HOME GARDEN AGROFORSTRY IN BONGA

(PROJECT PROFILE)

AGRIBUSINESS

A PRIVATE RURAL DEVELOPMENT & AGRICULTURAL EXTENSION AGENCY
A Public-Private-Rural Community partnership
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1. INTRODUCTION

1.1 Home-gardens in the tropics

Home gardens are common in tropical Africa, Asia and Central America. These home gardens are often common in hot and humid and sub-humid lowlands. The most widely studied are those in West Africa (SE Nigeria), and Java (Indonesia). Here in East Africa, the Chagaa home gardens of Tanzania (Arusha) are well documented. Because of their complexity and their resemblance to natural forests, home gardens are often referred in the agroforestry literature as Agroforests**.**

1.2 Home gardens in Ethiopia and East Africa

Homegardens in the East African highlands of Kenya, Tanzania, Uganda and South and Southwestern Ethiopia are also studied. The home gardens of the Sidama highlands are more known and studied by several individuals and study missions (Zebene, A., 2003).

The home gardens of Bonga are similar, if not identical with those of Sidama highlands. Home gardens exist because of good growing conditions (i.e. soils, long growing season, high rainfall, humidity, sun light). In Bongs, the growing conditions are close to perfect that rural households can improve their livelihoods by establishing home gardens in their homesteads.

2. THE MULTI-STORY HOMEGARDENS IN BONGA

Home gardens are common in both the **Dega** and **Woina Dega** Zone of Bonga. Enset is quite pronounced, followed by coffee. There are some fruit trees (avocado, papaya, banana) but less frequent. Species composition in the **Woina Dega** is more pronounced and the opportunities for further intensification in both species composition and stocking rate are considerably high. This strategy and plan is therefore more directed to the **Woina Dega** and less to the **Dega AEZ**.

2.1. Features of the Home-gardens

The common feature of the home gardens is that **they are complex**. But the following characterizes them as multi-story agroforestry system of land use. Nearly all land in Bonga region is highly undulating. It is estimated that excluding the valley bottoms that are either seasonal or permanent swamps, only 5% of the land surface is flat. Homesteads and their gardens are mostly situated on slopping land.

There are three distinct land use (spatial) zones, namely:

- Live Perimeter Fence
- House and front yard and animal shade and path, and.
- The compound farm with its sub-units

The house and the associated units sit on top of the slope and all other land use units follow below. The house and associated units take only a small land compared to the compound farm area. The average size of the compound and farm is 1,000 m^2 (0.1 ha). The land units - **the perimeter fence** and **the compound farm** can both accommodate to establish home gardens that can benefit households through income generating tree crops such as fruit, medicinal, herbal and landscape trees.

2.2 The Content and Structure (Spatial) of the Compound Farm

Nearly all cultivated plants/crops in the homestead are perennials. Even the trees making the top canopy in the multi-strata garden are mostly planted with some indigenous trees being retained to the liking of the farmer. Subsistence crops such as Enset and Taro are dominant in the compound farm while coffee, banana, sugar cane, papaya and NTFPs such as cardamom, long pepper, gesho, etc. are grown for generating cash income. The tree component is highly variable but appears to include those that do not have specific high market demand and value.

As stated above, nearly all of the homesteads are situated on sloping land for lack of flat land. Thus, shorter to medium size plants such as herbs, enset, banana, and taro are grown close to the house. Coffee and medicinal plants are planted in the middle of the slope while the bottom end of the slope is planted in sugar cane and some trees.

The last land unit (the perimeter area) is always planted to a mixture of woody species that can be pruned and pollarded to make finally what looks like a live hedge. All of the species planted in the perimeter are those that do by vegetative cuttings or young plantlets are planted in the fence line. The young live fence is re-enforced with some dry fence material that ties all of the newly planted green sticks together. The dry fence will eventually be gone with time.

The live hedge delimiting the homestead is not deliberately planted to woody species with great economic value. The bee foraging of some flowering woody perennials, such as the white or yellowish flowering *Datura* is accidental and not by purpose. The copper-leafed *Euphorbia* is also foraged by bees and is also very common. It appears therefore that the perimeter live fence or hedge is largely to delimit area and provide physical protection against animals and other predators to the compound. The other woody perennials commonly used include: *Euphorbia abyssinica, Erythrina abyssinica, Casaelpinna spinosa, Vernonia amygdalina, Morus alba, Dracenea spp, Acalipha spp.,* and *Buddleija Polystachya***.** None of these have cash value if sold. They are not highly in demand and or used in the home either.

