been identified.

The following details the relationship between the land owners, TIST members and Project Participants.

- Each project area is a tree grove planted by a Small Group. It is either owned by the member, or a family member, or is being used with the permission of the land owner.
- The Project Participants do not own any of the land. TIST is a project name, not a legal entity, and does not own any of the land.
- The landowner covenants together with other farmers to form a Small Group. The Small Groups own the trees that they plant and determine how tree products and carbon revenues are divided among themselves.
- Host Country land law is silent as to the ownership of carbon and carbon pools. However, the Small Groups own the trees that they plant together and grant the rights to all carbon associated with TIST to Clean Air Action Corporation (CAAC) under a "Carbon Credit Sale Agreement."
- Under Paragraph 4 of the "Carbon Credit Sale Agreement," the members affirm their ownership or rights to the land designated as project areas.
- CAAC is registered as a branch in Uganda under the Companies Act and is a legal entity in Uganda.
- Under the associated VCS PDs, VERs shall be issued to CAAC.
- The current land use is agricultural.

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[1] Ibid.

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G3. Project Design and Goals

G3.1 Summary of climate, community and biodiversity objectives. See PD.

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G3.4 Project Lifetime. The TIST Program in Uganda, CCB-001 is a 60 year project beginning 01 January 2003 and ending 31 December 2062. It was first validated and verified on 20 March, 2012 by Environmental Services Inc. CCB-001 and covers the same TIST project areas as the VCS projects TIST Program in Uganda, VCS-001, 002, 003 and 004. The first verification period of the VCS projects was 1 January 2003 to 06 October 2011.

This PIR is for the second verification and covers the period 07 October 2011 to 31 December 2013. All of the carbon accounting is for this period and matches the period of the second verification under the VCS standard, dated 30 July 2014. The second VCS verification was conducted by JACO.

This project was fully implemented prior to the first verification. Activity between 07 October 2011 and the 30 year anniversary will be under the VCS Standard which is a 30 year program. Operations in the last 30 years (2033 to 2063) will be dependent upon the status of the voluntary carbon market.

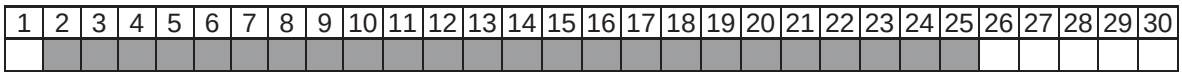
Between 2011-2063, we will conduct periodic verifications such as this one, in accordance with the minimum time frames required by the CCB and VCS standards. UG VCS-001 and 003 are programmatic approaches and any project expansion will be focused on adding new groups, members and trees. We will continue with regular monitoring and training, holding regular training and having 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.

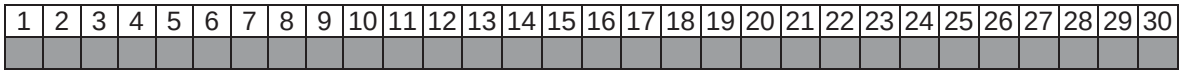
Main planting schedule (project). Main planting has taken place, but additional planting may take place in individual project areas, over the next few years, where the original planting density is low.

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

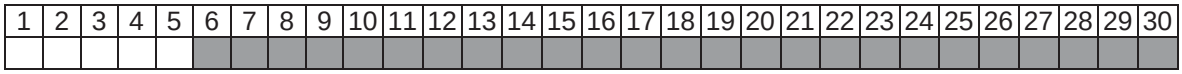
Replacement planting schedule (project). Replanting will take place where project trees die and there is sufficient area where existing crown cover won't inhibit successful growth.



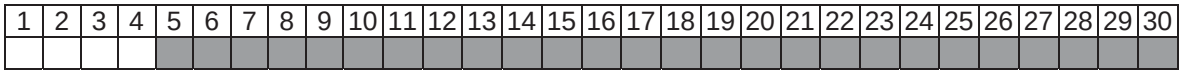
Monitoring (project). Monitoring is ongoing.



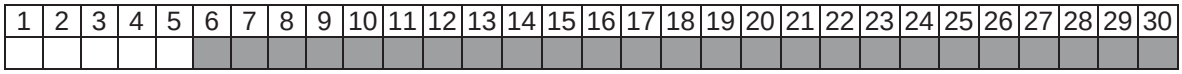
Verification (project). Future verifications will take place within 5 years of the previous verification, and sooner as the market warrants.



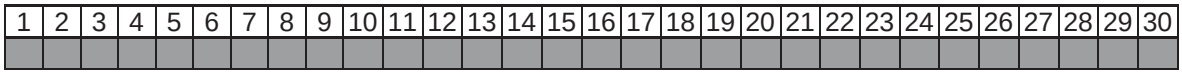
Thinning (project area). Thinning is allowed, because it improves tree growth. Because of the different species and their different growth rates, the different planting schedules, the different original spacing and different farmers, thinning is ongoing.



Fruit and nut harvest (project area). Fruits, nuts or other products will be harvested whenever they exist.



Deadwood harvest (project areas). Farmers may harvest deadwood any time it exists.



G3.5 Natural and human-induced risks. The long term sustainability of TIST is dependent upon a carbon market for afforestation/reforestation credits. As of the date of this verification, 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 already and TIST continues to grow. Having a few farmers quit will not have a significant effect on the project.

Natural risks include drought, pestilence and fire. These, however, are mitigated by the fact there are thousands of individual project areas spread over thousands of square kilometers. We provide training on minimizing risks from fires in newsletter and in training broadcasts on area radio programming.

Four risk analyses for the PIR period were conducted for the VCS projects and verified by JACO.[2] It indicates the project has a low risk.

G3.6 Maintenance of the high conservation value attributes. Ongoing deforestation in Uganda is a fact. The project areas have been settled for generations and little, if any, of the natural biodiversity exists. The continued need for wood and the expanding population has carried the deforestation into the protected forest, having a negative effect on biodiversity there, too. TIST is reversing this trend by planting millions of new trees, many of them indigenous. While some parties have raised barriers to prevent AR credits from participating in a global carbon market, TIST has recognized that nearly 20% of deforestation is a result of the need for wood for cooking and heating. This type of program is the only way to provide the resources needed by this vast population of subsistence farmers, as well as make a positive impact on biodiversity.

TIST trees were planted on the lands of small hold farmers, so the maintenance of HCV areas is indirect. The proximity of the Project Areas to the HCV forests will reduce illegal wood harvesting. 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. TIST trees were being planted where deforestation has taken place and the addition of many discrete project areas helps improve the wild life corridors between HCV areas needed for healthy animal populations.

G3.7 Measures to maintain benefits beyond the project lifetime. TIST is a comprehensive program that includes training in climate change and biodiversity. The following describes some of the training and their benefits.

- Training in the benefits of specific tree species results in more trees selected that have a value other than as harvested wood or for carbon revenue.
- 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 ensures that it is maintained beyond the life of the project.
- Training in the benefits of biodiversity helps the farmers make the choice to keep trees, rather than cut them down. The benefits include more productive soil, return of edible indigenous plants, enhanced area ecotourism, and return of native wildlife that is useful to them personally (e.g. bees).

Each of the above provides reasons for the farmers to keep and manage their trees beyond the project lifetime and without the need for on-going carbon payments.

G3.8 Communities and other stakeholders. Membership in TIST is completely voluntarily. The actions that members take were on their own land. They maintain ownership of the land, the trees planted for sequestration and all the products that the trees yield. TIST exists for the local farmers and only grows if the local farmers support it. The rapid growth of TIST is a reflection of the positive reaction that the farmers and other stakeholders have had about TIST.

When TIST begins in an area, they contact community leaders, village heads/village leaders, local NGOs and local government officials to determine if there is an interest in the program. If there is an interest, TIST holds a public seminar to present the program, answer questions, address concerns and receive comments. Regular and on-going meetings the public is invited to attend follow this. TIST representatives have met with numerous State, District and Village officials seeking comments and showing them the project. Since TIST is organic in its growth, this process continues as it expands to new villages. In

[2] See APX VCS Registry for the verified risk report for this period submitted to VCS.

addition to the meetings, information about TIST is disseminated by word of mouth; using "The Tree," a multi-lingual newsletter published by TIST Uganda; and direct contact with community leaders and government officials and over local radio programming.

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. Uganda sent their first representatives to a TIST seminar in Tanzania in July 2003. The representatives went back to Uganda and introduced TIST by word of mouth and Small Group meetings. Interested individuals formed Small Groups and began planting trees.

Two formal public meetings were held, one at the Katungu Mothers Union in Bushenyi on 12 February 2009 and one at the Kirigime Guest House in Kabale on 16 February, 2009. Notice was given in two Uganda newspapers, the New Vision and Orumuri. Announcements were made on the radio in Bushenyi on 2, 3 and 6 February 2009. Announcements were made on the radio in Kabale on 3, 4 and 5 February 2009. Letters of invitation were also sent to selected stakeholders and interested parties.

The "Tree" is the TIST Uganda newsletter and it is distributed within the communities to TIST members and those interested in the program. It documents 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.[3] TIST also has a collection of written stakeholder comments (see PD).

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

TIST has two CCB projects in Uganda and a public meeting was held for each. Although each PD is a different subset of TIST Uganda, the announcements for the meeting and solicitation for comments were basically the same. They were all advertised in a major paper and e-mails were sent to major stakeholder groups. (See the PIR for the first verification for an example[4]).

The result of this stakeholder process has led to numerous invitations for TIST to come to new villages and numerous positive comments about TIST. There have been no negative comments received. Based on the comments and responses above, no changes were necessary for the project.

