

## LEGURUKI VILLAGE

Leguruki is located in the slopes of Mt. Meru, in Leguruki Ward, King'ori Division of the Arumeru District in Arusha Region. The village is not far from Kilimanjaro International Airport (KIA). The village is divided in five sub-village sections namely Madukani, Mbaaseny, Songambebe, Noseiya and Mlimani. Leguruki is bordered by Arusha National Park forest and four villages namely Nkoasenga, Miririni, Shishitoni and Maruango. Total village area is 2185 ha, of which 1740 ha are suitable for agricultural activities. In 2002, 1537 ha were used for agricultural cultivation and 202 ha were used as pastoral area. The ward is green and lush with fields of coffee, banana trees, beans, and corn, and there are scattered lakes that attract scores of water birds.



*Leguruki Village*

Feasibility studies were conducted in April 2007 in the four villages identified for installation of the second MFP. All four villages are located in the Arumeru District, Arusha region, and were assessed for their suitability for the project based on previously-developed village selection criteria (including a population of at least 3000 people, nearest grid point of at least 5km, presence of large number of income generating activities apart from agriculture, growing *Jatropha*, castor or any other oil crop, good village leadership, reasonable accessibility and presence of social organizations, such as women cooperatives, youth production groups).

### **Participatory Rural Appraisal**

Based on these studies, Leguruki village was selected for MFP installation. Participatory Rural Appraisal (PRA) was conducted in Leguruki in May 2007 as initial efforts of preparation for the MFP installation, to facilitate community acceptance and smooth initiation of the project, as well as to enable in-depth understanding of the baseline information on village's socio-economic situation, energy supply, demand and options, human capacity and village development priorities. A participatory rapid appraisal (PRA) was conducted in order gather more information on feasibility of the project and establishing implementation plans.



*Participants of the PRA at Leguruki Village*

## Energy Services

The village has just got MFP for an electrification, milling, hulling, oil press and battery charging. The MFP can be run by the locally available vegetable oil and was installed by Tanzania Traditional Energy and Development Organization (TaTEDO).

According to the villagers, for many years people from Leguruki have requested connection to electricity by TANESCO, but because of many reasons such as the distance from the grid, the costs and the small number of costumers (compared to other villages) their requests were not possible. All this changed when Leguruki went in a group of village candidates proposed to receive the MFP.

There were many criteria to choose Leguruki among candidate villages. Some of the criteria were: number of habitants, amount of oil seeds produced per year, demand of MFP services, distance from TANESCO grid, acceptance by the local administration, presence of entrepreneurs and others. All criteria were used to ensure success of the project.

## MFP Installation

The installation of the MFP started on 2nd of August 2007 and took three weeks, during this time all the equipment of the MFP (16 HP lister engine, 10 kW 3 phases alternator and a battery charger) were installed. A mini grid was constructed comprising more than 50 well treated poles with more than 15,000



*MFP installed at Leguruki*

metres of overhead cable runs and connecting more than 40 houses (25 household and 17 business points like shops, restaurants, butchers) and more than 200 people at the central business area of the village.

Most of the customers are small load consumers where two light bulbs of 60Watts are used. Electric lights bring more comfort and increases security. People can see more clearly what is happening around the houses. On the other hand it is cheaper to pay for electricity lighting than to use candles or kerosene.

The village got the first light generated from MFP on the evening of 13<sup>th</sup> August 2007. The villagers are now very exited with the new possibilities brought by the electricity. They are talking about having radios, refrigerators and TVs. The most exited are the business

people, they say that electricity will allow them to keep their shops open for a longer time and now they can provide services that were no possible before; like cooled soda, welding and battery charging. Also the local carpenters can use electrical tools, doing a faster and easier job and in this way improve their profits.

The installation was also accompanied by on job training which aimed on building capacity to local technicians in managing (record keeping), operating and maintaining the MFP. The training was done to two individuals on mechanical and electric part of installation. The individuals are the natives of the village. The capabilities of the trainee under mechanical aspect proved enough for him to be selected as an operator of Multifunctional Platform.

