LUCID's Land Use Change Analysis as an Approach
for Investigating Biodiversity Loss and Land Degradation Project

Absentee Farmers and Change of Land Management on Mount Kilimanjaro, Tanzania

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The Land Use Change, Impacts and Dynamics Project
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A. INTRODUCTION

Like many regions in Tanzania, the Kilimanjaro region has undergone profound economic and social changes in the last century. These changes have caused a rapid change in the factors of production such as land, labour and capital. This has not only changed production but the very pattern of rural occupations and social formation (Barker, 1989: 60; Mung'ong'o, 2000:97). Moreover, this change has progressively made Tanzania less rural as it was at independence in 1961. For example, it is well documented that the rural population in Tanzania in 1967 was about 95%, and this reduced in size to about 87% in the 1978 and to about 79% in the 1988 censuses. The rural population is now estimated to be about 68% (URT, 1994:28; CPR, 2000:14). In fact these changes have been accompanied by a rapid rise of urban population and adoption of non-agricultural economic activities as people struggle to survive and diversify their means of livelihood (Mung'ong'o, 2000:2).

Generally, all these changes can be summarized as changes in development in the rural areas of Tanzania. As stated by Chilivumbo (1985:XV) , like many other social concepts development lacks a generally accepted definition. More often economists have used the term development as being similar to economic growth but this study will slightly expand this definition to include all processes that increase the capacity of material output. As a whole the aim is to improve the material, social, economic, cultural relations, and living standards of the rural population.

The issue of rural development in Tanzania began during the colonial period when several food crops and cash crops were introduced, including coffee, cotton, sisal, and cashew nuts. The post-independence governments continued the same effort of agricultural advancement as a means of increasing material output of the masses. These advancements led to a gradual change in subsistence farming as more and more farmers began to grow cash crops and food crops that could be marketed at local level. This change was also accompanied by the establishment of marketing infrastructure such as trade posts locally known as *minada* or *magulio,* cooperative movements and banks such as the Rural Development Bank (CRDD). Hence during the post-independence period agricultural improvements have been the basic means of achieving rural development. In order to achieve these agricultural improvements the government and other institutions tried to give assistance by giving agricultural loans, better seeds, fertilizers, tools and extension services to encourage farming and marketing. Also the farmers were encouraged to use modern technology especially the use of modern implements such as ploughs and tractors if possible (Bagachwa, et al. 1995:14).

Furthermore, rural development was assisted by the improvement of various small-scale enterprises, which are predominantly owned by families or households. The most common enterprises owned by these farmers are small groceries or kiosks selling a few commodities which are highly needed in rural areas, such as maize meal, local and modern bars, and repair workshops for properties such as radios, sewing machines, umbrellas, shoes and bicycles (Mung'ong'o, 2000: 105; Mbonile, 2002:21).

A.1. Statement of the problem

It is well documented by Maro (1975) that population pressure on the slopes of Mount Kilimanjaro began sometimes in the 19th century when the Chagga, who were mainly settled in the middle altitudes of mount Kilimanjaro (1000-1500 m above seal level), began to settle in the upper slopes and lowlands. In fact it was the introduction of coffee as a cash crop that slightly alleviated the problem by creating what is called superpopulation pressure. As stated by Kivelia (1997:115) and Mbonile (2000:64), population pressure shows a complex relationship between man and land. It is largely associated with the imbalance between population and the land resources. In fact, it the scarcity of land and other natural resources that has compelled the people on the slopes of Mt. Kilimanjaro to adjust by adopting intensive farming or by changing completely into non-farm activities. They also adjusted by resorting to formal education that would allow them to penetrate into the modern sector. It is the desire

to pursue formal education at whatever cost that pushed people to build several secondary schools to cover almost every division and ward. Besides this, they developed one of the most intensive marketing systems in the country by having almost every village have a trade centre where the people could exchange their commodities by barter or monetary trade (Mbonile, 1999:11). Moreover, in the 1960s the Government made a deliberate attempt to settle people from the slopes of Mount Kilimanjaro to areas with less dense population such as Morogoro Region and Mpanda District in Rukwa Region. Since this approach was top down, it almost failed. However, this failure did not deter voluntary migration from the 1970s that later turned Kilimanjaro Region to be one of the leading regions on out-migration in Tanzania (Mbonile, 1993:121).

