



Director, WMI, some faculty members, students and members of the community in Othaya posing for a photo after conclusion of the SLUSE 2014 training.

Interdisciplinary Land Use and Natural Resource Management (ILUNRM) course 2014

Field site description, Nyeri South District, Kenya

This note provides a brief introduction/background to Nyeri South District and presents the thematic focus areas for the groups.

Nyeri South District^[i] covers a land area of 184.2 km² of which 98.9 km² is characterized as arable (Owuor et al. 2009). The district was established in 2009 through division of the larger Nyeri District. At the time of the latest census in 2009 the population was 345,642 inhabitants (KNBS, 2010). Assuming a 2.5% population growth since 2009, the population in 2013 was estimated at 381,524 and the average population density approximately 2,100 persons per km².

Land in the district has been fragmented into very small units due to the population increase (MacKenzie 1989) and the average landholding area of each household is 0.64 ha (Owuor et al. 2009).

The major town and administrative centre of the district is Othaya town. The district is subdivided into four locations: Chinga, Iria-Ini, Karima, and Mahiga. The field work, cf. below, will take place in the Karima location. The majority of the residents in the district are of the Kikuyu tribe. The district is home to the Chinga dam, the largest water reservoir in the area, located about 10km from the study site. The western parts of the district fall within the Aberdare Forest and the Aberdare National Park. The terrain generally increases from east towards west, with peaks reaching 3,900 masl in the Aberdare National Park. The town of Othaya is located at 1,850 masl. The average annual rainfall is approximately 1560 mm, probably with large variation between years and specific geographical locations. The main soil type is nitisol^[1] (Ovuka 2000).

[Mwai Kibaki](#), the third [President of Kenya](#), was born in [Gatuya-ini](#), a village within the district, and served as Member of Parliament for the Othaya Constituency from 1974 to 2013.

The district is well developed in terms of infra-structure; most villages are accessible by tarred road, have power, tapped water and primary schools as well as shops for basic necessities.

Agriculture provides the key livelihood strategy in the district with coffee and tea as the main cash crops. Owuor et al. (2009) summarize the tea and coffee production and marketing in the district as follows: “The tea sub-sector in the district has an organized and stable market – unlike coffee. Tea cooperative societies are well managed and leaf collection centres are well distributed within the proximity of the farmers. Payments are timely and transparent. The key disadvantage farmers give with this crop is that it cannot be intercropped with other crops especially where land fragmentation is very extreme. Coffee on the other hand has been in decline for some time. Farmers cite political interferences and marketing problems as the major hindrance to the crop’s advancement” (Owuor et al. 2009, p. 2). Most farmers intercrop coffee with horticultural and food crops.

Other crops – for subsistence and cash – include banana, maize, beans, sweet potato, Irish potato, beans, sugar cane, yams and vegetables. Most households have at least one or two dairy cattle.

[1] The climatic and soil data are for the neighboring district of Muranga’s a

2 <https://www.opendata.go.ke/population/census-volume-1-Question-1-Populat...>

Students were divided into the following five thematic groups. The thematic groups were based in the village indicated in brackets after the theme. The geographical location of the villages is showed in Figure 1.

- Addressing the challenges of soil fertility management (Thuti)

1. *Anne D Møller (F)*
2. *Tanja Lübbbers (F)*
3. *Pernille S. Nielsen (F)*
4. *Pin Pravalprukskul (F)*
5. *Grace Kinyori*
6. *Rhoda Nyamai*
7. *Erick Akotsi*

Resource Person: Dr Cecilia [Onyango Cecilia.Onyango@uonbi.ac.ke](mailto:Onyango.Cecilia.Onyango@uonbi.ac.ke)

- The importance of livestock production to household livelihood (Witima)

1. *Dr Odera Owino*
2. *Negar Latifi (F)*
3. *Norman M Casas (M)*
4. *Peter Worm (M)*
5. *Margot Roux (F)*
6. *Lærke N Nielsen (F)*

7. *Dr. Naomi Kemunto*

Resource Person: Prof R.G. Wahome rgwahome@uonbi.ac.ke/rgwahome@gmail.com

- Community participation in Karima forest management (Gakina)
 1. *Emilie Skensved (F)*
 2. *Audrey Atchade (F)*
 3. *Sofie H Thygesen (F)*
 4. *Trine Løber (F)*
 5. *Maria Hald (F)*
 6. *Erastus Gitonga*
 7. *Grace Ogechi Kemunto*

