CGIAR Research Program on
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Institutional innovations in African smallholder carbon projects

Case Study: The International Small Group Tree Planting Program (TIST) Kenya

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Tables and Figures

Project's capacity to produce verifiable credits

The status of The International Small Group Tree Planting Program's (TIST) capacity to sequester or reduce a significant amount of greenhouse gases (GHGs) is the first result area of this institutional analysis case study. The capacity to sequester carbon was determined from the technology interventions employed, the targets and progress towards targets, organization of the participants in the carbon sequestration process, the standard used and roles of participants.

SLM interventions implemented

TIST empowers subsistent farmers working in small groups of 6-12 farmers (usually farmer households) to plant trees of their choosing to meet the requirements for earning carbon credits. The interventions implemented by TIST that enable farmers participate in carbon sequestration programs include creating awareness and forming small groups. TIST then creates an administrative back bone that consists of groups and cluster (i.e. a cluster has between 30-40 groups). After which, the small groups working with TIST staff and local Quantifiers, providing extension and training support, gather seed, make nursery beds and plant seedlings, and when the seedlings are mature enough they are planted in the field. The small groups sequester carbon by planting diverse trees. In Kenya, the top 10 species planted by farmers are Avocado, Bottle Brush, *Casuarinas, Cordia Africana*, Cypress, Eucalyptus, Gravellia, Mango, Mukwego and Orange (TIST, 2010). The farmers are also encouraged to implement conservation farming and reduce fuel wood use through efficient stoves.

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 are expected to be approved under the Voluntary Carbon Standard (VCS) and, because they are tied to tree growth, will be sustainable. 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.

Project targets and progress towards targets

Small Groups in Kenya sign a contract with Clean Air Action Corporation (CAAC) stating that they will plant 5,000 trees per Small Group (about 2.2 ha of tree groves) over 5 years on their farms. Given the average Small Group size of 6-12 members, each TIST farmer is expected to plant between 420 and 840 trees.

The current goals under a Global Development Alliance Partnership with USAID, from 2009 to 2014 include:

- 7,000,000 new trees planted
- 1,150,000 new indigenous trees planted
- 6,000 households adopting erosion control methods including conservation farming and improvement of riparian areas through tree planting
- 3,000 ha of land of biological significance under improved management (riparian buffers)
- 5,000 new TIST SGs
- 250,000 tonnes of carbon sequestered.

The progress so far achieved includes:

- 4,597 ha of land reforested
- 209,613 tonnes of carbon sequestered

Actors for the implementation of carbon-friendly SLM practices

In Kenya, TIST operates directly with farmer groups, clusters, and Quantifiers. The most significant linkages therefore relate to Kenyan and International TIST staff, and Quantifiers selected from among the farmers. While the farmers plant the trees, TIST staff provide technical support and the Quantifiers have been trained to do

measurements of the carbon sequestration together with the farmers. TIST Kenya and International staff periodically monitor and evaluate the information provided by the Quantifiers. In addition, the information generated by Quantifiers is real-time information which is submitted electronically to the TIST database in the United States via internet.

Clean Air Action Corporation (CAAC) manages the greenhouse gas (GhG) component of the program. It is responsible for the quantification, qualification and sales of GhG credits. CAAC and host country subsidiaries manage all CDM and voluntary carbon credit applications, provide operational capacity in country, hold rights to the TIST brand, and administer the program.

The Institute for Environmental Innovation (I4EI) manages the sustainable development components of TIST, including training in conservation farming, tree selection and planting, health issues (including HIV/AIDS, Malaria, nutrition, cooking smoke), fuel efficient stove construction, and achieving a sustainable wood supply. CAAC and I4EI work together with local staff to administer the program for the Small Groups. I4EI is also the implementing partner of a Global Development Alliance with USAID in the Mt. Kenya and Mara Mau regions. Catholic Relief Services (CRS) is a partner in a pilot in Mbeere, for planting in arid and semi-arid lands.

Kenya Forest Service (KFS) coordinates all organizations involved in tree growing and management in the country and offers technical advice on nursery management, seedling production, and species choice. Within gazetted forests, KFS works with community forest management (CFM), user groups and community-based organizations (CBO); some of the KFS staff are also members of TIST Small Groups. Kenya Forestry Research Institutes (KEFRI) does research, seed collection, and manages seed standards among others.

Carbon measurement methodology

TIST has used different standards in different areas. In Kenya, the project used the Voluntary Carbon Standard (VCS). Although based on current review, TIST is seeking to obtain Climate, Community, and Biodiversity Alliance (CCBA) certification. The combined validation and verification process started in December 2010 with an assessment field visit by external auditors.

The approved baseline and monitoring methodology applied to the proposed VCS project activity is CDM AR-AMS0001 Version 05: Simplified baseline and monitoring methodologies for small-scale afforestation and reforestation project activities under the clean development mechanism implemented on grasslands or croplands. Also used were the following tools:

- Procedures for the demonstration of land eligibility, AR-AMS0001, Appendix A
- Procedures for the assessment of additionality, AR-AMS0001, Appendix B.