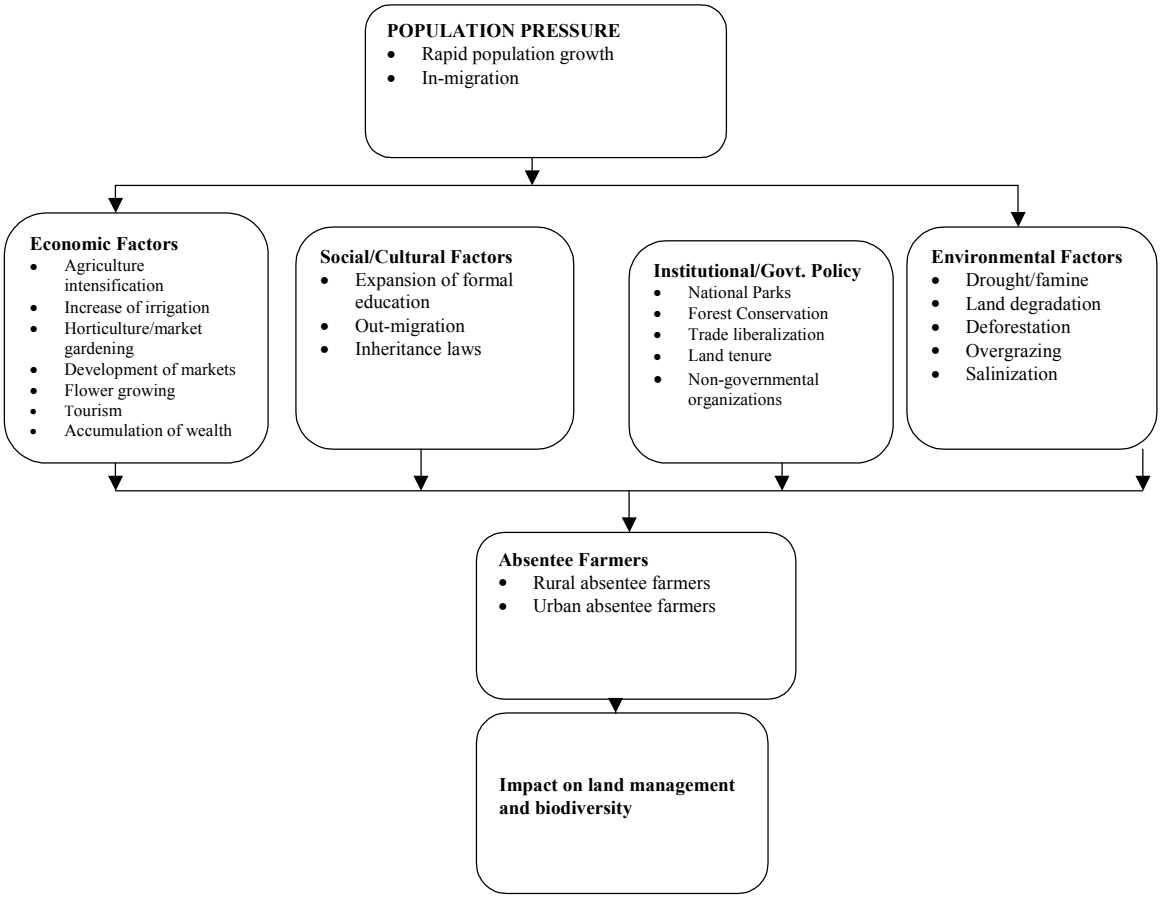
In addition to population pressure, there were other reasons that turned Kilimanjaro into one of the leading regions of out-migration in the country. First, there was the collapse and closure of cooperative unions in the country in the 1970s. The collapse of cooperatives, which were very strong in regions such as Kilimanjaro, and other institutions that had been development pacemakers since 1923 retarded development to a large extent. The re-establishment of these cooperatives in 1983 did not restore cooperatives at the same strength as when they were closed. Adding a nail to the coffin was trade liberalization which allowed private traders to purchase the same crops as cooperatives and hence created confusion among the peasants (Bagachwa & Maliyamkono, 1992). Secondly, the slopes of Mount Kilimanjaro have been cultivated for several centuries leading to severe land degradation and low yields of both food and cash crops. Thirdly is the problem of the decline of prices of cash crops on the world market. This problem was compounded by the presence of diseases such as Coffee Berry Disease that spread from Kenya in the 1980s. In response to the coffee price and disease problems, the people on the slopes of Mt. Kilimanjaro uprooted coffee and substituted it with tomatoes that had a larger market. This solution did not last long because the tomato market became flooded and farmers incurred heavy loss as the crop is perishable. In addition, people responded by migrating to other regions to perform non-farming activities but, since the value of land in Kilimanjaro region is very high, they retained plots on the mountain and became absentee farmers (Mbonile, 1999, 2000). This study will thus investigate absentee farmers and their impact on land use and biodiversity in the region.

A.2. The conceptual framework

The conceptual framework shown in Figure 1 reflects that the people on the slopes of Mount Kilimanjaro have been facing a critical problem of population pressure that has led them to adjust in various ways. Economically they were forced to intensify agriculture and change the type of livestock farming. In addition, they were forced to migrate to the lowlands and other marginal areas to diversify the sources of their livelihood. They also harvested natural resources such as natural grasses and crop stalks and transported them to the highlands to enrich the degraded soil there. Also they introduced new farming systems such horticulture or market gardening, and flower cultivation. They also adjusted by intensifying agriculture through irrigation and applying manure in their farms.

Socio-culturally they adjusted by building more secondary schools and other institutions that could help them to join the formal sector. Others adjusted by out-migrating from the region completely and settling in both rural and urban areas. Those who settled in rural areas, especially in regions such as Coast, Morogoro, Arusha, Mbeya, and Rukwa, became successful farmers. Those who out-migrated to urban areas became successful businessmen. Using the money accumulated in other regions, they constructed good houses at their places of origin and destination, and bought farms at their places of origin and destination leading to the creation of absentee farmers. Moreover, the inheritance laws allow every son to inherit land even when a son has settled elsewhere, and this has also led to the creation of absentee farmers.

Figure 1. The Conceptual framework of processes leading to absentee farmers



The government policy of creating national parks and forest conservation areas has led to more land pressure in the overpopulated area. It is one of the main reasons why the Chagga, who had largely inhabited the highlands, invaded the lowlands. This led to land conflicts between pastoralists such as the Maasai and sedentary groups such as the Chagga. Trade liberalization and other global policies reduced the price of the main cash crops on the slopes of Mt. Kilimanjaro. The whole process became a disaster as farmers abandoned coffee farming to grow alternative crops such as maize and tomatoes. They also abandoned selling cash crops to cooperative unions that were controlled by ruling party (Chama cha Mapinduzi) and other government organs such as the marketing boards (Mbonile, 1999:20).