Resource Person: Dr T. Thenya, tthenya@yahoo.co.uk

- The opportunities and challenges in coffee production and marketing (Gatugi)
 1. *Astrid S Andersen (F)*
 2. *Haftu H Gebremichael (M)*
 3. *Thomas Eisler (M)*
 4. *Naja Skouw-Rasmussen (F)*
 5. *Issa Kapande (M)*
 6. *Rosemary Gichure*
 7. *Gerphas Opondo*

- The opportunities and challenges in milk production and marketing (Giathenge)
 1. *Dr Korir*
 2. *Caroline Hambloch (F)*
 3. *Fabien Eric F Jean-Louis (M)*
 4. *Karolin Andersson (F)*
 5. *Francis Denisse M Rodriguez (F)*
 6. *Natasha A Dottin (F)*
 7. *Brenda Kamara*
 8. *Dr. Daniel Korir*
 9. *Harriet Oboge*

Resource persons: Dr Catherine Kunyanga, ckunyanga@uonbi.ac.ke

The below descriptions of the thematic focus areas were by no means meant to be completed or authoritative and were primarily intended to give the groups a point of departure and some ideas for possible direction(s) of the research. Hence, the groups had freedom to develop/focus the research further or to include issues not mentioned in the below descriptions.

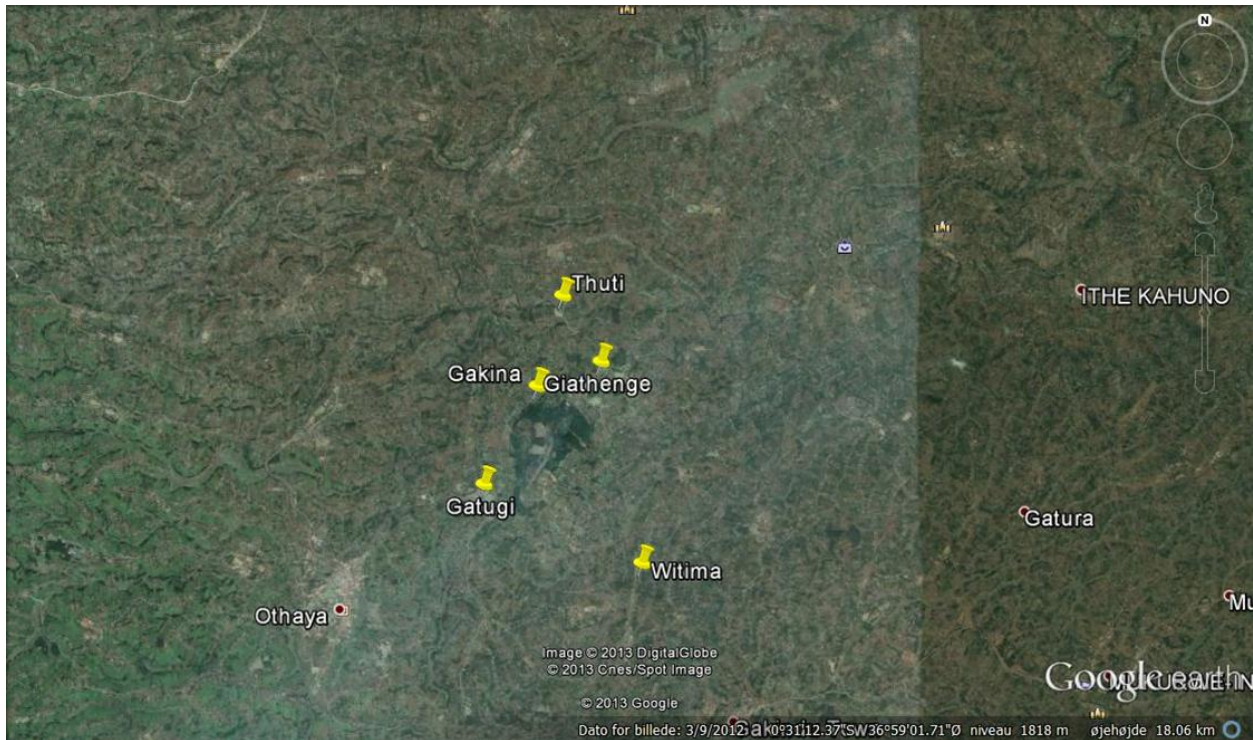


Figure 1: Map of the field site area in Nyeri South district

Theme: Addressing the challenges of soil fertility management

Intensification of land use, including crops such as coffee and tea with high demands for soil fertility, reduction in shifting cultivation and fallow, fragmentation of land into very small plots and cultivation on very steep slopes has led to concerns for declining soil fertility and soil erosion (Owuor et al. 2009, Ovuka 2000).