The project and project monitoring plan meet all of the requirements of the methodology and do not deviate from the baseline scenario, additionality determination, or inclusion of project GHG sources, sinks, and reservoirs.

Roles in monitoring

Farmers themselves play the most critical roles in monitoring and auditing, and in training other farmers to monitor the TIST project. Small Groups manage themselves based on a covenant among the members of each Small Group. They manage and oversee their own trees. They contract with Clean Air Action Corporation (CAAC) to sell their carbon, receive payments, and receive training. The GHG component of TIST is managed by CAAC, who developed the database, website and procedures for monitoring GhG. CAAC is responsible for selling any GhG credits that become available.

Trained farmers, called Quantifiers, visit each grove once per year, and gather data at minimum once every five years (e.g. count trees and collect circumference, GPS, etc). They transmit the data via the internet to the TIST website where it is managed by CAAC. Quantifiers receive explicit training in regard to TIST's Standard Operating Procedures so that quantifications are performed in a standard and regular fashion. CAAC oversees the data and conducts quality assurance/quality control reviews. Feedback is provided to TIST's Quantifiers and office staff. CAAC is responsible for tabulating carbon stocks.

TIST managers visit selected project areas and observe quantifications and audits. They are also required to periodically audit Quantifiers, including an independent sampling of tree counts and circumference measurement. TIST has developed analytical tools for reviewing data as it comes in from the field to look at track data, tree counts, and completeness of data.

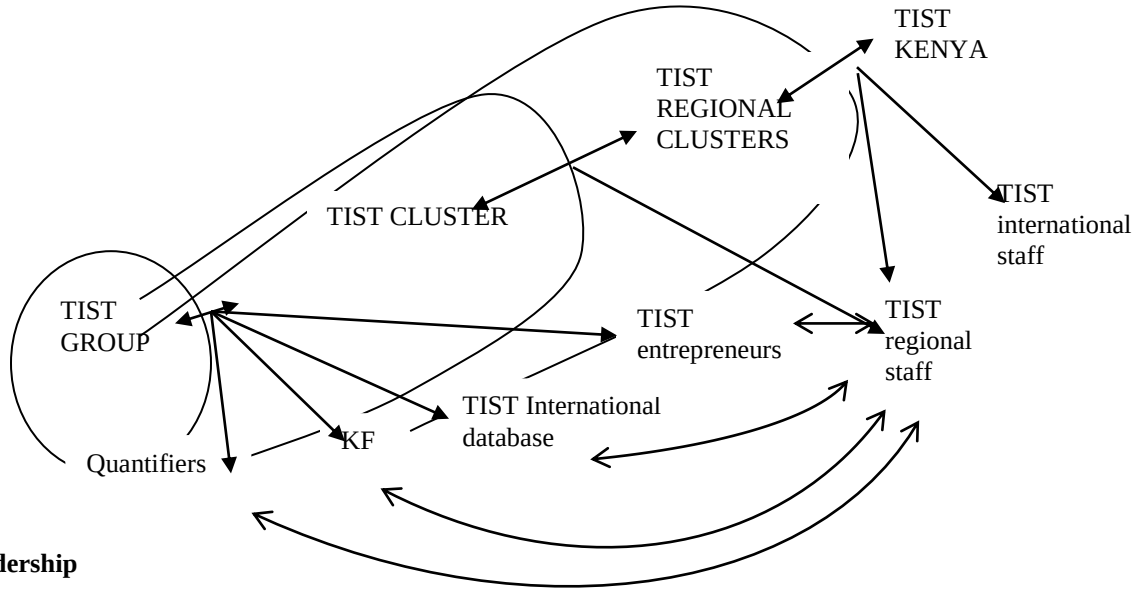
Project management capacity

Organization of project participants

TIST structure

The smallest units in the TIST organizational structure are TIST Small Groups of 6-12 farmers. These aggregate at the local scale to form a cluster, 40 to 50 Small Groups all within walking distance of a central meeting point. This structure helps keep costs low by minimizing travel costs for quantification, training, and coordination. A cluster is meant to have the capacity to carry out core TIST activities of training, Quantification, and communication to national TIST program staff. Leadership in groups and in clusters is rotational. In a cluster, there are three servant leaders elected from and by the TIST farmers: a leader, a co-leader, and an accountability person. The clusters aggregate regionally so that an area such as Meru has a number of regional associations. Quantifiers, Trainers, and other representatives of Small Groups meet regularly at a regional level with TIST National Staff to review accomplishments and receive training and support. Small Group members also interact directly in regular seminars for training and policy making. TIST Social Entrepreneurs are farmers who are willing to go to new areas to launch TIST projects similar to the one they originate from. TIST Kenya National staff are based in Meru and Nanyuki. They coordinate TIST operations for all clusters, including training of Quantifiers and Trainers, national accounting, program activity coordination, and government and local stakeholder relations. Farmers are elected from and by cluster leaders to serve on the Leadership Council in Kenya who meet together with the Kenya staff regularly. The National Staff and members of the Leadership Council interact with TIST staff from other countries at seminars and virtually to share experience, and with CAAC and I4EI staff in the US.