In fact, these structural reorganization problems were accompanied by environmental factors such as drought that intensified and led to increase in the frequency of famine. The environmental factors such as land degradation due to poor land management, loss of biodiversity through deforestation and bad irrigation systems leading to land salinisation especially in the lowlands. These negative environmental factors produced ideal conditions for the young population to out-migrate from rural areas and turn out to be environmentally uprooted people. Since the value of land in the highlands was high some of these migrants retained the plots at home as absentee farmers. The care of these farms depended on the wealth of the absentee farmer. Those with adequate wealth kept their farms in good order and increased the biodiversity of the area. On the other hand, the farms of poor farmers have been the main source of pests and diseases that decrease the biodiversity of the area.

A.3. Objective and significance of the study

The main objective of the study is to examine the impact of absentee farmers on land management and biodiversity in the Kilimanjaro Region. Specific objectives of the study include:

1. To examine the types of new crops introduced by absentee farmers.
2. To investigate the role of relatives in maintaining the farm and the biodiversity on the farms of absentee farmers,
3. To investigate whether the inheritance of land by every son is still being maintained,
4. To investigate the role of farms of absentee farmers in spreading pests and diseases,
5. To investigate why spouses are refusing to remain in rural areas to maintain the farms of absentee farmers,
6. To forecast the future of absentee farming.

The major significance of the study is to highlight the impact of absentee farmers on development in their area of origin. Absentee farmers like many progressive migrants in the world have been known to set the pace of modernization in the area of origin and destination. The modernization processes always has led to a change in biodiversity.

B. LITERATURE REVIEW

As observed by Chilivumbo (1985:31) conventional studies of migration have unanimously treated rural areas as exporting both humans and crops. They regard urban areas as places that deprive the rural areas of young and energetic manpower. However, it is also well established that rural areas have not only exported but also imported materials, skills, economic benefits and innovations of returned migrants. This view is supported by other scholars like Mbonile (1993,1994, 1995) when he studied the migration and structural adjustment in Makete District. He discovered that during the period of severe economic stress both rural and urban population depended on each other for remittances. Indeed, urban migrants sent manufactured goods such as soap and sugar to relatives in rural areas whereas the rural population sent food to relatives in urban areas.

Chilivumbo (1985:31) in his study of migration in Zambia found that not all segments of the rural population were wholly dependent on agriculture and since the means of production was limited they resorted to small enterprises. Therefore, in addition to farming they established groceries, marketing of clothes and selling essential goods. They were also involved in the marketing of food and cash crops, which were formally marketed by cooperatives and Asians. The other enterprises that are established in rural areas are flour milling machines and sewing machines. In one-way or another the establishment of theses enterprises have reduced the burden of women who for centuries have been milling cereals and sewing clothes by hand.

Almost the same results were observed by Mung'ong'o (2000:103) in his study of non-farm activities in Njombe District. He found that the major non-farm activities found in the district include the brewing and the selling of beer, trading, the running of kiosk and restaurants, butchery, carpentry and masonry. Traditionally these activities were regarded as supplementary but as the diversification of economic activities in rural areas increased, supplementary activities gained a more dominant role in some rural areas. Due to economic reasons, gender roles in some areas also changed. For example, in the past beer brewing and selling local beer were women activities. However, men have now taken up these activities by changing the marketing strategy and using brokers or middlemen who own the *Vikao (*drinking kiosks).

The role of supplementary activities in enhancing the livelihood of rural population was observed by Mbonile (1993, 1994). In his study of the rural population in Makete District he found that many households were involved in petty trade. The petty trade syndicate covered neighbouring districts such as Rungwe, Kyela and Mbarali and was operating in a traditional business partnership called *uvuviya*. In this partnership various traders would reduce the running cost of the business by sleeping in the household of a *muvibaya* before proceeding to the market. The major supplementary activities included brewing and selling beer, masonry, carpentry, running kiosks and selling second hand clothes called *mitumba*

Another study which found similar results is Mbonile (1999:8; 2002: 18) in which people in the Pangani River Basin were found to have shifted from agriculture to the service sector with activities such as shops, bars and guest houses. The farmers in the Basin changed their farming system from the cultivation of food crops and traditional cash crops to the farming of flowers which have a large demand on the world market particularly in Western Europe.

Absentee farmers do not conduct farming activities only in their place of origin. As observed by Hazelwood (1982:27) many urban migrants farm on the periphery of major urban centres such as Nairobi in Kenya and Dar es Salaam. Often relatives or labourers, who are paid meagre salaries, maintain the farms. Briggs and Mwamfupe (1999:274) did a study on the presence of absentee farmers in peri-urban areas. They found that absentee farmers often displace the poorer indigenous population to distant periphery areas or to squatter urban areas. They also discovered that the value of land in the peri-urban areas was high along major roads and close to major water sources. The absentee farmers have introduced new crops in the peri-urban areas such as coffee, bananas and fruit from their place of origin such as Mount Kilimanjaro. Some have changed the farming system from pure peasant agriculture to large-scale plantations. Land management has also changed because, being economically well off, they can afford to apply more farm inputs such as fertilizers.

C. METHODOLOGY OF THE STUDY

The study was conducted on the southern slopes of Mount Kilimanjaro along four transects—Machame in West Kilimanjaro, Kibosho and Mbokumu in Central Kilimanjaro, and in the Kibosho area. The Machame Transect began in the mountain ecological zone at a height of about 1,840 metres above sea level (S 03^{o} 10′ 431′′and E 037^{o} 14′ 301′′). It ended near Kikafu River at place called Longoi. Longoi is located at about 762 metres above sea level (S 03^{o} 25′ 842′′and E 037^{o} 17′ 876′′). As the Machame transect the Mbokomu transect began in the forest zone at about 1,831 metres above sea level (S 03^{o} 25′ 842′’and E 037^{o} 17′ 846′′). This transect ended in the lowlands at a place called Mabogini in Central Rau, which is located at 775 metres above sea level (S 03^{o} 25′163′ and E 037^{o} 22′ 763′′). The Kibosho transect which lies between the Machame and Mbokomu transects and was taken as a control group. It lies between coordinates S03^{o} 14′ 105′′ and E037^{o} 15′ 296′′ in the highland ecological zone and S03^{o} 14′ 111′′ and 037^{o} 15′ 303′′ in the lowland ecological zone.