All the homesteads observed and surveyed revealed that both the species composition and stocking rate vertically and horizontally could be greatly improved. The species change offers the most value for the change to be brought about.

3. THE COMPOUND FARM: START WITH THE MARKET AND VALUE ADDED PROCESSING

It can be observed that the range of trees, shrubs and crops to be grown is wide because of the high rainfall and long and warm growing season. In addition to these climatic conditions, the perimeter fence, though maintained poorly, provides improved growing conditions to plants in the compound. But more importantly is the fact that the compound produces a lot of useful material to enhance crop growing - such as compost from house refuses and sweepings, banana and enset pseudo-stems, any leaves and manure from domestic animals. The following categories of tree species make up the home garden:

Fruits: Fruits such as banana (3 types), avocado, Casmir and papaya and to some extent avocado are gaining acceptance in the market in Bonga and other towns. The Jimma market is also growing especially for banana. Sugar cane is also common in the local markets. The homesteads must therefore concentrate first on these fruits. Proper selection of varieties and cultivars for banana, avocado, and papaya need to be done urgently. The practice of fruit grafting, budding and other tools need to be widely introduced and used. Passion fruit *(Passiflora edulis)* grows wild in the forest and does seem to be doing well. Cultivated varieties of Passion fruit is available and this crop may have good prospects

once the fruit juice making and drinking habit in the coffee and pastry shops catches fire as it has done in Addis Ababa and towns in the north and in the Rift Valley region.

NTFPs: Spices and organic coffee: It is expected that NTFPs will gain importance both in the national and international markets. Already cardamom, long pepper and honey are important market commodities. The compound farm should grow more and more intensively. This area is yet to be developed as an important economic sector both for the region and the country. An action program and investment strategic plans have been proposed and developed for FARM Africa (See other program strategic plans). The focus of intervention for this group of NTFPs is to improve agronomic and harvesting techniques to increase both the yield and quality of home garden products.

Medicinal trees: The Omo Tree (*Prunus africana)*: This is a common big tree in the natural forest. There are over 740,000 big individual trees. The bark retails in Kenya US$ 2.0/kg (dry) and a 40 m tall tree can therefore fetch US$500. What is suggested is not to go after the trees in the natural forest but to start growing Omo tree as an upper canopy tree in the multi-story homegardens with Banana, papaya, dwarf avocado, guava, gesho, etc. making the second layer of the top canopy, followed by

coffee and sugar cane. The ground layer will be devoted to cardamom, taro and other spices and herbs for both home use and for the market. Some of these woody perennials and other crops will yield fodder for the domestic animals such as the Bonga sheep and livestock (especially oxen).

4. INCREASE THE ECONOMIC VALUE OF THE PERIMETER LIVE FENCE

There is a minimum of 1,000m^2 area being used for perimeter fence with no significant economic purpose. Its value as windbreak is also compromised by its planting design and choice of trees and shrubs. Its usefulness is further reduced by the lack of good management and purpose. The harvested material from the unplanned and irregular management of the perimeter fence has not been put to good use such as making composts. A windbreak design is suggested, whose function will be more to provide shade to the inside compound, as wind is not a major problem in the area. Browse and grazing problems are real in getting unprotected newly planted trees in the perimeter. But one can begin with dead fence and or using one or two of the existing species (i.e. *Caesaelpina spinosa, Euphorbia abyssinica, Vernonia amygdalina, Morus alba, Dracaena spp, Acalipha spp.,* and *Buddleija Polystachya* and *Erytrina abyssinica)* as temporary live fence and establish high value trees such as Omo tree and fruit trees to form the permanent perimeter planting that will stand as shade/windbreak for the homestead.

5. RESEARCH & DEVELOPMENT AND SUPPORTING SERVICES

There is no one institution to serve as home for R&D in Home Garden, Multi-story Agroforestry. The Jimma Agricultural Research Centre (JARC/EARO) is naturally the institution and supported by the Jimma Agricultural College of the Jimma University. Some specific contract research and training can be given to these institutions. The FARM Africa Bonga program is too small to take on this important task of improving the efficiency and productivity of a complex system. But it has been suggested that it begins to design and test a limited set of models and establish a cost/benefit scenario for each model tested. The farmers have better knowledge and understanding of managing the system if only they could be provided with market information and access to markets.