Figure 1: TIST organizational structure in Kenya.

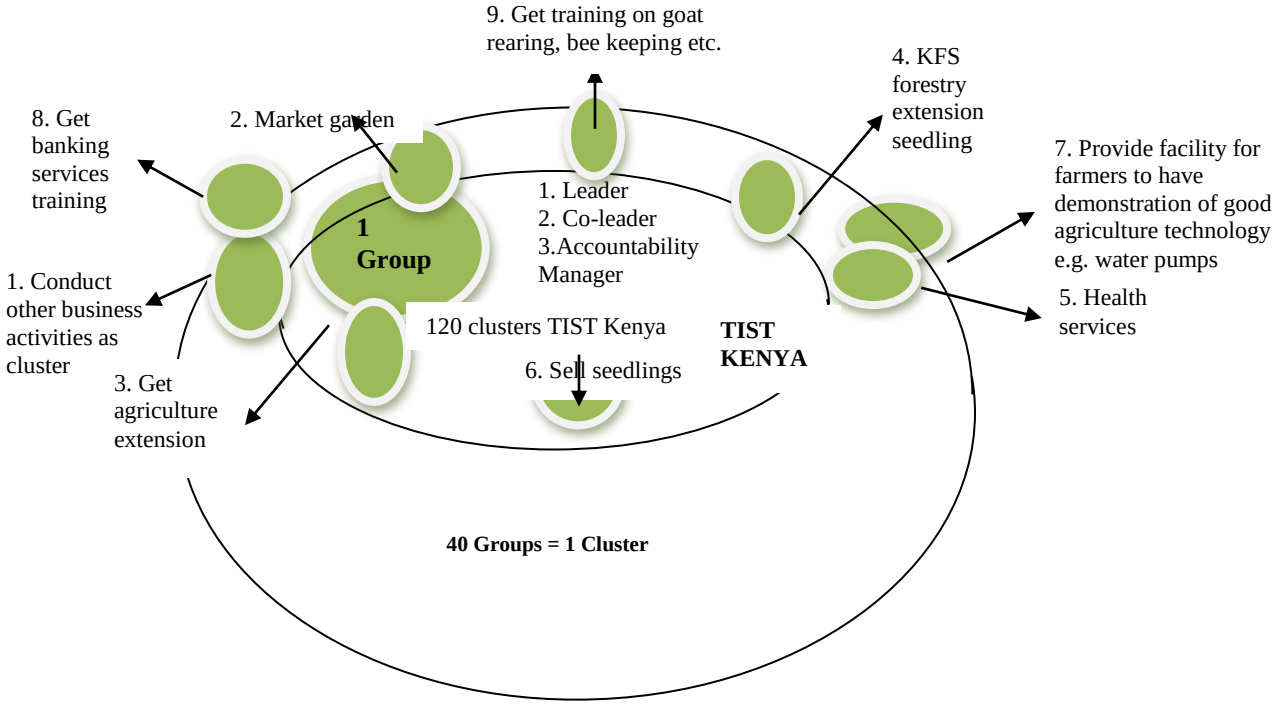


Leadership

Farmers groups under TIST plant trees, and undertake conservation farming as well as several livelihood activities in the area. The farmer groups practice rotational leadership, and all members are encouraged to take a turn as a

leader. At basin or local scale the groups aggregate into a cluster that has about 40 groups. The clusters, and in a few cases, groups mobilize themselves to undertake activities or receive services that are not the core TIST activity which is managing nurseries, planting and looking after the trees. These other activities are shown in Figure 1 below. The clusters have a rotating leadership that consists of a leader, a co-leader and an accountability officer. The leadership of the cluster rises in ascending order i.e. when the leader retires after a four month tenure s/he is replaced by the co-leader, the accountability manager becomes the co-leader and a new accountability manager is chosen by the cluster.

Figure 2: Organization of farmer groups under TIST-Kenya.



Project process and timeline

The description below covers the progress of one case the *Mutethia Kieni Kia Ndege TIST Group* located in Meru. TIST groups are very diverse, and their experiences may differ slightly although the general progress is likely to be similar. Farmers have chosen to use the Small Group structure and expand from TIST core to coordinate themselves for their common benefit.

Case study: Mutethia Kieni Kia Ndege Group in Meru

The group started in 2007 with 10 members. At commencement, the group's aim was to plant as many trees as possible. Indeed, from current plans it is required that every year tree seedlings are given to each member to plant at least 100 trees.

In 2008, members incorporated other activities for encouragement and enthusiasm. For example, for the welfare of the group, each member contributes Kshs 100 per month. This money is saved on the members' behalf by the group treasurer and it is given to members based on their savings at the end of the year as they move into Christmas. These contributions are made for 11 months, because no contributions are made in December.

