TIST participants and employees use different types of technology to accurately measure growth and location of each tree. As the TIST program works with Clean Air Action Corporation to sell emissions credits to companies all over the world, these measurement and monitor activities are key.
The Birth of A Sustainable Development Project

On the dry landscape of Central Tanzania, farming is a difficult way to sustain oneself and one’s family, yet it is the primary means of survival. The majority of the residents in Mpwapwa and Kongwa Districts, Tanzania are subsistence farmers who relied upon the “slash and burn” technique of land clearing. This farming technique has deforested the entire area over the past 50 years, and has exposed the fragile topsoil to severe erosion during the hard, brief rains common in the one-time-per-year rainy season.

In 1998, Anglican Bishop Simon Chiwanga of the Diocese of Mpwapwa began a program to organize the members of his Diocese into self-supporting, cooperative small groups. These groups would empower his community toward helping themselves, strengthen the church, empower the lay people, and reduce the load on his clergy. These groups would become resources for each other and work toward sustaining life for members.

It was during small group training sessions that the residents of Mpwapwa developed the concept of a sustainable agriculture, micro-lending and tree-planting program. In late 1999, led by Clean Air Action Corporation (CAAC), this idea became the Tanzania International Small Group and Tree Planting Program (TIST), designed to achieve integrated sustainable development objectives including taking actions that reduce greenhouse gas concentrations in the air or a new “cash crop” — growing trees — for carbon sequestration; conservation agricultural management; food security; and basic business management. Other objectives involve training in computer technology, health and nutrition, publishing, and administration of a micro lending program to assist in the move towards sustainable and balanced development. TIST works to provide revenues for participants to help sustain themselves during the dry season and embark upon a program that would enable the residents to reforest their land and replenish the soil. CAAC has also developed opportunities for these small groups to sell Greenhouse Gas Credits from the trees they are planting.

In 2000, the TIST Board voted to create a for-profit organization — TIST, Ltd. — with an arms-length business relationship with the Anglican Church. TIST, Ltd. is designed to manage the business operations of the Mpwapwa TIST program.
After planting seeds for trees, TIST participants monitor the germination of these trees prior to planting them in the ground. Through the sharing of best practices, TIST participants have learned that this germination step is critical in getting the trees to successfully take root. Experience has taught that seeds planted directly into the soil do not have as high a survival rate.

TIST Process

Residents of Mpwapwa form small groups, brought together by common religious interests, community outreach or charity work. They receive training on small group organization. The group is then eligible to develop a group covenant and to join the TIST program. All groups receive additional training on agricultural best practices and tree planting, and they can qualify for a micro-loan, which allows them to buy seeds during the planting season, food during the dry season and equipment.

Crops that are frequently planted are maize, millet and groundnuts, as well as trees. Training on agricultural best practices is also available to participants in TIST via technical assistance provided by representatives of Dow AgroSciences. The program strongly encourages participants to share their own experiences and best practices so that this is a continual learning process which helps efficiency, productivity and increased yields for everyone involved.

Loans are also beginning to be available for other purposes as well. Harvest loans can be used to help TIST participants hold onto the grain that they have produced until prices increase. Planting loans are also available for those who already have trees in the ground. These loans can encourage starting or expanding businesses. While many use the loan to purchase better seed, participants also use the funds to help provide education or medical treatment for members of their small group.

Conservation farming techniques are an integral part of the TIST training program, along with organizational development techniques and business management principles.

In conjunction with CAAC, TIST staff members coordinate the program and monitor results of the participants. Quantifiers travel to various locations to record group results. They confirm location and growth information on trees and record the small groups’ successes. The Quantifiers are outfitted with Palm Pilots and Global Satellite Positioning (GPS) equipment in order to accurately record information on the trees that have been planted. This information is communicated by the Internet to CAAC’s offices where it is verified for reporting purposes.

TIST employees who had no prior computer skills are training to take over all data management. In the evening, these same computer facilities are used to train young people in the community. Participants also have the chance to gain valuable business skills through the administrative and record keeping aspects of the project. Employees of TIST and participants in the program are also developing practical communication skills. For example, the TIST newsletter, the Habari Moto Moto, is now produced by a young man who had never touched a computer until 18 months ago.
Clean Air Action Corporation (CAAC)

Since becoming initially involved in Mpwapwa and helping to train small groups, CAAC has continued its involvement and support of the TIST program. CAAC has invested approximately $500,000 of its own resources in the development of Phase I of the pilot program. CAAC continues to provide assistance for the reporting and quantification process; mentoring and guidance; assistance to the residents in management techniques and democratic procedures for the Board of Directors; initial and current training sessions for all of the working groups; outreach with the Diocese and government officials; establishment of the necessary infrastructure for quantifying the carbon sequestration; and facilitation of the sale of the Greenhouse Gas Credits. CAAC has also committed resources for Phase II of the pilot program, which will continue to expand the program, plant 1.5 million additional trees, as well as continual monitoring and evaluation of the program. This phase is expected to be complete by late 2002.