The Kenyan government has supplied free fertilizers to farmers in the district. It is reported that fertilizers intended for coffee and tea are applied in farmers' maize fields to enhance soil fertility (Owuor et al. 2009). The availability of manure is restricted as a result of the limited number of cows, and the trend of replacing low yielding cows with high yielding ones further reduces the available cow manure (Owuor et al. 2009).

The integration of trees in the farming systems is very common in order to provide shade for coffee, conserve soil and enhance soil fertility. The Ministry of Agriculture and Ministry of Forestry has recently ordered the immediate cutting of all Eucalyptus trees because of their perceived negative role in reducing soil moisture and depleting soil quality (Owuor et al. 2009).

The group assessed soil fertility and soil erosion in the district and compared this to farmers' perceptions on the same. Moreover, the group described and analyzed soil and water conservation practices, how they had changed over time and the main reasons for the changes. Based on such analyses, the group considered potential measures to enhance soil fertility and reduce soil erosion.

Theme: The importance of livestock production to household livelihood

Traditionally, the people of Nyeri south are agro-pastoral in nature. They always reared cattle, sheep and goats. More recently, poultry and pig production have been adopted. Although, the large majority of households in the district own at least one dairy cow, they also frequently own a mix of species of livestock. Some farmers keep poultry and rabbits as well. Dairy goats, pigs, rabbits and quails are emerging livestock opportunities in the district. The motivation for keeping them and their production aspiration are not always easy to understand. The resources available for use with these livestock are distributed to crop production and in some instances to off-farm economic activities.

The key challenges facing the farmers are land and resource planning, livestock diseases and pests and specifically feed resources for the variety of livestock. In fact, most fodder and concentrate feeds are being imported into the district with associated risks of transmission of pests and diseases into the district. The district has a high consumption of meat (goat). The animals are transported alive to Othaya town where they are kept in the central square before slaughtered. This transport and trade enhances the risk of spread of diseases.

The government contribution to tactical attention to animal diseases is limited. This has enhanced the role and scope of farmer co-operatives in provision of veterinary services (Owango et al. 1998).

The group analyzed the importance of livestock in livelihood of small-scale farmers in the district emphasizing the value attached to them by the farmers. Further, the group looked into existing marketing channels for livestock and the prospects and challenges to farmers of introducing new livestock species. The group also considered issues of production, including feeding and the provision of input services, veterinary and artificial insemination services available to the small-scale producers. Based on their analysis, the group made suggestions as to which livestock species if any, could be reared, using what resources and report on its potential to enhance the livelihood of farmers and sustain the production environment.

Theme: Community participation in Karima forest management

The Karima hill forest with a total area of 265 acres is part of central Kenya undulating volcanic landscape that is characterized by several dissecting river valleys. Karima hill is part of series of physiographic formation that disrupt this volcanic influenced landscape with the others being Tumutumu and Nyeri hills. For several centuries the hills was dominated by indigenous forest until 1950s when the first batch of exotic trees were introduced by colonial government, primarily *Eucalyptus sp.* and *Cupressus lusitanica*. This was inspite of the fact that the Karima hill has always been viewed as having spiritual and religious importance by the local community, composed mainly of Kikuyu ethnic group and has served important traditional uses for wood and non-wood products, including medicinal plants, foods and firewood, (http://www.standardmedia.co.ke/?articleID=2000044375&story_title=residents-make-plea-for-

[forest-that-once-sustained-sacred-river&pageNo=1](#)). The forest holds two sacred sites which have been gazetted as heritage sites.

As demand for tea curing wood increased, Othaya town council under whose authority the forest was under, leased part of the hill to a tea factory which planted exotic trees for use in the factory. This was strongly resisted by the local community, pitting the local community against the town authority and the National Environment Management Agency (NEMA).

Over the past years, an intensive debate has emerged on the use, governance, rights to benefits from the forest and effects of the management of the forest. The enactment of the Forest Act 2005 provided a window for community to benefit from the forest, which served as awakening call to the community. Awareness creation especially by NGOs increased community courage to fight for the conservation of the forest and benefit from exotic trees harvesting. Local community members, backed by national and international NGOs, claim that the exotic plantations have ruined the spiritual and local use of the forest. Further that the exotic plantations have resulted in the drying up of a number of rivers emanating from the forest. The hill has been a source of several rivers, which have dried due to ecological changes.