In addition, each member of Muthethia KK TIST group is asked to contribute Kshs 500 annually to a revolving fund, from which savings are then loaned to members based on an agreed round (cycle). The loans are compulsory to members, so that a member has to take at least Kshs 1,000 and return with interest of 10%, regardless of whether a member actually accepts to take the loan or not. From the revolving fund project, an initial capital of Ksh 4,000 was collected in 2008. In 2010, it was decided to return the contributed capital was to members while the revolving fund project continues to operate based on the interest charges accrued over time. Note that all members are shareholders and shares are based on contributions. The loan scheme has helped, especially when the need for cash among members is high such as when farmers need to buy inputs for their farms and when they need to pay school fees. Whereas the savings and credit scheme is not a core activity of the TIST project; it would not have been possible had the group not come together under the TIST arrangement.

Where members use the loaned money for business or agricultural enterprises, they use the TIST model of reporting back to the group to ensure accountability. Therefore, every fortnight members report back to each other at a meeting (e.g. investment in chicken enterprises by one member). Moreover, the loans can only be used for purposes the group believes are beneficial for the loan seeker.

Another activity run by the TIST group is the operational account obtained through fines for lateness (Kshs 20) and absence (Kshs 50). From the operational account, group members planted green vegetables (*sukuma wiki*) that are sold and revenue used to sustain the operational account. The operational account is used to help out members on welfare issues in their homes when they run low on cash from their own sources of income. It is shared on a rotational basis, agreed upon as group contributions for members.

The group has also adapted a set of rules and regulations based on the suggestions provided by TIST with emphasis placed on discipline and on mutual understanding within the group. The members meet the other organizations in other forums (e.g. community meetings with agricultural officers, forestry officer, and CBOs).

At the group level, Mutethia KK TIST Group is linked to TIST through a local Quantifier (Bernard Kunywa, a farmer belonging to another group but with long experience and training on carbon sequestration quantification). The Quantifier also provides the following additional support in a stepwise manner:

1. Creating awareness and registering group
2. Training group members on how to plant trees, spacing and places where to plant
3. After 1 year, comes to quantify the plot
4. The information is then sent by email to US
5. When the farmer reaches at least 500 trees and above, they will be paid Kshs 1.50 cents per tree per year

<u>Ongoing activities</u>

- members buy seeds from KFS/CBO (generate seeds prices KShs 300 /200ml)
- water the seedlings, buy water for watering - KShs 100/3months
- weeding, caring for seedlings
- polythene bags improvised from commercial polythene, as well as recycling of all polythenes
- Members get manure for seed bed from own farm

<u>Tree management after nurseries</u>

- The mature seedlings are divided among members, at least 100 seedlings each year.
- Members have received training on transplanting and management of young seedlings in the field.
- In most cases, the trees are planted and maintained by intercropping plants. Therefore, the farmers can tend to the trees as they manage the crops that are intercropped. When the plants are older, the intercrops can be removed. When the spacing is large the intercrops can stay.

Payment approach for carbon credits

In TIST Kenya, Small Groups receive each year Ksh 1.5 for each live tree that they have planted and that has been quantified. Additionally, when TIST Kenya revenues exceed costs, farmers will receive 70% of profits. All members have to be registered in a group between 6-12 members, and generally the money is divided according to the number of trees each farmer planted. However, the group is at liberty to use the money for the group. In TIST, a Small Group must have members from at least three households. Members are paid through M-PESA. Three people are appointed who sign payment voucher. The group appoints a custodian of sim card and a 2nd person who knows sim number.

The farms in the area were given in 1958. The surrounding area has a lot of wildlife and not settled. It should be noted that in many farms, there were trees already planted before. When TIST came, planting increased in the area. The older trees are not included in the value for carbon. However, TIST monitoring is done to ensure compliance to baselines and additionality.

For each area where TIST farmers plan to plant trees, a Quantifier, who has been trained about the importance of baselines and additionality, conducts a baseline quantification. They take a GPS track of the area, identify and count existing trees on the land by species and circumference, and count tree stumps. Soil condition, vegetation, and land use are among the many conditions recorded. The quantifier disqualifies land that had been cleared of trees or that otherwise is unsuitable for tree planting for carbon sequestration under market guidelines.

TIST in Kenya has adopted an application process. Groups who wish to join attend cluster meetings for training and have a baseline Quantification of the area where they will plant trees. This was implemented to reduce geographic scatter and ensure the groups understand the TIST program before joining, so that groups can work together well for the long term.

Membership to TIST Group

When a group joins TIST, they sign a contract with Clean Air Action Corporation agreeing that the farmers will plant and maintain the trees on their farms for at least 30 years. However, TIST is voluntary. A group or individual can withdraw from TIST at any time.

Risks and opportunities

When farmers are planting trees, they choose them for varied benefits on their own land. They expect to benefit from the fruit, fodder and a sustainable fuel wood source. Health training, empowerment and organizational training, and development of best practices are additional benefits.

