Organic Farming in Kenya: A Growing Demand for Consistent Supply

Figure 1: Perimeter Shamba group members plowing a plot for dry season, organic vegetables at Nyumbani Village, Kitui. 36 members of a Participatory Guarantee System (PGS) for organic certification collectively supply urban markets in Nairobi by staggering their production calendars.

Prepared by John Sheffy, Program Manager
GEM Sustainable Agriculture and Forestry Program (GEMSAF)
Victor Phillips, GEM Director
Global Environmental Management Education Center (GEM)
University of Wisconsin—Stevens Point
www.uwsp.edu/cnr/gem

Summary: During May 2007, GEMSAF deployed two Kenyan and two UWSP Student Interns to work with organic farmers at Nyumbani Village. GEMSAF helped Nyumbani Village formalize their organization and record keeping system for organic certification and create a continuous production and harvest calendar. GEMSAF met with key actors in the Kenya organic agriculture movement, including farmer training institutions, marketing networks, NGO’s, and private businesses to facilitate the empowerment of small-scale community groups by this movement.
I. Kenyan Partners
During the first week of this trip, Philip Ndichu, GEMSAF Kenya Coordinator, and John Sheffy met with GEM partners in Nairobi including: Kenya Organic Agriculture Network (KOAN), Kenya Institute of Organic Farming (KIOF), Nyumbani, Woodlands Trust 2000, Kenya Organic Farmers (KOF), Bridges Organic Health Restaurant, and Green Dreams Organic Shop.

The KOAN Secretariat, Eustace Kiarii, welcomed us to their office at the ICIPE/ELCI headquarters. KOAN has recently published the second issue of Kilimohai (Kiswahili for organic farming) magazine, a publication dedicated to bringing together and informing actors in the Kenyan organic movement. This issue focuses on organic marketing and includes articles on Community-Supported Agriculture, CSA (or box schemes as they are called in the British world) and the advantages of direct marketing to green grocers and restaurants.

KOAN has been busy recently developing a Kilimohai organic mark that farmers can apply for to display on their packaging. They are also pioneering a centralized network and distribution system to help link farmers and buyers more easily. Although in its initial stages, this system has the potential to increase sales and consistency of supply by consolidating ordering and delivery within the Nairobi market.

KOAN is also organizing an organic farmers market in conjunction with the 100th anniversary of the Nairobi Arboretum and Eco-week celebration in mid June. This will be the second organic farmers market KOAN has organized at the arboretum. They expect to host 40 farmers and producer groups and draw a crowd of over 2,000 customers. This promises to be an inspiring event for up and coming organic farmers and consumers alike.

Figure 1: Maxwell Kinyanjui (Woodlands Trust 2000), Miringu Kinyanjui (GEM Intern), and Philip Ndichu (GEM In-country coordinator) discuss sustainable dryland forest farming in Kitangela.
While in Nairobi, Philip Ndichu and John Sheffy visited KIOF with DeNae Dandridge, GEM Student Ambassador. KIOF has recently accepted a large, new class of students for both the two- and three-year certificate and diploma tracts. This brings the student population at the institute to nearly 100 including students actively studying on the Juja campus and those on attachment in rural communities and regional training centers. We were hosted to a tour of the KIOF student gardens and animal husbandry facilities. Each KIOF student manages a small plot (15x15m) where they implement and are scored on the organic production techniques they learn. We also viewed some of the food processing equipment, such as a manual oil press, hay bailer, and solar dehydrator. KIOF is currently hosting an American volunteer on a Fulbright scholarship that is helping with the Juja Organic Market. We thanked Dr. Njoroge for his continued partnership with the GEMSAF program and supplying another group of ambitious interns for attachment.