G3.9 Publicizing the CCBA public comment period. TIST announced the intent to verify this project in two major papers and and in an email to stakeholders.[5] We solicited comments on behalf of CCB. In addition, TIST maintains a publicly accessible webpage that lists and contains all of the documents associated with this and the associated VCS project.[6] It includes the PDDs, PIRs, maps, KML files, risk reports, spreadsheets, monitoring reports, verification reports and appendices. The web link to this page will be made available as part of the public notification.

No negative comments were received during the comment period.

[3] http://www.tist.org/moreinfo.php
[4] See "TIST KE PD-CCB-Spt 14c Public Comments PD-003.doc" at http://www.tist.org/PD-UG-VCS-001-004%20Documents.php
[5] See " TIST UG PD-VCS-Ex 14c Public Comments CCB-001 V02.doc" at http://www.tist.org/PD-UG-VCS-001-004%20Documents.php
[6] http://www.tist.org/PD-UG-VCS-001-004%20Documents.php

G3.10 Handling unresolved conflicts and grievances. All grievances will first brought to the attention of the Uganda Staff, where the issues can be compared to standard TIST policy, TIST values[7] 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 Uganda Staff and TIST Management. If conflicts or grievances cannot be resolved internally, CAAC will submit to arbitration in accordance with the Arbitration and Conciliation Act 2000 of Uganda 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 verification period.

G3.11 Project Financial Support. 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 provided funding to make up this shortfall on the carbon side, through its own profits and advanced sales of credits. I4EI provided sustainable development funding that offset some of the project costs, obtaining funding through private donors.

TIST in all four countries share common expenses and revenue. TIST has been operating the project solely from carbon revenues since June 2013. Confidential internal financial projections indicate the rate of TIST tree growth and sequestration is sufficient to provide enough credits over the life of the project to fund the project. We revisited the Financial Plan submitted with the PD and note that we are behind on the volume of credits created and on the market price per ton. On the former, much of this is due to the fact that many project areas could not be validated in time to make a VCS cut-off date and are not in the market yet. However, we have been working with another standard and hope to rectify that soon. Regarding the latter, because TIST has been regarded in the market as an excellent project (voted best offsetting project in 2013), we have been receiving premium prices and nearing the $8 target in the Financial Plan.

TIST comes into the second verification with no external debt, current payable and receivables and a cash balance for operations into early 2015. We have 132,755 VCUs in inventory and will receive an additional 84,341 VCUs from the VCS verification associated with this CCB PD. In addition, over the next 6 months we expect to undergo the second verification of 9 other PDs and create several other PD under VCS. Our projections continue to show TIST is sustainable and self-sufficient for the life of the project.

G4. Management Capacity and Best Practices

G4.1 Project Proponent. See PD.

G4.2 Document key technical skills for successful implementation. The key technical skills required for the successful implementation of TIST are:

- knowledge of tree planting;
- knowledge and skills related to monitoring tree growth;
- knowledge and skills in carbon standards and writing PDs and monitoring reports
- using the TIST field monitoring system (hand helds and GPSs)
- computer skills to maintain the TIST Data System and extract information;
- how to provide training and the skills to train the Quantifiers and Small Group members;

[7] TIST Values: We are Honest. We are Accurate. We are Mutually Accountable. We are Transparent. We are Servants to each other.

- management skills and knowledge;
- financial skills and knowledge;
- marketing skills and knowledge; and
- legal and contract skills and knowledge.

TIST has been operating successfully for over 14 years and has expanded to four countries, 70,000 farmers and planted about 12,000,000 documented trees. The in-country staff are trained and experienced. An administrative structure is in place. The monitoring system developed by CAAC and used by TIST was honored in 2008 as a Computerworld Honors Laureate. In 2011 the TIST program was "First in the World" to be dually verified under the VCS and CCB standards and the first to be verified under the CCB Second Edition. We now have 14 validated and verified VCS-CCB projects, five of them group projects and 13 certified CCB Gold for exceptional community benefits. We have four verified CCB projects in Kenya, two in Uganda and one in India. In 2014, TIST was voted Best Offsetting Project in a global survey conducted by Environmental Finance. This verification is the second one for this CCB project.

G4.3 Developing Local Capacity. TIST does not have an expatriate staff and only has 4 full time employees in the US. The Uganda program is run by Ugandans. TIST began in the area with a series of orientation seminars. TIST members were introduced to the program and participate in the customization of the program to the locale. Virtually all of the local staff was hired from the TIST membership. All quantifiers and trainers are from the local membership. Staff and quantifiers were hired based on ability, not gender, tribe, cultural background, or level of education. However, all effort is made to ensure a balance in gender and tribal affiliation. Training is passed on to new workers through the seminars and working with an experienced TIST member. As needed, the US team holds seminars to provide new information.

Quantifiers receive ongoing training as needed and attend training seminars periodically. During these seminars, they are trained on the TIST monitoring plan which includes use of the PDAs and 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 track of the project area perimeters, counting trees, the importance of proper tree counts, identifying tree species and tree ages, taking proper circumference measurements, 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 point. The cluster meetings are supposed to be held monthly and while that does not always happen, they take place at least once per year at each cluster. While attendance is voluntary, Small Groups are encouraged to send representatives to every meeting. Training includes conservation farming, biodiversity, cook stoves, the GhG contract, climate change, selecting tree species, the benefits of different species, preparing nurseries, tree management, HIV/AIDS, malaria and other subjects of interest to the members.

G4.4 Equal Opportunity Employment. The Uganda program is run by Ugandans. TIST members are utilized as volunteers, independent contractors and employees based on achievement, not gender, education or social status. The Quantifiers are TIST farmers trained to use the monitoring system and hired based on ability, not gender, religion or tribal affiliation. TIST farmers are trained as trainers. Cluster meetings and Small Group meetings are run by Ugandans. All TIST members have an opportunity to be group leaders, regardless of education or gender. TIST holds regular training seminars and makes a concerted effort to make sure attendance has a gender balance.

During the Verification Period, six new Quantifiers were added. Three of them were female. They were suggested by the farmers and Quantifiers based on their abilities and invited to a 2 week training seminar conducted by the Uganda Team to ascertain their suitability for the position. Tribal affiliation is not an issue in this area.

G4.5 Relevant workers right laws. The employment laws are listed below. CAAC uses Uganda counsel to advise on issues relating to employment. CAAC is not in violation of these laws.

- The Employment Act, 2006
- National Social Security Fund Act, Cap 222

All employees are given an overview of their rights when hired or at training meetings. The contents of Exhibit 16, "TIST Uganda: Employee Rights" are provided to them either verbally or in writing. CAAC and TIST meets or exceeds all applicable laws and/or regulations covering worker rights and all other relevant laws.

G4.6 Occupational Safety. TIST members are conducting activities that they normally do, i.e. farming using manual labor. TIST workers walk or use public transportation. They do not 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 include:

- riding in a matatu and bota-botas (the local mini bus transportation and motor bike, respectively) where there is risk of crash or robbery;
- venomous or constricting snakes, which, although have been mostly eradicated from the farmlands, still can be encountered.

TIST has a Standard Operating Procedure to address safety. To ensure that safety policy and safety issues are understood, each Quantifier is briefed on the following safety policy annually.[8]

G4.7 Financial health of CAAC. See PD.

G5. Legal Status and Property Rights

G5.1 List of all relevant local, national and international laws. 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 in G4.5. CAAC uses local counsel to advise on issues relating to employment.
- Companies Act, Cap. 110). CAAC is registered as a branch and is in good standing to operate in Uganda.
- The Constitution of the Republic of Uganda of 1995. It empowers Parliament to enact laws to protect, preserve and manage the environment. It does not contain any language that would have a specific impact on the project.
- The National Environmental Act of 1996. It establishes the National Environment Management Authority (NEMA). In accordance with the Act, TIST submitted an Environmental Screening to NEMA.[9] Because of the multiple benefits of the project for forests and people, NEMA waived the requirement for an environmental impact assessment for the TIST tree planting activities in Uganda.[10]
- The National Forestry and Tree Planting Act, 8/2003. The Act provides for the conservation, sustainable management and development of forests for the benefit of the people of Uganda. While it promotes tree planting, it specifically states that the national and/or local government have "no ownership over trees or forest produce situated on private land."

G5.2 Project Approvals. All project approvals were obtained prior to this PIR period. See PD.

[8] See Exhibit 15: TIST UG PD-VCS-Ex 15 Quantifier Safety 110110.doc
[9] See Exhibit 01: TIST UG PD-VCS-Ex 01 Environmental Screening 060803.pdf
[10] See Exhibit 02: TIST UG PD-VCS-Ex 02 NEMA EA Approval 070515.pdf

G5.3 Document project will not encroach on other lands. CAAC and TIST do not own or lease any of the project lands. TIST takes place on the existing land of farmers and their families whom participate voluntarily. CAAC enters into contracts with the Small Group members. In the contract, the members attest in that they have the rights to plant on these lands.

G5.4 Involuntary relocation. CAAC and TIST do not own or lease any of the project lands. TIST takes place on the existing land of farmers and their families. Participation is strictly voluntary. CAAC has no authority or desire to relocate any of the members or land owners, and has not.

G5.5 Illegal Activities. Illegal harvesting of trees and charcoal making exist in the protected forests of the project zone. This is an ongoing problem for Ugandan forestry and is not related to TIST or caused by TIST. TIST, through its development of on-farm, sustainable, wood lots, has a positive impact on these activities by providing an alternate, sustainable source of fuel to some of the population.

G5.6 Title to carbon rights. The carbon rights originally vest with the trees and are transferred to the Project Proponent with the "Carbon Credit Sale Agreement."

Climate Section

CL1. Net Positive Climate Impacts

CL1.1 Change in carbon stock due to project activity. The change in carbon stocks due to project activities are based on 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* as adopted by the Voluntary Carbon Standard.