Opportunity costs

Although farmers willingly take on additional tree planting and management practices, they often have to do so alongside their core income earning activities of growing crops and livestock production. There is a risk that farmers do not realize that the opportunity cost of putting aside land for trees would be less land for the other enterprise they are engaged in. This could represent, depending on the farmers practice, a loss in short to long-term access to land for crop production. For example, a farmer in Meru has planted 52 acres of mixed trees under the TIST projects. The farmer had allowed local farmers with little land access to his land to plant intercrops until the canopy made it impossible for them to continue. Nearly 50 farmers lost access to farm land, though the farmer was able to have a reasonably well-managed forest plantation.

TIST farmers are aware of the tradeoffs of different uses of their land, and discuss this with other members of their Small Groups in Small Group meetings and in seminars. Furthermore, because TIST is voluntary, if they decide that the opportunity costs outweigh the benefits of the trees, they may withdraw at any time. The vast majority has not chosen to do so, as evidenced by TIST's continued growth in Kenya. Many TIST farmers choose to plant on degraded or erosion-prone farmland. In these cases, they are ultimately protecting their farm fertility. Many others choose to use agroforestry techniques that permit them to continue planting crops along with trees. TIST has been working with KFS to try to gain access to forestland for indigenous tree planting and sharing of carbon revenue for TIST groups to benefit those who lack enough land for farming and tree planting.

Often with groups, the initiators take the responsibility of managing the project nursery and encouraging other farmers to join. Depending on the members who leave, the groups lose active participants and have to replace them from time to time. Sometimes the members move to other groups, form their own groups or simply get out of the tree planting engagement. Whereas the loss of revenue may present part of the value of the trees they grow, it is clear that if they chose to change their land use practices, this represents a significant loss to the TIST project in a given area. Because TIST is voluntary, there is a risk of turn-over in groups. This was one of the drivers of the new application process. It was developed by Small Group members to create more stable groups who understand TIST well, committed to working together for the long-term. TIST also views outreach to children of TIST members, who likely will inherit the land and trees in many cases, as an opportunity to explore to increase stability and sustain benefits.

The TIST groups benefit most when groups identify other common interests, which carbon revenue would complement. In the good examples, several alternatives emerge. If farmers do not find other benefits from the trees they have planted or their other activities as part of TIST, they are more likely to withdraw from the program.

Eucalyptus

The farmers observed in Meru plant trees that have the opportunity of generating high commercial value when sold as timber such as eucalyptus. The role of eucalyptus in farming systems in Kenya is a contentious one. It is often thought, as vigorously argued by the Green Belt Movement in Kenya, that some species especially Eucalyptus, may damage the soils on which they are planted. Therefore, farmers face a trade-off between maintaining their field now and not planting damaging species and planting damaging tree species and so losing alternative use for their land in the long-term. However, the Kenya Forest Department (now Kenya Forest Service) had historically encouraged the planting of eucalyptus, to meet local needs for timber and utility poles and continues to promote eucalyptus for its fast growth. It has been present on Kenyan farms since 1902. Kenya Power and Lighting Company has been very vocal about their need for poles. Because of this, there are many eucalyptus trees in the project.
TIST farmers choose the type of trees they plant on their own lands. During training, a recommended tree species list has been developed that did not include eucalyptus, because of some of the negative effects of eucalyptus trees. TIST has taken many measures to decrease eucalyptus planting by TIST groups. Indigenous trees, including water conserving species such as *Bridelia* and *Sysygium* spp, are encouraged in riparian areas, both through training on best species, and through an additional PES, per indigenous tree, planted in groves within 100 meters of a waterway.

Project management capacity

Clean Air Action Corporation (CAAC**)**: Clean Air has substantial emission offset project experience. It developed dozens of NOx, CO, HC and particulate projects as well as two carbon projects under Ontario's PERT program in 2000 and has been operating TIST since 1999.

TIST structure

TIST has numerous discrete projects in six countries. In Kenya, it has four full-time staff members, about 60 Quantifiers, usually TIST farmers who contract with Clean Air Action Corporation to monitor project sites, and hundreds of volunteers who coordinate the local farmers as cluster leaders and trainers, who provide management support throughout project implementation. International and national staff, as well as Quantifiers and TIST volunteers also contribute in different ways in ongoing audits.

<u>Quantifiers</u>
They are independent contractors trained to interact with TIST farmers in their region as they monitor their trees and other TIST activities. They are about 60 Quantifiers who are recruited in a manner to ensure gender balance.

<u>Small Groups</u>
The group structure, articulated in Figure 1 and Figure 2 above, provides TIST significant institutional strength and ability to rely on small numbers of farmers as well as the aggregation of the small units.

The discussions held in Meru indicated that the groups choose members based on the strength they offer the group. Therefore, the members of TIST group are all likely to be among the most active farmers within their communities.

In addition, the groups are formed from persons who have a very close friendship and therefore are willing to support each other rather than out rightly disagree, this lends the groups considerable social capital.