![Figure 2: Dryland reclamation site near Kitangela using drip irrigated swales made of riparian harvested silt to establish woodlots on hardpan soils.](image)

We had the pleasure of visiting with Maxwell Kinyanjui, a consultant from Woodlands Trust 2000, at his reforestation woodlot in Kitangela. Figure 2 displays the tremendous growth of the forest in less than a decade where previously no trees grew. Maxwell described a project he and the Trust are working on near Kitangela for an organic farming training center being initiated by an Italian organization. Similar to Maxwell’s nearby woodlot and the Woodlands Trust 2000 dryland demonstration farm, the organic farming center will train farmers how to establish long-term income crops like trees for fuelwood and timber, while intercropping immediate food crops for consumption and market. The training center is targeting adult pastoralists, primarily Masaii, for their first three-year curriculum. The training course requires students to not only pass their courses and field practical, but also to actually prove their skills by harvesting, selling, and returning a profit to the center to partially cover their living costs. Like Nyumbani Village, the organic farming training center has begun establishing *jatropha* trees as a source for biodiesel oil.
II. Nairobi Organic Markets

The market for organic produce in Nairobi continues to grow! On this trip, John Sheffy visited four main market locations, all of which reported expanded demand and difficulties finding farmers to consistently supply organic products. The first three markets visited on previous trips were Juja Organic Market (KIOF), Green Dreams Organic Shop (Su Kahumbu), and Bridges Organic Health Restaurant (Ann Mbugua).

The Juja Organic Market has overhauled its previous marketing strategy, which asked organic farmers to deliver their products to its headquarters and organic buyers and distributors to come to the shop and buy for redistribution. Now the Juja market goes to the farmers once a week to collect produce, then repacks produce from many different farms into box schemes, and delivers them to subscribers in Nairobi. This has increased their sales of produce significantly and provides a more regular market for their farmers.

The fourth market, KOFF Farmers Group, is a distribution service of produce that organizes the order, delivery, sorting, and re-delivery to specific outlets like restaurants, green grocers, and individual box scheme members. Each week the staff of KOFF contact buyers for their orders and relay these orders to farmers on their list. This list of farmers came from members of the Kenya Organic Agriculture Network (KOAN). With large orders for some products, KOFF often has to source items from multiple farms, coordinate the delivery to Nairobi, where they then collect and consolidate the products for final delivery. Alternatively, when one farmer or group has an excess of items, KOFF will also order in bulk and divide the produce and distribute to multiple buyers. For this service, KOFF charges a service fee to the farmers to cover their costs of transport, store rent, and employees.

There are many concerns among the organic market in Nairobi. Foremost is the need for more consistent supply of high quality organic produce. All four markets lamented having good products sporadically—never knowing when or how long something will be available. This is primarily because most farmers plant and harvest crops for one planting and harvest event, rather than continuous propagation. Either more training is needed for individual farmers to perpetuate their harvest of continually needed items, or
more coordination between farmer groups needs to be organized for their production to complement rather than compete with each other.

Another concern, particularly with Green Dreams, is that farmers need to become certified to insure quality organic produce. Of the KOAN and Juja farmer groups, very few are actually certified organic. When a large percentage of the organic purchasing population is expatriates and Kenyans that understand and expect “organic” to meet certain standards, it is critical that the farmers are indeed meeting these production criteria in order to sustain the demand.

Finally, a concern among all players in the organic market is that it is a sustainable market that continues to grow and be profitable for all members of the market chain. The birth of KOFF as a distribution service brings to light several interesting ideas. Is a coordination role sufficiently important and needed by the farmers and buyers to necessitate a new member in the market chain like KOFF? Are the operational costs realized by KOFF justified by the gains in increased sales? In other words, is the price of the service paid by the farmers worth it? In order for the markets to be sustainable, they must be as transparent as possible and run like true businesses, not reliant on donor funds for paying salaries or subsidies. With a rapidly expanding and high-value organic sector in Kenya, there is no reason why this is not possible.

