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**PEASANT MODE OF PRODUCTION AND LOW PRODUCTIVITY: A STUDY
IN BUHOMA DISTRICT, RUHENGERI PROVINCE OF RWANDA**

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DEDICATION

This project paper is dedicated to my wife Bugenimana Esperance, my brother –in-law
Rev. Mr. and Mrs. Rucigitaramo, my children, and all my friends and relatives.

This Project Paper is my original work. It has not been presented in part or in full in any other university or academic institution.

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Signature  Date 16-10-03

This project paper has been submitted for examination with our approval as university supervisors.

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ABSTRACT

The different ways in which peasant use their available resources to produce both social and material products have for long thought to associated with low productivity. The farm inputs used and the activities as well as practices involved in peasantry production process were either said to contribute to low agricultural production or to affect the individual' s ability to produce.

The main objectives of this study were to look into how the farm inputs used in peasant mode of production, including land use and cropping patterns in Buhoma district contribute to low agricultural production. The study also aimed at assessing how personal characteristics of the small scale farmer influence their level of productivity, on one hand, and how individual' s involvement in peasantry affect his/her personal profile on the other.

The rational of the study was to expose peasants in Buhoma district and else where in the developing countries to different ways in which the production among peasants is brought about, and the major obstacles that slow its realization. To this extent, many peasants would learn to exploit the alternative used that might be more beneficial and affordable for their betterment; hence contributing to the rural development as a whole.

Many scholars including Atiurrahman (1986) observed that low productivity among peasants could as a result of relying much on the family labor.

The theory of the peasantry also maintain that peasant mode of production' s low ability can be explained by its strong reliance on the unpaid family labor. In addition, the modernization theorist maintain that peasantry low productivity is due to the fact peasant peasants rely on the traditional way of production, and suggests the introduction of modern technology as a way of improving productivity. However, the ecological theorists consider both the internal and external environment to also have power to influence peasantry production process.

The field observations in Buhoma district found that peasant mode of production could also lead to low productivity in some aspects. On the part of the individual peasant suffering the peasant mode of production, it was observed that people who had involved too much in some of the peasant activities missed the opportunity to further their education, hence lowering their ability to produce to the desired results. On the part of the peasantry production process, the study revealed that some different forms of land use and cropping patterns could lead to low productivity in some crops. For instance, fixed tenant arrangement, share cropping, and others were appreciated for providing access to land for production for those with little or no land at all, but criticized for not allowing both tenant farmer and peasant landlord not to have access to production of certain types of essential cash crops because of having a temporary right to land. In terms of crop growth, the study revealed that some modern farm inputs such as chemical fertilizer could lead to slow crop growth, in some cases instead of speeding it up as it was commonly believed.

CHAPTER ONE

BACKGROUND

1.0.0. Introduction

Rwanda is a small country in East Central Africa, bordered on the north by Uganda, on the east by Tanzania, on the south by Burundi, and on the west by lake Kivu and the Democratic Republic of Congo. The area of Rwanda covers 26,340 sq Km with a population of around 8,162,715, making the country one of the most densely populated in Central Africaa (Rwanda, 2002:2). Because of the population density, some peasants especially hardly get enough land for production. A study on house hold economy analysis of the rural population of the Umutara region of Rwanda found that 12 to 15 % of the district' s population are the peasants who depend partly or fully on tenant farming arrangement for their livelihood (World Bank Report, 2002:1). Also the findings in Buhoma district revealed that nearly 67.5 % don't have enough land of their own, but struggle hard to get most access to food production alone. Else where in the world, the number of people being employed under this agreement has been increasing even further by 1% each year from 1983 (Resource Scarcity and the Changing Structure of Landholding, 2003: 3).

Having the farming as the most affordable way of living, nearly 85 % of the population in Rwanda practice slow scale agriculture with their simple tools and hand implements.

(Rwanda Human Development Report,2001). In the Buhoma district, these locally produced tools include for example, hoe for cultivation, and the basket for taking animal manure to the field for fertilizer. Other farm inputs commonly used but not locally produced are chemical fertilizer and other modern agricultural tools and equipments. Based on these inputs used, and its slow production nature, Liberson (1981: 6-7) referred to that system of production as a peasant mode of production. In addition to the material inputs used, Liberson considered the use of unpaid family labor as another distinguishing character that affect the peasantry production process (ibid).

1.0.1. Problem statement

In many of the rural areas of the developing countries, many individuals still rely on slow scale peasant mode of production characterized by traditional farm inputs and unpaid family labor (Klein, 1980: 52). The problem however is not much in the inputs used, but in the results produced in comparison with the time taken. The result in many instances has been the low productivity among many individuals living in the rural areas. The research done in the rural areas of Tanzania, for example, found that many individual spend much of their time looking after their animals with other little time for other development activities (Worlfgang, et.al, 1983: 30). In Buhoma district, peasants were found to be spending a relatively less time because of the limited number of livestock, including chickens, goats, and other domestic animals usually kept at home. In addition, the research also found out that nearly every household produce a subsistent amount of crops for family consumption but they also spend much time waiting for the animals to gather enough manure for fertilizer. Both the study in Tanzania and the findings in

Buhoma district reveal a productivity problem in peasantry production process. On one hand, there was low productivity in terms of the quantity produced and on the other there was a problem spending much time in peasantry on the expenses of other development activities.

Further research in Tanzania for example assessed the productivity not only in the amount produced, but also in the results produced in relation to the time taken by individual peasants. Rudengren (1981:24) observed the role and the time the individual children spend in that production process, especially in looking after animals, and think that some individual peasants could not produce much because of the limited number of household members involved in that production.

Rudengren however slightly differs with Worlfgang, et.al. He assesses the likely result of involving too much in peasant activities. For instance, the scholar appreciates the fact that children can look after the animals, but question how that can affect their opportunity to go to school, which later on in the future will affect their productivity, as further research in rural areas of Tanzania revealed (Mustafa, 1981: 24). So according to the observation, the issue of productivity among peasants is more than a mere consideration of the amount produced. It extends further to the result produced as a result of the amount produced.

In some cases, the peasant is torn in between the two resulting productivities of the peasantry production process, and the huddle becomes that of dividing time between and among the many peasant activities. Further advocates for the children to go to school, but

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considering how this will reduce the peasant household labor power hence lowering the productivity, the scholar, suggests that students should go to school, and tend to the animals in their free time (Hydden, 1981: 24). Again the problem will still be with those children who go to boarding schools and colleges.

The other problem in peasant mode of production is whose productivity is impaired or enhanced by the production process. One of the characteristics of peasant mode of production is the use of unpaid family (Hydden, 1980:12). In the above discussions, the study observed many incidences of the family members being involved in the peasantry production process, but none of the scholars mentioned any of those individuals being paid, and according to Hydden (ibid), it seemed that peasantry production process most of the time enjoys the unpaid family labor. According to the findings, peasant household with single member in the peasantry production could not produce as much as those with at most 2 members, but the households with too many family members in their slow scale agricultural production were also found not to be doing any better.

In addition, relying on unpaid family labor may further affect productivity as some individual peasant may not have enough household members while others will have too many of the household members in relation to the peasant activities to be done. In Rwanda where about 800,000 people died in civil war and in the 1994 genocide (United Nation and Rwanda, 1996: 214), some families may have very few household members, hence leading to some activities not being done or done poorly.

Also in Rwanda, where the population growth of about 3% coupled with further fragmentation of land has contributed greatly to decline of individual peasant land size, and to its low productivity (World Bank Report, 2002: 1). Having too many individuals involved in peasantry production process may lead to people being squeezed in cultivating a small piece of land over and over again, usually with their simple tools and hand implements hence leading to low soil productivity. It can be argued that those without land can rent a piece of land instead of staying idle, but the arrangement is also criticized of being insecure as some peasants have to hand over as much as 50 to 60 per cent of the harvest to their landlord, and besides that still even face a constant threat of being evicted (George, 2001:133). Also, because of having a temporary right to land use, nearly all peasants in tenant farming arrangement in Buhoma district never produce cash crops and other crops that take a relatively long time to get ready for the harvest.

The use of traditional hand implements in the peasant mode of production is another factor that leads to low productivity. Scholars have found that traditional farm tools are so crude that peasant farmers using them produce hardly enough for their family. They give an example of traditional mattock used for breaking and loosening the soil in Morocco, and how it is associated with low productivity (Sedon, 1981: 69). In addition these traditional equipment also take much more time than the modern ones. For instance, while it takes a whole day to till an acre by hand, it only takes an hour to till the same by tractor (Rasmussen, 1982:68). The situation becomes even worse with the traditional cultivation often found in many peasant communities. In Tanzania for example, some of the ways of cultivating and making fertilizer include clearing forest, and cutting small

trees which are burnt and covered with soil shortly before planting (Friis, 1987: 40). In the process, soil nutrients are burnt and destroyed and the yield drops to a very low productivity (Odegi-Awuondo et.al, 1994: 5). As Friis further observed the peasant waits at least for five years to get the land back to its normal productivity.

Many efforts have been tried to get peasant work in a better productive way. The introduction of modern farm inputs such like chemical fertilizer and working machines were believed to speed up production among the rural peasants. However one of the reason as to why those measures may not fully solve the problem of productivity is that the efforts were put more on the material instead of focusing on people as Chitere (1994) suggests. For instance although the use of chemical fertilizer was believed to speed up crop growth, it instead lowered the ripening process of some crops like tomatoes and others alike (Gustofson, 1982: 68), because of some peasant using too much of it. Also it is believed that modern tractors can work much faster than traditional hand implements, but some peasants in Buhoma district found them not very appropriate to work in their banana plantations.

Also farming arrangement, including tenant farming and share cropping, provide an alternative access to both land and non family labor, but creates problem of uncertainty as the tenant peasant has no permanent right on land, and can never make any permanent investment on the rented land. The purpose of this study therefore was to look into how the peasant mode of production leads to low productivity in terms of the desired end results in social and material life sustaining products among peasants in the district of

Buhoma. For this to be achieved, the following research questions had to be answered.

1.0.2. Research questions

How do personal characteristics of the individual peasants in Buhoma district influence their level of production?

How does individual' s involvement in peasantry of the Buhoma district lead to lowering his/ her ability to produce?

In which ways do the farm inputs used in peasant mode of production in Buhoma district contribute to low productivity in the peasantry production process?

How is the land use and cropping patterns among peasants in Buhoma district associated with low productivity?

1.0.3. Research objectives

The overall goal of this study is to analyze how the inputs used in peasant mode of production, including arable land, animal and material inputs, and family labor inputs lead to low productivity among peasants in Buhoma district of Rwanda.

The specific objectives include the following:

To identify how personal characteristics of the individual peasants in Buhoma district influence their level of production.

To find out how individual's involvement in peasantry production of the Buhoma district leads to lowering his/her ability to produce.

To investigate how different ways farm inputs are used in peasant mode of production in Buhoma district contribute to low productivity in the peasantry production process.

To assess how land use and cropping patterns among peasants in Buhoma district is associated with low productivity.

1.0.4. Justification

A question one may ask is “ why is the study on peasant mode of production and low productivity considered as a social problem, and yet it looks more of an economic problem? As Hanawalt (1986: 109) observed, a study of the peasant mode of production and how it leads to low productivity will help to make a coherent study of how peasants organize and use their traditional farm inputs in their day-to-day agricultural activities.

The study carried out in Kenya found that a peasant farmer is particularly apathetic and indifferent, and that he has very little motivation to work (Odegi-Awuondo et.al 1994:39). The research however did not explain in details the reason why peasants have

little motivation to work, though it implies that one of them includes using poor inputs.

So in this study, peasants both in Buhoma district and elsewhere in the world will be exposed to different ways and farm inputs used by peasant and how they contribute to low productivity. To this extent many peasants therefore will learn and exploit the alternatives used that may be more beneficial and more affordable for their betterment, hence contributing to the rural development as a whole. Likewise, the study will assist the decision makers especially the Ministry of Land and Rural Development in Rwanda or other organizations and individuals interested in the well-being of the Rwandan rural community to consider seriously the poor peasant's effort as it contributes to their own development activities, despite the fact that productivity among them is relatively low.