The villages along each transect were first listed, and then a sample of households was randomly selected from every village. The resultant sample contained 86 households in Machame transect, 100 in Kibosho transect and 52 households in Mbokomu transect. After collecting the data, it was processed using SPSS Windows 2000.

D. RESULTS

D.1. Socio-economic characteristics of absentee farmers

D.1.a. Age distribution

It is important to study the age distribution of absentee farmers because demographic activities of the population such as fertility and mortality usually closely follow the age structure of the population (Wilson, 1985:4; Newell, 1988:25-27). Most people begin to participate in the labour force effectively at the age of 15 and above. This is also around the same age as when young people begin to migrate to where there is a strong possibility of getting employment (Todaro, 1992:222). A study of absentee farmers in Mount Kilimanjaro shows that about 74.7% were in age group 31- 60 years (Table 1). Generally, this is the age when most men acquire land through traditional inheritance or through purchase. In fact, according to Chagga tradition, the main ethnic group on the slopes of Mount Kilimanjaro, every male child has the right to inherit a piece of land from his parents or clan (Mbonile, 1999:10). A small proportion of absentee farmers were in the age group 11-20 (0.6%) and age

group 61-99 (14.9%). There is low proportion of absentee farmers in the young age groups because they have not reached a stage where they can be entrusted with land. The same applies to older age groups because most them have relinquished their land to their children. Besides this, a few elderly people who have retired from the public and private sector have returned to the place of origin to rest.

Table 1. The Age of Absentee Farmers by Age Group

Age Group	Respondents	Percent
11-20	1	0.6
21-30	15	9.7
31-40	54	35.1
41-50	39	25.3
51-60	22	14.3
61-70	5	3.2
71-80	7	4.5
80+	11	7.2
TOTAL	**154**	**100.0**
Mean Age: 46.0		

D.1.b. Education of absentee farmers

It is well established that in most developing countries education is the largest economic activity and one of the largest consumers of public funds. Communities and individual households are also quite prepared to invest heavily in formal education because secondary school graduates are needed in the public and private sectors as clerical workers and technicians. University graduates with their advanced training are required to provide essential professional and managerial skills for a modernized public and private sector (Todaro, 1992:237). Table 2 indicates that the majority of absentee farmers had primary education (44.2%), followed by those who had secondary education (37.0%) and post secondary education (13.0%). A very small proportion (0.6%) had not gone to school, reflecting that the study area is one of the most advanced regions in the country. About 5.2% of the educational level of the absentee farmers could not be ascertained (Table 2).

However, when the levels of education are examined in terms of whether the absentee farmers have out-migrated, it becomes clear that primary education graduates leave their place of origin as negatively selected migrants, or as economically uprooted people. In fact, most leave because the farms they own are too small to sustain their livelihoods. The land is often so degraded that crop yields are too low to economically justify the required labour and inputs. Their out-migration to other places in the country is often a mere shift from the rural traditional to the urban informal sector known locally as *Wamachinga.*

Table 2. Level of Education of Absentee Farmers

Level of Education	No of Respondents	Percent
Non	1	0.6
Primary	67	44.2
Secondary	57	37.0
Post secondary	20	13.0
Not Stated	8	5.2
TOTAL	**154**	**100.0**

On the other hand, those with secondary education and above are considered to be positively selected because their level of education allows them to penetrate the modern urban formal sector. As observed by Hazelwood (1989:35), their well-paid employment permits them to

invest their wealth, including purchasing land at both their place of origin and destination. They can also afford to educate their children who may end up with very little affiliation to their parents' place of origin. In one way or another all these processes of positively selected migration create circumstances that lead to absentee farmers. The creation of absentee farmers of this type has a direct impact on how their farms are managed and the overall biodiversity at their place of origin and destination.

D.2. Spatial distribution of absentee farmers

D.2.a. The place of birth

The impact of out-migration at the place origin varies depending on the pull and push factors. There are certain areas on the slopes of Mount Kilimanjaro that contribute more absentee farmers than others. This is basically because some parts of Mount Kilimanjaro are more degraded than others. An examination of the three transects indicates that the Machame area still maintains its diversity when compared to the Mbokomu area, where indicators of land degradation such as the loss of soil fertility, rills and gulleys are common. However, the data in Table 3 show that despite the fact that the sampling was done along transects, the absent farmers were scattered in all the villages within the ward or division and beyond. The perceptions of the people is that the numbers of absentee farmers is much larger in some villages than others. These differentials in absenteeism were largely created by the decline in productivity in old settled villages such as Kombo Village in Kibosho area, and Tela and Korini in Mbokomu area.