III. Nyumbani Village (Week 1)

Figure 4: One of the 32 families now living at Nyumbani Village, June 2007. As the population approaches 150 residents, the village rattles and hums like its surrounding neighbors, bringing the vision to life.

Nyumbani Village is a model community for capacity building and socialization of HIV/AIDS orphaned children and elderly. The village rests on 1,000 acres of drylands in Kitui District. The village population will eventually include approximately 1,000
orphaned children and 200 elderly grandparents. Staff for a community health clinic, school, social workers, and natural resource management will also reside at the village. The vision for this population is to create a healthy, empowering community where all residents work together to increase quality of life through sustainable and harmonious living. Villagers will reclaim their health and self esteem while also learning dryland land management and trade skills to employ in their homes when they leave the village. The village also plans to serve as a social and economic hub for the surrounding communities, including the schools, health care facilities, and agriculture activities.

The management of Nyumbani Village is composed principally of two components: Home Care and Sustainability. Home Care tends to the needs of the human population, while Sustainability manages the village lands. This document outlines the request for organic certification of Nyumbani Village for three primary objectives: 1) To feed the village population with nutritious, sustainably grown foods, 2) To generate income by selling fresh, organic produce and value-added products to high-value niche markets in Nairobi, and 3) To train villagers and surrounding community members to grow organic products for home consumption and sale. To accomplish these objectives, the Nyumbani Sustainability Program will oversee and maintain organic production and record keeping, while training and incorporating villagers and community members into the village organic production scheme.

GEMSAF has been working with Nyumbani Village since May 2006 by providing technical consulting, Kenyan and UWSP student interns, and strategic support for project organization and marketing campaigns. During John Sheffy’s last visit to Nyumbani Village in December 2006, the first two families had just moved in. In June 2007 the village population is approximately 150, including 32 families! The growing population has reinvigorated the surrounding community to support the village and accentuated the need for sustainable food production and income generation. To help with this, GEMSAF deployed two Kenyan and two UWSP students to work at the village.

Figure 5: DeNae Dandridge, one of the UWSP-GEM students, visiting a six-month old acacia woodlot at Nyumbani Village. The densely planted, indigenous trees are excellent for fuel wood and charcoal.
The UWSP students working at Nyumbani Village are part of the GEM Student Ambassador Program where students from the College of Natural Resources apply for specific project assignments with GEM foreign partners to help fulfill community-based training and applied research needs of collaborative projects while promoting cross-cultural exchange. Besides Kenya, GEM sent UWSP students to India, China, South Africa, and Guatemala this summer to work in the field with GEM partner institutions.

DeNae Dandridge is a GEM graduate student studying sustainable agriculture systems at UWSP. Her thesis research in Wisconsin explores linking farmers to direct markets. In Kenya she is working with community groups and Nyumbani Village residents on food processing techniques including yogurt and butter making, bread and cake baking, dehydrating fruits and vegetables, and preserving vitamin-rich fruits as jams and juices for home consumption. To cook these delicious recipes, DeNae first trained participants in building high-efficiency, mud-walled cook stoves (jikos). Her interest and knowledge of food goes beyond research; she also shares many personal and traditional recipes. During this trip DeNae planned her training schedule to include two, half-day workshops each week as well as regular home visits to learn traditional Kenyan cooking and food preservation techniques. DeNae will be working at Nyumbani Village for eleven weeks.

Figure 6: Millicent Musau, a Kenyan-GEM Intern, working on an organic records card with a Perimeter Shamba farmer. Rose keep records of all inputs, harvests, and management activities on her parcel as part of the Nyumbani Organic Certification System.