Community structure and governance

Small Groups

TIST Small Groups each provide mutual support and accountability that encourages members to achieve TIST program goals. Small Groups are encouraged to meet once a week to discuss their progress. A group of 40 or more Small Groups (about 300 farmers) within walking distance of a central meeting place make up a cluster. A cluster meets monthly to discuss their progress, receive the TIST newsletter in their local language, share information, train members and distribute Small Group payments. Each cluster has a leader, a co-leader, and an accountability person. These leaders are elected on a rotational basis every 4 months. The rotation means a new accountability leader is elected every four months and the other leaders rotate positions while the chairman retires and waits for another opportunity of being elected in future.

The description of the community structure and governance is covered in sections 2.1 and 2.2.

Community role in project decision making process

By representing their groups at seminars and on the Leadership council, views and voices of TIST farmers are part of the decision making process in TIST.

The description of the community structure and governance is covered in sections 2.1 and 2.2.

Mutethia KK (T) group

The group was started in 2007 and it had ten members. One of the early targets of the group was to plant as many trees as possible. One of the members gave the group a place where they would be preparing and germinating seedlings for planting during the long rains. That place became the project centre for the group. Every year the group has some tree seedlings for planting. In the year 2008, the members decided to incorporate some other activities that would give the enthusiasm.

They started welfare project whereby each member would contribute Kshs 100 which would be given to the members during their end of year party. Members went further and decided that each member would contribute Kshs 500 and that money would be given to the members as loan and be returned with 10% interest. They passed that every member must take at least Kshs 1,000 and return after one month. That project has improved and the members decided to be given the capital that each member had contributed and operate with the interest.

The members agreed that each member should buy something or do something valuable that would be reminding them of our TIST group. The members further decided to operate a separate operational account, which was funded with fines for absenteeism, and lateness during our meetings, which are held after two weeks. We also planted some Sukuma Wiki (green vegetables) which we sell to the members and raise some funds.

Gender

Women make up about 40% of TIST Small Group members. They receive payment together with other members of Small Group for trees they have planted. Women in TIST have used this carbon income to pay for school fees for their children, to build schools, for household needs, to start businesses, and more. Women have also benefitted from the convenient, reliable fuel wood source from sustainable woodlots. Women serve in many TIST leadership roles, as Quantifiers, Trainers, TIST Social Entrepreneurs, and on the Leadership Council.

Women of TIST were featured in a story produced by Ripple Effect Images, a team of high profile journalists. They independently selected TIST as a project that should be featured for the world to see for its innovative role in supporting women and girls fighting climate change.

TIST women report that the Rotating Leadership Small Group Best Practice has a substantial benefit for allowing them to practice their leadership skills and to develop confidence in the abilities. When combined with "Kujengana" the learning and confidence building can be accelerated.

TIST Seminars require that mixed gender groups be represented by mixed gender teams. This assures that women receive training and new information directly.

Internal and external evaluation process

Quantifiers visit each grove once per year and collect data which is transmitted via internet to the TIST website where it is managed by CAAC. The TIST Data System stores all of the current achieved data. TIST managers visit selected project areas and observe quantifications and audits. TIST has developed analytical tools for reviewing data as it comes in from the field to look at track data, tree counts and completeness of data. This is currently reviewed both in the US and in the country for all incoming quantification data.

Key policy issues

Kenya ratified the UNFCCC as well as the Kyoto Protocol. The country has also signed the Copenhagen accord and recently joined the REDD Partnership. A National Climate Change Response Strategy (NCCRS) was launched recently to allow for coordinated efforts to address the challenges of climate change in the country. The official Kenyan Designated National Authority, the National Environment Management Authority (NEMA) at the Ministry of Environment and Natural Resources, set up the National Focal Point for Climate Change as the competent agency for climate projection projects. This defines national CDM policy and formally issues project approvals.

Interaction with landscape scale process

In areas such as Meru (or the Mt. Kenya region), TIST activities take place side by side with conservation activities of the Kenya Forest Service (KFS) and Kenya Wildlife Service (KWS). Therefore, in some cases TIST has benefited from the forestry technology development activities of KFS as well as efforts by KWS to ensure that the boundaries of Mt. Kenya National Park are safe for wildlife and the biodiversity in the National Park as well as the communities. Indeed, some of the TIST groups consist of active and retired staff of Kenya Wildlife Service (Zonal Manager KFS, Personal Communication).

Project challenges

Existing trees

For communities, ideally, good practices undertaken before joining TIST baseline would earn a reward, too. However, operations under the Kyoto Protocol as the TIST project, would not permit this because of additionality. In seminars, in newsletters, and in training by Quantifiers on site, this is communicated to the farmers. Naturally, however, the farmers and TIST managers alike are unified in desiring changes to international policies and markets that would make it easier to reward good environmental stewardship on farms.

Gain and loss of members

TIST is voluntary. Small Group members commit to work together and sign a 30-year contract together with Clean Air Action, but there is a real risk of turnover in groups. The contract, mutual accountability, and other shared work in the group lessen this risk. However, for the groups, turnover can be a handicap as it affects the progress of the group.