Table 3: The Place of Birth of Respondents by District and Place of Origin

District	Place of Birth	Respondents	Percent
Hai	Machame West, Lyamungo	49	31.8
Moshi (Rural)	Kombo (Kibosho), Marangu, Korini, Mkomongo, Tela, Tema, Uni, Korini Kusini, Korini Kaskazini, Maedeni	98	63.6
Other Places	Arusha	7	4.6
TOTAL		**154**	**100.0**

To verify whether the absentee farmers were from their stated place of birth, they were asked to state their clan names. The clan names indicated that most absentee farmers were from the Kilimanjaro region; the most dominant clan names were Macha, Maeda, Massawe, Nkya, Sakaya, Swai and Moshi . Clan names also reveal information on the control of natural resources, which is done within clan areas. As stated by Pike (1965:95-96), in the past every clan occupied a certain ridge and the head of the clan regulated the use of irrigation water, plots of land *(kihamba*) and other natural resources such as forests. In fact, discussions with the people on the transects indicated that some clan leaders still retain this role. However, with modernization some problems have emerged including the absenteeism of clan leaders, which results in the delay of some critical decisions. Also, some clan leaders are now monetary minded and impose high fees on the use of clan property such as irrigation water, or they may sell sacred lands which had been good sites for maintaining biodiversity. Also they may allow people to clear land for cultivation near water sources, along rivers or near natural springs.

D.2.b. The current place of residence of absentee farmers

As observed by Mbonile and Rugumamu (2002:31), and Kadigi and Mbiha (2000:51) the impact of an absentee farmers on the cropping system and farm biodiversity depends on the distance between the farm and the destination of the migrant. Distance tends to limit the number of visitations and amount of in-puts applied on the farm. A study of absentee farmers in Mountain Kilimanjaro shows that the majority of the farmers stay in other regions (58.5%) which automatically limits the number of visitations to the farm (Table 4). Even worse, the

Table 4: The Place of Residence of Absentee Farmers

Region	Place of Residence	No of Respondents	Percent
KILIMANJARO	Boma la Ng'ombe	3	1.9
	Kiboroloni	2	1.3
	Kimashuku	1	0.6
	Maendeni	1	0.6
	Maendeni-Tema	1	0.6
	Tema	2	1.3
	Londoni	1	0.6
	Korini-Kusini	1	0.6
	Rombo	1	0.6
	Same	1	0.6
	Sanya	1	0.6
	Boda	1	0.6
	Moshi Town	11	7.1
Sub-Total		**26**	**16.9**
ARUSHA	Arusha town	25	16.2
	Babati	2	1.3
	Tengeru	1	0.6
	Mererani	1	0.6
	Monduli	2	1.3
	Namanga	2	1.3
Sub-Total		**33**	**21.4**
OTHER REGIONS	Dar es Salaam	51	33.1
	Dodoma	2	1.3
	Kigoma	1	0.6
	Kilosa	1	0.6
	Kondoa	3	1.9
	Mbeya	3	1.9
	Morogoro	10	6.4
	Mtwara	1	0.6
	Musoma	1	0.6
	Mwanza	3	1.9
	Shinyanga	7	4.5
	Singida	3	1.9
	Sumbawanga	1	0.6
	Tanga	1	0.6
	Muheza	1	0.6
	Turiani	1	0.6
Sub-Total		**90**	**58.5**
	Not Stated	5	3.2
TOTAL		**154**	**100.0**

care of the farms is minimal because most of the visitations occur during Christmas time when people return to their villages to rest rather than to work (Mbonile, 1999: 27). The group of absentee farmers staying in other regions is followed by those whose current place of residence is Arusha Region (21.4%). An in-depth study of this group indicated that they could visit their farms at least three times per year and that they are more likely to care for their farm more effectively. There are some absentee farmers whose current place of residence is in the Kilimanjaro region (16.9%). This group has an opportunity of visiting the farm more than five times per year, and hence has a better chance of looking after their farms. Also, since this group is very close to their traditional home they often attend ceremonies such as weddings and funerals.

It is important to note that there are big differences in how farms are maintained among these sub-groups. In the case of those absentee farmers who are staying in other regions, the level of farm maintenance depends on the success of accumulating wealth and acquiring power at the destination. Rich farmers normally invest heavily in their farms; some have managed to build very expensive houses, and have employed security guards and other workers to care for their farms. Some may have modern livestock and other economically viable activities. Those absentee farmers who are staying in the Arusha and Kilimanjaro regions follow almost the same pattern of those staying in other regions, but they enjoy more the fruits of their farms. Their investment in their home farms mainly depends on the number of farms acquired at their place of destination. Currently there is a strong competition between the farms at the place of origin and those at the place of destination. In this competition it appears the farms at

the place of destination are winning the battle especially now with the large decline in the price of cash crops such as coffee and bananas.

D.3. Type of employment and supplementary occupations at the destination

D.3.a. Type of primary employment

One of the major conditions that determines how the home farm is maintained is the type of employment at the place destination of the absentee farmers. Generally, those in high managerial occupations and successful businesses have a surplus income that allows them to invest in supplementary activities such as farming. As observed by Collier et. al. (1986), casual labourers and those in the informal sector live hand to mouth and so send meagre remittances to the place of origin. As indicated in Table 5, most of the absentee farmers have changed their profession completely and so, in one way or another, farming is treated as a supplementary activity.

As a whole most absentee farmers have resorted to business as their main occupation (33.8%) (Table 5). Also, a high proportion of absentee farmers have joined the formal wage employment sector as clerks and teachers (18.8%). Others are employed as craftsmen and technicians in the government and the private sectors, especially in the tourist, building and transport industries. Moreover, more than 6% of the absentee farmers occupy high administrative and managerial posts that give them a good opportunity to visit their farms by using their own or employer's vehicles and other facilities. However, there is a reasonable proportion of absentee farmers who continue with farming or keeping livestock. This group was pushed from the slopes of Mount Kilimanjaro due to the scarcity of land and the decline of crop productivity or price, but they retain their home farms for the tradition of having at least a *kihampa* at home. Others are engaged as casual labourers or activities such as the army/police, mining and studying. The reason that people provided for why migrants left was similar to that found in previous studies—as long as farming does not pay, young farmers will out-migrate to where there is a prospect of improving their standard of living. As in the case of migrants from Makete in the Southwest Tanzania, business appears to be the best alternative at present to liberate the environmentally and economically uprooted farmers from poverty (Mbonile, 1994:256-262; Mbonile & Rugumamu, 2002: 43).