1.0.5. Scope and limitations

It is certain that that peasant mode of production is not always associated with low productivity. However this study will focus on peasant mode of production and low productivity. Being concerned with the development of the peasant community, I have a feeling that for peasant to know the weaknesses of their production model will serve as the starting point in looking for the solution to some internal factors that hinder development and high productivity among peasants.

This study of peasant mode of production and low productivity will focus more on the traditional farm inputs, such as tools including traditional hoe, animals, family labor among others. The low productivity in this study will not be measured by the quantity of

agricultural products, as it is usually done in economic terms. Instead, it will be measured by how it contributes to the peasant's well being. For example the production will not be said to be low because of being of a certain amount, but because of not being able to help the peasant in order to get access to some of the essential social facilities and basic needs such as education, good nutrition, a good living standard, among others.

The study will focus only on the peasant mode of production. That is the peasant way of using the peasant available resources to produce social and material life sustaining products, in accordance with the peasants' definition and the peasant mode of production as discussed in the above sections. The emphasis will be on Buhoma district of Ruhengeri province in Rwanda, because of its unique characteristics of having relatively large number of peasants, and its ability to produce/ rear nearly all the major livestock, cash crops, as well as food crops produced in the country, though with low production. However, a review of the peasant mode of production, its inputs, and its productivity elsewhere in the developing countries will also be highlighted. The approaches used will be both qualitative and quantitative, as Ragin noted that qualitative and quantitative are not anti one another (Ragin, 1985 quoted in Mbatia, 1992: 9).

The respondents or the sources of primary source of information will only be the small-scale agricultural producers who, with simple equipments and their family labor produce mainly for subsistence living, these in Shanin's words are the peasants (Shanin, 1972:240).

1.0.6. Definition of key terms

The Peasant/ peasantry: Among social anthropologists, peasants have been defined by their cultural habits and norms, narrowness of vision, and clinging to tradition. (Marshall, 1998: 487). The indicators of this include relying more on natural land and unpaid family labor, using poor and traditional equipments, which later lead to low productivity (Saul and Wood in Klein, 1980: 10). Also according to Shanin (1972:151), peasant is a slow scale agricultural producer who with simple tools and family labor produce basically for the family consumption, and a small surplus for the market. So the starting point for Shanin's definition of the peasant is the speed at which the peasantry production moves together with the results produced.

Peasant mode of production: Peasant mode of production in this study will be used as the production process through which peasant use their available resources to produce both social and material products for their well-being. It will be measured by the inputs used these are arable land, family labor, and animal as well as traditional tools and equipments.

Land: Mbithi (1974: 88) defines land as that area from the atmosphere above the surface to some meters below the soil surface. In this study however, land will be used to refer to arable land. It will be measured by the arable soil, the ability of the soil to support cultivation, the fertility of the soil, and the vegetation of the soil.

Family labor: Family labor in this study refers to labor which is not hired and paid for in terms of wages (Akubuilu, 1977: 6).It is measured by the specific member of the family

involved in peasant production process, their ages, their gender, and their specific tasks and activities.

CHAPTER TWO

LITERATURE REVIEW

2.0.0. Introduction

The purpose of this chapter is to review and incorporate relevant information that provides conceptual and theoretical framework for this study. The chapter consists of selected topics related to peasant mode of production, the inputs, both human and material inputs, and how they contribute to low productivity among peasants. The selected topics include land inputs and different tenant arrangements, the animal and material inputs used in the peasant production process, and how the unpaid family labor inputs is used in peasant mode of production.

2.1.0. THE PRACTICES AND DIFFERENT WAYS IN WHICH LAND IS USED

Land in peasant mode of production is the main input, and is used in different ways. It can be used for one's own cultivation of food and cash crops, rented out in tenant farming arrangement, or kept fallow as a grazing land for animals (Kumar et al, 1996: 45).

2.1.1. The practice of cultivation

According to Nesman (1981: 17), cultivation can be said to be the total sum of almost all activities involved in peasant mode of production. In developing countries, however, this practice is criticized for being done in a traditional way, which leads to low productivity among peasants. This is especially seen in some of the activities and the long process that some of the activities take to get to the final results. In Bangladesh for example,

peasants rely on shifting and clearing of the forest to allow shifting cultivation of the traditional staple food, but once the forest is cleared it may take at least 30 years to recover to its former growth (Atiurrahman, 1986: 73). This means that peasants will have to wait for a period of thirty years if at all they have to do the same practice. Alternatively, they may continue cultivating the same land, especially if they don't have an alternative, but the productivity will be relatively small.

In other countries of the East and Central Africa, peasants no longer have even forests to clear to allow for shifting cultivation, as they historically did. Currently, they rely on the intensive cultivation, and as the study found out, the more the land is worked on the more susceptible it becomes to erosion (Klein, 1980:119). As it can be observed, the number of time the land is worked in the intensive cultivation seems to increase or decrease soil productivity. So peasants in intensive cultivation seem to be released from waiting for 30 years for his or her land to recover, but still face the challenge of erosion. The peasant is torn in between: To wait for a long period of time for a more productive soil, or to opt for intensive cultivation with low soil productivity, which will also affect the agricultural yield depending on the crops produced.

2.1.2. Cash and food crops among peasants in Central and East Africa

Another element to consider in peasant cultivation is the type of crops being cultivated, and the way they are planted and maintained. In Mexico of the Latin America, for example, the staple food crops mostly planted are cassava, sweet potatoes, corns, maize, among others (Rello, 1997: 19). In Kenya and Tanzania, the common crops among many

peasants are also maize, cassava, sweet potatoes, Irish potatoes, among others. Historically some of them entered Africa after 1492, hence some local communities call them American crops (Opio-Odongo, 1992: 25). So as it can be noted, cultivation in the highlands of Mexico, and many parts of Africa is still largely confined to traditional cultivation of food crops (Robert, 1978: 203). In the Buhoma district, cassava is also one of the staple food, but by the time the study was being carried out peasants were shifting from those crops that take a long time to mature for the harvest to the ones that take a shorter time.

Unfortunately, most of cash crops also take a long time to grow for the harvest, and as a result of that, the production of cash crops was relatively low in the district. Some individual peasants, especially those who were not using their own land could not produce cash crops as their rights on land were seasonal and on short term agreement. While this can not be felt at the individual level, the country may experience a decline in foreign exchange as that is usually received through exchange of cash crops such as coffee, tea, and cotton, among others.

2.1.3. Livestock and traditional animal keeping

The livestock reared include cattle, sheep, goats, chicken, among others (Livington, 1971:39). The next section discusses the tradition of animal keeping in other peasant communities.

Most of the studies done in developing countries seem to agree that rearing of animal in most parts of Asia and Africa is still carried on by nomadic herdsmen (Shanin, 1972: 123). Members of certain communities in Africa move with the animals from place to place and have no permanent home for animals. This is common in the Masai communities of Kenya and Tanzania (Bradshaw and Wallace, 1996:40). The likely effect of having no permanent grazing place, is that it may be difficult to develop a specific grazing land. The community relies on moving to a greener pasture, depending on the natural weather, and when drought comes, many animals starve to death. In addition, moving with the animals makes it hard for the Masai to build a shelter and fence for their cattle, and as a result, some animals are killed by wild animals (Daily Nation, June 2003).

The recent research done in Tanzania reported an improvement with regard to nomadic herding. The study found that every farm has its chicken, goats, and improved breed of cattle used primarily for milk production, and kept in the owners homestead (Wolfgang Et.al, 1983:130). At least those will have a relatively better security than those communities relying on nomadic herding. But on the other hand, keeping the animals at home translates into buying or cultivating animal food for them. Some scholars call it improved cattle in modernized peasant mode of production (Foster, 1992:45).

The practice is common in Rwanda. For instance, a study on household economy analysis of the rural population of Umutara, Rwanda, found that some peasants have more than

two hectares of cultivated land, 30 to 50 cows, 8 to 12 goats, and 5 to 10 chicken (Ayuub, et.al, 2000:6), all kept in the peasants' homestead, and fed at home.

In addition the other problem with modern system of feeding animals is securing a piece of land for animal food production. The fear, especially for those with relatively less land is that food production for human consumption will be lowered, and as Akubילו (1977: 36) observed, that will lead peasant to not feeding him or herself well.

The result as revealed in the above paragraphs is the low productivity in most efforts the peasants tried. Nevertheless, most peasants seem not to leave the practice of cultivation. Even those without land still practice traditional cultivation through various tenant-farming arrangements.

2.1.4. The common tenant farming arrangement

According to Debendra (1994:49), tenant farming is a common farming practice that involves raising crops and livestock on rented land. The problem of some peasants not having enough land to cultivate is common in Africa; in this case tenant arrangement thus serves as a way through which those with little access to their own land can use so as to have access to production. In addition, those without sufficient labor and other peasants whose land is far from their residential places can also rent out their pieces of land instead of leaving them lying idle. But a question one may ask is : How productive are these arrangement?

In Tanzania for example, the arrangement became common after villagelization settlement that increased the distance and time to and from the field (Cleave, 1974:33). In Rwanda people are also being taken to a village estate, and some time a bit far from their cultivated land. Some may also find it difficult to travel usually on foot to work on their individual plots, and prefer to rent them out (Rwanda, 2001: 2). So while some peasants may still individually hold land, they are less likely to farm it themselves. The right of the individual peasant on land is temporarily divided. Neither the land owner nor the tenant can make a long term decision on how to use it as both of the two have no more than a temporary right on the land in tenant farming arrangement.

As Susan George observed, tenancy arrangement is also criticized to be generally insecure, and some time associated with threat (George, 2001:133). What needs to be known probably is how it threatens, and who is mostly threatens. For one to be able to know this, he or she must know how the arrangement is made in a specific community. In Asian countries, tenants have to hand over to the peasant offering land in tenancy 50 to 60 per cent of the crops and yet, in spite of this, they are faced with constant threat of eviction. The result is that their incentive to become more productive is eroded (ibid).

According to the above scholar, it can be noted that the tenant suffers the most in terms of the proportionate share he or she must hand over to the "landlord peasant". George also gives an impression that tenants do not have as much right to the rented land as the owner since they are said to face a constant threat of being evicted. So the tenant is always uncertain of how long he can use the land. That is why the tenancy arrangement is

criticized of leaving the peasant uncertain and less productive.

In other countries, the arrangement is a bit different. In Tanzania for example, a "rich" peasant undertakes to cultivate an acre of a "poor" peasant's land in return for one bag out of 14 bags produced by one acre (Kjaerby, 1976 quoted in Foster, 1992: 53). In Nigeria the agreement is also the same (Barker, 1977: 201). So while tenant arrangement in Asia involves a "poor" peasant selling his or her labor power in exchange for a proportional share of the produce, the same agreement in Tanzania involves the "rich" peasant selling his or her labor in exchange for a specific number of bags produced. What is common both in Asian and African countries as far as the tenant arrangement is concerned, is to have a temporary right on land use with a proportionate share of the land produce, and the end result has been that of not producing crops that take a relatively long time to grow for the harvest. (Bager, 1980: 19). Since the tenancy agreement itself is not always clear to let the parties in the agreement know who will get what for which, one needs to consider the specific types of tenant arrangement.