As a result of community concern with forest destruction, the Karima Forest Association was initiated which has initiated rehabilitation of the forest through planting of indigenous tree species. The group has received both technical and financial assistance from several groups among them the Green Belt Movement.

Another issue – highly related to the first one – concerns the right to the exotic tree plantations. The Town Council in Othaya is claimed to have authorized a tea factory and been involved in felling of parts of the plantation without consultation of the local community and without any benefits accruing to the local community. The local community has protested against this and has at various occasions blocked the access roads to the forest. There has also been agitation by the local community to place the hill directly under the Kenya Forest Service under the Ministry of Environment as a gazette site so as to control the destruction.

The Othaya Town Council, assisted by the Kenyan Forest Service, has initiated a process that has resulted in a participatory forest management plan for the forest that stipulates management and use of forest resources including the exploitation of the plantation over the coming five years. The Karima Forest Association has been fighting for a benefit sharing arrangement, which has remained elusive. Forest benefit sharing has remained elusive in others parts of the country also. There is hope that under the new Constitution and a future Forest Management Bill, benefit sharing will become realistic.

The debate and conflicts over the Karima forest has made it to the national press, and brought national and international organizations into the scene.

For further information on the forest and the issues at stake see e.g. the narrative of the Gaia Foundation:

<http://www.gaiafoundation.org/galleries/albums/regenerating-karima-sacred-forest> . And another one by the African Biodiversity Network at http://www.africanbiodiversity.org/content/albums/porini_karima_forest_kenya?page=1

Daily Nation Friday 13th April 2007 by Wilfred Muchire (TT to email article).

The group described the various actors and stakeholders involved in Karima Forest, and analyzed their narratives and actions, the importance of the forest to the livelihood of the local communities and on the basis of this analysis, described ways in which the inherent conflicts potentially could be mitigated. In addition the group looked into desired approach to benefit sharing and ecosystem conservation.

Theme: The opportunities and challenges in coffee production and marketing

Coffee is one of the main cash crops in Nyeri South District. There is a coffee cooperative in the district – the Othaya Farmers’ Co-operative Society Ltd., which was established in 1956 and currently has more than 15,000 small-scale farmers as members (Othaya Farmers’ Co-operative Society undated). The society has 19 coffee factories (pulping units) and in 2010 a dry mill has been acquired with a capacity to produce 10,000 packets of 250 g ground coffee (Othaya Farmers’ Co-operative Society undated). However, most of the production is marketed as green beans. The society markets its produce through two channels: Auctioning and direct selling to customers outside Kenya. The latter is done through the Kenya Co-operative Coffee Exporters Limited (Othaya Farmers’ Co-operative Society undated). Apart from marketing, the society operates a coffee nursery and store outlets for provision of farm inputs. The co-operative is Fair Trade certified. In 2014, the co-operative will initiate collaboration with a Danish coffee company with the objective of further enhancing coffee quality, output and coffee marketing. See more on the society on www.othayacoffee.com .

Yet, farmers are complaining about the low price received from the society and the low transparency of the coffee marketing. This has led some farmers to abandon coffee production or managing their coffee with low levels of inputs (Owuor et al. 2009). These issues are not unique to the Othaya co-operative. Since the deregulation and liberalization of the coffee sector in Kenya in the 1990s similar challenges have been experienced in other co-operatives as well (Mude 2006, Ponte 2001, Ponte 2002). Mude (2006) suggests that the problems are rooted in election capture in the cooperatives whereby self-interested candidates pay farmers for votes at elections for the co-operative board. Second, the Kenyan laws require all coffee growers with less than five acres of coffee to market their output through co-operatives and each co-operative has a legally defined catchment area. This makes it illegal for small-scale growers to sell their production to other buyers potentially willing to offer a higher price. The co-operatives are therefore effectively protected against competition which may discourage them from being efficient (Mude 2006).

The group analyzed the governance of coffee production and marketing in Nyeri South district and the prospects and challenges for further value addition, quality enhancement and price premiums for small-scale farmers. Moreover, the group analyzed the challenges in coffee production at the farm site and the economic feasibility of coffee production under current farm

gate prices, input costs and compared with alternative crops. Based on this, the group made suggestions as to how coffee production and marketing could potentially be strengthened from the view point of small-scale producers.