Change with the project. The change with the project is based on the ex-ante estimation required of the methodology. The trees to be planted are stratified by major species and year planted and each strata is grown over time, based on accepted annual volume increments. The following lists the major species and the factors used to estimate the carbon that will result from TIST trees.

Pinus patula

Iv = 24 m3/ha/yr.[11]

Where:

I_v = annual increment in volume based on over the bark log volumes.

BEF = 1.3.[12]

WD = 0.45 t.d.m/m^3.[13]

R = 0.46 when AGB <50 t/ha, 0.32 when AGB range is 50 to 150 t/ha, 0.23 when AGB >150 t/ha.[14]

Eucalyptus spp.

I_v = 32.5 m^3/ha/yr.[15]

Where: I_v = annual increment in volume based on over the bark log volumes.

BEF = 1.5.[16]

WD = 0.51 t.d.m/m^3.[17]

R = 0.45 when AGB <50 t/ha, 0.35 when AGB range is 50 to 150 t/ha, 0.20 when AGB >150 t/ha.[18]

Cupressus spp.

I_v = 24 m^3/ha/yr.[19]

Where: I_v = annual increment in volume based on over the bark log volumes.

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[11] GPG-LULUCF, Table 3A.1.7. Average Annual Above Ground Net Increment in Volume in Plantations By Species, referencing L Ugalde & O Pérez, "Mean annual volume increment of selected industrial forest plantation species," Forest Plantation Thematic Papers, Working Paper 1. Forest Resources Development Service, Forest Resources Division. FAO, Rome (unpublished), Accessed 22 September 2010 at http://www.fao.org/DOCREP/004/AC121E/ac121e03.htm.

[12] GPG-LULUCF, Table 3A.1.10, Default Values Of Biomass Expansion Factors (BEF), Tropical, pines.

[13] GPG-LULUCF, Table 3A.1.9-2, Basic Wood Densities (D) of Stemwood (Tonnes Dry Matter/M3 Fresh Volume) for Tropical Tree Species, Tropical America, Pinus patula.

[14] GPG-LULUCF, Table 3A.1.8, Tropical/Sub-tropical dry forest.

[15] GPG-LULUCF, Table 3A.1.7. Average Annual Above Ground Net Increment in Volume in Plantations By Species, referencing L Ugalde & O Pérez, "Mean annual volume increment of selected industrial forest plantation species," Forest Plantation Thematic Papers, Working Paper 1. Forest Resources Development Service, Forest Resources Division. FAO, Rome (unpublished), Accessed 22 September 2010 at http://www.fao.org/DOCREP/004/AC121E/ac121e03.htm.

[16] GPG-LULUCF, Table 3A.1.10, Default Values Of Biomass Expansion Factors (BEF), Tropical, broadleaf.

[17] GPG-LULUCF, Table 3A.1.9-2**,** Basic Wood Densities (D) of Stemwood (Tonnes Dry Matter/M^3 Fresh Volume) for Tropical Tree Species, Tropical America, Eucalyptus robusta.

[18] GPG-LULUCF, Table 3A.1.8, Temperate broadleaf forest/plantation, Eucalyptus Plantation. AGB means aboveground biomass.

[19] GPG-LULUCF, Table 3A.1.7, Average Annual Above Ground Net Increment in Volume in Plantations By Species.

BEF = 1.2.[20]
WD = 0.43 t.d.m/m^3.[21]
R = 0.46 when AGB <50 t/ha, 0.32 when AGB range is 50 to 150 t/ha, 0.23 when AGB >150 t/ha.[22]

Other Africa, Dry Tropical
N_A = 15 t.d.m/ha/yr.[23]
Where: N_A = annual increment of above ground biomass, t.d.m/ha/yr
BEF = 1.5.[24]
WD = 0.60 t.d.m/m^3.
R = 0.27.[25]

The age class of the strata is based on the age of the trees already planted and listed in worksheet "Strata." The data is tabulated in worksheets "Ex-Ante Carbon Est" and "Ex-Ante Strata Est." and presented in worksheet "Table CL1.1."[26]

Change without the Project. The methodology allows the change in baseline carbon without the project to be ignored, providing it is less than 10% of the change in carbon that results from the project. The existing trees were recorded and measured during the baseline study (worksheet "Baseline Strata"). The non-woody areas were stratified and the area estimated (worksheet "Grove Summary). A conservative case was used to estimate the increase in carbon overtime (worksheet "Baseline Growth"). The ex-ante estimate of the baseline without the project is 0.2% of the ex-ante estimate with the project and the baseline case is ignored in the calculations.

Net change in Carbon Stocks. Due to the methodology, the change in baseline carbon is ignored and the ex-ante net change in carbon stocks is 1,356,574 tonnes of CO_2e.

CL1.2 Change in the emissions of non-CO_2 GHG emissions. The change in emissions of non-CO2 carbon stocks is below 5% and per the methodology are ignored. See PDD.

CL1.3 GHG emissions resulting from project activities. In accordance with the methodology, ex ante leakage is assumed to be zero. TIST does not own any vehicles or fossil fuel equipment. Planting and site preparation is done manually. TIST promotes the use of natural fertilizers and does not supply any chemical fertilizers. N-fixing species will not be left to degrade. Any dead wood is used by the farmers for fuel wood.

CL1.4 Demonstrate a positive net climate impact. The ex-ante estimate is that TIST trees will sequester is 1,356,574 tonnes of CO_2e over the 30 years (ex-ante, see PDD) and will, therefore, have a net positive impact on the climate. The total net change through the end of the PIR Period is 221,833 tonnes and the net change for the PIR period is 84,341 tonnes.

CL1.5 Double Counting. The project areas that make up this CCB PD are being validated and verified under VCS. If they are validated and verified, VCS will issue VERs that will be entered on one registry. The registry rules will prevent these VERs from being sold twice.

Uganda is not subject to an emissions cap.

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[20] GPG-LULUCF, Table 3A.1.10, Default Values Of Biomass Expansion Factors (BEF), Tropical, Pines.
[21] GPG-LULUCF, Table 3A.1.9-2, Basic Wood Densities (D) of Stemwood (Tonnes Dry Matter/M^3 Fresh Volume) for Tropical Tree Species, Tropical America, Cupressus lusitanica.
[22] GPG-LULUCF, Table 3A.1.8, Conifer forest/plantation. AGB means aboveground biomass.
[23] GPG-LULUCF, Table 3A.1.6, Annual Average Above Ground Biomass Increment in Plantations By Broad Category, Africa, Other Species, Dry.
[24] GPG-LULUCF, Table 3A.1.10, Default Values Of Biomass Expansion Factors (BEF), Tropical, Pine.
[25] GPG-LULUCF, Table 3A.1.8, Tropical/Sub-tropical dry forest.
[26] See PDD spreadsheet, "TIST UG PD-CCB-001e App04 Data 111006.xlsx"

CL2. Offsite Climate Impacts (Leakage)

CL2.1 See PD.

CL2.2 Leakage mitigation. Because no leakage sources were identified, no mitigation is necessary.

CL2.3 Subtracting unmitigated leakage. See PD.

CL2.4 Non-CO_2 leakage in excess of 5%. See PD.

CL3. Climate Impacts Monitoring

CL3.1 Initial Monitoring Plan. Because TIST was designed as a climate change project and has been operational in Uganda since 2004, the monitoring plan in this section is operational.

Each project area is owned and managed by a different group of people, which TIST calls Small Groups. The areas are discrete parcels of land spread out over many districts and villages. The Small Groups select the species of trees, the number of trees to plant and the planting schedule. They also own and maintain the trees and the tree products. While TIST works with the groups to develop best practices that can be shared and adopted by everyone in the organization, the fact remains that each project area is different. The difference is such that the monitoring system required is different than typical forest monitoring protocols.

TIST has met the challenge of obtaining accurate information from a multitude of small discrete project areas in remote areas, where roads are poor and infrastructure is minimal, by combining high-tech equipment and low-tech transportation within its administrative structure. The TIST Data System is an integrated monitoring and evaluation system currently deployed in Uganda and three other countries. On the front end is a handheld computer-based platform supported by GPS technology that is utilized by field personnel (quantifiers, auditors, trainers and host country staff) to collect most project information. This includes data relating to registration, accounting, training, tree planting, baseline data, conservation farming, stoves, GPS plots, and photographs. The data is transferred to TIST's main database server via the internet and a synchronization process where it is incorporated with historical project data. The server provides information about each tree grove on a publicly available website, www.tist.org. In addition, the other data is available to TIST staff through a password-protected portal.

The handheld computers have been programmed with a series of custom databases that can temporarily store GPS data, photographs, and project data. The interface is designed to be a simple to use, checklist format that ensures collection of all of the necessary data. It is simple enough for those unskilled in computers and high tech equipment to be able to operate, after a short period of training. The interface can also be programmed for data collection not specific to the project. The handhelds are "off the shelf," keeping their costs relatively low.

The synchronization process takes place using a computer internet connection. While office computers are used where available, field personnel commonly use cyber cafes, reducing travel time and improving data flow. Where available, cell phones using GPRS technology are now allowing synchronization from remote tree groves and project areas, providing near real-time data.

The TIST Data Server consists of a public side, accessible by anyone over the internet and a private side only accessible through a password-protected portal. On the public side, a dynamic database is used to constantly update the displayed data. Changes can be seen daily as new synchronizations come in. By mapping the project data with photos and GPS data, the results of each Small Group can be seen on a single page. The GPS data has been programmed with Google Maps to locate project activities anywhere in the world on satellite imagery.

On the private side, confidential accounting data, archive data and data not currently displayed is available. This is the source data for the custom reports and tables necessary for project managers.

The TIST database is off-site and has an off-site backup. The information collected and used for this monitoring program will be archived for at least two years, following the last crediting period.

Monitoring change in baseline carbon. The selected CDM/VCS methodology does not require monitoring of the baseline. As determined with the ex-ante calculation, the change in baseline carbons stocks is fixed at the value derived in section G2.3.