Millicent Musau is a GEM student intern from the Kenya Institute of Organic Farming. She is originally from the Machakos District near Nyumbani Village, and therefore understands the local culture and speaks the local language, Kikamba. She recently finished her coursework for the Organic Farming Diploma at KIOF and will be on attachment under GEM for four months at Nyumbani Village. Her assignment includes
working with the Perimeter Shamba group to produce dry season organic vegetables for home consumption and collective sale under the Nyumbani Organic Certification System. She has been training farmers in record keeping, soil amendment techniques, intercropping, pest management and biopesticides, and how to grow unfamiliar vegetables. After only one month, the Perimeter Shamba group looks to Milicenth for advice before initiating any activities on their half-acre parcels.

The Perimeter Shamba system is one of the most encouraging signs of commitment from the surrounding community to Nyumbani Village. During this trip several of the group members brought their own oxen to the village to voluntarily plow village land to grow vegetables. This is in stark contrast to waiting for the village to provide oxen or tractor power to prepare the lands and expecting to be paid in advance to work on village activities, as had been common in the past. This is a sign that the surrounding community is embracing the Nyumbani vision as a shared vision and sees their stake in the success of sustainable land use!

Figure 7: Felix Gitonga, Nyumbani Village Foreman, discusses plans for compost making with Joel, a community member working on organic vegetables and food processing. Felix spends his time on the move from one production area of the village to another to keep things going smoothly.

During the week at Nyumbani Village to introduce the GEM student interns, John Sheffy worked with Philip Ndichu and the Nyumbani Sustainability Managers, George Mirie and Felix Gitonga, to formalize their organic certification record-keeping system and organize their production calendar for consistent food production.

All 1,000 acres of Nyumbani Village are being organically managed and are being targeted for certification. Records show that no synthetic inputs, or other products and practices prohibited by organic standards, have been applied to the land since its development as Nyumbani Village began in 2005. There is no reason to believe there
were any prohibited products or practices applied to this land prior to this as well, based on its uncultivated bushland state.

In the future, Nyumbani Village aspires to serve the surrounding communities as a collection, processing, and marketing center for organic producers. It is the long-term goal to certify these outgrowers and their lands as organic under a Participatory Guarantee System (PGS). In such a system, Nyumbani will inspect the outgrowers’ techniques, records, and lands. When the village is certified, its system of outgrower inspection will also be inspected and certified without all individual outgrowers needing to apply for certification. However, this document requests only the certification for Nyumbani lands for the year 2007/2008.

The majority of Nyumbani Village lands are managed as woodlands, which are being reforested for production of fuelwood, charcoal, and other non-timber forest products, like beekeeping and wild, medicinal plant collection. The minority of lands are actively being managed for vegetable, cereal, and biofuel production. The following production areas will be described in more detail for their management plans, production cycles, and organic record keeping systems.

**Perimeter Project Land Layout**

![Diagram of Perimeter Shamba Production Areas](image)

**Figure 8  Diagram of Perimeter Shamba Production Areas**

Production Areas:
- Perimeter Shambas
- Main Farm
- Riparian
- Home Gardens
- Carbon Farming
- Wild Harvest
- Polytechnic
- Agro Processing
- Tree Nursery
- Essential Oils
- Waste Management
- Visitors
Record Keeping:
All Nyumbani Village production areas and activities fall under the supervision and management of the village Sustainability Program. For organic certification, the Sustainability Program serves as the central record-keeping and planning body for the satellite production area records and activities. The Sustainability Program records include a map of all village lands, production areas, and management plans. Central records are kept in an excel spreadsheet, which is updated weekly and analyzed monthly and quarterly for reporting and planning activities.

Each production area keeps individual records of all activities, inputs, outputs, and management plans. Individual production area records are kept in binders specific to each area, which include detailed maps of all production blocks and sub-blocks within each production areas. For example see the template for record keeping of the Perimeter Shamba Areas:

<table>
<thead>
<tr>
<th>Plot No.</th>
<th>Name of Holder</th>
<th>Activities</th>
<th>Inputs</th>
<th>Quantities</th>
<th>Outputs</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 9** Record keeping template designed to summarize activities of each individual Perimeter Shamba member.