Table 5. Type of Employment at the Place of Destination

		Type of Primary Employment
Activities	**No of Respondents**	**Percent**
Farming/livestock keeping	18	11.7
Administration/Managerial	10	6.6
Business	52	33.8
Craftsmen/Technicians	20	13.0
Clerical/teachers	29	18.8
Casual labourers	11	7.1
Army/police	4	2.6
Miners	1	0.6
Student	2	1.3
Not Stated	7	4.5
TOTAL	**154**	**100.0**
		Supplementary Occupations
None	84	54.5
Farming/livestock keeping	28	18.2
Business	40	26.0
Craftsmen/Technicians	2	1.3
TOTAL	**154**	**100.0**

D.3.b. Type of supplementary occupations

Another indicator that reflects the interest of absentee farmers in their home farm is the type of supplementary occupations that they do at the area of destination. It is more likely that those who continue with cropping or livestock keeping at the area of destination will value the farm at home. Those who have changed completely their pattern of life are more likely to invest in activities other than farming. Table 5 confirms this—more than 54% of the absentee farmers do not have a supplementary occupation, which indicates that they have already turned their backs to agriculture or, due to low income, they cannot afford to purchase and maintain a farm at their area of destination. As for those who have supplementary occupations the majority conduct business (26%). There is still a reasonable proportion of absentee farmers who are engaged in agriculture as their supplementary occupation (18.2%) while others are craftsmen and technicians (1.3%).

D.4. The impact of absenteeism on the farms left behind

D.4.a. People caring for the farms of absentee farmers

The cropping system and biodiversity of the farm usually depends on the people living on and caring for the farm. It is quite common to find that farms cared for by wives are better maintained than those left under the care of relatives or other people. A study of absentee farmers in Kilimanjaro shows that most farms are cared for by relatives (42.2%) while others are cared for by wives and children (26%) (Table 6). A proportion of farms are cared for by workers (16.9%). However, there is a reasonable proportion of farms that are completely abandoned by the farmers; their land is probably under bush and unpalatable species of plants.

Table 6. People Caring for the Farms of Absentee Farms

Type of Person	No of Respondents	Percent
None	23	14.9
Wives/children	40	26.0
Relatives	65	42.2
Workers	26	16.9
TOTAL	**154**	**100.0**

Discussions with people who are caring for the farms of absentee farms revealed that the presence of relatives in the farms does not always guarantee proper care for the farms. Since the relatives have their own farms, the heavy load makes them abandon the farms of the absentees. Even worse, some farms are left under the care of elderly relatives who fail to take care even of their own farms. These farms also do not receive the necessary farm in-puts such as fertilizers and insecticides because absentee farmers do not remit adequate money for their purchase. The strategy of leaving farms under the care of wives or children is gradually being abandoned because modern wives/children are not prepared to remain in rural areas while the husbands/parents are enjoying life in urban areas. People expressed the opinion that only the rich people can afford to hire labourers, and they castigated the idea of building huge houses in rural areas where they cannot be rented out. They had the opinion that these huge castles should be built in towns such as Moshi where they could be rented for huge sums of money, and a portion of this could be used to care for the elderly population left behind. The demise of abandoned farms is clearly stated by Aneth Swai of Kwa Kombo Village in Kibosho transect:

> *"In the past the Kihampa (farm near the homestead) was inherited by the last male child but nowadays these children escape these cardinal obligations by migrating to towns. When they go there they never return and some of them shun even holding a hoe. Therefore, if the farm does not generate adequate funds it is left to die a natural death or ends up being sold and the whole clan migrates to other places."*

When people who are maintaining the farms of absentee farmers were asked to state the kind of activities they perform in these farms, the majority said that they both cultivated and

guarded the farm. Only a few were in school (5.3%) or doing other activities (7.2%) (Table 7). This is similar to the labourers. Almost an equal proportion were farming or acting as security guards for the farm to prevent people from changing the farm boundaries or stealing crops or other property. Most of the farm workers were not indigenous to the area. They were largely migrants from the central zone such as Singida and Dodoma regions. Also a few originated from Arusha region in districts such as Babati and Mbulu.

Table 7. The Type of Activities Done by People in the Farms of Absentee Farmers

Type of Activities	**Response Frequency**	**Percent**
	Wives/Children in the Farm	
Farming	98	43.5
Security	99	44.0
Schooling	12	5.3
Other activities	16	7.2
TOTAL	**225+**	**100.0**
	Workers in the Farm	
Farming	17	46.0
Security	15	40.5
Other activities	5	13.5
TOTAL	**37***	**100.0**

Note: + Frequency obtained from wives/children; * Frequency obtained from workers only.

D.4.b. Type of crops grown in the farm

Usually the types of crops grown on the farm reflects the number of visitations of the absentee farmer to the farm. Perennial crops such as coffee and bananas need less labour than seasonal crops such as beans and maize. A study of absentee farmers on the slopes of Mount Kilimanjaro indicates that most grow traditional crops such as bananas (33.2%) and coffee (30.2%); this confirms our hypothesis that they limit their visits to these farms (Table 8). The other crops that are grown by absentee framers include beans, potatoes, vegetables, maize, cocoyams, fruits, fodder grass, yams and sunflower. Due to lack of firewood in Kilimanjaro region, several households have also planted trees on the farms (12.7%). In fact, some households have woodlots to supply this scarce resource to the household and to sell to neighbouring households. Fodder grass is becoming one of the major components of farms due to zero grazing and the introduction of modern cows in the region. On the other hand, some farms have been completely abandoned and have reverted to bush.