Monitoring selected carbon pools. The selected carbon pools are above ground and below ground biomass. The following monitoring plan is being used and will continue to be used.

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 shall be monitored. They are documented in "Grove Summary" and "Strata" worksheets, Appendix 04. The boundary of the project area has been obtained with a GPS (Appendix 03), the area calculated and displayed in the "Grove Summary" worksheet.

Step 2. The strata for the ex post estimation of the actual net greenhouse gas removals is by species and year. Stratification is done within each individual project areas. The area of a stratum in a project area ("area of a stratum (ha)") is determined by multiplying the area of project area (see Step 1) by the percentage of trees of that stratum in the respective project area.

Step 3. Where a tree species exceeds 10% of the total tree inventory, it is assigned to a Major Stratum. All other tree species are assigned to an "Other" stratum.

Step 4. Allometric equations are 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 is unavailable, it uses the "Other" equation as a default. Based on research conducted for TIST VCS projects in Uganda, the following are examples of the Major Strata and the allometric equations that may be used. The list will be updated as new, or more appropriate ones, become available.

Pinus[27].$Y = 0.887+[(10486 \times (DBH)^{2.84})/((DBH^{2.84})+376{,}907)]$
Eucalyptus[28]: $Log\ Y = -2.43 + 2.58\ Log\ C$
Cupressus: no species specific equations, will use "Other" equation
Other (default)[29]: $Y = (0.2035 \times DBH^{2.3196}) \times 1.2$

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

Step 5. The DBH of up to 20 trees per stratum, per project area, were measured. Height was not measured or used in the allometric equations. Each DBH value for each tree measured is applied to the

[27] IPCC 2006 AOLU, Annex 4A.2, Table 4.A.1. Temperate/Tropical Pines.
[28] 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).
[29] 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).

appropriate allometric equation and the biomass of each per tree in the stratum is obtained and averaged to determine the "average above ground biomass per tree (kg)" of a stratum.

Step 6. For each stratum in each project area, the average above ground biomass per tree is multiplied times the number of trees to yield the "above ground biomass in stratum (kg)." The results are divided by 1,000 to obtain "above ground biomass in stratum (t)."

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

$$\text{above ground biomass (t/ha)} = \frac{\text{above ground biomass in stratum (t)}}{\text{area of the stratum (ha)}}$$

Step 8. The above ground biomass of each stratum will be multiplied by 0.5 to convert biomass to carbon. The result is "above ground carbon" (t/ha).

Step 9. The carbon stocks of the below ground biomass of each stratum (t/ha) are calculated by multiplying the above ground biomass of each 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 will be used.[30] The result is "below ground carbon" (t/ha).

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

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

Where:

$P_{(t)}$ = carbon stocks within the project boundary at time *t* achieved by the project activity (t CO_2e)

$PA_{(t)}I$ = carbon stocks in above-ground biomass at time *t* of stratum *i* achieved by the project activity during the monitoring interval (t C/ha) from Step 8.

PB(t)I = carbon stocks in below-ground biomass at time *t* of stratum *i* achieved by the project activity during the monitoring interval (t C/ha) from Step 9.

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

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

The data to be monitored for monitoring actual net GhG removals by sinks are the number of trees in each project area and representative circumference. Because of the potential difference among project areas, the tree count of each project area is monitored. TIST has a staff of trained Quantifiers that visit each and every project area periodically. When quantifying a project area, they:

- Identify or confirm identification of the project area by its unique name combination of Small Group name and grove name (grove is the vernacular used by the project for a project area).
- Determine the latitude and longitude of the approximate center point of the project area with a GPS. It is automatically logged into the hand-held computer database for temporary storage.
- Map the boundaries of the project area by walking the perimeter using a GPS. The data is stored in the hand-held computer database for temporary storage.

[30] GPG-LULUCF, Table 3.A.1.8

- Count each tree in the project area by age and species strata. This data is entered by the operator directly into the handheld computer database for temporary storage.
- Measure the circumference of up to 20 trees in the age and species strata of a project area. This data is entered by the operator into the handheld computer database for temporary storage.

The data on the handheld computer database is uploaded to the TIST server, through the Internet, for additional processing and permanent storage.

The confidence and precision levels will be assessed in future monitoring.

The following table summarizes the monitoring plan.

Data/ Para-meter	Data unit	Descrip-tion	Source of data	Value of Data[31]	Measure-ment Methods[32]	QA/QC	Comment
Location	Latitude and longitud e	Single point location of the area where project activity has been implemente d	GPS	See "Grove Summary" worksheet for each result.	Go to each project area, take a single location point per area with GPS/PDA, up- load to server.	SOP, audit and multiple visits	The location of each project area is obtained with a GPS.
Project area	ha	Size of the areas where the project activity has been implemente d.	GPS	See "Grove Summary" worksheet for each result.	Go to each project area, take a track of the perimeter with the GPS/PDA, up load to server. Software computes area inside track	SOP, audit and multiple visits	The area of each project area is obtained with a GPS by walking and mapping the boundary of the project area.
DBH	cm	Diameter of tree at breast height (1.30 m)	Measur-ing tape	Multiple values specific to strata taken from selected project areas	Ongoing measurement taken by quantifiers as they visit project areas	SOP, audit and multiple visits, multiple locations	TIST measures DBH of up to 20 representativ e trees of each age/species stratum in different project area.
No of trees	trees	Number of trees in a project area by strata	Physical count	See "Grove Summary" worksheet for current results.	Physical count by Quantifiers with each visit	SOP, audit and multiple visits	

[31] TBD means to be determined during quantification
[32] PDA means personal digital assistant, the hand held computer and custom software used by TIST

Data/ Para-meter	Data unit	Descrip-tion	Source of data	Value of Data[31]	Measure-ment Methods[32]	QA/QC	Comment
				This number will change over time for each project area based on replanting and mortality			
Ownership	name	Ownership of land of project area	Project registra-tion data	See "Grove Summary" worksheet for each result.	Ask members about changes in ownership. Record on PDA	SOP, audit and multiple visits	List of owners of each PA, their contract status and the status of their carbon rights will be reviewed with each monitoring event to confirm ownership.
Total CO2	Mg	Total CO2	Project activity	Changes over time based on tree count, strata and growth	Calculated using allometric equations and conversion factors	See above for tree count and circum-ference. Calculation subject to verification.	Based on data collected from all plots and carbon pools

Data will be maintained for at least two years following the end of the last crediting period.

TIST uses the following QA/QC procedures:

- **Quantifier Training:** Quantifiers receive explicit training in regard to TIST's Standard Operating Procedures so that quantifications are performed in a standard and regular fashion. The quantifier field manual/handbook is available online at www.tist.org under "Documents to Download" and is updated to reflect changes in internal procedures. Quantifiers meet monthly to discuss questions or problems that they may have and receive training and software updates when necessary. Quantifiers are not dedicated to a grove for the life of that grove and may be rotated to other groves.
- **Staff Audits:** TIST staff members are trained to quantify groves and have handheld devices 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 as often as possible during the 5 years required by the VCS and CCB standards. Inaccurate data and errors are self-correcting with the subsequent visits. If trees have died or have been removed, a new count will reflect

the current population. The growth of the trees, as indicated by increased DBH, is monitored with these subsequent visits. If a species is mislabeled, it will arise as a conflict when different quantifiers attempt to perform tree counts for that grove that do not match the previous one. Comparisons are made over time to determine whether a particular quantification or tree count appears unrealistic.

- **Multiple Tracks:** In order to ensure that the location and perimeter of each discrete project area is accurate, each GPS track of the parcel is measured at least twice or until two tracks that reliably define the project area are obtained. Quantifiers are required to re-trace the tract 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 was 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 is determined, the overlapping project area was removed from the PD.
- **Data Quality:** TIST Quantifiers count every tree in each discrete project area. Counting each tree is 100% sampling and provides greater than 1% 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 provides 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 handheld devices 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 are collected. Data field characteristics were 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 were restricted to a range of data (e.g. negative numbers are not allowed). The data is uploaded within a day to the main database, providing timely reporting and secure storage of the data.
- **Desk Audit:** TIST developed and uses 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.

Monitoring Leakage. Leakage was monitored within five years of the start of the project, by surveying the members responsible for a discrete project area, on whether participation in the program caused leakage, in the form of displaced activity. The answers were universally no. Because no leakage was identified, no further leakage monitoring is necessary.

CL3.2 Monitoring plan and Results. A full monitoring plan was developed prior to the first verification and is available as Appendix 06.[33] The following table provides the monitoring results as of the end of the PIR Period. Worksheet references are to the monitoring data spreadsheets used for the VCS verifications that apply to the PIR Period.[34]

1. Total hectares of the project. 1,329.6 hectares PAs (active/pending, "PA Summary" worksheets).
2. Number of discrete project areas (PA): 1,318 total active project areas (active/pending, "PA Summary" worksheets).

[33] Appendix 06 is "TIST UG PD-CCB-001g App06 Monitoring Plan 120221.doc"
[34] The following are available at http://www.tist.org/PD-UG-VCS-001-004%20Documents.php
TIST UG PD-VCS-001l App11 Verif 02 Monitoring Data 140826.xlsx
TIST UG PD-VCS-002l App11 Verif 02 Monitoring Data 140826.xlsx
TIST UG PD-VCS-003l App11 Verif 02 Monitoring Data 140826.xlsx
TIST UG PD-VCS-004l App11 Verif 02 Monitoring Data 140826.xlsx

3. Location and boundary of project areas:
    a. See Appendix 03 to PDDs, track files of each PA in KML format (Google Earth).
    b. See "PA Summary" worksheet, "Latitude" and "Longitude" columns.
4. List of PAs including administrative information, tree counts, area and last monitoring date: See "PA Summary" worksheets.
5. Circumference Data: See "Circ" worksheets.
6. Tree data including count and species: Tree count is 1,469,599 (active PAs only). See "Ex-post Strata" worksheets for species detail.
7. Carbon sequestration data by Strata: See "Ex-post Strata" worksheets.
8. Total Carbon Sequestered. Total: 221,833 (gross). PIR Period: 93,715 (gross).