2.1.5. Other specific types of tenant arrangement

In Bangladesh, the agreement is a bit different and it has different types including fixed tenancy, khai-khalashi, dai-sudi, and share cropping (Atiurrahman, 1986: 153). In khai-khalashi and fixed tenancy, a fixed rent in cash or in kind is paid for a fixed season after which the land must be returned to the owner. In Buhoma district, and nearly the whole of Rwanda for example, there are four farming seasons. The long rain season, the short rain season, the short dry season, and the long dry season (Market, 1961:14). The long

dry season starts from June to August, and during this season most activities done in the district are the harvesting of beans, sorghum, and maize. From September to December is the long rain season, and from early September, soil is prepared for sowing period and later in the following months, maize, beans, and sweet potatoes are planted. From January to March is the short dry season, and the common activities are the short harvesting of peas and beans with planting of cassava and potatoes in the valley. The period of April and May is the period of short rainy season, and tillage together with fallow activities are done in preparation for the next planting season of beans, potatoes and other food crops. So in the district, peasant in khalashi and fixed tenancy arrangement would expect to use the land for a period not more than four months unless other wise agreed, and as it can be observed from the above discussion the peasant in that agreement may never have the chance to produce cash crops, forest tree and other crops that take a long period to be harvested, yet those are the crops that are believed to uplift the common peasant in the rural village (Bunker, 1993: 177).

It was mentioned that peasants rely on the natural weather for production, so the productivity in this arrangement will depend on the natural weather conditions. The peasant is certain of the period he or she may use the land, but remains uncertain of the result. If it so happens not to rain the peasant in fixed tenant arrangement for example is likely to lose. Because of that, the peasant most of the time has the uncertainty of how the productivity will come up. So it becomes hard for the peasant to plan what to produce, and how much to produce.

Dai-sudi is another tenant arrangement in which the tenant gives a loan to the landowner against a mortgage of land which he/she can cultivate until the loan is paid back (Rasmussen, 1982: 13). It has no specific time, the longer it takes to pay back the loan, the longer the land is held up in mortgage, and those who fail to pay may end up losing their land. In Kirinyaga district of Kenya land is even a security to acquire a loan from a local bank, and one needs to have hectares under pure stand of maize in order to qualify for the seasonal credit scheme (Franzel, 1986: 82). The above tenant arrangements slightly differ but they all evolve around acquiring access to land, but in few cases the arrangement may be instrumental in denying quick access to land for some people, especially those giving their land in mortgage.

Sharecropping is another type of tenant farming arrangement in the many developing countries of Asia and Africa. As Aruna describes it, sharecropping is an agreement where the peasant owner of the land provides land and seeds inputs, crops, while the peasant worker provides the initial labor of clearing, cultivation and maintenance activities of the food crops. Then at the harvest, the two share equally the yield (Aruna 1989:57). In the agreement, the tenant with little capital need not pay any thing but to give his or her time and energy. Likewise, the landowner with the limited ability and possibility to labor force needs not pay anything but rent out his or her land and wait for the harvesting time to have his or her share.

However, the agreement has it own shortcomings. As the Resource Scarcity and the Changing Structure of the Landholding (2003: 1) observed, many tenant farmers in

Rwanda and elsewhere in the developing countries are less likely to invest in soil conservation and productivity enhancing inputs. Instead, they invest in the annual food production, which are agriculturally less productivity enhancing crops in comparison with perennial crops. So on one hand, although the landowner gets a proportional share of the harvest without investing much time and energy, he or she suffers the loss of his or her land degradation, and may wait for some time to have the field back to its productivity. On the other hand the tenant in share cropping arrangement finds ways of accessing land production but invests much time and energy in the many peasant activities, from tilling and clearing forest, preparing soil for the planting period, planting, weeding, watering, and etc activities so as to have a proportional share of the harvest. So while the peasant owner of the land has to wait for a long time to have the deteriorated land to come back to its normal productivity, the tenant in share cropping spends much time and energy, and both results of the arrangement seem to be undesirable.

In India, colonato is a system similar to tenant farming in East and Central Africa whereby in exchange for access to land, the peasant belonging to the village must work for varying number of days on the land directly controlled by the church (Cusicanqui, 1987: 22). The issue of time and uncertainty still becomes critical as peasants in this agreement do not have a clear cut on the number of days they are to work so as to have access to production.

In most of the tenant farming arrangements reviewed, time factor is seen to affect the productivity in different ways. The time spent by an individual peasant is either too long

or too short in relation to the results produced. What most of them have in common is that all of them are short term agreement with a temporary right to land which affect the small scale farmer' s long term plan and investment in the peasantry. So the low productivity with peasantry production in the above discussion is not much of quantity and quality, but much of time taken. The quantity and quality may also be a problem but those will depend on other factors including farm inputs and equipment used. The following section discusses farm inputs and equipments used in peasantry production.

2.2.0. FARM INPUTS AND EQUIPMENTS USED IN PEASANTRY PRODUCTION PROCESS IN DEVELOPING COUNTRIES

In the background of the study, it was mentioned that about 85 % of the rural peasant in Rwanda use traditional tools and hand implements. The statistics do not however imply that peasant always and in every country uses traditional and hand implements. Other equipments too are used. This section reviews some of the traditional farm inputs and equipments used in peasant mode of production in Rwanda, and other developed countries. They include traditional tools and other farm inputs as discussed in the next paragraphs.

2.2.1. Traditional tools and farm equipments in peasant mode of production

The research carried out in Mexco of the Latin America for example observed, cultivation in Africa and other countries in the developing world is still largely confined to traditional cultivation of food crops, and worked with no more than the most primitive

technology (Robert, 1978: 203). Many peasants in those countries most of the time rely on simple and traditional tools usually used in those early stage of social development. Further research carried out in East Africa for example found that agriculture is not very mechanized. Nearly almost all farmers in the region use the locally produced tools and equipment of wooden and iron equipments. Very few small-scale farmers use ox-plough or tractor, and the use of chemical inputs is not widespread. (Rasmussen, 1982:83).

To this extent, one may agree with the finding that peasants in the developing countries are still using the traditional equipment. The above scholar however gave the statistics and the level of technological advancement, but never revealed how that can be associated with productivity among peasants. Further research on peasant and the mode of production debate found that the problem of traditional equipments used in peasantry is not much in their tradition but much in their productivity. As Boesin have observed, most of those traditional farm tools are so crude that the peasant farmer who uses them produces hardly enough for the family (Boesin, 1997: 17). Boesin was concerned with the amount of yield produced in assessing whether or not the peasant mode of production can be said to be productive, and based on the fact that the production process could not produce enough for the family, the scholar associated such a production with low productivity.

What is not known in the above scholar's observation is the resources or the time taken to produce that insufficient amount. On one hand, the farmer might have used the better equipments, but took little time to use them hence leading to not producing enough for

the family, but on the other, the equipments and tools could be poor, forcing the farmer to take much more time with unsatisfactory amount of yield.

Some of the traditional tools and equipments used in the Buhoma district include for example, the traditional mattock used for primary tillage to break and loosen the soil for further soil preparation for plantation, the traditional hoe for plowing and tilling, the milking pot for milking and keeping milk, the wheel barrow for harvesting and taking animal manure to the field, among others. Further research in West Africa also found nearly the same equipments, and as Smith (1964: 93) observed, those are the mechanical equipments, and most of them are manipulated and used by the power of human muscles, which leads to low productivity in terms of the time taken and the relative amount produced for the family.

Other countries in the developing countries have relatively better equipments and tools than others. In Mexico of the Latin America for example, the equipment used for tilling and breaking the soil is a moldboard plow machine that can dig deeper up to almost a meter of the soil, and as much as nearly an acre in about an hour (Rello, 1997:12).

The use of chemical fertilizers and other relatively modern farm equipments have also been introduced in many developing countries in the efforts to improve productivity. (Liberson, 1981:1). The findings in Buhoma district also observed the chemical fertilizers and insecticides being used by a big number of farmers but with poor results probably because of not using modern seeds coupled with having had little time to acquire skills of

how to use them efficiently. In addition, some peasants suspect the chemical fertilizers lowering the soil production, especially when too much of it is used. In such a case then one has to leave the land unused for at least two years to recover. For instance, Nitrogen applied in too much quantity causes trouble to food crops. It may cause delay in ripening by causing too much vegetative growth of crops like tomatoes and fruits, and fruits may not mature until so late (Gustafson, 1982: 66)

2.2.2. Other farm inputs in peasant production process

The discussion of peasant mode of production cannot be discussed without considering how peasants make and use other traditional farm inputs. In Tanzania for example, small trees, bushes, and grasses are cut and gathered in heaps, one meter high and two meters in diameter. Shortly before the rain, the heaps are burnt and covered with the soil while burning (Friis, 1987: 40). The major objectives of this process are to make the soil a bit productive so that it can produce a relatively higher yield. As the study observed, the practice is also common in Buhoma district, and to some extent this practice does improve the agricultural yield, especially for the crops that follow directly the burning. But further research in Kenya warns that soil nutrients are burned or destroyed through burning hence making the soil less productive in the future (Odegi-Awuondo, 1994: 5), unless the land is laid fallow for some time for the grass and small trees to grow again.

In the modern cultivation, peasants have adopted a new way of building compost heap for the waste material and animal manure (Akubuilu, 1977: 4). The individual peasants build compost around the homestead in which they keep on dumping the waste material to

decompose and later on used as fertilizers. The practice according to the findings is relatively productive, but it needs a lot of time to accumulate the waste material to be used as fertilizer for the whole of the farmer's plantation. In addition, as some of them may be a mixture of solid material, it takes a lot of time and energy to carry them to the field, usually on the head.

In the whole of this section, the discussion has been on material inputs. The implication is that somebody somewhere must have been using them. All the inputs and sub inputs used must have somebody to use them, and this is especially true in the peasant mode of production that only relies on human inputs as discussed in the following section.

2.3.0. THE FAMILY INPUTS AND THE DIVISION OF LABOR IN THE PEASANTRY

In the study of mode of production and low productivity, the understanding of the individual peasant needs to be at the center of the discussion. According to Shanin (1972: 240) peasant is defined as a small scale agricultural producer who with simple tools and family labor produces basically for subsistence with a small surplus for the market. As it can be observed from the above definition, peasant is defined in terms of his or her agricultural production, the inputs used including simple tools, the nature of the production process, and its use of family labor. The following discusses the organization of activities and the use of family labor in peasant mode of production.

In the Marxist discussion, the division of labor is set forth in its distinction between the owners of the land – the bourgeoisie, and those who have to sell their labor time in order to survive – the proletariats (Marx quoted in Ritzer, 1996:66). In studying the ties that bound peasant families in medieval England however, Hanawalt found that in peasant mode of production, peasants are at the same time the owners of the land, and the users (Hanawalt, 1985:83). So, the division of labor in peasant mode of production needs to be assessed from both its historical division and in its current and local practice. The following is the historical division of labor among peasants.

2.3.1. Organization of activities and the use of family labor

The use of the family labor is one of the defining factors of the peasant mode of production (Hyden, 1980: 12). If peasant mode of production depends on the family labor alone, then the performance of certain activities would depend largely to the number of the peasant household members. For instance the number of days taken per acre of course would be determined by the skills and strength of the actual labor force employed (Seddon, 181: 38) The assumption is that the larger the family the shorter the time to be taken on specific peasant activities, and the fewer the peasant household members the longer the time it would take to accomplish certain duties. The findings observed some individuals in Buhoma district with no more than a single person working in their farm, so those may likely take a long time. In Igagala village of Tanzania for instance, peasants were found to use much more time in transport and shelling. Besides, in tilling, it takes around 10 days to till an acre by hand while the same size of land is tilled within one hour by a tractor (Rasmussen, 1982: 68).

Another consideration in peasantry production process is how individual peasants divide and organize them into different activities. Okoth (1975:2) refers to that kind of division as a rudimentary division of labor based on the domestic needs and capability. Whenever there is a particular domestic need in a given peasant household especially in the Third World, peasants know how to manage its fulfillment process with a high degree of efficiency and exercise a great skill in agricultural role decision-making (Barker, 1977:1). In the process, every one finds his or her occupation in the peasant mode of production and almost all peasant communities know who does what and when in a peasant household.