Theme: The opportunities and challenges in milk production and marketing

“Nyeri South has a very vibrant dairy sub-sector with every homestead owning a dairy cow(s). Milk marketing infrastructure is well developed with a high percentage of morning milk delivered to Othaya Dairy Cooperative society that acts as a link between farmers and milk processors like New Kenya Cooperative Creameries (New KCC) and Brookside among others. Othaya Dairy Cooperative society buys milk at Ksh. 27 per litre and sells at an average of Ksh. 29.50 with the margin used in running the society. The society is making profits and is also able to finance their farm input department which gives farmers inputs on the basis of the amount of milk supplied. Othaya Dairy discourages farmers from selling their produce direct to Brookside, New KCC or any other brokers because of the past history of mismanagement and fraud cases that led to the closure of KCC in the 1990s and the resulting loss of farmers’ cash”(Owuor et al. 2009, p. 3). However, there are also reports in the media of farmers protesting about the lack of payment for milk supplied to the society, see e.g. <http://www.the-star.co.ke/news/article-48269/othaya-dairy-farmers-say-cooperative-not-paying> .

It is reported that households in the district are selling their low milk producing cows for high milk producing ones, and as a result, the number of cows is decreasing but the output of milk increasing (Owuor et al. 2009).

The dairy sector in Kenya was deregulated starting in 1992 when the monopoly for urban milk sales held by KCC was removed and level of support and intervention for veterinary and artificial insemination services were reduced. This has enhanced the role and scope of farmer cooperatives in marketing of milk and provision of feed and other inputs and the provision of veterinary services (Owango et al. 1998).

Parallel to Othaya Dairy, local farmer groups are emerging for local marketing and value addition. Moreover, the dairy goat is emerging as a new livestock in the district (Owuor et al. 2009).

Challenges in milk processing: The cost of processing constitutes 55% of the total cost in the chain due to high cost of packaging materials. Furthermore only 30% of installed capacity of 3 million litres daily is utilized presently. Additionally only 18% of the milk is processed and there is limited product range dominated by fresh milk. Only 3 % of the milk is value added into cheese, butter and ghee meaning a huge opportunity for accelerated value addition exists.

Opportunities: At processing level opportunities exist in expanded production of value added products such as yoghurt, mala, cheese and powdered milk. Purchase of refrigerated vehicles, establishing cooling and bulking facilities, sale of equipment and provision of technical support can be done in the cooling and transport part of the chain. In processing the most urgent

investment required is the capacity to process UHT and powder milk rather than the expansion of fresh milk processing.

The group described marketing outlets available, the governance of dairy production and marketing in Nyeri South district and the prospects and challenges for further value addition, quality enhancement and price premiums for small-scale farmers. The group also considered analyzing the business aspects of production, including the source and cost of feeding and the provision of input services, veterinary and artificial insemination services available to the small-scale producers. It answered the question: does it pay and could it pay more with value addition? Third, the group decided to look into the prospects and challenges and the economic feasibility of goat dairy as an emerging livelihood strategy. Based on their analysis, the group made suggestions as to how dairy production and marketing could potentially be strengthened from the perspective of small-scale producers.

References

MacKenzie, F., 1989. Land and territory: The interface between two systems of land tenure, Murang'a district, Kenya. *Africa* 59: 91-109.

Mude, A., 2006. Weaknesses in institutional organization. Explaining the dismal performance of Kenya's coffee cooperatives. Contributed paper prepared for presentation at the International Association of Agricultural Economists Conference, Gold Coast, Australia, August 12-18, 2006.

Othaya Farmers' Co-operative Society, undated. Information leaflet, unpublished.

Ovuka, M., 2000. More people, more erosion? Land use, soil erosion and soil productivity in Murang'a district, Kenya. *Land Degradation & Development* 11: 111-124.

Owango, M., Lukuyu, B., Staal, S.J., Kenyanjui, M., Njubi, D., Thorpe, W., 1998. Dairy co-operatives and policy reform in Kenya: effects of livestock service and milk market liberalization. *Food Policy* 23: 173-185.

Owuor, B., Wambui, B., Argwings-Kodhek, G., Poulton, C., 2009. The role and performance of Ministry of Agriculture in Nyeri South District. *Future Agricultures Research Paper* 018.

Ponte, S. 2002. Brewing a bitter cup? Deregulation, quality and the re-organization of coffee marketing in East Africa. *Journal of Agrarian Change* 2: 248-272.

Ponte, S., 2001. Coffee markets in East Africa: Local responses to global challenges or global responses to local challenges? CDR Working Paper 01.5. Centre for Development Research, Copenhagen.