Community Section

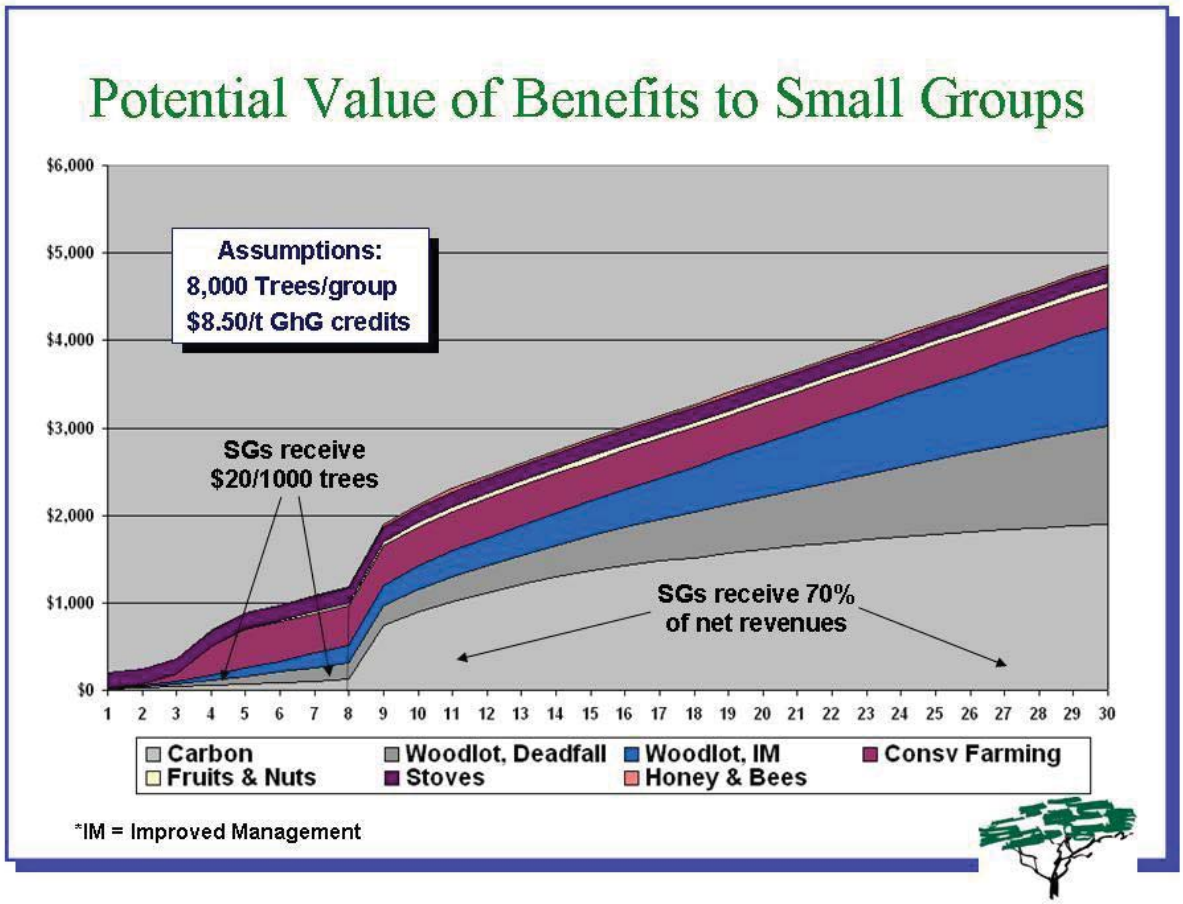
CM1. Net Positive Community Impacts

CM1.1 Impacts on community. The project creates a positive socio-economic impact. Some of the benefits that have been realized by the Small Group members and their families:

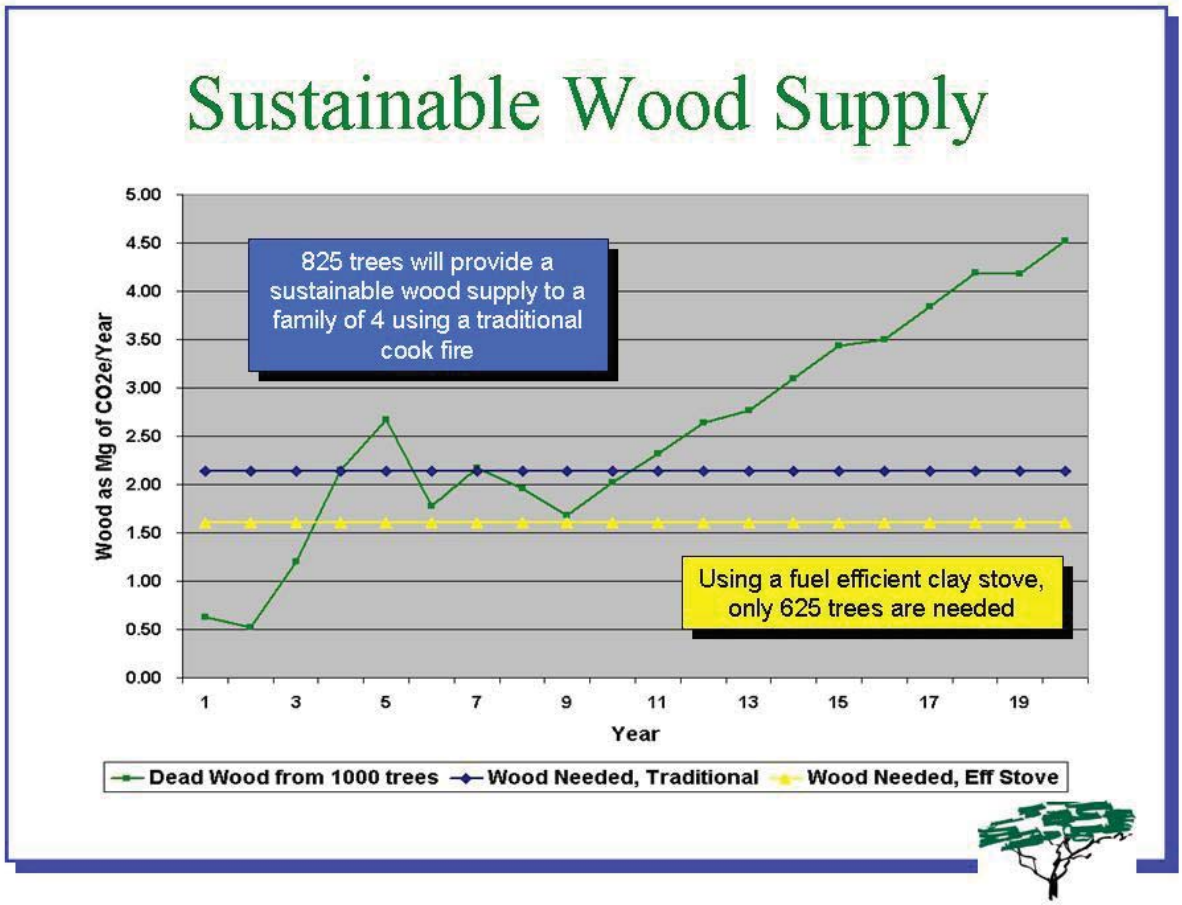
- **New job opportunities:** TIST requires a Host Country staff to operate. There are currently four staff employees and over 21 Quantifiers. TIST personnel travel by public transportation and buy food and supplies from local merchants, bolstering the local economy. TIST uses Host Country professionals such as accountants and lawyers. TIST staff is trained to use the handheld computers and GPS and how to collect data. They synchronize their devices in cyber cafés, requiring the use of personal computers.
- **Direct Effects to Small Groups:** 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 becomes self-funding from the sale of carbon credits, they will receive 70% of the net carbon revenues.
- **Small Group Structure:** 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 provides the entire community with positive examples.
- **Fruits and nuts from tree plantings:** 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.
- **Wood products and limited timber from trees:** Besides owning the trees, the farmers have the rights to all dead wood. They may prune branches and collect fallen branches. The growth models used for extrapolating biomass includes up to 70% mortality over a 30 year period. The farmers can use this biomass for their own consumption without affecting the estimated carbon stocks. In addition, the farmers may thin their trees as part of the on-going management of the project area and sell the harvested stems as timber.
- **Natural medicines, insecticides and other benefits from trees:** Some of the trees provide other non-wood related benefits such as fodder.
- **Capacity building on agricultural improvements, business skills, nursery development, and reforestation:** TIST has a well developed capacity building program that promotes rotating leadership within the Small Groups that focuses on gender equality and is made available to all members, regardless of education or social standing. TIST provides training in subjects such as conservation farming, nursery development reforestation, climate change, biodiversity, building and using more fuel-efficient stoves and runs the program like a business.
- **Small Groups organize to deal with other social and economic problems such as famine and AIDS.** TIST also supplies training in these subjects. Famine is also addressed with the FAO Conservation Farming program, which can lead to over a doubling of crop yield for practitioners, and through proper tree selection (fruits and nut).
- **Improved beauty of the landscape:** This is a welcome attribute in an overused and degraded landscape.

The economic value to each member is dependent on which program elements they choose to adopt. The following chart illustrates the combined potential of several programs over time.

As noted on the chart, it assumes that the Small Group plants 8,000 trees, which is about 1,000 trees per person. Underlying assumptions are based on conservative adoption rates and values gathered from TIST members.



