

FARM Africa and SOS Sahel International/ UK Participatory Forest Management Programme (PFMP)



LINKING INDUSTRIAL TEA AND ESSENTIAL OILS PRODUCTION AND PROCESSING WITH OUTGROWERS SCHEMES & CONTRACT FARMING IN BONGA AREA

(project profile)

**The Goal of PFMP is to ensure environmental
sustainability through Community based natural
resource management systems**



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

Within the FARM Africa Project woredas of the Bonga forest Site, there are currently two commercial Tea farms. The Wush Wush large commercial Tea Farm with two factories is the larger one with 1,250 ha Tea farm and 970 ha of *Eucalyptus saligna* fuel wood plantation. The second and relatively new Tea Company is from East Africa PLC with 500 ha of tea farm under development.

The Wushwush based private company (under Ethio-AgriCEFT) is located about 17 kms. from Bonga town. It has all the necessary facilities to run and operate the farm and the factories. It has adequate guest -house and tea nursery. It has a regular staff of 800 and employs up to 1000 to 2,000 casual workers. It operates health and school facilities for employees and staff. Its relationships with the adjacent communities appear to be good. Production of made tea increased from 45 tons 20 years ago to about 4500 tons in 2003. Of this, about 1500 tons are exported while the remaining 300 tons is consumed in the country.

The Company reported that its installed factory capacity is much bigger and can take more tea outside its farm under **out growers schemes**, particularly that they expect the new power grid and installed electricity from the Gibe and the planned Gojeb dams will rectify the present restricted power supply. The field management staff believes that an out growers schemes such as in other tea growing countries such as Kenya and Rwanda is socially, politically and economically worth investing. Previous attempt in this direction did not succeed for political reasons.

2. JUSTIFICATION AND RATIONALE FOR THE TEA AND LEMON GRASS OUTGROWERS SCHEMES

2.1 *Economic and Socio-economic Justification*

There are at least two compelling reasons for taking the **out growers schemes for the Bonga and the general southwestern highland region**. Generalized poverty is high and indigenous investors are hard to come by from within the area. All major and big investors are likely to come outside the region thus leaving the local population out of the development table and leaving them landless in the long run (35% of the population is already landless). On the other hand such industrial crops require large financial capital and individuals or local co-operatives cannot be expected to raise such huge and large capital resources or qualify to borrow. For instance, it takes ETB 50,000 to develop 1 ha of tea farm or

ETB 12,500 for a quarter of a ha. for a smallholder farmer to participate in the out growers schemes (according to the Farm Manager Ato Yasin of Ethio-Agri CEFT). Expanding the industrial tea output through the existing Agro-industries, will enable Bonga export more out of the region finished and graded quality products that can compete in the world market. Kenya and the East African countries including Uganda, Burundi, Rwanda and Tanzania have taken this route and have benefited from the global market. Even Ethiopia's entry into the tea growing and trade is largely derived from Kenya's experience as a Kenyan tea company was given charge to install the new factory in Wushwush recently and many Consultants have come from the region or from HQs in England such as **Booker Tate and Bohead Lt.** (The later Co. produced the Tea Processing Manual for the then, **Tea Development Enterprise**). **The Tea Growers Hand Book by the Tea Research Foundation of Kenya** is widely used here in the region also.

The same company is at present interested in Lemon Grass production, processing it into essential oil or supplies the growing herbal tea market in the country. Other companies including **TAM Agribusiness PLC and ADDESS Co.** have some processing capacity. The Wushwush Tea enterprise has some trial farms in Gimbo Woreda at Yabekecha locality. TAM Agribusiness, during the field survey was able to observe that lemon grass does well as observed from the experimental trials at the EARO Jima Research Center, Jimma Agricultural College (part of the Jimma University) and in Bonga Town (SuPAK Campus and several government offices in Bonga town. The Wondo Genet (Shashameni lemon grass production and processing plant was also visited. The processing plant is old but field production of lemon grass is excellent. Similar if not better conditions exist in the Bonga area. Lemon grass production on hill slopes from the Gojeb uplands to the Dega zone Manijo Woreda is possible with the woina dega presenting more ideal condition for lemon grass production under rain-fed condition. Lemon grass production under supplementary irrigation is possible in all parts of the Zone.