Table 8. Types of Crops Grown in the Farms of Absentee Farmers

Type of Crops	**Frequency Response**	**Percent**
Bananas	123	33.2
Coffee	112	30.2
Trees	47	12.7
Vegetables	20	5.4
Maize	22	5.9
Fodder grass	20	5.4
Cocoyams	8	2.2
Fruits	10	2.7
Sunflower	1	0.8
Not stated	8	2.2
TOTAL	**371**	**100.0**

D.4.c. Methods, year and type of acquiring land

One indicator of how serious absentee farmers care for their farm is the way they acquired the farm and the type of land acquired. As a whole, a study of absentee farmers shows that most of the absentee farmers acquired the land through inheritance. As stated above, under normal conditions it is the tradition of the Chagga for parents to distribute the clan land to every male child of the household. Therefore, some absentee farmers were given land simply because they were male children and they have very little interest in maintaining it. However, since it is clan land they cannot sell it to other people. Inheritance leads to more parcelling of land and it reaches a stage when these plots become worthless in terms of both food and cash crop production. When this stage is reached the absentee farmers reduces the number of visitations to the farm. The other methods of acquiring land include buying (7.8%), renting (1.9%) and other methods (0.7%) (Table 9).

The peak periods of when absentee farmers acquired their land are 1990-1999 and 1980-1989. As indicated in other studies (URT, 1983, 1994, Mbonile, 1993:82; Mbonile, 1999:14), this coincides with the period of heavy out-migration of the rural population from the Kilimanjaro region. The change of economic activities conducted by the migrants from farming to non-farming activities might have changed their attitudes towards their home farm. The problems associated with them neglecting agriculture may be aggravated by the type of land the absentee farmers acquired. Most acquired crop land and so if the parents or relatives are still surviving it is very difficult to distinguish which crops belong to the parents and which belong to the absentee farmers, especially when they are still in the same compound or homestead. Other absentee farmers have acquired types of land such as forest, grazing lands and others.

Table 9. Methods, Year and Type of Acquiring Land

Methods of Acquiring of Land	**No of Respondents**	**Percent**
Bought	12	7.8
Rented	3	1.9
Inherited	138	89.6
Government/village	-	-
Others	1	0.7
TOTAL	**154**	**100.0**
Year Land Acquired	**No of Respondents**	**Percent**
Before 1960	10	6.5
1961-1969	21	13.6
1970-1979	23	14.9
1980-1989	37	24.0
1990-1999	53	34.5
2000-2002	10	6.5
TOTAL	**154**	**100.0**
Type of land acquired	**No of Respondents**	**Percent**
Forest	3	1.9
Grazing land	20	13.0
Bush	16	10.4
Crop land	93	60.4
Others	2	1.3
TOTAL	**154**	**100.0**

D.4.d. Farm size and type of farm ownership

The farm size and type of ownership of the farm are among the major determinants of how the farm will be cared for by the owner. A study of absentee farmers in Kilimanjaro shows that most of the absentee farmers own less than an acre of land (42.9%). Combining these with farms of 1-2 acres (41.6%), a total of 85% of the farms of absentee farmers can be classified as small farms (Table 10). Most of these plots were cropped which gives very little room for leaving the land fallow or introducing new methods of land conservation. The survey revealed that out of 154 respondents, only 7 had title deeds, which hinders the farmers from acquiring loans to improve the productivity of the farms. Above all, only 43 out of 154 respondents hired labourers to cultivate or provide security on their farms.

In the case of livestock ownership, only 29 of the surveyed 154 absentee farmers owned livestock. The main type of livestock kept are crossbred cattle or modern livestock (58.9%). The proportion of traditional livestock is small simply because the people in the area have reverted to modern livestock which yield at least twenty litres of milk a day. The other types of livestock kept in the area include goats, sheep and pigs. The scarcity of land in the region compels farmers to practice zero grazing. It is only a few areas where common grazing grounds have been established. The livestock provide milk, meat and manure for enriching the intensively cultivated farms.

Table 10. Farm Size, Land and Livestock Ownership

Farm size	**No of Respondents**	**Percent**
<1 acre	66	42.9
1-2 acres	64	41.6
3-4 acres	20	13.0
5-10 acres	4	2.6
TOTAL	**154**	**100.0**
Livestock Ownership	**No of Livestock**	**Percent**
Traditional livestock	15	8.1
Cross-bred cattle	109	58.9
Goats	37	20.0
Sheep	23	12.5
Pigs	1	0.5
TOTAL	**185**	**100.0**

D.4.e. Soil conservation measures

The presence of the farmer in the household is very important for soil conservation and related investments including the application of fertilizers and use of irrigation. A study of absentee farmers in the study area reveals that several measures have been taken to reduce land degradation or increase the fertility of the soil. These include traditional fertilizers such as animal manure (36.5%) and household residue (9.9%) (Table 11). Nonetheless, the proportion of those using household residue is low because most absentee farmers do not reside in these areas. Other measures practiced include the use of terraces such as *fanya chini/fanya juu* (16.6%) and other types of terraces (18.9%). Since the price of farm in-puts is exorbitant, very few absentee farmers use chemical fertilizers and few use other methods of land conservation such as mulching. Moreover, some of the abandoned farms do not use any form of soil conservation (9.9%) (See Plate 1 and 2).