The MFP will be managed on trial period of six months by both TaTEDO and the village government, which is also working as an entrepreneur. After a trial period MFP will be handled over to the village authorities.

Leguruki is the second village where this pilot project is implemented. The first village was Engaruka Juu in Monduli District in October 2006. The MFP pilot project is financed by the World Bank through the GAPFund program, which is managed by the Global Village Energy Partnership (GVEP). TaTEDO will receive financing from the European Union for implementation of a larger MFP project whereby 100

MFPs will be installed in more than 100 villages in 11 districts of Mwanza, Manyara, Shinyanga, Tanga, Kilimanjaro and Arusha regions in five years.

### **Jatropha**

The promising non-edible biofuel oil based plant in Tanzania is *Jatropha curcas*. *Jatropha* grows well on marginal lands of Tanzania with more than 600 mm of rainfall per year, and it withstands long drought periods. It also does well in areas where the rainfall is only 250 mm, but the humidity of the air is very high. Yield is obtained in the second year of establishment, reaching full production in the fifth to sixth year, once the plant start production it continues for the next fifty years. *Jatropha* plant is scattered and known by majority of Tanzanian since a long time, but its utilization was limited to the use of the plant as protection hedge around homestead gardens and graves



*Jatropha* Plant, fruits and seeds

*Jatropha* grows very well in Leguruki and surrounding villages. It can be grown through the intercropping system where coffee isn't grown. Furthermore, *Jatropha* seeds can be bought from the surrounding villages where there is sufficient land. Among the 2000 kg of *Jatropha* seeds, which were bought by Mianzini Women Group in 2006, more than half was collected from areas outside the village. The women group believes that they can buy more *Jatropha* seeds in 2007 if there would be more promotional activities and offering attractive price. Mianzini Women Group buys seeds from individuals who pick from trees themselves or buy from other people.

Kakute assisted formation of the group in 2006 and todate they provide them with training and extension services. Kakute has trained the group to make *Jatropha* oil soaps, using *Jatropha* oil for lighting and cooking and applying press cake fertilizer. The group has planted more than 2500 *Jatropha* seedlings through assistance from Kakute.

In year 2006, about 2000 kg of *jatropha* seeds were collected by Mianzini women group in the village. There are two peak harvesting seasons: one in April-June and the other is during September and October. Most villagers grow *Jatropha* for fencing and demarcation in almost every household land. There is no one who grows *Jatropha* as a cash crop and also; one is able to collect *Jatropha* seeds from any tree in the village. It is almost impossible to open up large *Jatropha* plantations in the village due to scarcity of land, which is attributed by, increase in population. The number of people living in Leguruki increased from 3200 in 2002 to around 4,500 in 2007, equivalent to 540 households and 830 households respectively.

Apart from *Jatropha* oil, Kakute also buys *Jatropha* soaps from the women group. Kakute further provided the group one ram press worth Tshs 75,000. *Jatropha* seed pressing using the ram press is labor intensive and normally the women group hires casual labor to press for them at a rate of Tsh 5000 per bag of approximately 60 kg. It takes 2 days to press one bag of *Jatropha* seeds. One bag of *Jatropha* seeds can provide up to 15 liters of oil, which can be sold to Kakute at Tsh 30,000. Deducting pressing and raw materials costs, the women group makes at least Tshs 10,000 profit per bag.

### Other Energy Services

Apart from MFP, TaTEDO is continuing to build capacity of constructing improved woodfuel saving stoves in the village and establishing rural baking activities using the improved woodfuel saving ovens. Some women entrepreneurs have been trained on how to bake breads, scones and cakes using TaTEDO improved woodfuel ovens.

*Improved woodfuel saving stove with chimney*



*Baking activities*



### Conclusion

Please enjoy greenish vegetation of this village and lush with fields of coffee, banana trees, beans, and corn, and there are scattered lakes that attract scores of water birds. Bananas is the local specialty and visitors to this village should expect to be see are fields of bananas in a variety of ways on the slopes of Mt Meru.