There are at present three main types of lemon grass being commonly grown including the more common lemon grass seen in all urban areas of Ethiopia. The Jimma Research Center maintains one excellent variety or species (see Annex -- for species in the lemongrass growing). The existing species and cultivars of lemon grass now observed in the zone and out side the zone (Wondo Genet, Teji, etc.) need to be tested together in the Zone Before full scale production could be attempted. The Jimma Research Center can be contracted to quickly evaluate and bulk the recommended variety/cultivar or species for the private sector, the farmers and FARM Africa to use by the out growers scheme and the newly established PFM Co-ops in the project woredas.

2.2 Environmental/Ecological Justification

Equally compelling reason for selecting both tea and lemongrass is that these two crops are highly suited to the climate (well drained fertile soils, ample rainfall and long growing season as well as warm

temperature). In addition, local topography tends to be highly undulating suitable for tea growing. Lemongrass when planted naturally forms soil erosion barrier as it forms clumps thus becoming a biological soil conservation measure. It also is perennial as only the top part is harvested. In the local conditions, it may not require re-planting so often. Tea crop is also planted as permanent crop on well-prepared land with riverbanks and valley bottomlands left in place. Tea plantations are also provided windbreaks by planting *Gravellea robusta* and *Hakea saligna* both of which add stability to the soil and ameliorate growing conditions across the tea plantation landscape. There are many studies to prove that tea farming is environmentally sustainable and lemongrass cultivation is directly a soil conservation measure in agroforestry systems.

3. IMPLEMENTATION PLAN & MODE OF OPERATION

3.1 *The Research and Planning Phase*

While the tea out growers schemes is straightforward and the lessons from East Africa can be brought to bear, the Participatory Planning Methods developed and being used in the PFM Program have application here. The Farming Community around the commercial tea farm and especially the Tea Factory and collection sites need to be brought together to plan modalities of planning and launching the schemes.

The lemon grass out growers or contract farmers schemes needs to be proceeded by a short period of field testing of cultivars from Ethiopia and from the Indian sub-continent where the growing and commerce of essential oils is well developed and thriving. EARO, through its Jimma Research Center and its research and production farm and processing plant in Wondo Genet can be called to assist in this endeavor as well as the Jimma Agricultural University. At present Jimma University is providing technical support and fully participate in a new EU funded NTFP R & D Project based in **Mizan Tefferi**.

This same initial planning phase can and should be used to train more technical staff in the field on NTFPs including essential oils and spices. It already trains in tea and coffee in its regular academic programs but can also respond to short and specialized training programs tailored to specific program such as this one, according to Dr. Ali Mohamed of Jimma Agricultural University.

Although institutions such as the Jimma University can provide training, resource material and field guide manuals specially prepared for the Ethiopian scene are not available. Such teaching material, in part could be adopted from experiences elsewhere and adopted to Ethiopian condition, but it needs to be commissioned as part of this Project/Program. An Institution such as EARO or Jimma University

can be contracted but key Ethiopian resource people need to be identified, especially with field research and training experience.

3.2 *Implementation Phase*

3.2.1 *The Tea Out Growers Scheme*

Once the farmers interested to participate in the out growers scheme are formed through the facilitation of FARM Africa and the Woreda development officers, some form of practical and demonstrational type of training needs to be offered. Once this is done and the terms and conditions between the farmers and the Tea Factory have been finalized, all subsequent services to farmers will come from the Tea Company through charges of these services paid by participating farmers or their sponsoring agency such as FARM Africa.

In the Kenyan case, the country considered it essential to establish and operate **The Tea Research Foundation of Kenya** whose first task was to prepare and publish a compilation of its recommendations for tea production as a standard book that all will need to follow. It was first published in 1965 and has undergone several editions since then. The publication "**Tea Growers Handbook, 4th Edition**" is potentially useful for Ethiopia's tea growing.