The whole area of tree germplasm and nursery is poorly developed in the Bonga area, as is the case in most other regions in the country. Like the market, this is also an important entry
point without which nothing can be done, even with good research results. The ICRAF/Ethiopia Office can provide technical support to this effort, but capacity within Bonga area itself must be built soon. FARM Africa needs to re-consider its re-entry to this activity. Seed stands for key commodities need to be established with proper Registry of Economic and Useful Crops. Some of this could be done redesigning and better managing the woreda agroforestry-farm forestry demonstration plots where a small beginning has been made.

A collaborative working relationship needs to be established between this activity and that of the EU-funded R&D in NTFPs, based in Mizan Teferi. Some private commercial companies are embarking into this area, but are handicapped by lack of supporting services from the research community and the development arm of the government. The new group of investors in agroforestry and NTFPs needs significant technical advice and is capable of paying for such services.

6. RATIONALE

In Ethiopia, the contribution of home gardens to the national economy is very negligible. Even at household level, home garden production for food security and income has not been a priority in spite of its potential. In rural Kenya, more than 30% of the household's food security comes from own home gardens. A region such as the Kaffa zone where the growing condition is suitable for home gardens, the rural population can grow trees in their compounds and perimeters that can greatly complement to their food needs and income. This home garden project can complement also to the government's food security and food self-sufficiency program that only focuses on cereal-based agriculture. FARM Africa has already put the structure within its community based PFM programme and facilitation and implementation of a simplified home garden project at the household, village and association level is very possible and worthwhile. Home gardens can easily be managed by any member of the household, including children, and group of youth, women, etc.

7. PROJECT OBJECTIVES

- Improve the management and growing techniques of Home Gardens through integration of MPTs in the system and introduction of market-oriented species.
- Increase income of targeted rural households by developing the market for home garden products

8. SPECIFIC ACTIVITIES

- Select target population and groups and train in sustainable production, marketing and management of Home Garden products
- Arrange tailor-made training for zone and *woreda* BoA technicians in collaboration with ICRAF, EARO and Jimma University
- Select appropriate Home Garden MPTS species/germplasm for Bonga area
- Establish and manage Seed/Germplasm and Nursery Development
- Establish linkages to markets and processing facilities
- Support private sector to be engaged in production-marketing chain
- Organize consultative planning and strategizing meeting with major stakeholders in Bonga
- Establish pilot demonstration and training centres in Home Garden farming

9. EXPECTED OUTPUTS

- Increased capacity of targeted beneficiaries in production, marketing and management of home garden farming
- Increased household food security and income generated from Home Garden production and marketing.
- Range of home garden products supplied to markets
- Environmental situation improved within homesteads and villages
- Capacities of selected communities and government staff improved regarding home garden management and marketing.
- Health and nutritional status of targeted beneficiaries improved

10. STRATEGY

- FARM Africa in collaboration with TAM Agribusiness to develop a project in village and household level home gardening as part of a Peri-Urban Agriculture leading to increased household food security and income generating activity.
- Assist groups, associations, cooperatives and private sector entrepreneurs in starting small-scale home garden enterprises based on selected marketable tree products.

11. PROJECT SITE

Bonga area (town, peri-urban and rural) involving interested participants in the Home-garden development program. All PFM Coops Members in their respective homesteads.

12. BENEFICIARIES

- PFM households, groups, associations
- Local communities
- Women and youth groups
- Private sectors
- Local government staff

13. IMPLEMENTING PARTNERS

- FARM Africa
- SuPAK
- EU-funded NTFP project based in Mizan Teferi
- Kaffa Zone Finance & Economic Development Dept.
- Jimma Agricultural Research Centre

- EARO
- MoA
- Jimma University
- PFM Coops.
- ICRAF
- Private sectors
- Other Relevant NGOs

14. DURATION (5-7 Years)

- Select, develop and multiply seed and seedlings of appropriate species
- Identify trainer and trainees and conduct training
- Establish networking with relevant institutions and individuals
- Develop linkages with markets, traders and processors

15. INDICATIVE BUDGET (1, 000, 000 ETB)

- Capacity Building communities and local government staff (250, 000)
- Seed/Germplasm and nursery Development (250, 000)
- Market research and development (80, 000)
- Networking with relevant institutions and individuals (50, 000)
- Conduct Research (Contract research) and Development (170, 000)
- Monitoring and evaluation (50, 000)
- Consultative planning and strategizing meeting with stakeholders (200, 000)
- Source of funding (EU, SuPAK (Netherlands Govt.) World Bank, UNDP, & other NGOs/donors).