All contracted staff, casual workers, and community members working on Nyumbani Village lands are trained to record all production activities. Record binders are checked regularly by the Sustainability Program managers. Note that processing, packaging, and transportation are each considered specific production areas at Nyumbani Village, and thus have their own record binders. This was done to facilitate the accountability of record keeping when products pass through multiple worker’s hands from seedling propagation to field to harvest and processing.

Production Activities:
The target quantities of organic production are based on the weekly consumption estimated for the village population and community members working in the farms, as well as the weekly demand of organic markets in Nairobi. The Sustainability Program estimated the number of plants needed to supply this weekly demand. For example, three stems of tomatoes will produce approximately 1kg of tomatoes per week during their four week peak production period. Thus, every month a new crop of tomatoes will be propagated in the vegetable nursery and transplanted into various production areas to maintain a continuous production and harvest cycle for all vegetables.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Plant 1st Crop</th>
<th># plants/ridge</th>
<th>Number of ridges</th>
<th>Total # plants</th>
<th>Maturation period</th>
<th>Harvest Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomatoes</td>
<td>15-May</td>
<td>77</td>
<td>4</td>
<td>308</td>
<td>85 days</td>
<td>9-Aug</td>
</tr>
<tr>
<td>Swiss Chard</td>
<td>15-May</td>
<td>116</td>
<td>3</td>
<td>348</td>
<td>60 days</td>
<td>10-Jul</td>
</tr>
<tr>
<td>Spinach</td>
<td>15-May</td>
<td>116</td>
<td>3</td>
<td>348</td>
<td>60 days</td>
<td>10-Jul</td>
</tr>
<tr>
<td>Butternuts</td>
<td>15-May</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>90 days</td>
<td>15-Aug</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>15-May</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>90 days</td>
<td>15-Aug</td>
</tr>
<tr>
<td>Watermelons</td>
<td>15-May</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>90 days</td>
<td>15-Aug</td>
</tr>
<tr>
<td>Onions</td>
<td>15-May</td>
<td>466</td>
<td>1</td>
<td>466</td>
<td>65 days</td>
<td>20-Jul</td>
</tr>
</tbody>
</table>

Figure 10 Estimated number of plants to germinate per ridge, per harvest cycle based on the market demand for a continuous supply of organic produce.

With the number of weekly and monthly transplants estimated, the Sustainability Program calculated the total surface area of each production area to determine the density of planting of each crop in diverse polyculture systems. For example, a square meter of drip-irrigated ridge can grow approximately two tomatoes, peppers, or eggplants, which are surrounded by smaller lower-growing onions, collards, coriander, and spinach. Finally, vine crops like sweet potatoes, melons, butternuts, and cucumbers are grown on the side of the beds as runners. These polyculture systems maximize diversity to reduce pest and disease problems, build soil fertility and diverse microbial life, and maximize use of production space horizontally and vertically by utilizing all growing horizons.

Some production blocks, such as the main farm, are watered using drip irrigation, while others are hand irrigated, like the perimeter shambas. Some lands are prepared by tractor, oxen plow, and hand cultivation. All weeding and harvest is done by hand. All croplands are supplemented by the application of compost made at the village, and biofertilizers and biopesticides made at the village from local and purchased ingredients.
Products are packed in plastic crates and bags, cushioned for transportation with organic straw. Products are transported in a Nyumbani Village vehicle, which is primarily used for weekly organic produce delivery. When not in use for organic delivery, records for use will be kept and appropriate cleaning will be done if non organic products come in contact with the produce area. The vehicle will run on Village produced biodiesel fuel within five years.

Figure 11: Example of polyculture beds at Nyumbani Village with beans, tomatoes, maize, and other vegetables.