As far as Barker is concerned, peasants have great skills in getting occupation for almost all the household members. On one hand that is good effort but on the other, further research in Tanzania criticized involving in peasantry production process for a long time to be one of the factors that may lead to an individual's low productivity. For instance children being involved in herding their parents' cattle/ animals were found to have missed the opportunity to extend far in their studies (Rudengen, 1981: 24). The findings in Buhoma district also found that many people who had been involved in peasantry production process from their childhood attended only primary schools while others did not attend school at all.

2.3.2. The nature of the peasant production process

Another element of the definition of peasant is the nature of the production process. In the above discussion, the peasant was said to be the slow scale agricultural producer, which means that peasantry production is slow. Historically and in Marxist perspectives, the low productivity among peasants was associated with having a small piece of land for their farming- the small holding (Marx, 1968 in Ritzer, 1992), but further analysis observed time to be another determining factor of peasantry productivity.

As it can be noted, slow scale is the starting point in understanding how the peasantry production is. According to the Oxford English Dictionary, the term slow can refer to one or all the following meanings. It can mean a production that takes a relatively long time to do things or cover a distance. For instance, it was discussed how the equipments used take a relatively long time, and how traveling to some individual's field takes some time. Slow scale can also refer to a production obtained after a long period of time (Pearsall, and Trumble, 1996: 1366), as some cash crops Buhoma district were found to be taking a long time, hence forcing many farmers to shifting to traditional food crops production.

2.4.0. THEORETICAL FRAME WORK

The purpose of this section is to review and incorporate relevant information that provides conceptual and theoretical framework of this study. The theories thought to be relevant to the study include the Chayanov's theory of peasantry, and modernization theory as discussed below.

2.4.1. Chayanov, A.V and the theory of peasantry

One of the commonly known theorists in the area of peasantry is Chayanov, A.V, a Russian economist and rural sociologist. His main emphasis on peasant mode of production was how the production process is carried out without the hired labor (Chayanov, in Shanin, 1972: 151). The scholar gives a descriptive analysis of the peasantry production, and is in agreement with the above discussion that peasant mode of production relies much on unpaid family labor. Further studies in England also agree with Chayanov's observation that the first fundamental characteristics of peasant mode of production is that it is a family based mode of production (Hanawalt, 1986: 107). The above scholars declined to comment on whether or not the use of family labor can lead to low productivity, but the above sections bridged the gap by discussing in detail some of the shortcomings of relying on unpaid family labor, and how this leads to low productivity (Hyden, 1980:13).

Because of that, Chayanov's theory was described as a theory of peasantry' s production without a hired labor (ibid). Chayanov, however doubts the argument that production among peasants is low; he just sees peasants aiming at securing the need of the family, but not for making profit (Friis1987: 73). So in Chayano' s perspective, productivity among peasants should not be said to be low as long as family needs are provided for. What is clear in Chayanov' s theory is that peasants' production relies on domestic labor. Chayanov' s short time definition of family needs fell prey to looking at short time satisfaction of peasants' biological needs, without considering the long term effects, and

other basic social facilities.

In addition, Atiurrahman questions Chayanov's conclusion that peasantry is the production in the absence of hired labor. To this scholar, that is too abstract in the context of contemporary Third World peasantries where some peasants may use the hired labor in one way or the other (Atiurrahman, 1986: 43). In addition, Chayanov can be criticized for narrowing his theory of the peasant mode of production to human inputs alone. Therefore, a wider perspective that considers both the use of unpaid labor and other traditional material inputs, and how these affect productivity among peasants is needed. In their modernization theory, Bradshaw and Wallace (1996) came up with the following arguments.

2.4.2. Modernization theory by Bradshaw and Michel Wallace

Since the Second World War, scholars and government officials including Bradshaw and Michel Wallace have argued that underdeveloped countries, and I believe including the rural peasant communities, are poor simply because they lack modern economies, modern psychological traits, modern culture, and modern institution (Bradshaw and Wallace, 1996:40). The implication is that traditional mode of production that they also call peasant mode of production is the main cause of low productivity in many respects. They mention for example the tradition of not keeping time by many Africans as leading to overall low productivity in many development aspects.

2.4.3. Ecological theory by Hawley

While modernization and peasant theorists focus on the major inputs used in peasantry production process in explaining its low productivity, the ecological theory considers the external environment to also have power to affect the peasantry production process.

The concept of ecology was first introduced by the German biologist Ernest Haeckle in 1866 to study how environment could influence production (Hawley, 1950: 3). The environment covering many things including both living and non living things of the earth, some specific elements of the environment which are likely to affect the peasantry production process were identified. According to Gwynne (1978: 13), things like climate, rainfall, and vegetation are among other factors that influence peasantry production as peasants in most cases rely on the natural weather condition. For instance, peasantry production would likely do better with a good rainfall period than drought or excess rain season.

So scholars such as Hunter (1969: 31) thought of peasantry production as the right combination of modernizations with regard to the indigenous essential mode of production, in consideration of the environment around (Dube, 1988: 69). There is a need therefore for a new theory that stands between modernization theorists and peasant schools of thoughts who consider only the major inputs used to explain the productivity nature of the peasantry, and the ecological theorists who maintain that poor productivity can be blamed for the type of the environment they operate in.

2.5.0 HYPOTHESES UNITS OF STUDY AND OPERATIONAL DEFINITIONS

2.5.1. Hypotheses

Kerlinger (1964: 34) defines hypothesis as a conjectural statement of the relationship between two or more variables. In this study, those are the following:

- H1: Personal characteristics of the individual peasants in Buhoma district influence their level of production.
- H2: The individual' s involvement in peasantry of the Buhoma district leads to lowering his/her ability to produce.
- H3: Farm inputs used in peasant mode of production in Buhoma district contribute to low productivity in peasantry production process.
- H4: Land use and cropping patterns among peasants in Buhoma district is associated with low productivity.

2.5.2. Operational definition of variables

Operational definition of independent variables

Personal characteristics: Personal characteristics were defined as those typical feature that distinguish the individual peasant from the other or others (Crowther, 1995: 186). In this study, the personal characteristics assumed to have power to affect the slow scale agricultural producer were age, education attainment, and family size.

Age: Age in this study was defined as length of time that an individual peasant has existed. It was categorized into below 18 years of age, 19 to 45 years of age, and above 45 years of age.

Educational attainment: Educational attainment was defined as the process designed at empowering people with knowledge and skills through training in schools, colleges, and other educational center. It was categorized into literacy and primary school education, at least one year of secondary and post primary education, and those who never attended any modern education.

Family size: Family size was operationally defined in terms of number of the peasant household. It was categorized into family with a single member, family with two to 10 members, and family with more than 10 members.

Individual' s involvement in peasantry: The period in peasantry referred to the age at which the individual peasant started involving in peasantry activities. It was categorized into the period below 18 years, period above 18 years, and the period at just the time the research was being carried out.

Farm inputs: Farm inputs in this study was defined as those necessary tools and substance used in peasantry to produce crops and livestock (Defleur, 1981: 499). There were categorized into , and fertilizer inputs.

Equipments: Equipments were defined as the necessary tools used in peasantry production process in the district. They were categorized into the locally produced tools and not locally produced tools.

Fertilizer: Fertilizers were operationally defined as chemical or natural substance added to soil to make it more productive. It was categorized into chemical fertilizer and compost/ animal manure for fertilizer.

Land use and cropping patterns: Land use and cropping patterns in this study was expressed in terms of the different ways in which the land was put into use. It was categorized different forms of cultivation, different farming arrangement, and cropping patterns.

Forms of cultivation: Forms of cultivation in this study referred to the process of preparing and maintaining soil for production. It was categorized into fallow cultivation, extensive cultivation, and intensive cultivation. In literature review scholars including Klein (1980:119) warned that some forms of cultivation in East and Central Africa could be associate with low soil productivity.

Farming arrangement: In this study farming arrangement referred to the process of putting land into the required order in producing and rearing animals and food crops. It was categorized into fixed tenants, sharecropping, and others.

Cropping patterns: Cropping patterns in this study referred to the production of the specific crops. It was categorized into production of the economic cash crops, and the production of traditional food crops.

Operational definition of the dependent variable

Productivity: The Advanced Learner' s Dictionary defines productivity as the efficiency measured by comparing the amount produced with the time taken to produce that amount (Crowther, 1995: 923). In this study it was categorized into the ability to speed up growth and production process, ability to give individuals equal chance to production, ability to

produce the desired results in the desired time, ability to enhance individual's ability to produce, ability to enhance soil fertility, and ability to encourage both food and cash crops.

Ability to speed growth and production: This referred to how fast or slow the inputs used in peasantry production contributes to crop growth. It was categorized into faster than usual, and slower than usual.

Ability to give individual peasant equal chance to land for production: This referred access the individual peasant in peasantry has to his or her own land for production. It was categorized into "Yes" responses for those who have access to land, and "No" responses for those who do not have.

Ability to enhance individual's ability to produce: referred peasantry's ability to enhance individual's skills and knowledge of production through formal and informal education. It was categorized into primary and literacy education, secondary and post primary education, and no modern education

Ability to enhance soil productivity: This referred to peasant mode of production's ability to contribute to overall agricultural production. It was categorized into overall production being very satisfactory, and the overall agricultural production not being very satisfactory.

Ability to produce the desired results within a given time: This referred to individual peasant's ability to cultivate a specific piece of land, and the number of days likely to be taken. It was categorized into 2 to 5 days, and more than 5 days. It also referred to perceived speed the equipments used in peasantry production process can take. It was categorized into the speed being faster, and the speed not being faster.

Ability to encourage both food and cash crops: This referred to the level of production of both food and cash crops. It was categorized into cash crops production, and food crops production.

Low: The term low in this study referred to undesired results. It was categorized into taking a relatively long time to do things or cover a distance, not extending very far, not quick, acting or moving without speed, obtained over a long period of time, not producing, allowing, or conducive to speed, producing earlier or later than is expected or desired.

2.5.3. Unity of analysis/ observations, dependent variable, and independent variables

The unit of analysis: In this study the unit of analysis is the peasant mode of production and low productivity among peasants in Buhoma district, Ruhengeri province of Rwanda.

The units of observations: The units of observation in this study is the heads of peasants' household in Buhoma district, Ruhengeri province of Rwanda.

The dependent variable: The dependent variable in this study is the low production. The specific indicators listed in the operational definition will measure it.

The independent variable: The independent variable is the peasant mode of production.

The land inputs, animal and material inputs, and family labor inputs will measure it.

CHAPTER THREE

METHODOLOGY

3.0.0. Introduction

The research methodology in this chapter refers to specification of the procedures used in sample selection, data collection and data analysis, and the description of the Buhoma district, a site where the study was conducted so as to help define the problem at hand.

3.1.0. DESCRIPTION OF THE AREA OF STUDY

Buhoma district is one of the rural district in Ruhengeri Northern province of Rwanda. It is bordered on the north by Bugarama district, on the east by Mutobo district, on the south by Bukonya district, and on the west by Bushiru district of the Gisenyi province.

3.1.1. Administrative information

Buhoma district is one of the eleven districts of the Ruhengeri province, situated 45 Km from the provincial administration center on Gisenyi-Ruhengeri main road. The district has an area of 183 square Km with the population of 79732. Buhoma is made up of eighteen divisions namely Cyanika, Gatonde, Gitwa, Jenda, Kageri, Kareba, Kintobo, Marangara, Mukamira, Mukirangwe, Murama, Musumba, Nyarutembe, Rugera, Rukoma, Runigi, Ryinyo, and Tubungo (Rwanda, 2002:2).

3.1.2. The villages in the sample

In terms of farming, the district can be divided into three farming zones: farming zone along Mukungwa river bank, farming zone in mountains and highlands, and the farming zone in the flat areas. All these have different characteristics as explained in the following village sample.

Rusenge village of the highlands and mountainous zone

Rusenge village of the Kareba division is situated in Kareba highlands at an altitude of about 2000 meters above the sea level (Maquet, 1961:95). The village is mountainous, and most fields lie on very steep hillsides. The soil seems to have a better fertility than in most other selected villages, but crops take a long time to grow because of the area being cold. The crops are grown on ridges on the steep hills and shifting cultivation is still practiced to some extent. However, the very landscape combined with the concentration of people after villagization have increased the distance to and from the field to an extent where there is a tendency to intensify the land use.