CAAC coordinates TIST’s new form of “manufacturing” — growing trees — and markets the greenhouse gas credits to various companies desiring to demonstrate their commitment to both economic and environmental results. Many international companies seeking to accomplish a reduction in greenhouse gas emissions are willing to purchase emission credits from participants in TIST, thereby adding another dimension of the program — “a virtual cash crop.” Once enough trees are successfully planted and take root, selling carbon dioxide credits can provide TIST members with additional revenue over the life of the tree.

Dow’s Involvement in TIST

The Dow Chemical Company first became involved in Mpwapwa when one of its vice presidents traveled to Tanzania to participate in the small group training sessions. Bishop Chiwanga and CAAC were then invited to meet with executives at Dow and discuss the progress of the program, and a possible future alliance to support TIST. In early 2001, The Dow Chemical Company Foundation committed $1.2 million to the Institute for Environmental Innovation, a not-for-profit organization, for the three-year development of Phase II of the TIST program and its replication in other locations. Dow’s investment is helping to develop the Mpwapwa TIST program and to document its results, as well as helping to create a solid foundation for expansion and replication of similar operations in other appropriate locations. During the second year of the program, TIST has expanded from the...
40 initial small groups to 512 groups working together during the 2001 planting season.

Dow is committed to the TIST program and the overriding idea of sustainability inherent in the project. TIST is consistent with Dow's commitment to Sustainable Development and Dow's eight Guiding Principles of Sustainable Development. This is a belief that to succeed in the 21st Century, any company must simultaneously excel in all three elements of sustainable development: economic viability, social responsibility and environmental integrity.

The TIST program is an excellent example of a project that meets the needs of the current generation without compromising the ability of future generations to meet theirs. In fact, if the TIST program continues its present success, it will enhance the ability of future generations to meet their needs. This project is much more than just a tree planting project. This project includes increased food supply, education in conservation agricultural practices, reforestation, communication building, technology training, and job creation.

Dow AgroSciences (DAS) has also become involved with the TIST project in addition to the funding from The Dow Chemical Company Foundation. DAS provides technical assistance for the TIST program and participants to further develop agricultural practices, crop protection, and agricultural marketing skills. DAS also would like to gain insights into the needs of undeveloped markets and the kind of new products that will be needed in the future in areas like Mpwapwa. As Tanzania and Mpwapwa enter the global marketplace, Dow scientists and engineers are interested in learning about potential uses for current and future Dow products to help improve living for local residents.

The Future for TIST

During 2002, TIST will move into its third phase of development. It is anticipated that this phase, Near Commercial Operations, will include doubling the number of small groups participating in TIST, increasing capacity of the dry-season nursery, and germination and growth of an additional 4 million trees. This work is expected to be completed in...
September of 2005. At that point, goals will be set for the next phase, the Post-Pilot phase. It is during this phase that many other locations and more small groups will be organized to become involved, and an expected 35 million more trees will be planted. Nurseries will be at full capacity, and the micro-finance program will reach its mature state. Dow, CAAC, and I4EI are currently exploring replication of the program in South Africa. The Mpwapwa TIST program aims to develop the administrative, training, technological, organizational, and operational expertise that will allow it to grow to commercial scale in the Mpwapwa and Kongwa Districts.

With the experience from the pilot program, the TIST participants will be able to offer a model of successful, sustainable, and empowering economic and community development for other locations to adapt to their local conditions and needs.

DOW’S SUSTAINABLE DEVELOPMENT GUIDING PRINCIPLES

Fundamental to our success are the values we believe in and practice. Our vision is to achieve financial and environmental and social excellence in all parts of the world where we do business. We will make continuous progress toward our vision by adhering to the following set of Sustainable Development Guiding Principles:

- **Product Stewardship** — We will endorse, fulfill and promote the Responsible Care® Guiding Principles and Codes of Management Practices worldwide. We will promote their application by sharing experiences and supporting the efforts of our suppliers and customers to continuously improve the full lifecycle impacts of our products and services.

- **Stakeholder Partnerships and Dialogue** — We will seek input and promote partnerships between industry, government, nongovernmental organizations, communities and other key stakeholders to focus on responsible solutions to common problems and concerns.

- **Eco-Efficiency** — We will create shareholder value by designing our products and operating facilities to reduce material content, natural resource use, and energy requirements, while maximizing their service life through sound reuse and recycling activities.

- **Eco-System Integrity** — We will understand and respect the regenerative capacity of eco-systems and protect valued areas of recognized ecological and cultural significance.

- **Local Versus Dow Standards** — Our products and operations will meet applicable government or Dow environment, health and safety standards, whichever are more stringent.

- **Equity and Quality of Life** — We will create shareholder value through environmentally sustainable economic development, social equity and ethical behavior.

- **Employee and Public Outreach** — We will enhance the human potential of our employees through education and training. We will contribute to the development of public policy and to business, governmental and nongovernmental initiatives that lead to progress in sustainable development.

- **Transparency** — We will report our progress in an open and transparent manner.
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