Figure 12 Close up view of polyculture bed at UWSP with radishes, collards, peas, carrots, onions, kale, beets, lettuce, and flowers.
Markets for organic products in Nairobi are managed by the Nyumbani Village Sustainability Manager and consultants who deliver produce to individual organic outlets, including restaurants and green grocers. Records are kept of all quantities transported, sold, prices, and payments received. Prices are determined foremost by the cost of production, which guarantees that the sale price will allow Nyumbani Village to sustainably care for the land and pay all workers a fair wage.

IV. Egerton University and Kamweti Village

Prior to this trip, GEMSAF planned for two GEM interns to work in Kamweti Village with the Karumandi Stinging Nettle and Beekeeping Group. These plans built upon the past year of workshops and field training activities of GEM with this community. In December, the group identified beekeeping, enhanced dairy production, and organic vegetables as its desires for training and small business development in 2007.

However, in April 2007, Dr. Samuel Kariuki of Egerton University re-initiated contact with GEM to inform us that he would have to oversee the GEM internships and activities at Kamweti Village because he was the “Patron” or the official that initiated the group. At that time he convinced the group’s Chairman that this would be in the group’s best interest for this and future projects to go through him and Egerton University. According to his request, GEM delayed deployment of the two KIOF organic farming and animal husbandry students for Dr. Kariuki to meet with the community group. However, following one and a half months, Kariuki had not yet met the group and the KIOF students subsequently found other attachment projects.

During this trip, Philip Ndichu and John Sheffy met with Kariuki at both Egerton University campus and with group members at Kamweti. Unfortunately, Dr. Kariuki refused to release his control over the group to allow them to work directly with GEM in a project that the community group had defined according to their interests. Rather, Kariuki convinced the group that in order to continue with the project, he would need to facilitate an official agreement between GEM and Egerton University. He said this was for liability reasons for himself and Egerton University, not because of any issues with the GEM project activities or the Kamweti community. Unfortunately, Dr. Kariuki has not shown any genuine effort to make progress on any such agreement since this trip. In fact, GEM proposed a formal agreement and contract with Egerton University on this project in June 2006, which for over a year has received no attention or response. Because of this problem, GEM has been forced to focus our efforts on willing partnerships in Kenya, such as Nyumbani Village, other than Egerton University.

V. Nyumbani Village (Week 2)

Following the unfortunate circumstances at Kamweti Village, John Sheffy returned to Nyumbani Village to reassign Seth Lenaerts to work with the sustainability program as well as home resource use with the families.
Seth Lenaerts is studying land use planning and soils at UWSP. In Kenya he will focus his work on mapping land use areas of the village sustainability program to facilitate the record keeping system for organic certification and prioritize areas for development. The Sustainability Program consists of over twenty production units, from agroforestry to waste management. Seth will be mapping the flow of energy and resources from one production area to another to conserve and increase efficiency. Seth also works in communications at UWSP, where he organizes campus entertainment events. This will undoubtedly enhance the cultural exchange elements of his experience. Seth will be at Nyumbani Village for fifteen weeks this summer.

In conjunction with the home care program, Seth and John Sheffy also designed a project for him to develop four model homes that efficiently reduce, reuse, and recycle household resources. Seth’s activities will include building high-efficiency mud cook stoves (jikos) to reduce fuel wood consumption and time needed for cooking. He will also be developing grey-water recycling systems to filter out soap and solid wastes before applying water to home gardens. With each house he will build a compost site for separating organic waste. Seth also plans to experiment with square meter gardens using three locally available soil types: black cotton, riparian silt, and upland red soil. He will collect production data for common vegetable crops, using the four households as replications.
During this week at Nyumbani Village, Nicholas Syano set up a tree seedling germination and growth rate experimental plot. Nicholas is a GEMSAF graduate student writing his M.S. thesis on small garden systems and carbon farming for increasing household nutrition and fuel as well as income generation. Based on his review of dryland agroforestry literature, he selected five tree species known for their high fuel wood, charcoal, and agroforestry value. During this field season in Kenya, Nicholas is also collaborating with the Kenya Forestry Research Institute (KEFRI) to adapt their research to the small-scale household level.