The major food crops grown are maize, beans, finger millet, and Irish potatoes. The village has formally been a producer of tea , but by the time the study was being carried out peasants were switching to other market crops that take a shorter time to mature for the harvest, hence bringing quicker cash. Those include for example cabbages, Irish potatoes, and carrots, among others. Cattle and goats were not common. Most peasants were keeping pigs and rabbit, and each household had poultry to keep them. The hilly

surroundings makes it impossible to use any ox-draw or tractor implements. At the time of the study, the adoption of chemical inputs was slowly beginning.

Runyanja village of the flat areas

This village is situated in Jenda division at an altitude of about 1100 meters above the sea level, and it is relatively a flat land (Maquet, 1961: 95). The soil is of moderate fertility. The major food crops are maize, cabbages, Irish potatoes, finger millet, and beans. The agriculture is not very mechanized. No single farmer was found to be using ox-plough or tractor, but the use of chemical inputs was common.

Nyakigezi village along the Mukungwa River

Nyakigezi village is situated in Mukirangwe division in the lower part of southern Buhoma district at an altitude of around 1500 meters above the sea level (ibid). The village is laid on a plan and is spread along the Mukungwa River. The soil is sand clay loam, and the continuous floods worsen the low fertility of the soil during the rain seasons. The dominant food crops is maize, supplemented with sweet potatoes and beans. In relation to other villages in the sample, Nyakigezi has more traditional cattle than others, as it is situated in the intermediate area, and has access to grazing along the river. However, milk production and animal manure for fertilizers are relatively low as most of it is wasted in the field during day time. Chemical fertilizers and insecticides were used by a big number of farmers but with poor results probably because of not using modern seeds coupled with having had little time to acquire skills of how to use them efficiently.

3.1.3. Ecological and geographic information

According to the World Bank Report (2002: 1), the soil of the district is fertile which contributes to the district having a relatively large number of small scale agriculture. This actually is one of the reasons that has led to selecting the district as a case study for peasant mode of production, though not all the district's agriculturalists were found to be peasants. In addition, Buhoma district has been chosen because of its ecological and geographical situation. Being nearly a landlocked district, the way of life for many people is through small-scale agriculture, usually done with traditional tools and unpaid family labor. There was no use of tractors, or other highly modern agricultural technology.

More importantly, the district has a good climatic condition for agriculture and human habitation. The temperature varies between 6 and 30-Celsius degrees, and it has two long rain seasons; one from September to December and the other one from March to May. There are also the short rain seasons during the period between June and January (Atterbury, 1961: 159). The beginning of the long rain seasons marks the start of soil preparation for the sowing period later in October. Beans, peas, maize, pumpkins, millets, ground nuts, and other crops are sown and planted, and banana leaves are plucked out. During the month of November, sowing goes on and food crops such as cassava, sweet and Irish potatoes are planted. During the dry and short rain seasons of January, February, June and July, the harvest begins.

3.2.0. SOURCES OF DATA

For this research, both primary and secondary sources of data were used.

3.2.1. The primary sources of data

These were the peasants in the Buhoma district, who were also the unit of observation. Questions about the specific inputs including land inputs, animal and material inputs, and family labor inputs will be prepared. Others include questions about agricultural activities and tasks and the division of labor within peasant household. The approach in this study will be descriptive, as it is hoped to allow peasants to report the way things are (Mugenda and Mugenda, 1999: 34). The emphasis was be on qualitative information to go beyond statistical results, usually reported in the secondary source of data.

3.2.2. The secondary sources of data

As Singleton et al (1993: 47) describe it the secondary source of data consists of a review of the existing published material related to the peasantry, especially in the third world countries. These materials were collected for purposes other than studying peasant mode of production, and how it leads to low productivity, but could provide useful information to help analyze the problem at hand. They include books, journals, news papers, the published statistics from the government, and the information posted on the web site, all being related to the issue of peasant mode of production and low productivity.

3.3.0. SAMPLING PROCEDURE

Sampling according to Singleton (1988: 137) refers to that part of the research plan that indicates how cases are to be selected for observation. In this study, a sample size of 108 was selected using multistage cluster sampling of probability sampling, and purposive sampling of non-probability sampling.

3.3.1. Purposive sampling of non-probability sampling

According to Mugende and Mugenda (1999: 50), the purposive sampling technique is used for the researcher who relies on his or her own expert judgment selected units that are representative. Furthermore, purposive sampling is a sampling technique that allows a researcher to use cases that have the required information with respect to the objectives of his/ study. The general strategy was to identify important sources of variation in the population and to select a sample that reflects this variation (Singleton et.al, 1988:15).

The major variations as far as peasant mode of production was concerned were the three different farming zones including the farming zone along the Mukungwa riverbank, the farming zone in the mountains and highlands, and the farming zone in the flat areas.

One division was selected purposively from each of the above three farming divisions to make a total of 3 divisions which contributed to a sample size of 108. In this total, 36 respondents from each framing zone were selected, and the key informants were requested to help identify the peasant household, as there was no sampling frame for the study.

3.3.2 . Multistage cluster sampling of probability sampling

In cluster sampling, the population was broken down into groups of cases called clusters, and sample of clusters were selected at random (Singleton, 1993: 73). These clusters generally consist of natural groupings in terms of the farming zones. They include the farming zone along the Mukungwa riverbank, the farming zone in the mountains and highlands, and the farming zone in flat areas.

It was mentioned that the district has 10 divisions, so in cluster sampling, the researcher selected 1 division from each farming zone to make three divisions. Out of the three divisions, the researcher selected 2 sub divisions to make 6 sub divisions. Out of 6 sub divisions, the researcher selected 2 locations to make 12 locations, out of 12 locations, the researcher selected 1 sub location, out of which the researcher selected 3 peasant household to make a total of 36 respondents from each farming zone, hence having a sample size of 108. The village leader, key informants were used to help identify the household to be selected as there was no sampling frame for the study.

3.4.0. DATA COLLECTION TECHNIQUES

As explained in the above sources of data section, this study used both secondary and primary sources of information. For the secondary sources of information, a review of published documents listed in sources of data collection, containing information about the subject of the research was done.

3.4.1. Interview schedule

For the primary source of information, the study used interview schedule to peasant respondents. The rationale for using interview schedule was to get in-depth information about the topic. There will be both open and closed ended questions to maximize the strength of each of the two. Green and Donald (1988: 170) said that interviews are probably the most ubiquitous method of obtaining information, and when used with a well conceived schedule, they can obtain a great deal of information, because they are flexible, and adaptable to individual's situations. In this study since most peasants did not have the ability to read and write, the interview schedule was found to be the most appropriate, with an observation checklist to guide the discussion.

3.4.2. Interview schedule to key informants

Interview schedule was used to inquire information from the key informants. The key informants include the agricultural administrators, community leaders and judicial officers, the chief village leaders, the relatively educated peasants, among others; with the assumption that all these individuals had considerable knowledge of the inputs used in peasant mode of production, and how they contribute to low productivity.

3.5.0. DATA ANALYSIS

Both qualitative and quantitative data analysis were used.

3.5.1. Editing, information clean up and coding

Information from reading and field notes from interviews' respondents was edited, cleaned up, and organized. After data organization there was a need for creating categories, themes and patterns in the data. Generating themes and categories was done using codes which can be assigned manually or by use of a computer software such as the SPSS- Statistical Package for Social Sciences (Mugenda and Mugenda 1999: 203).

3.5.2. The use of descriptive statistics

After editing, cleaning, and coding, the information was presented in frequency tables with their percentages. The aim, as Knoke (1982: 68) explains, was to describe the information and to capture the major characteristics of variables.

3.5.3. The use of non-parametric test

At the same time the non-parametric test was used. Singleton et al (1988) further advises researchers to use non-parametric tests to make decision about the characteristics of the population by inferring to the selected sample. There was the use of crosstabulation tables to summarize the information, and subsequent computation of Chi- Square.

CHAPTER FOUR

PRESENTATION AND INTERPRETATION OF THE FINDINGS

4.0.0. Introduction

The purpose of this study was set out to be how the peasant mode of production leads to low productivity. The general assumption was that peasant mode of production is associated with low productivity in terms of the time taken and the results produced. A case study in Buhoma district, Ruhengeri province of Rwanda was carried out and the investigation was done in three selected representative villages as discussed in chapter four of the study in its description of the area. A sample size of 108 heads of the peasant household was selected to be the respondents.

The collection of the data was followed by subsequent analysis of the information using straight tabulation, that is frequencies and percentages of frequencies of various responses. Other information was qualitatively explained in details to give a clear picture of the findings.

The purpose of this chapter therefore is to present the results of the data analysis as well as the interpretation of the findings. They include personal characteristics of the individual peasants involved in the peasantry production process in the district, the analysis of land use and cropping patterns including different farming arrangement and forms of cultivation in the district, farm inputs and equipments used, as well as the choice of using them as far as productivity is concerned.

4.1.0. PERSONAL CHARACTERISTICS OF THE INDIVIDUAL PEASANT INVOLVED IN PEASANTRY PRODUCTION PROCESS IN THE DISTRICT

The personal characteristics of the individual peasants involved in peasantry production process in the district include age, family size, and level of education of individual peasants in the selected sample villages.

4.1.1. Age bracket of individual peasants and the believed productive age

For the analysis of the scores, 39 per cent of the respondents were found to be 19 to 45 years of age, 33.22 per cent were above 45 years of age, while 27.78 per cent were below 18 years. The age bracket of 39 per cent being between 19 and 45 years of age gives an indication that the majority of the respondents involved in the district's peasantry are still highly productive.

This high percentage of those between 19 to 45 years is attributed to the fact that the in-depth interview was carried among the individual peasants heading the peasant household since those are the ones who are believed to have considerable amount of information needed for the study. The small percentage of the respondents below 18 years of age was due to the fact that few individual peasants of this age had not attained the age to be entitled to land property and to be heads of the peasant household, despite the fact that their labor contribution to household peasantry was of paramount important. The table below summarizes the above findings.

Table 4.1: Distribution of respondents according to their age bracket

| Age bracket | Frequencies | Percent |
|-------------------------|-------------|---------|
| Below 18 years | 30 | 27.78 |
| Between 19 and 45 years | 42 | 39 |
| Above 45 year | 36 | 33.22 |
| Total | 108 | 100 |

4.1.2. Level of education and the individual' s ability to produce

Educational attainment and its role to individual peasant' s productivity

In terms of their educational attainment, 54.63 per cent of the respondents were found to have attended primary schools and other rural educational centers for literacy. So those at least could be able to read the labeled instructions at some packed seed crops, especially when these are written in their vernacular language. Nearly 6.48 per cent never attended any modern school or educational center for literacy, and cannot read or write any thing at all. Around 38.89 per cent of the respondents have at most three years of post primary education.

The educational trends of the findings revealed a high level of semi- illiteracy with nearly 40 per cent the respondents having no formal education. Besides those with primary and post primary education, received modern education but there was little or no focus training rural peasant to improve their productivity.

Table 4.2: Distribution of respondents according to their educational background

| Educational attainment | Frequencies | Percent |
|--|-------------|---------|
| Not attended any modern school | 7 | 6.48 |
| Literacy and primary education | 59 | 54.63 |
| At least a year of secondary/ post primary education | 42 | 38.89 |
| Total | 108 | 100 |

4.1.3. Peasant family size

To have an idea of the household members involved in one's production process, each respondent was asked to choose among the alternative answers corresponding to their family size. On a total of 108 respondents, 50.02 per cent of them were having 2 to 10 members; around 39.81 per cent had more than 10 members in their household, while about 10.19 per cent were just single members.