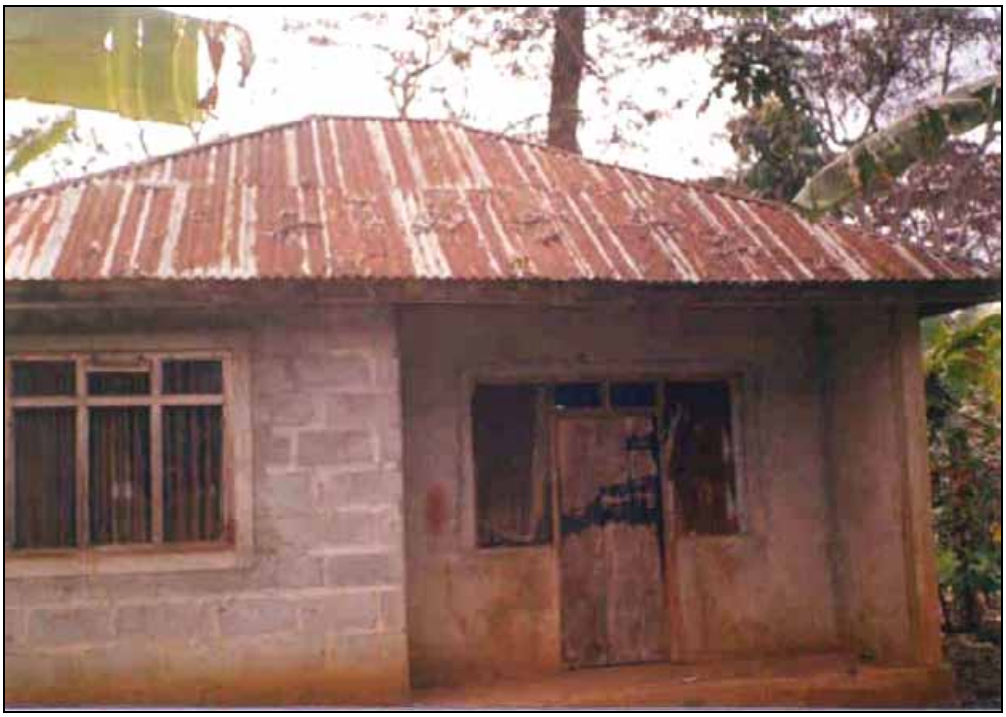


Plate 1. An Abandoned House of an Absentee Farmer

Plate 2: Poor Crops and Severe Land Degradation on an Abandoned Farm

Absentee farmers face a combination of problems when managing these farms. These include a lack of funds to manage the farm at a distance (16%). They also face the problem of receiving no help from relatives or family members (18%). Relatives complain that it is very difficult to maintain both other people's farms and their own (21.8%). Other problems mentioned include the small size of farms (7%), a lack of markets for their products (11%), a decline in soil fertility with the high price of farm inputs, and sometimes neighbours change the boundaries of the farms (4%) (Table 10). The farmers had no solution to these problems.

Table 11. Land Conservation Methods Used by Absentee Farmers

Method	**Response Frequency**	**Percent**
Household residue	21	9.9
Animal manure	77	36.5
Fanya Chini/Fanya Juu	35	16.6
Terraces	40	18.9
Chemical Fertilizers	13	6.2
Others	5	2.4
None	20	9.5
TOTAL	**211**	**100.0**
Problems Faced	**Response Frequency**	**Percent**
Lack of money	51	16.3
Small Farms	23	7.4
Lack of help	55	17.6
Poor maintenance	68	21.8
High price of farm inputs	70	22.4
Lack of markets	34	10.9
Change of boundaries	11	3.5
TOTAL	**312**	**100.0**

E. CONCLUSION

In the past two decades the slopes of Mount Kilimanjaro have undergone numerous economic changes that have led to a generation of absentee farmers. In turn these changes and the growth of the number of absentee farmers have influenced farm management and biodiversity of the region. As a whole most absentee farmers are of working age and are primary school graduates.

The majority of absentee farmers originate in areas with poor land management coupled with land degradation and loss of biodiversity. Only 16% currently reside within the region and 21.4% reside in neighbouring regions. The remaining 59% of the absentee farmers reside in areas where they cannot easily manage their farms and hence cannot easily influence the farm's biodiversity or land management.

In terms of occupation most absentee farmers have adopted different activities from farming in their destination areas, which may lead to them having less interest in farming their home farm. Only a small proportion of absentee farmers are still engaged in farming (11.7%) with the majority being engaged in formal or informal business. Due to the current retrenchment programmes being undertaken in the country, few are employed in managerial and administrative occupations (6.6%), or as clerical/teachers (18.8%). Some are employed as casual labourers (7.1%) and as craftsmen/technicians (13%). The common supplementary occupations at the area of destination are farming/livestock keeping or business, and as such hinder investment at the place of origin.

Most farms of absentee farmers are being maintained by relatives (42.2%) or by wives and children (26%). However, discussions with the people revealed that the relatives caring for

the farms are usually elderly parents who have little energy to care for both their farms and those of absentee farmers. Only 16.9% of the farms of absentee farmers are cared for by labourers.

The major types of crops grown by absentee farmers include perennial crops such as coffee and bananas that require few visits to the farm. The low rate of adoption of soil conservation in the region has also encouraged land degradation. Most of the land of absentee farmers has been obtained through traditional inheritance. Traditional inheritance practices, in which all sons inherit land even if they have been educated and which has led to the severe parcelling of land, has contributed to the development of the generation of absentee farmers. Another factor that has encouraged the departure of farmers is the small size of the farms. When farmers realize that they cannot make ends meet, they migrate to other regions.

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