Dominant members

The TIST model works hard to eliminate having too many dominant persons by having small groups choose their own membership and by the practice of rotating leadership. However, in some cases, different members of a group or cluster may have different achievements in TIST. In Meru, it was observed that some farmers have progressed so much that the revenues from the carbon credits combined with income from the woodlots are a considerable revenue

stream for some. Others may not be able to reach the levels of others who are much more progressive and this is rather discouraging for the poorer performers.

Reliance on volunteers

TIST has few staff within Kenya as means of ensuring low transaction costs. TIST therefore has to rely on farmers who serve as volunteers, as TIST Social Entrepreneurs. Quantifiers receive facilitation from TIST while the former do not.

Carbon payments

The carbon payments are acknowledged as being small. Groups that are not able to fully exploit the co-benefits of the TIST group often lose out. Even though the majority of the groups understand the co-benefits in the group process, some do not entirely utilize this opportunity. A matter that needs further discussion regards profit sharing with farmers over the carbon credits sold. This seemed unclear from the discussions held.

Start-up costs

The initial costs for tree planting may be perceived as high for farmers (e.g. wire mesh, poles, and polythene bags). However, farmers are trained on best practices for producing a nursery at low cost: on collecting and selecting seeds, recycling materials for nursery construction – for example, use of waste polythene cut and then sealed with fire to make tubes, forming pots from hollow banana stems and rolled leaves.

Eucalyptus

TIST encourages farmers to choose the trees that they see as most beneficial on their farms. Some farmers choose to plant eucalyptus. It continues to be a very common species in TIST and in Kenya despite TIST policies and training aimed at decreasing its abundance. With limited extension services in the area, it is not clear whether this will not in the medium to long-term have a considerable effect on the farming system.

Project innovations

Alternative roles for groups

TIST has a lot of democratic discipline as it allows all members to regularly participate in leadership at the group and cluster level. The system is also built on the closeness and friendship of members and would be a useful way of building community carbon groups for other organizations engaged in carbon projects.

The Taungya Farming system

Some farmers employ farming systems that enable them to allocate land to the poorer members of the community to farm as the trees grow. The poorer farmers are allowed to take the crops grown within the area until the canopy or root growth cannot allow the crops to be as successful. In return the poorer farmers look after the trees that were planted. Two key objectives achieved are the establishment of large woodlots or private forests on the one hand and increased access for poorer farmers to farm land that usually lies idle.

Using local Quantifiers

The use of farmers as technically competent and training Quantifiers who liaise with the database centre in the United States is a huge human resource capacity development exercise that could benefit carbon projects and other data management initiatives as well as trainings in the long-term within the community. In addition, it builds the confidence of the selected members and the communities from which they come.

Real-time data processing and information system

TIST uses a real time database management approach. The Quantifiers collect tree, GPS, and other data together with the TIST farmer and transmit this to a centre in the United States. This is a cheap approach that utilizes “state

of the art" technology. This information can easily be shared with TIST carbon credits buyers as well as other developers interested in the carbon payments.

Community members as TIST social entrepreneurs

TIST also uses community leaders as the promoters of the TIST model within the country. This creates increased awareness since the communities listen to people who belong to the community. It builds human resource but most importantly reduces the transaction costs of expansion.

Relationships with local technology centres

TIST works to create relationships with KFS, KWS, KEFRI and other groups, usually CBOs in the communities. This enhances use of local knowledge, and increases chances of success.

Project finances and equity for farmers

Project financial life cycle

It was estimated that EIA, market development of PDD and methodology, validation and verification was estimated to cost about US $200,000.

Other expenses included: administration costs, training costs, validation and verification, and monitoring costs. For payments and operating budget, see Tables 1 and 2.

Table 1: Carbon payments 2005 to 2010

Year	US$
2005	1,181
2006	15,247
2007	27,788
2008	85,421
2009	8,761
2010	75,628

Table 2: Operating budget excluding carbon payments

Year	US$
2005	41,473
2006	199,153
2007	236,661
2008	340,311
2009	215,108
2010	295,794

Farmer financial life cycle

Payments are made to Small Groups on the basis of the number of trees they have planted and maintained. Initially, they receive US$ 0.02 per tree per year. When revenues exceed costs, Small Groups receive 70% of profits while CAAC receives 30% to grow the TIST program.

Strategies for enhancing marketability of carbon

TIST employs improved and transparent information management processes as a means of enhancing marketing for the carbon sequestration of the project. TIST is pursuing validation/verification of the TIST Kenya project. The project is increasingly moving toward the CCBA standard, which is more transparent and also has international validation and verification.

TIST also works with other development partners within the country and internationally such as the United States Agency for International Development and the World Bank as well as the UNFCCC secretariat as a means of increasing information about the carbon sequestration. Additionally, TIST works with CAAC in the United States to increase marketability of the carbon credits in the US.

Project costs and benefits

Start-up costs

Starting money to generate a project and a loan scheme by Mutethia KK has helped especially when people are in need (e.g. buying seeds, farming, planting and paying school fees). There are no limits as long as money is available. Potatoes planted as inter crops in Muguna B Kisiima Sub-station are a source of money. TIST farmers are paid US$ 0.02 per tree each year.