The strong kinship ties among peasants explain the high percentage, 50.02 percent of those having 2 to 10 members coupled with family planning in the district. Actually, the family planning in the district had advised rural peasants to have at most four children, but when some children lost their parents in civil war and 1994 genocide, some had to be adopted by friends and relatives. Hence many peasant families became large in number including children already children and parents. Unfortunately, some respondents whose spouses/ children died in the same tragedy had no other option than to live as single member of the peasant household. Those are supposed to struggle alone in their day-to-day peasant work, but some time they get help from friends and relatives.

Table 4.3: Distribution of respondents according to family size

| Family size | Frequencies | Percent |
|----------------------|-------------|---------|
| Single | 11 | 10.19 |
| 2 to 10 members | 54 | 50.02 |
| More than 10 members | 43 | 39.81 |
| Total | 108 | 100 |

4.2.0. THE SOURCES OF LABOR AND ORGANIZATION OF ACTIVITIES

Findings on social demographic information revealed the distribution and implications of some personal characteristics in regards to peasant mode of production in the district, but did not show the specific activities, and how those activities contribute to the peasantry production process. The findings in this section therefore cover the major activities involved in peasant production process, the organization and sources of labor, and how the later contribute the total productivity level.

4.2.1. The household members involved in peasantry production process

Since all peasant household members could not be assumed to be involved in peasantry production process, the study also sought to know the numbers of individual peasants involved in their peasantry production process. According to the findings, 53.79 per cent have at least 2 individual peasants working in their slow scale agricultural production,

while only 2 percent work alone or with their spouses in their day-to-day peasant work. The high percentage of 53.79 per cent is due to the fact that many peasant households had a large number of grown up members who could be accommodated in at least one of the peasant activities. The low percentage of those working alone in their farms is attributed to the fact that some members of the peasant household were engaged in non peasant activities of the rural areas such as trading, primary school teachers, and carpentry, while in other cases all their household members died or migrated to urban areas. Below is the table for the findings.

Table 4.4: Distribution of respondents according to household members involved in peasantry production process

| Number of household members in peasantry | Frequencies | Percent |
|--|-------------|---------|
| Single and couple | 51 | 46.21 |
| More than two | 57 | 53.79 |
| Total | 108 | 100 |

4.2.2. The activities involved in peasant mode of production in Buhoma district

To have an insight of the activities involved in peasantry, the respondents were asked to list some of the major activities involved in their day-to-day peasant work. A lot of activities were listed, ranging from ploughing, cultivating, planting, tending animals, to harvesting. In the coding of the information, the activities were classified into those related to producing and tending animals, and those related to food and cash crops production. In all the activities recorded, 62.04 per cent were those related to crops

production, while nearly 37.96 per cent were related to animal production alone.

The high percentage of those activities related to crops production is attributed to the fact that some individuals do not livestock and crop production in order to avoid much involvement and time conflict in some of the peasant activities. In addition, some activities related to food crops production could lead to animal food production in the long run. For instance, pricking banana leaves as related to crops production, but could become livestock related activities when those leaves were to be taken as animal food.

The low percentage of those activities related to animal production alone is attributed to the fact that those activities were mostly done by individuals who were too old to travel to far away from home for other farming activities, and were therefore forced to remain at home and take care of the animals. Below is the table for those classifications.

Table 4. 5: Distribution of respondents according to classification of activities

| Classification of activities | Frequencies | Percent |
|------------------------------|-------------|---------|
| Livestock related activities | 41 | 37.96 |
| Crop related activities | 67 | 62.04 |
| Total | 108 | 100 |

4.2.3. The different forms of cultivation and livestock keeping

According to the findings, peasants in the Buhoma district have a considerable amount of knowledge of some productive forms of cultivation, though some of them seemed to be threatened. As one of the village leader said, the use of fallow had generally been practiced in a way that after one to three years of cultivation often with different crops, the land was to be laid fallow for at least five years, depending on the acreage available to the peasant household. This according to Antonio (1995: 128) could give a resting period to the soil, permitting it to have natural build up of fertility in the soil. This practice however needed more pieces of land so that some can be cultivated while others are being laid fallow. Since some peasants don't have enough pieces of land, that has forced many peasants to shift from fallow and extensive cultivation to intensive cultivation. In an interview discussion with the heads of peasants' households about 45.51 revealed that their form of cultivation was through intensive cultivation while only 30.56 practice extensive cultivation of laying the land unused for at most one year, while 25.92 per cent had a new practice of laying the land fallow for more than two years but with some productive crops like cassava, forest trees, fruit trees, among others. The pieces of land laid fallow could also serve as the glazing land for livestock.

Table 4.6: Distribution of respondents according to different forms of cultivation/ livestock

| Forms of cultivation | Frequencies | Percent |
|-----------------------|-------------|---------|
| Fallow cultivation | 28 | 25.92 |
| Extensive cultivation | 33 | 30.56 |
| Intensive cultivation | 47 | 45.51 |
| Total | 108 | 100 |

4.2.4. The period the individual peasant has in peasantry production

A question was asked to know exactly when each individual peasant started being involved in some or all of the peasant activities as discussed above. In a sample size of 108, nearly 43.52 per cent started involving themselves in peasant activities at above 18 years of age and below; about 56.48 per cent were those who started being involved in peasant activities at below 18 years of age. No single peasant started being involved in peasantry at just the time the research was being carried out.

The high percentage of long involvement in peasant activities for those who started peasant activities at below 18 years of age is attributed to the fact that most of them were peasants' sons and daughters, and as a result they started doing peasant works at their early age as a way of helping their parents. The low percentage, 43.52 per cent of those

who started peasant work at their later age is attributed to the fact that most of them were sons and daughters whose parents were not peasants and therefore never practiced any peasant work, but had to come to the rural areas at their later age, after civil war and 1994 genocide to look for alternative ways of living.

Table 4.7: Distribution of respondents according to the time the individual peasant started involving in peasant activities.

| Period at which the individual peasant started being involved in peasant activities. | Frequencies | Percent |
|--|-------------|---------|
| | | |
| At above 18 years of age | 47 | 43.52 |
| At above 18 years | 61 | 56.48 |
| Total | 108 | 100 |

4.3.0. LAND USE AND CROPPING PATTERNS

Land use and cropping patterns included the different ways in which the land was used, including different forms of cultivation, and farming arrangement, and the individual's access to land for cultivation.

4.3.1. The individual's access to land for production

Following the new settlement program, all rural dwellers in Buhoma district have moved to new village estates, and as the District officer revealed, everybody has $\frac{1}{4}$ acre of arable land. This is supplemented by other individuals' pieces of land cultivated or used at a distance.

Further findings from peasants revealed that nearly 78.70 per cent had access to land, while only 21.30 had none. The large number of respondents having access to land is attributed to the factors explained by the village leaders, while the low percent of those who did not have access to land is attributed to the fact that some individuals were too young by the time people were being taken to village estates, and could therefore not be given a plot. Others were just people who were not in the region at that time, and as a result, they missed such an opportunity. Below is the table for the findings.

Table 4.8: Distribution of respondents according to the individual's access to land.

| Access to land | Frequencies | Percent |
|----------------|-------------|---------|
| Yes | 85 | 78.70 |
| No | 23 | 21.30 |
| Total | 108 | 100 |

4.3.2. The land around peasants' homestead and the time needed to cultivate it

It could be a problem to know the time taken by individual peasant since peasant households had different amount of land acreage. In order to know the time taken by individual peasant, the respondents were asked to tell the time the individual person takes to till the land around his or her homestead. According to the findings, 70.37 per cent take 2 to 5 days while 29.63 per cent take more than 5 days. No simple peasant was found to be taking less than 2 days.

The respondent in Buhoma district had no idea of how long it could take for one using modern machines to till the same size of land but studies in Tanzania observed that it takes around 10 days for an individual peasant to till an acre of land (Rasmussen, 1982: 68). The individual peasant in Buhoma district may not take the same time, but what can be anticipated is that the more the household members involved in peasantry production process the shorter the time it would take them to perform certain peasant activity or activities and vice versa.

The high percentage of those taking 2 to 5 days is attributed to the fact that majority of the respondents were still energetic and productive. But despite that, not all respondents have the same energy, reason why 32% of them take more than 5 days to till the land around their homesteads.

Table 4. 9: Distribution of respondents and the time an individual peasant takes to till 1/4 acre of land

| Number of days taken | Frequencies | Percent |
|----------------------|-------------|---------|
| 1 to 5 days | 76 | 70.37 |
| More than 5 days | 32 | 29.63 |
| Total | 108 | 100 |

4.3.3. The tenant farming as an alternative to having access to peasantry production

The study sought to know how the individual peasants with little or no land at all could have access to land for production. According to the findings, nearly 51.85 per cent of respondents access land through fixed tenant farming arrangement, 36.11 per cent access land through share cropping, while the rest 12.04 per cent have access to land through other farming arrangement, including borrowing a piece of land from friends and relatives.

The big number in fixed tenant arrangement is attributed to the fact that after villagization program in district, more farmers were piecing together holdings by traveling long distances to fields. Because of the dispersion and time taken, some individual peasants prefer to rent them out to the nearest slow scale agricultural producers on a seasonal fixed tenant arrangement. Other slow scale farmers however hardly get money to pay for fixed tenant arrangement and prefer to survive through offering their labor and sharing agricultural yields with landlords. Alternatively they could borrow a piece of land from friends and relatives.

Table 4. 10: Distribution of respondents according to different farming arrangement

| | Frequencies | Percent |
|----------------|-------------|---------|
| Fixed tenant | 56 | 51.85 |
| Share cropping | 39 | 36.11 |
| Others | 13 | 12.04 |
| Total | 108 | 100 |

Expressing some of the challenges they face, many peasants in different tenant farming arrangements appreciate the arrangements for helping them to have access to production, but question their temporary and seasonal nature which prevent many peasant from producing crops that take long to mature, including many of the cash crops such like beans, Irish potatoes, peas sorghum, among others.

4.3.4. Food and cash crops production in Buhoma district

According to the findings, more traditional food than cash crops were being produced. The result from the three villages found that nearly 55.56 per cent of the respondents use the land for the traditional food-crops including maize, beans, bananas, Irish potatoes, sugar cane, sweet potatoes, among others; while only 44.44 per cent of respondents produce cash-crops such as coffee, tea, and pyrethrum.

The high percentage producing the traditional food crops is attributed to the fact that most cash crops take a long time to mature for the harvest, and as a result, many peasants were

replacing them by the market crops that take a shorter time and provide quicker cash to the peasant producer. In the Nyakigezi village of Mukirangwe Division, for example, many peasants were replacing their coffee plantations by vegetables production so as to get a quicker return of money and food production. Likewise, the Rusenge village of Kareba Division had formerly been known producing a lot of pyrethrum but many pyrethrum plantations were being replaced by Irish potatoes that grow much faster than pyrethrum.

Forest trees, fruit trees, and cash crops are among the crops that many peasants wish they could produce. But their production is still low in such away that their low percentage, 42.44 seemed to be associated with the long period most of them take to mature for harvest. The following table summarizes the above findings.

Table 4. 11: Distribution of respondents according to classification of crops

| Type of crops | Frequencies | Percent |
|------------------------|-------------|---------|
| Economic cash crops | 48 | 44.44 |
| Traditional food crops | 60 | 55.56 |
| Total | 108 | 100 |

4.3.5. Livestock keeping

In all the three villages, 22 per cent were found to be having cattle and other animals that can produce milk. Those include goats, and sheeps, while the rest 78 per cent keep chickens and other small animals, including rabbits, dogs, and cats. The large number of

the respondents keeping the small animals is explained by their quick productivity in breeding and growing. The peasant wish they could rear those animals like cows for milk production, but they are discouraged by the long time it takes for them to breed and grow for the market since livestock are among the source of cash income for many in the district.