Another benefit that the program provides is the potential for a sustainable fuel wood supply. The following chart models the deadwood available from planting 825 trees and how it can, if managed properly, lead to a sustainable wood supply for a family of four. The number of trees can be reduced by adopting fuel savings stoves.



TIST's goal is to surpass "sustainability," so that people meet their needs today in ways that improve the next generation's ability to meet its needs in the future

Comparison with "without project" scenario. Quite simply, none of these benefits would exist without the project. There would be no carbon revenues, no incentive to take farmland out of production to garner a long-term benefit, no new trees that can provide food and economic benefits from their products, no training in sustainable development activities and no new employment opportunities.

CM1.2 No High Conservation Values negatively affected. The project does 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 tree for the program does 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.

CM2. Offsite Stakeholder Impacts

CM2.1 Identify potential negative offsite stakeholder impacts. 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, there are few negative potential impacts to offsite stakeholders.

One that has been identified is the effect of eucalyptus trees on ground water and watercourses. As stated, the farmers get to choose the type of trees they plant on their own lands. During training, TIST has been clear about some of the negative effects of eucalyptus trees, and there is ongoing training about alternatives to eucalyptus.

CM2.2 Mitigation of negative offsite stakeholder impacts. In order to reduce the number of eucalyptus trees, TIST has been training members and trainers on indigenous trees and their benefits, as well as the negative effects of eucalyptus in sensitive areas.

CM2.3 No net negative impact. The multitude of listed benefits to the community members and benefits to the environment are much greater than the potential negative impact from the eucalyptus. Quantified, there are 252.4 ha of eucalyptus, out of 1,329.6 ha total active project areas. This can be compared to the thousands of square kilometers that make up the project zone.

CM3. Community Impact Monitoring

CM3.1 Initial monitoring plan of community variable. The following are the components of the initial Community Impact Monitoring plan.

1. Number of Small Group members in PD (male and female).
2. Number of Small Groups in PD.
3. Number of community members in TIST Uganda (male and female).
4. Number of Small Groups in TIST Uganda.
5. Number of community members active in TIST Uganda.
6. Number of community members adopting natural resource management practices.
7. Number of community members with greenhouse gas agreements with TIST.
8. Total payments to community.
9. Number of live trees planted by TIST Small Groups.
10. Number of fruit or nut trees in TIST Uganda.
11. Number of eucalyptus trees in TIST Uganda.
12. Number of people employed by TIST or under contract to deliver services.

In addition, many more program components, such as GPS tracts of all the project areas, are obtained in the climate change monitoring plan.

Monitoring is generally done annually as part of the overall monitoring of TIST. TIST Quantifiers collect data as they visit each Small Group to count trees by species. 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 are obtained from administrative records.

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

CM3.2 Initial monitoring plan of HCV impacts. Because the project takes place on private lands that have been under human habitation and agriculture for generations, there is no direct monitoring of HCV areas. Instead, the impact is addressed by the number of indigenous trees planted by the project and the numbers of hectares that contain indigenous trees.

CM3.3 Monitoring plan and Results. A full monitoring plan was developed prior to the first verification and is available as Appendix 06. [35] The following are the results of the Community Impact Monitoring. Program-wide data was extracted from the TIST database as of December 31, 2013.

1. Number of Small Group members in PD (male and female). 2,849 people; 1,075 women; 1,623 men; 151 undifferentiated.
2. Number of Small Groups in PD. 456.
3. Number of community members in TIST Uganda (male and female). 6,816 people; 2,659 women; 3,833 men; 324 undifferentiated.
4. Number of Small Groups in TIST Uganda. 1,082.
5. Number of community members adopting natural resource management practices. 6,803 members, 2,653 women, 3,826 men, 324 undifferentiated.
6. Number of community members with greenhouse gas agreements with TIST. 5,063 people; 2,100 women; 2,963 men.
7. Total payments to community. US $483,804
8. Number of TIST tree groves planted by community members. 4,544 groves.
9. Number of person-training sessions on TIST and TIST components. 1,006.
10. Number of live trees planted by TIST Small Groups in Uganda. 4,622,214 trees.
11. Number of fruit or nut trees in TIST PD Uganda. 6,351 trees.
12. Number of eucalyptus trees in TIST Uganda. 347,348 trees.
13. Number of people employed by TIST or under contract to deliver services. 25 salaried and 71 volunteers (20 trainers from each district and 11 LC members) receiving meal and transportation support.

[35] Appendix 06 is " TIST UG PD-CCB-001g App06 Monitoring Plan 120221.doc"

Biodiversity Section

B1: Net Positive Biodiversity Impacts

B1.1 Changes in biodiversity as a result of the project. As noted, the project areas were 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 was planting indigenous trees and developing tree lots that can provide cover. Isolated woodlots, especially with indigenous or fruit trees, improve the connectivity of wildlife habitat between natural forests.

Indigenous tree planting data are based on an evaluation of data provided from the monitoring plan, including tree counts by species and by project area. The results of indigenous tree planting as determined with the first verification are:

- Over 7,904 new indigenous trees
- Over 8.4 ha of indigenous trees

The Table B1.1 lists the indigenous species planted to date.

Table B1.1 Indigenous Tree Species

Scientific Name	**Common name**	**Height (m)**	**Indigenous**
Annona spp.	Annona	6+	yes
Cordia Africana	East African Cordia	15	yes
Croton megalocarpus	Croton	35	yes
Entada abyssinica	Tree Entanda	15	yes
Maesopsis eminii	Umbrella Tree	30	yes
Podocarpus falcatus	East African Yellow Wood	46	yes
Prunus africana	Iron Wood, Red Stinkwood	24	yes
Solanum aculeastrum	Bitter Apple	5	yes
Symphonia globulifera	Symphonia globulifera	30	yes
Vangueria spp.	Wild Medlar	8	yes
Vernonia amygdalina	Bitter Leaf	7	yes
Zanthoxylum gilletii	East African Satinwood	35	yes

Additionally, increasing the forested area in the project area improves biodiversity indirectly, by providing a sustainable supply of wood that reduces pressure on the natural forest.

An Environmental Screening was submitted to the National Environment Management Authority (NEMA) of Government of Uganda, to assess the environmental conditions and biodiversity of the area and to assess positive and negative environmental impacts of TIST project activities in 2006. The assessment indicates that the project areas themselves are not areas rich in biodiversity. "The area where the TIST Program operates is deforested. According to researchers, "it is immediately apparent that in Kisoro, Kabale, Rukungiri, [Kanungu], Bushenyi and Kasese, no extensive areas of natural vegetation remain outside the main [Protected Areas]."[36]

[36] Derek Pomeroy and others, Uganda Ecosystem and Protected Area Characterization, A contribution to the Strategic. Criteria for Rural Investments in Productivity (SCRIP) Program of the USAID Uganda

However, some areas border areas rich in biodiversity. By providing fuel wood from sustainable wood lots and improving livelihoods, the project has a positive effect on biodiversity.

Promotion of Conservation Farming further reduces 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 in homesteads and woodlots. Increases in tree biodiversity also enhances diversity of associated species, including pollinators, and other beneficial species, while protection of riparian areas improves water quality and provide other important ecosystem services.

Most Likely Scenario: baseline 'without project.' None of the tree planting would occur without the project. In the case of the indigenous trees, the biodiversity benefit is clearly positive.

The members of TIST also plant non-indigenous trees. While they would not have been planted without the project, and some lack the clear biodiversity benefit of the native species, they too have a net biodiversity benefit. Going back to the on-going deforestation affecting the entire country and the obvious continued need for fuel wood and timber by the expanding population, a fuel wood alternative is necessary. The non-native trees such as pines, eucalyptus, and cypress fill this niche, and by doing so, reduce deforestation and indirectly contribute to biodiversity. The "without project" scenario would mean more pressure on the natural forests and more loss of biodiversity. Therefore, even looking at the project from the vantage of the non-native species, the project has a net biodiversity benefit when compared to the "without project" case.

B.1.2 No HCVs be negatively affected by the project. The nearby HCVs are Queen Elizabeth National Forest, Bwindi Impenetrable National Park and the surrounding protected forests. They have not been negatively affected by the project. The project areas are in the vicinity of HCVs and provide vital resources that reduce pressure on these important areas, and through the planting of indigenous trees, expand the range of biodiversity in these forests.

The project areas are on individual farms, with an extensive history of farming and land use, other than natural forest or long-term forestry. As such, any negative effect caused by human activity at the project sites has already happened. Project activity has had a positive effect on HCVs.

B1.3 All species to be used by the project. Because TIST does not provide seeds or seedlings, TIST farmers collect seeds from locally existing trees that have a history of being grown in the country and regionally. Farmers are trained on how to harvest seeds, from local trees, for their nurseries and tree planting, and on benefits of varied species. Because the farmers own the trees that they plant, the species are selected by the Small Groups based on their needs and the benefits, which they desire to obtain. As a result, numerous species and varieties have been selected. Table B1.3 lists the species present in the project areas and indicates whether they are indigenous to Uganda. Additional species may be added over the life of the project as additional planting takes place.

Table B1.3 Tree Species Selected

Scientific Name	**Common name**	**Height (m)**	**Indigenous**
Acacia mearnsii	Australian Acacia	25	no
Annona spp.	Annona	6+	no
Artocarpus heterophyllus	Jackfruit	25	yes
Azadirachta indica	Neem	20	yes

Mission, Makerere University Institute Of Environment And Natural Resources and The International Food Policy Research Institute, April 2002. http://www.foodnet.cgiar.org/scrip/docs&databases/scrip_II_outputs2001/pdfs/UG-ecosystem&protecetdarea_characterisation.pdf. Accessed March 8, 2005.