The role and services that the Research Foundation gives to tea growers is key to the tea industry *vis-à-vis* the export and local markets. These functions can be attached to the Wushwush Tea Co, or create a similar but modest facility in Bonga or similar site in the heart of the tea growing area. The services that the Foundation gives to tea growers are detailed in the Appendix of the book and include among other things the following:

- Research
- Technical visits to the tea growing zones
- Soil analysis including instructions for taking soil samples
- Leaf analysis including instructions for taking leaf samples
- Testing and calibration
- Release of new clones and or callused cuttings

The Federal and Regional governments of Ethiopia have been active in establishing Regional Soil and Plant Tissues Analytical laboratories, largely for fertilizer application recommendation purposes. But these Labs could be expanded to include specific services as described charging only direct cost. Similarly, EARO can be expected to play this role by establishing a center of excellence for Research and Services to the Tea industry of the Region. Therefore, the following Institutions can be considered to house this service to the Tea Industry, namely:

- A Private Co. i.e. Wushwush is encouraged to set up this facility and charge for its services, much like raising and selling tea seedlings,
- The National Soil Laboratory establishes the Unit
- The Jimma University establishes a Unit
- A New Research Foundation is established, or;
- The Jimma EARO Research Center takes responsibility

The first option may be more quickly done as the company has already built-in capacity for many of the services listed above and others contained in the book. The company has a good track record of working closely with both the government and community

Main Assumptions:

- a) **Land Holdings:** For farmers to participate in the tea out growers scheme, the size of their cropland should at least be about 2 ha. The average size for growing food crops ranges between 1.5-1.75 ha./household. This project proposes 0.25 ha. be designated for each participating household to grow tea. The number of tea growers will be determined on the size of their land, their willingness to invest in labor and other recurrent costs, and the volume of green leaf needed for a stable supply to the Wush Wush factory.
- b) **Labor Requirements:** Tea growing is labor intensive requiring full attention of the farmer during planting, managing and harvesting. In addition to the farmer's family members, the farmer may have to employ temporary labor during peak growing and harvesting times.
- c) **Cost Requirement:** The farmer enters into the out growers scheme with full understanding that there are capital and recurrent costs that he/she has to be responsible. Included in the cost are a) infrastructure costs such as production, storing, irrigation etc. of production and b) costs related to input supply.

- d) **Availability of Credit Facility:** Since farmers do not have adequate financial resources to finance the establishment of tea groves, they need to be supported in facilitating access to credit.
- e) **Tea growers Association:** It is essential that farmers be organized into an association to empower them for any negotiation including input supply, output delivery, price fixation, credit acquisition, training arrangements, etc.
- f) **Contract Agreement:** Associations would have to enter into formal agreements with the Wush Wush Tea Enterprise to have mutual understanding and agreement on any working relationship including ensuring the collection of all tea leaves graded, supply of inputs, and payment of agreed prices and dividends if any, and strengthen private sector-community relationship.

3.2.2. Out Growers and Contract Farmers of Lemongrass

The growing of lemongrass for herbal tea and for the production of essential oils for use in industries is straight forward. The crop is easy to establish, manage and harvest. Some simple structure may be needed to dry the harvest to transport to site of processing plant. Mobile field drying and partially distilling facilities are also in the market (i.e. from Turkey) and a community can also employ this option. But in the long run a centrally located processing plant is needed. Part of the facilities in the tea factory can be used for drying the lemongrass too, hence this suggestion of bringing the cultivation of lemongrass into the same contract as the tea out-growers schemes.

4. INSTITUTIONAL COLLABORATION & NEXT STEPS FOR FARM Africa

Parallel to the promotion of PFM program that FARM Africa is successfully implementing which aims primarily forest habitat conservation to ensure and maximize benefits for NTFPs, this Project/Program of expanding the Tea Industry and tagging along the commercialization of the production and trade of Essential Oils, i.e. from Lemongrass cultivation is an **Eco-agriculture** that accomplishes conservation while supporting the development of Agro-industry and export. The role of the private sector such as Tea Companies operating in the Zone and others in the Essential Oils industry is reflected in the proposed program. Thus the local environment and local, but organized rural communities are the prime beneficiaries. The proposed program also takes in to account the poor infrastructure in the government by emphasizing the role of the private sector and the NGO community to shoulder much of the burden of helping the rural community.

The next step is for FARM Africa to invite key stakeholders and relevant government agencies based in Bonga to a 1-day planning workshop. The result of the workshop can be used to develop a TOR an in-depth investment plan with costing broken down into phases. TAM Agribusiness has capacity to

carry out such task under the guidance of FARM Africa. This task need to be undertaken in similar fashion as the FAO Investment Center does it.