Table 4. 12: Distribution of respondents according to classification of livestock kept

| Type of livestock | Frequencies | Percent |
|------------------------------------|-------------|---------|
| Cattle and other milking animals | 25 | 22 |
| Chickens and other small livestock | 83 | 78 |
| Total | 108 | 100 |

4.3.6. The overall agricultural production

When asked to give views on how they find the overall agricultural production, about 71.3 per cent of the respondents find the production to be very satisfactory, while the rest 28.7 per cent of the respondents said their overall agricultural production was not very satisfactory.

The high per cent, 71.3 of those who find production to be very satisfactory based their evaluation on the fact that their production could at least provide them with enough for the day to avoid sleeping hungry. The 28.7 per cent based of those who find production not to be very satisfactory based on the same judgment.

Table 4. 13: Distribution of respondents according to the overall agricultural production

| Overall production | Frequencies | Percent |
|-----------------------|-------------|---------|
| Very satisfactory | 77 | 71.3 |
| Not very satisfactory | 31 | 28.7 |
| Total | 108 | 100 |

4.4.0. THE FARM EQUIPMENTS AND TOOLS USED IN THE PRODUCTION PROCESS

To get an idea of the major tools and equipments used in the peasant production process of distribution, each respondent was asked to list all of the major farm inputs, tools, and equipments. In the analysis of the data, tools and equipment were categorized into the locally produced tools and non- local produced tools equipments.

4.4.1. Local and non local produced tools and equipments

The farm inputs were classified into animal manure and compost fertilizer and chemical fertilizers. Modern equipments included ox-plough and tractor machines, wheelbarrow for harvesting and transporting animal manure, the manufactured hoes, among others. The traditional equipments included traditional hoe, digging stick, wooden baskets, among others. According to the findings, 55.56 per cent of the respondents use traditional tools and hand implements, while only 44.44 per cent of the respondents can have access to modern equipments. Other equipments peasants wish they could use include ox-plough

and tractors, and wheelbarrow for those who do not have them. Others however do not see the need for such heavy machines since they cannot be used in their banana plantations.

Table 4.14: Distribution of respondents according to the farm equipments and tools used in the production process

| Farm equipments | Frequencies | Percent |
|----------------------|-------------|---------|
| Locally produced | 48 | 44.44 |
| Not locally produced | 60 | 55.56 |
| Total | 108 | 100 |

4.4.2. Chemical and traditional fertilizer

As revealed by respondents, other farm inputs used include animal manure or compost for fertilizer, and chemical fertilizers. The district of Buhoma seemed to be ahead in using chemical fertilizers. The findings from the research for example revealed that 62.96 per cent use chemical fertilizers, while 37.04 percent use animal manure for fertilizer.

The high percent of those using chemical fertilizer is attributed to the fact that many peasants have little or no access to animal manure for all their farming activities, and yet the land is not fertile enough to produce without some inputs. The limited access to animal manure for fertilizer also explains the low percentage of 37.04 per cent in using them with other waste material.

Table 4.15: Distribution of respondents according to fertilizer inputs

| Fertilizer | Frequencies | Percent |
|---------------------------|-------------|---------|
| Compost and animal manure | 40 | 37.04 |
| Chemical fertilize | 68 | 62.96 |
| Total | 108 | 100 |

4.4.3. The use of fertilizers and their impact on crop growth

As many peasants revealed however the results were not very satisfactory since some crops take a relative longer time than usual. Some of the reasons noted by the key informant is the use of too much nitrogen to plants. As Gustafson (1982: 66) warned, nitrogen applied in too much quantity causes trouble to food crops. It may delay ripening by causing too much vegetative growth of crops like tomatoes, and the fruit trees may not mature until so late. According to the findings, 59 per cent of the respondents revealed that their crops grow much faster when they use fertilizer, while 41 percent of the respondents express disappointment in their crops' slow growth when they use fertilizers and other farm inputs.

Table 4. 16: Distribution of respondents according to crop growth

| Crop growth | Frequencies | Percent |
|-------------------|-------------|---------|
| Faster than usual | 64 | 59 |
| Slower than usual | 44 | 41 |
| Total | 108 | 100 |

The findings in Buhoma district revealed that some of the ways in which peasantry production was being carried out could be associated with low productivity. Some personal profiles of the individual peasants involved in peasantry production process in the district were found to be low. For instance, the level of education of many peasant respondents was just primary and literacy education. Others did not even have modern education at all because of having spent much of their time in peasant works. Other personal characteristics of the small-scale farmers however in Buhoma district however revealed an attractive level of productivity. The largest age group for example, were the peasants between 19 to 45 years of age. This being young and productive age group gives an indication that majority of the peasants in Buhoma district were still highly productive.

Some of the ways in which land is used and the cropping patterns in Buhoma district were also found to contribute to low productivity in some aspects. For instance, the production of cash crops was found to be much lower than that of traditional food crops, and this, according to key informants would lead to low access to foreign exchange. In addition, although some modern equipment could speed up production because of their ability to work faster than traditional tools, other modern inputs like chemical fertilizers, were contributing to slow crop growth because of using too much or too little of it.

CHAPTER FIVE

HYPOTHESES TESTING AND DISCUSSION OF THE FINDINGS

5.00. Introduction

This discussion of this chapter is based on whether or not the hypotheses, which formed the central part of the research, can be accepted. The hypotheses set to be tested were as follow:

Ha 1: Personal characteristics of the individual peasants in Buhoma district influence their level of production.

Ha 2: The individual's involvement in peasantry of the Buhoma district leads to lowering his/her ability to produce.

Ha 3: Farm inputs used in peasant mode of production contribute to low productivity among peasants in Buhoma district of Rwanda.

Ha 4: Land use and cropping patterns among peasants in Buhoma district is associated with low productivity.

The corresponding null hypotheses were set for each hypothesis. The decision rule to accept hypothesis was that a change in the categories of the independent variable results in change in the categories of the dependent variable, and a difference of grater than 0.01 exists throughout the table.

Having used the selected sample to infer to the whole peasant population in the district, care was take for not rejecting H_0 when it is actually true (type 1 error), or accepting H_0 when it is actually false (type 2 error). To achieve this, the degree of freedom and the

level of confidence were established. According to Huntstberger and Billingsley (1987: 280), the levels of significance refer to the amount of errors that were tolerated in the selected sample results. For instance, if the study was to be 95% confident of chi-square results, the level of significance was to be set at 5 %. Likewise, if the study was to be 99 % confident in rejecting one of the above research hypotheses, a degree of freedom of 1% had to be established.

The bivariate tables with raw data representing the categories of the dependent variable, and column data representing the categories of independent variables were used, and this according to Singleton (1993: 434) is what was referred to as cross tabulation. The subsequent computation of chi- squares was done. As Singleton further recommends, chi-square test was based on the comparison of the percentages of the cells expected frequencies one would expect if there were no relationships between the variables.

5.1.1. Personal characteristics and the level of production

Ha: Personal characteristics of the individual peasants in Buhoma district can influence their level of production.

Ho: Personal characteristics of the individual peasants in Buhoma district cannot influence their level of production.

Personal characteristics were defined as those typical feature that distinguish the individual peasant from the other or others (Crowther, 1995 : 186). In this study, the personal characteristics that were assumed to have power to affect the slow scale agricultural producer were age, education attainment, and family size. These form the

basis for testing the hypothesis that personal characteristics of the peasant could influence their level of productivity.

Table 5. 1. The relationship between family size and the time taken to till a ¼ of land

| Time taken to till ¼ acre | Family Size | | | Raw total |
|---------------------------|-------------|-----------------|----------------------|------------|
| | Single | 2 to 10 members | More than 10 members | |
| 1 to 5 days | 8 (73 %) | 30(70 %) | 38 (70%) | 76 (70%) |
| More than 5 days | 3 (27 %) | 13(30 %) | 16 (30%) | 32 (70%) |
| Column total | 11 (100%) | 43 (00%) | 54 (100%) | 108 (100%) |

Level of significance = 0.05. Degree of freedom = 2. Chi-square = 0.03

Family size was operationally defined in terms of number of household members involved in peasantry production process. It was categorized as a family with single person, family with two to ten members, a family with more than ten members. It was discussed in the literature review and in the theoretical framework of this study that peasant mode of production is the production that relies only on the individual's family labor (Shanin,1972:151). This led to an assumption that family size of an individual peasant household could influence its productivity.

The percentages in the table 5.1 show clearly that of the 11 respondents with single members, 0.73 of them take 1 to 5 days to cultivate 0.25 piece of land, while 0.27 of them take more than 5 days to do the same work. In addition, of the 43 and 54 heads of the peasant households with 2 to 10 and more than 10 members respectively, 0.70 of them use 1 to 5 days, while 0.30 use more than 5 days.

Reading across the table for the cells expected values, it can be observed that there was a difference of 0.03 (0.73-0.70) in the percentages of peasant households with single members who take more 1 to five days to cultivate 0.25 piece of land. So, that difference shows that a relationship between the time taken and the family size of 2 members exists. However as the investigation moves on the time spend for the family with 2 to 10 members and the time spent by family with more than 10 members becomes 0. This implies that there is no relationship between the time spend on cultivating a specific piece of land and the family size, though having a single member in the peasantry production is also not productive. So as peasant family continues to add more members starting from 2 members, the productivity in terms of time spent and the work done start to decline.

The chi square value in the table 5.1 (0.03) is not statistically significant since the difference becomes 0.00 as the investigation moves on. This led to a conclusion that family size does not have the great power to affect the productivity of the peasantry production process in terms of time taken to accomplish certain duties was rejected. The possible explanation was that some peasant household could have some members who are were not necessary involved in peasantry, they include for example rural traders, primary school teachers, among others.

Table 5.2. Age and peasants' access to a piece of land for production

| Access to land | Age | | | Raw total |
|----------------|-----------|----------|-----------|------------|
| | Bellow 18 | 19 to 45 | Above 45 | |
| Yes | 24 (80%) | 33 (79%) | 28 (77%) | 85 (79%) |
| No | 16 (28%) | 9 (21%) | 8 (23%) | 23 (21%) |
| Column total | 30 (100%) | 42(100%) | 36 (100%) | 108 (100%) |

Level of significance = 0.05. Degree of freedom = 2. Chi-square value = 0.03

Age in this study was defined as the length of time that an individual peasant has existed (Crowther, 1995: 22). It was categorized into below 18 years of age, from 18 to 45, and above 45 years of age. Having land as an important element of the peasantry, the study sought to investigate the relationship between age and the access to land.

The table 5.2 revealed that of 30 individual respondents who were bellow 18 years of age, 0.80 of them had access to land for production, while 0.20 did not have that access. Moreover, of the 42 respondents who were between 19 to 45 years of age, 0.79 of them had access to land, while 0.21 did not have it. In a total of 36 respondents who were more than 45 years of age, 0.77 of them had access to land for production, while 0.23 did not have that access.

Reading across the cells frequencies in the table 5.2, it can be clearly observed that there was a difference of 0.01 in the percentages of individual peasants bellow 18 years of age

with access to land. The difference increases even further to 0.03 (0.80-0.77) as the ages also increases. peasant below 18 years of age have relatively more access to land than those above 18 years of age, because those had just been allocated a piece of land, and had therefore not started selling it off. Also according to the above table 5.2, as the investigation moves on from between 19 to 45 years to 45 years and above, the access to land starts decreasing. Some of the reasons include that some old peasant start selling their pieces of land when they approach their elderly age. The increasing differentiations shows that a relationship between age and access to land exists, and is even increasing as the age also increases.

The general observation is that not all personal characteristics of the individual peasant can affect productivity. Although some personal characteristic like age was found to have power to affect peasantry production process, the family size, another category of personal characteristics of the individual peasant was not. Further investigation of the possible relationship between personal characteristics and productivity of the peasantry is discussed in the following hypotheses testing.

5.1.2. Peasants' involvement in peasantry production process and their productivity

Involvement in this study referred to participation of individual peasant in peasantry production process. It was categorized into the period at which the individual peasant started involving in peasantry, and the specific activities the individual peasant was involved in.