Table B1.3 Tree Species Selected			
Scientific Name	**Common name**	**Height (m)**	**Indigenous**
Callistemon spp.	Bottlebrush	5+	no
Carica papaya	Papaya	10	no
Casuarina equisetifolia	Casuarina	30	yes
Citrus aurantifolia	Lime tree	6	no
Citrus sinensis	Orange	13	no
Cordia Africana	East African Cordia	15	no
Croton megalocarpus	Croton	35	no
Cupressus spp.	Cypress	5+	yes
Cyphomandra betacea	Tree Tomato, Cape Tomato	5	no
Entada abyssinica	Tree Entanda	15	no
Eriobotrya japonica	Loquat, Japanese Plum	10	no
Eucalyptus grandis	Flooded Gum	55	no
Grevillea robusta	Grevillea, River Oak, Silk Oak	25	no
Jacaranda mimosifolia	Jacaranda	20	no
Macadamia spp.	Macadamia Nut	18	no
Maesopsis eminii	Umbrella Tree	30	no
Mangifera indica	Mango	25	yes
Melia azedarach	Chinaberry, Bead Tree	7+	yes
Persea americana	Avocado	20	no
Pinus Patula	Patula pine	30	no
Podocarpus falcatus	East African Yellow Wood	46	no
Prunus africana	Iron Wood, Red Stinkwood	24	no
Psidium guajava	Guava	15	no
Solanum aculeastrum	Bitter Apple	5	no
Symphonia globulifera	Symphonia globulifera	30	no
Vangueria spp.	Wild Medlar	8	no
Vernonia amygdalina	Bitter Leaf	7	no
Zanthoxylum gilletii	East African Satinwood	35	no

Invasive Species. All listed species have been screened against the global database of invasive species.[37] None of the species above are included as invasive species in Uganda.

B1.4 Adverse effects of non-native species. As stated in B1.3, TIST does not provide seeds or seedlings, so the trees planted by TIST farmers were locally sourced from existing trees with a history of being grown in the country and region. They choose both indigenous and non-native species for their varied benefits. Some species, notably eucalyptus, may have negative impacts if not managed with care. Eucalyptus, popular in Uganda since its introduction in 1912, for its fast growth, is known to set deep roots that may deplete water resources without sustainable management. Eucalyptus is very common in many

[37] International Union of Concerned Scientists, Global Invasive Species Database, Accessed 11 January, 2011 at http://www.issg.org/database.

parts of the country and is promoted by Uganda Foresters for fuel wood, building poles and for timber[38].

TIST farmers agree, as part of their contract, that trees that damage the environment will not be counted as TIST trees. Groups are trained on the benefits of alternative indigenous trees and how to grow these trees. Trainers grow indigenous tree seedlings, including stinkwood, in their nurseries to increase awareness and access for TIST members.

Training, monitoring, and incentives are all structured to encourage farmers to plant diverse trees with diverse benefits. Because of all of these active steps taken to safeguard against possible deleterious environmental effects, negative impacts are not expected.

The use of non-native species is justified in a number of ways. Farmers choose species that provide them with needed products and services. Project activities are on lands already impacted by long-term human habitation and agriculture. Many species, like mango and avocado, while not indigenous, have been naturalized over an extended period of time and provide much needed food. Others, like pine, eucalyptus and cypress, were chosen for their fast growth. In a country with a high need for forest products, including fuel wood for cooking and timber for construction, sources of sustainable wood products must be developed to substitute natural forest being lost through deforestation. Uganda National Forestry Authority promotes pine and eucalyptus for their fast growth to conserve biodiversity since cultivated wood can replace indigenous species otherwise harvested for fuel-wood degrading natural forests. No fast growing indigenous alternatives have been identified.

B1.5 No GMOs will be used for GhG removals. No GMOs were used by the project to generate GHG emissions reductions or removals.

B2 Offsite Biodiversity Impacts

B.2.1 Negative offsite biodiversity impacts. No negative offsite biodiversity impacts were identified. As pointed out in section CL2.1 of the PD, evidence that there has not been any displacement of members has been provided in the form of a survey of the land owners and project participants during baseline monitoring. They owned the land before the project and own the land during the project.

In addition, the program is designed to allow sustainable harvest within the project boundary by the members, which will reduce the need for fuel wood from external sources. The trees are owned by the Small Group members and as the trees die, either naturally or through selective harvest, they can be used as fuel wood by the members. The project activity has a beneficial effect on area deforestation; instead of causing it, it ameliorates it.

B2.2 Mitigation of negative offsite biodiversity impacts. Not applicable, since no negative offsite biodiversity impacts were identified.

B2.3 Justify the net positive biodiversity impact. No negative offsite biodiversity impacts were identified. Therefore net effect of the project on biodiversity is positive.

B3 Biodiversity Impact Monitoring

B3.1 Initial plan for biodiversity monitoring. TIST has been in operation in Uganda since 2003, and has deployed an award-winning monitoring system that collects data for, among other things, biodiversity. The monitoring plan described, herein, is the full monitoring plan required under B3.3, below.

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

[38] http://www.sawlog.ug/downloads/Guideline%20No.09&10%20-%20Growing%20Eucalypts.pdf

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. Annual monitoring of each site is the goal and a minimum of every two years is achieved.

At a landscape level, we monitor the number of hectares of land improved, with indigenous tree planting by TIST farmers and their location.

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 PDD cited 1,613 hectares of new forest comprised of 1,782 individual parcels spread out over thousands of square kilometers. The location and perimeter of each project area are presented in Appendix 1 and 2. No new project areas have been added during this verification period.

B3.2 Plan to assess effectiveness of measuring effect on HCV. Because there is no direct interaction with the HCV, the monitoring is indirect and based on monitoring direct project achievements per B3.1 and B3.3.

B3.3 Monitoring plan and Results. A full monitoring plan was developed prior to the first verification and is available as Appendix 06. The following are the results of the Biodiversity Monitoring. Worksheet references are to the monitoring data spreadsheet used for the VCS verification that applies to the PIR Period.[39] Program-wide data was extracted from the TIST database as of December 31, 2013.

1. Total hectares of the project and each project area. 1,329.6 total hectares. See "PA Summary" worksheet for area of each PA.
2. The tree inventory of each project area. Total tree count is 1,469,599. See "PA Summary" worksheet for count by project area. See "Misc Calc" worksheet for totals by strata. See "Ex-post Strata" worksheet for totals in each project area strata.
3. Number of discrete project areas. 1,318 total project areas ("PA Summary" worksheet)
4. Location and boundary of project areas.
    a. See Appendix 03, track files of each PA in KML format (Google Earth).
    b. See "PA Summary" worksheet, "Latitude" and "Longitude" columns.
5. Hectares of indigenous trees. 8.4 hectares. See "Misc Calc" worksheet for totals. See "Ex-post Strata" worksheet for species detail by strata.
6. Number of indigenous trees by project area strata. 7,904 total indigenous trees. See "Misc Calc" worksheet for totals. See "Ex-post Strata" worksheet for species detail by strata.

[39] TIST KE PD-VCS-006l App11 Verif 02 Monitor Data 140725.xlsx

Gold Level Section

GL2. Exceptional Community Benefits

GL2.1 Low human development. Uganda meets the requirements of being a low human development country. According to the UNEP, Uganda's HDI is 0.446, which gives the country a rank of 161 out of 187 countries with comparable data and places it in the category of low human development country.[40]

GL2.2 Poorest quartile will benefit. The project has been designed to benefit the poorest of the poor and in this case the subsistence farmers of rural Uganda. To join TIST, a farmer only needs to join a Small Group and while most of the rural poor already have land to plant trees, they don't even need that. If they work with their friends, family or neighbors, they can plant trees on those lands and benefit.

There is no minimum project area size that would restrict the smallest small-holder farmer from joining. While the CDM afforestation methodologies require a minimum area of 1.0 hectares (Uganda forest definition), TIST is applying for VCS credits to be able to go below that threshold. TIST has designed a monitoring plan that allows participation of farmers with the smallest of plots.

TIST has tried to eliminate the barriers to entry to the program. Members do not have to buy seedlings. They are taught to gather local seeds, prepare nurseries and raise their own seedlings. They can sell any surplus. The benefits that can be realized by using Conservation Farming not only don't cost money, they can produce higher yields in less land and result in added revenues or decreased food expenses. Participation in the more fuel efficient stove project is also without cost. While TIST is introducing a manufactured stove, it also trains in making a home built rocket-Lorena stove that can be made for no cash costs, from locally available material. TIST training in nutrition, HIV/AIDS prevention and care, malaria prevention and other health issues is free. Training in improved natural resource management, species selection, nurseries and tree planting, climate change, riparian buffers and other environmental issues is free.

To demonstrate that 50% of the lower quartile in the entire community benefited substantially from the project requires looking at the overall benefits of the program, because while TIST is open to all, 50% voluntary participation in a project zone of thousands of square kilometers is beyond the ability of any project.

First is the effect of climate change on this population. At risk are food security, changes in temperature and precipitation, changes in soil moisture and soil fertility, changes in the length of growing season and an increased probability of extreme climatic conditions.[41] These affect every farmer in rural Uganda, including the lowest quartile. TIST has quantified climate change benefits, which mitigate these negative impacts.

The 2011 UNDP Human Development Report demonstrates “how the world’s most disadvantaged people suffer the most from environmental degradation, including in their immediate personal environment.”[42] The farmers who take part in TIST are very much a part of this group, depending directly on the land for their livelihoods.

The degradation of the local environment affects the lower quartile and TIST tree planting helps address it. As pointed out by the FAO:

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[40] United Nations Development Program, Human Development Report 2011, page 129 for Uganda HDI. See TIST UG PD-VCS-Ex 16 UN Human Dev Rpt 2011.pdf

[41] Claire McGuigan, Rebecca Reynolds, Daniel Wiedmer; London School of Economics Consultancy Project for The Overseas Development Institute, "Poverty and Climate Change, Assessing Impacts in Developing Countries and the Initiatives of the International Community," 2002. http://www.odi.org.uk/resources/download/2578.pdf accessed October 28, 2010

[42] http://hdr.undp.org/en/reports/global/hdr2011/ accessed January 23, 2012.