Figure 15: Nicholas Syano, GEMSAF grad student, set up this dryland tree species propagation experiment at Nyumbani Village. The trials test the germination and growth rates of five locally adapted tree species of high value for fuelwood, charcoal, and other agroforestry uses.
Finally, during this week John Sheffy had the pleasure of guiding a group of students and faculty from Le Moyne College in Syracuse, NY to Nyumbani Village. This group was excited to get involved in the farming activities and spent the whole week in the field alongside Nyumbani staff, community members, and GEM interns. Among their many activities, the students planted and watered trees in the perimeter shamba area, cleared brush for a new oxen road to deliver water to the perimeter shambas, and helped build eight household mud jikos. The student group greatly enjoyed their short time at the village. This type of program represents a potential source of energetic volunteer labor and income for the village, as well as excellent publicity to attract donor support and partners.
VI. Next Steps

1) **Solidify the production calendar and propagation system** at Nyumbani Village to satisfy the weekly demand for village consumption and market vegetables. The weekly and monthly seedling propagation system we designed needs to be carefully implemented. Precise data should be kept so the estimated number of seedlings needed to harvest a certain quantity can be further honed for accuracy. John Sheffy has asked Philip Ndichu to take on this extra responsibility to make sure this program gets up and running quickly.

2) **Recruit 3rd Kenyan intern for Home Care/Sustainability activities.** With the rapidly rising village population putting stress on the village management systems, it is a critical priority to establish sound environmental policies and practices at the household level to reduce waste and promote sustainability. GEMSAF proposes to recruit an intern from Jomo Kenyatta University of Agriculture and Technology (JKAT) to work in collaboration with the homecare and social workers that work with the families. This intern will work on grey-water recycling, fuel wood management and jikos, home gardens, home shambas, and preparing the homes for chickens and dairy goats. It is very important to instill a sense of conservation among the families initially, to reduce the creation of waste and over use of water, and also encourage them to be as productive and self-sufficient as possible.

3) **Request organic certification for Nyumbani Village** from EnCert (Kenyan organic certification body) and fix a date for inspection. Now that the village has an overall map and management vision for all production areas and individual record keeping systems in place, it is ready to be inspected. The certifier will most likely have comments and suggestions on how to improve the organic management system, which should be incorporated. The only additional information that could help facilitate the certification would be past records from the land acquisition and construction periods showing that no prohibited substances and practices were used at the village. This could shorten the conversion period. There is no reason to delay initiating the inspection and certification process as this is a requirement to access the high value organic vegetable markets in Nairobi.

4) **Investigate the assets and challenges of the Nairobi organic market.** Look closely at the costs and benefits to different actors in the market and the strategies being taken to expand the market. Primarily address the questions of how to increase the consistency of supply, diversity of supply, facilitate delivery and payment, and increase overall sales and consumption. Make recommendations and take actions with Nyumbani Village as an example of how to incorporate and certify more small scale farmers.

5) **Develop a case study of Nyumbani Village** for use by other organic farming projects. Focus this model on the Sustainability Program’s methods of
establishing organic farming techniques in the drylands, training and certifying community members, and accessing high-value markets. An expanded case study that features Nyumbani Village holistic vision and practice integrating environmental, economic, social, and cultural components into a sustainability community is intended to be completed over the next two years by a new GEM graduate student, Lindsey Wood, and incorporated into the GEM Sustainable Communities Network as a model to share.

6) **Investigate other sustainable income generating activities** at Nyumbani Village to complement organic vegetables and carbon farming. GEMSAF wishes to create a system of analysis and steps to develop sustainable agroforestry land use for income generation. By the end of this project GEM would like to have initiated a number of small-scale activities to demonstrate the method of identifying income needs, assessing skills and resources, studying the feasibility and requirements for new activities, and implementing training, pilot production, and sales.