Community and co-benefits

TIST worked with CBOs and NGOs in the area that provided maize seeds to Ndeenda B Tree nursery in Kisiima for planting. A donation made to the group helped the community cope with drought in 2009. For some groups like Mutethia KK, farm outputs have increased.

Planting of trees has helped women in terms of firewood. Social benefits from group savings include money given to members at the end of year, at Christmas, from group savings. Health trainings on HIV/AIDS, malaria, and other relevant issues were provided. The project has also made a contribution to mitigating climate change, by reduced felling of trees and use of energy saving stoves.

Payment mechanism for farmers

Farmers must create or join a TIST Small Group and sign a Greenhouse Gas contract with TIST. They must plant at least 500 trees on their farms, and when these trees are 6 months old or older, they must be quantified. There are some additional best practice guidelines for payment eligibility. For example, if a group has more than 33% eucalyptus trees, they must create a Forest Plan to decrease eucalyptus to less the 33% in order to be paid. Payments start as soon as the year of initial planting ends as well as providing incentive in critical early stages.

TIST farmers are paid US$ 0.02 per tree each year on the basis of the number of quantified trees. Only trees that are at least 6 months old are quantified. These payments continue throughout the duration of the TIST project and are made by M-Pesa (mobile money) payment to each qualifying Small Group at a cluster meeting. At least three members of the Small Group must attend a cluster meeting, where they will be paid for their trees. In addition, three members of the Small Group must sign the voucher or receipt of payment.

Sources

1. Notes provided by TIST

2. Discussions with TIST Staff

3. Discussion with communities as indicated below.

Interviewees

Mr. Charles Ibeere – TIST Staff Kenya

Mr. Henry Gituma – Model TIST farmer

Mr. M'Mugambi M'inoti Kithagacha - Model TIST farmer

Mr. Evans Mareno Akwena - KFS Zonal Manager Meru

TIST Quantifiers: Bernard Kinya (Trainer Quantifier – Runyaye cluster)

Mutethia KK TIST Group

1. Monica Ntarara – member
2. Edward M Kioga – chairman
3. Catherine Karemi – member
4. Josephine Makena – member
5. Joyce K Moyiti – member
6. Aaron Gichuru – member
7. Ngeroza Mwirungi – absent
8. Frida Kabwenya – absent

Regional Cluster Meeting participants in Meru

Name	Cluster	TSE Area
David Thewzi Ndeutu	Wiyumiririe	Wiyumiririe (LKP East)
Anastatia Wanjiku Muchira	Karumande	Kirinyaga East
Purity Gathoni Mugo	Wamura	Wiyumiririe (LKP East)
Edward Karani	Kithurine	Imenti south
David Thuku	Tandare	Laikipia west
Esther Muthoni	Nturukuma	Nanyuki
John stone Gacheru	Kiriogo	Nyahururu
Margret Kathini	Tunyai	Mzunguko
Elizabeth Wangui Njiru	Njuri-ini	Kirinyaga TSE
Geofrey Mwitai	Kutete	Mara (Narok south)
Benjamin Mwaithi	Karocho	Wendo
William Mugambi	Antubochiu	Igembe TSE
Samson Gitonga	Kigucwa	Tiganta east
Charity Wanjiku Nyanga	Kianyaga	Kirinyaga TSE
Daniel Kamau Ndege	Mwea	Kirinyaga
George Kimani Kibanyu	Njorua	Laikipia West
Evans Nguti Njihia	Mithuri	Laikipia West
Mary Kathei Ntangi	Karaba	Laikipia West
Doro Kinya Muriungi	Kithwene	Ntugi
Fredrick Mwirigi	Kinoro	Kaura
Joshua Mwenda	Tharu	Imenti south
Stanley Marithi Ikunyua	Mworoga	Imenti north
Rosemary W. Mwago	Salama	Laikipia West
Teresa T. Maugu	Mumbuni	Maara district
Zaverio Miriti	Limoro	Iment north
John Mutegi	Nkondi	Tharaka
Julius Mwiti	Nkombi	Tharaka
Elizabeth N. Maina	Kamuthanga	Ngenia
David Nderitu	Ngarendare	Timau
Florence David	Thuura	Thuura
David Murithi	Ngariama	Kirinyaga
Lydia M. Kailaanya	Mikinduri	Tigania east
Monica Chepngetich	Chemaner	Mara
Johnson Mutwiri	Kanjoo	Tharaka
Catherine Kendi Muriiki	Ngoroiboro	Ruiri Ibuuri
Jinnarius Gachoya	Male	Lamuria Laik east
Josephine Giatwim	Nchiru	
Eunice Wambui	Kiamathaga	
Naman Mungania	Ntumburi	
Francis kibe	Ntukuma	
Peter Kithinji Njeru	Matakiri	Tharaka
Godfrey Munira Mbijine	Kithina	Tinau
Paul Kaboru Mutuoki	Silinon	Tinau
Joyce Kamathi	Mituntu	Imenti-north