> [The] natural resource base of Africa is being degraded and destroyed at a rate that will soon make food and agricultural production un-sustainable. Poverty, coupled with increasing population pressure, is the biggest single cause of this degradation. *The rural poor, the overwhelming majority of Africa's citizens, destroy their own environment, not out of ignorance, but simply to survive*. Peasant farmers preoccupied with survival over-crop marginal [sic] and because there is no alternative employment and no better technologies they can afford. Pastoralists overstock to improve their chances of surviving the next drought. Rural dwellers strip trees and shrubs for fuelwood because they need fuel. *In the context of the short-term basic needs of an individual, each decision is rational; in the long run, the effects are disastrous.*[43]

According to the UNEP, trees help "conserve soil and water."[44] They improve soil stabilization and reduce erosion. Erosion affects the quality of water and the lowest quartile is the first to be affected by poor water quality. As observed by the United Nations, "poor communities have tended to suffer the greatest health burden from inadequate water supplies and, as a result of poor health, have been unable to escape from the cycle of poverty and disease."[45] The lowest quartile is the people most likely to be negatively affected by drought. Trees also retain soil moisture and help mitigate the effects of drought. TIST tree planting ameliorates these negative results of deforestation and degradation and benefits the lowest quartile.

The lower quartile relies on wood for their primary fuel. In Uganda, biomass, mainly in the form of firewood or charcoal, is used by 92.3 percent of the population for their energy needs.[46] Looking at it from a supply and demand basis, new sustainable biomass from TIST trees leads to more supply and lower fuels costs, therefore benefiting the lower quartile.

TIST health training also has an indirect benefit on poor non-members. Barnett and Whiteside argue that:

> HIV prevalence is highly correlated with falling calorie consumption, falling protein consumption, unequal distribution of income and other variables conventionally associated with susceptibility to infectious disease, however transmitted. The causal chain runs from macro-factors that result in poverty: through the community, the household, the individual and into the resilience of the individual's immune system. Poverty contributes to epidemic disease and epidemic disease contributes to poverty: causation is bi-directional and occurs through many different pathways. For example, loss of labour from a farming system may result in failure to maintain infrastructure such as terracing, leading to soil erosion, and decreasing agricultural productivity. This will impoverish households and communities, reduce their ability to sustain themselves and resulting in poorer socialisation, less formal education and ultimately cultural as well as material impoverishment.[47]

TIST training helps break this cycle. Peer training is a way to disseminate information throughout a community. For example, the list of myths associated with AIDS is long and they are circulated worldwide. The poor have little access to HIV/AIDS education and base their decisions on these myths. TIST training

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[43] Food and Agriculture Organization of the United Nations, "Land and environmental degradation and desertification in Africa," 1995. Accessed 11 January, 2011 at http://www.fao.org/docrep/x5318e/x5318e02.htm or see "TIST UG PD-VCS-Ex 18 FAO Enviro Degradation.pdf."

[44] United Nations Environmental Programme, "The Billion Tree Campaign." Facts and Figures. Accessed 11 January, 2011 at http://www.unep.org/billiontreecampaign/FactsFigures/QandA/index.asp or see "TIST UG PD-VCS-Ex 19 UNEP Tree Benefits.pdf"

[45] UN-Water, Coping with Water Scarcity, 2007 World Water Day, 2007, page 6, Accessed 11 January, 2011 at http://www.fao.org/nr/water/docs/escarcity.pdf.

[46] Ministry of Energy& Mineral Development (MEMD) 2001 National Biomass Energy Demand Strategy 2001 – 2010, June 2001.

[47] AIDS, Public Policy and Child Well-Being", edited by Giovanni Andrea Cornia. Poverty and HIV/AIDS: Impact, Coping and Mitigation Policy, Tony Barnett and Alan Whiteside. http://www.unicef-irc.org/research/ESP/aids/chapter11.pdf. accessed January 23, 2012.

helps counter these myths, giving the friends and neighbors of non-members the information that can lead to better decision making.

TIST was designed to benefit the poorest of the poor. While all in the lowest quartile are invited to join and would reap more benefits as members, all of the program activities have community benefits that benefit the non-members in the lowest quartile.

GL2.3 Barriers to benefits addressed. The barriers that might prevent benefits going to poorer households have been identified and addressed in the project design. As discussed in GL2.2., they have been removed to the greatest extent possible.

GL2.4 Negative impacts on the poor identified. TIST was developed through visioning sessions with poor small-hold subsistence farmers in Tanzania in 1998 and 1999. 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 AIDS 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. TIST Uganda adopted this approach and was designed to do as much of this as possible at the subsistence farmer level. Because this was the approach to the project, no poorer and more vulnerable households and individuals whose well-being or poverty may be negatively affected by the project have been identified.

GL2.5 Monitoring Community Impacts. As noted, TIST is a community based program comprised of almost 7,000 Ugandans (although not all subject to this PD). They are all part of the existing monitoring plan to determine the effectiveness of TIST in achieving its goals. By monitoring TIST as a project, the positive and negative impacts to the community can be determined.

TIST developed an additional monitoring plan to demonstrate that it meets the requirements of Gold Level Exceptional Community Benefits. The social impact monitoring took a differentiated approach that identified positive and negative impacts on poorer households and individuals and other disadvantaged groups, including women.

Gold Level Exceptional Community Benefits Monitoring Report

The purpose of Gold Level Exceptional Community Benefits monitoring is to demonstrate that the project approaches "are explicitly pro-poor in terms of targeting benefits to globally poorer communities and the poorer, more vulnerable households and individuals within them."[48] In addition, the project must "'do no harm' to poorer and more vulnerable members of the communities, by establishing that no member of a poorer or more vulnerable social group will experience a net negative impact on their well-being or rights."[49]

TIST was formed to do just that. It was developed to empower subsistence farmers to reverse the devastating effects of deforestation, drought, and famine by planting trees. Combining sustainable development with carbon sequestration, TIST already supports the reforestation and biodiversity efforts of about 70,000 subsistence farmers in four countries. Carbon credit sales generate participant income and provide project funding to address agricultural, HIV/AIDS, nutritional and fuel challenges. To demonstrate this for Gold Level, a differentiated approach was taken that can "identify positive and negative impacts on poorer households and individuals and other disadvantaged groups, including women."[50]

[48] CCB Standard, Second Edition, GL2. Exceptional Community Benefits
[49] Ibid.
[50] Ibid.

The monitoring of the exceptional community benefits was conducted using a survey. The survey was developed by an independent contractor for TIST Kenya,[51] who trained TIST personnel how to implement it in the field. Hakim Buchwa was designated the Uganda host country team leader and trained six TIST members in Uganda on how to conduct the survey. The survey was conducted in March and April 2012. See Exhibit 21[52] for the survey template and Exhibit 22[53] for the report of the survey results.

The interview tool consisted of 37 questions within five main topic areas, including demographic/basic information, TIST membership information, benefits from TIST activities, and specific questions on Conservation Farming and food security, and Progress out of Poverty questions developed by the Grameen Foundation, to assess poverty likelihood based on simple, non-financial indicators. The total sample size was 46 TIST project participants.

The summary of the positive and negative impacts of TIST on the membership as a whole, on women and on the poor and most vulnerable are presented below. More detail is available in the actual survey report.

Positive and negative impacts on TIST members. The survey indicated TIST participation provides benefits to all members in relative proportion to the extent to which members choose to adopt improved practices. Numerous benefits were identified that were attributed to program participation. They include carbon income (tree payments), seedling production, fruit and nuts, sustainable firewood, Conservation Farming and improved cook stoves and many social indicators. The cumulative economic benefit for an average member was calculated to be 7,983,205 Ush and the overall social impact reported was positive.

The negative impacts of the program were also identified. While most members felt that TIST had a positive impact on their lives, 2 members indicated that they were losing money participating in TIST, 4 indicated they had less to eat because of TIST and one felt they were too busy with TIST to do the important things they need to do.

Positive and negative impacts on women. The gender balance in the survey was 30% female (n=14) and 70% male. When the economic benefits were analyzed on a gender basis it showed that, at 8,982,004 Ush, women had a higher cumulative average benefit.

The negative impacts identified by women were few. One women said the family has less food to eat because of TIST (wherein 13 said it was not at all true) and two said their friends or family were not happy they are TIST members. In open-ended questions, 9 said there were no negative impacts, 3 said they experienced a delay in tree payments and 3 said they wanted an increase in tree payments (one respondent gave two answers).

Positive and negative impacts on poorer and more vulnerable groups. The survey established that the 18 of the 46 members in the survey had self-reported incomes of less than US $2 per day. Using the results of the Progress out of Poverty questions, the 7 poorest and most vulnerable members were identified. The average economic benefits to each of the 7 was 6,925,024 Ush, slightly lower than the average but still significant.

Very few negative impacts were identified by the 7 poorest TIST members. One said their friends or family were not happy they are TIST members. In open-ended questions, 5 said there were no negative impacts, 2 said they experienced a delay in tree payments and 1 wanted an increase in tree payments (one respondent gave two answers).

Summary. The differentiated survey has demonstrated that TIST is an overall positive effect on all members, including women and the most poor and vulnerable.

[51] Sophie Oppenheimer, MS, MPH, Research Project Coordinator, Trees For Life International, Program Evaluation Consultant
[52] TIST UG PD-VCS-Ex 21 GL2 Community Survey Template.doc
[53] TIST UG PD-VCS-Ex 22 GL2 Community Survey Result.doc