ANNEX: Lemon Grass, its cultivation, management and uses

1. BOTANY

The cultivated lemon grass is a member of the Graminae family, Andropogonae Sub-family and in the genus, *Cymopogon*. There are over 120 species in the genus of which some 55 species are aromatic and produce essential oils. Commonly cultivated species of lemon grass include:

C. Citratus

C. nardos

C. pendalas

C. martini

C. pendalus, and

C. khasinus

Of the above, the most commonly grown in Ethiopia and East Africa is *C. citratus*. Which typically has narrow and long leaves. A more productive and more commercially grown is *C. nardus*. Both of these species are now being grown in Teji Agribusiness Center and at the Wondo Genet Research Center for Essential Oils of EARO.

2. CULTIVATION & MANAGEMENT

On good sites and well-prepared agricultural land, it is best to establish lemon grass at close spacing, which results in high plant population and thus high yield. Planting is by slips from an existing older plant (clump). 30 x 50 cm spacing will require 71,665 slips while 50x50 cm spacing will require 41,670 slips. A close planting of 10x10 cm is not uncommon and such narrow spacing or high density planting is reported to give high grass and oil yield per ha per year. Oil yield improves after the first year from establishment.

Cultivation of lemon grass requires good amount of chemical (NPK) fertilizer during planting, which is applied in split applications (3-4 times). Usually, more Nitrogen is needed at the rate of 250 kg/ha. The first cut (harvest) is normally done 6-8 months from planting. Cutting can be done 3-4 times per year. It is best to maintain a three-year production cycle; that is, replanting after every three years.

Oil yield ranges from 50 to 80 kg/ha/yr, which is highly dependant on density and management.

3. USES

Enhancing Soil Fertility

Lemon grass is excellent for planting on soil bunds for soil conservation and as a source of mulch. The spent grass (after oil is extracted) also makes good compost mix or makes good silage for livestock feed.

Medicinal Uses

According to Hans-Martin Hirt et al, (2001) Lemon grass has the following remedial properties and is used to treat the following:

- Bronchitis, sinusitis, cold
- Fever, malaria
- Hemorrhoids (old leaves)
- Toothache, bad breath
- Insecticide (insectifuge)
- Baby oil and massage oil
- Ointment for body
- Anti-hemorrhoid (see #3 above)

Hans-Martin Hirt et al (2001) gives the following medicinal oils preparations:

1. **Baby oil**
 - a. Lemon grass 1 unit
 - b. Vegetable oil 9 unit
2. **Beauty oil**
 - a. Lemon grass 2 unit
 - b. Vegetable oil 8 unit
3. **Massage oil**
 - a. Eucalyptus oil 2 unit
 - b. Lemon grass 2 unit
 - c. Vegetable oil 6 unit
4. **Oils for Rheumatism**
 - a. Chilies powder 1 unit

- b. Vegetable oil 5 unit
- 5. **Oils for hemorrhoids**
 - a. Lemon grass lvs
 - b. Aloe vera lvs. Dry
 - c. Guava lvs
 - d. Chamomile
 - e. Basal lvs.
 - f. Artemisia lvs 2 units
 - g. Vegetable oils 10 units
- 6. **Beauty mask**
 - a. Avocado oil (fr) 6 units
 - b. Lemon grass (juice) 1 unit
- 7. **Herbal Baths**
 - a. 2 tbsp almond oil
 - b. 6 drops lemon grass oil
 - c. 2 drops coriander oil
 - d. 2 drops clove oil
- 8. **Industrial Uses**
 - a. Soap making industries
 - b. Candle making industry
- 9. **Lemon grass in Herbal Cooking**

- 10. **Lemon grass as Herbal Tea**

Lemon grass is made into tea by chopping the green leaves and drying then packed into 100 to 300 gm plastic bags. The chopped leaves from the container is boiled into tea and taken with sugar or with honey. The Asian community considers the tea from lemon grass medicinal.

REFERENCE

Hans-Martin Hirt and Bindanda M’Pia. 2001. Natural medicine in the tropics 1. Tropical plants as a source of health care. Production of medicines and cosmetics.