H_a : The individual's involvement in peasantry of the Buhoma district leads to lowering

his/ her ability to produce.

Ho: The individual's involvement in peasantry of the Buhoma district does not lead to lowering his/ her ability to produce.

Table 5.3. The period involved in peasant activities and the individual level of education

| Involvement Period | Level of education | | | Raw total |
|--------------------|-------------------------|---------------------|-------------------|------------|
| | Secondary/ post primary | No modern education | Primary/ literacy | |
| At above 18 years | 40 (99.6%) | 1 (14.3%) | 48 (81.4%) | 47 (43.6%) |
| At below 18 years | 2 (0.06%) | 6 (85.7%) | 11 (18.6%) | 61(56.4%) |
| Column total | 42 (100%) | 7 (100%) | 59 (100%) | 108(100%) |

Level of significance = 0.05. Degree of freedom =2. Chi-square value =0.853

The period in peasantry refers to the age at which the individual peasant started involving in peasantry activities. It was categorized into the period at below 18 years, and period above 18 years.

The table 5.2 show that of the 42 respondents, 0.99.6 of them with at most a year of post primary education, started involving themselves in peasant activities when they wre above 18 years of age, while 0.06 of them were bellow 18 years of age. The 7 individual peasants with no modern education at all, 0.143 of them started involving themselves in peasantry production process when they were above 18 years of age, while 0.857 started involving themselves in peasantry when they were bellow 18 years of age. In addition, of

the 59 respondents with primary and literacy education, 0.814 of them started involving themselves in peasantry when they were above 18 years of age, while 0.186 were below 18 years of age.

The general observation is that individual peasants who started involving themselves in peasant work at below 18 years of age had a relatively lower of education than those who started a some peasant works when they were above 18 years of age. The possible explanation as Rudengen (1981:24) observed is that some individual peasants who started involving themselves in peasantry production at their early age missed the opportunity to go to school.

Reading across the cells expected frequencies in the table 5.3, it can be observed that there was a difference of 0.853 in the individual peasants with at most a year of post primary education who started involving themselves in the peasantry when they were above 18 years of age.

The chi-square value in the table 5.3 is statistically significant. This suggests individual's long involvement in peasantry can influence his/her level of production.

5.1.3. The relationship between farm equipments and their productivity

Ha: Traditional farm equipments used in peasant mode of production in Buhoma district contribute to low productivity.

Ho: Traditional farm equipments used in peasant mode of production in Buhoma district do not contribute to low productivity.

Table 5.4. The choice of equipments and the most likely reason

| The most likely reason | Equipments | | |
|------------------------|-------------|------------|------------|
| | Traditional | Modern | Raw total |
| Work faster | 20 (39.1%) | 26 (44.6%) | 46 (42.6%) |
| Other reasons | 28 (60.9%) | 34 (55.4%) | 62 (57.4%) |
| Column total | 48 (100%) | 60 (100%) | 108 (100%) |

Level of significance = 0.05. Degree of freedom = 1. Chi-square value = 0.05 5

Equipments were operationally defined as the necessary tools and articles used in peasantry production process. They were categorized into modern and traditional equipments. In many studies done in the developing countries, modern equipments were said to take a relatively shorter time than the traditional ones.

The table 5.4 shows that in a total of 48 respondents who use traditional tools, 0.391 of them use modern equipments because of their ability to work faster, while 0.609 of them use modern equipments because of other reasons. In addition, of the 60 respondents who

use modern equipments, 0.446 use modern equipments because of their ability to work faster, while 0.554 use them because of other reasons.

Reading across the table 5.4, it was clearly seen that there was a difference of 0.055 (0.391- 0.446) in modern equipments that can work faster. The chi-square value of in the table 5.4 (0.055) is statistically significant. This suggests that traditional tools used in peasantry production process work less fast than the modern ones.

The use of fertilizers and its impact on crop growth

Ha: Traditional fertilizer inputs used in peasant mode of production in Buhoma district contribute to low productivity.

Ho: Traditional fertilizer inputs used in peasant mode of production in Buhoma district contribute to low productivity.

Table 5.5. Fertilizers and crop growth

| Crop growth | Fertilizers | | |
|-------------------|-------------------------|----------------------|------------|
| | Traditional fertilizers | Chemical fertilizers | Raw total |
| Faster than usual | 24 (60%) | 40 (59.9%) | 64 (59.3%) |
| Slower than usual | 16 (40%) | 28 (40.1%) | 44 (40.7%) |
| Column total | 40 (100%) | 68 (100%) | 108 (100%) |

Level of significance = 5%. Degree of freedom =1. Chi-square value = 0.001

Fertilizer was operationally defined as chemical or natural substance added to soil to make it more productive. The modern belief was that traditional fertilizer could not speed crop growth as fast as the modern chemical fertilizer.

The table 5.5 reveals that of the 40 respondents who use traditional fertilizers, 0.60 of them have experienced a faster crop growth than usual, while 0.40 suffered a slower crop growth than usual. Of the 68 respondents who use modern chemical fertilizers, 0.599 of them experienced a faster crop growth than usual, while 0.401 suffered a slower crop growth than usual.

Reading across the cells frequencies in the table 5.5, it was observed that there was a difference of only 0.001 (0.60-0.599) in the modern chemical fertilizers that contribute to faster crop growth. The chi-square value in the table 5.5 (0.001) is not statistically significant to conclude that only traditional fertilizers contribute to slow crop growth.

On one hand the idea that traditional farm inputs contribute to low productivity cannot be denied. The modern equipments were found to likely work faster than traditional. But on the other hand some of the modern inputs can also slow productivity, especially when used by a traditional producer.

5.1.4. Land use and cropping patterns and the overall agricultural production

Ha : Land use and cropping patterns among peasants in Buhoma district is associated with low productivity.

Ho: Land use and cropping patterns among peasants in Buhoma district is not associated with low productivity.

Land use and cropping patterns were expressed in terms of different ways in which the land is used. It included different forms and practices of cultivation, the specific types of livestock and crops produced, and the different farming arrangement such as tenant farming arrangement, share cropping, and other alternative ways of having and accessing land for production.

Table 5.6. Farming arrangement and the types of cash and food crops produced

| Types of crops | Farming arrangement | | | |
|------------------------|---------------------|----------------|-----------|------------|
| | Fixed tenant | Share cropping | Others | Raw total |
| Economic cash crops | 37 (66.1%) | 6(15.4%) | 5 (38.5%) | 48 (44.4%) |
| Traditional food crops | 19 (33.9%) | 33(84.6%) | 8 (61.5) | 60 (55.6%) |
| Column total | 56 (100%) | 39 (100%) | 13 (100) | 108(100) |

Level of significance = 0.05. Degree of freedom =2 Chi-square value =0.507

Farming arrangement in this study referred to the process of putting land into the required order in producing and rearing animals and food crops. It was categorized into fixed tenants, sharecropping, and others.

The table 5.6 shows that of the 56 respondents who were in fixed tenant arrangement, 0.661 of them were producing economic cash crops, while 0.339 of them were producing traditional food crops alone. In a total of 39 respondents who were in share cropping 0.154 of them were producing economic cash crops, while the rest 0.846 were producing traditional food crops. In addition, of the 13 respondents who were in other tenant farming arrangement, 0.385 were producing economic cash crops, while 61.5 were producing traditional food crops. In all the tenant farming arrangement, economic cash crops is produced more by the people in fixed tenant arrangement. The possible explanation is that those were relatively more certain of the duration of their agreement, and could therefore produce crops that take a long time to harvest including cash crops. The low production of cash crops in sharecropping and other tenant farming arrangement is attributed to the fact that those peasants in the abovementioned agreement had little or no permanent right on land use.

Reading across the table5.6, it can clearly be observed that there was a difference of 0.507 (0.661-0.154) in peasants who were in fixed tenant farming arrangement. This alone is statistically significant, and it shows a strong association between farming arrangement, and the type of crops produced.

Table 5.7. Forms of cultivation and overall agricultural production

| Overall agricultural production | Forms of cultivation | | | Raw total |
|---------------------------------|----------------------|-----------------------|-----------------------|------------|
| | Fallow cultivation | Extensive cultivation | Intensive cultivation | |
| Very satisfactory | 20 (71.4%) | 24(74.5%) | 34(71.2%) | 77 (71%) |
| Satisfactory | 8 (28.6%) | 9 (25.5%) | 33(27.7%) | 31 (31%) |
| Column total | 28 (100%) | 33 (100%) | 47 (100%) | 108 (100%) |

Level of significance = 0.05 Degree of freedom =2. Chi-square value = 0.013

Forms of cultivation in this study referred to the process of preparing and maintaining soil for production. It was categorized as fallow cultivation, extensive cultivation, and intensive cultivation. In literature review scholars including Klein (1980:119) warned that some forms of cultivation in East and Central Africa could be associated with low soil productivity.

The percentages in the table 5.7 show that of the 28 respondents who practice fallow cultivation, 0.714 of them find their overall agricultural production to be very satisfactory, while 0.286 of them find it not very satisfactory. In a total of 33 respondents who practice extensive cultivation, 0.727 of them find the overall production to be very satisfactory, while 0.273 find it not very satisfactory. Likewise, of the 47 respondents

who practice intensive cultivation, 0.723 of them find the overall production to be very satisfactory, while 0.277 find it not very satisfactory.

Reading across the cells expected frequencies, it can be observed that there was a difference of 0.013 (0.722-0.714) in peasant who practice extensive cultivation and find the overall satisfaction to be very satisfactory. The difference becomes only 0.004 (0.727-0.723) when comparing percentages in extensive cultivation and intensive cultivation. The chi-square value in table 5.7 is not statistically significant. This suggests that a strong relationship between forms of cultivation and the overall agricultural production does not exist. This, according to the village leader, is explained by the fact that some forms of cultivation like burning could reduce soil productivity but at the same time increase the actual agricultural yield.

The general observation is that nearly all peasant arrangement and forms including some forms of cultivation affect the productivity either of some types of crops produced or that of the soil on which the crops are produced.

CHAPTER SIX

SUMMARY OF THE STUDY, CONCLUSION AND RECOMMENDATIONS

6.0.0. Introduction

This chapter summarizes the key findings observed from both literature and field observation, followed by a critical concluding discussion, which formed the basis for recommendations.

6.1.1. Summary

Scholars including Liberson (1981: 6-7) have defined peasant mode of production as slow scale agricultural production in which the producer relies on simple tools and family labor for subsistent production.

Further studies by Boesin (1977), Hunter (1969) Striver (1985) and other developing countries to assess productivity of the peasantry production process revealed that peasant mode of production process take a relatively long or short time than is due, encourage a relatively low production of some type of crops and livestock, deny access to land to some individual members of the community, encourage some of the practices and forms of cultivations which are not fertility enhancing activities. The combination of the above and other similar characteristics led to a conclusion that peasant mode of production can most of the time be associated with low productivity.

The long involvement in some of the peasant activities including tending livestock and other peasant activities in East and Central Africa was found to be one of the factors that hindered many young people from extending far in their studies. The findings in Buhoma district observed the same when doing an investigation of the relationship between individual' s level of education, and his or her period of time involved in peasant activities. According to the findings, people who had been involved in peasant activities for a long period of time had a relatively lower level of education than those whose time of involvement in peasantry had been relatively short.

The different ways in which land is put into proper use required use among peasants was also found to have a negative relationship with productivity of both soil and cropping patterns in the district. Traditional forms of cultivation including fallow cultivation, intensive cultivation, and extensive cultivation were most of them found to either reduce soil fertility or force the peasant to wait for long with some forms of cultivation such as fallow cultivation, while intensive cultivation was associated with reducing soil productivity. In addition, the different tenant farming arrangement provides an alternative to having access to land for production for those with little or no land at all, but fails to enhance production of certain non-food crops that are believed to contribute to long-term farm investment.

Some theories of the peasantry suggested a positive association between peasant mode of production and the likely time it could take to perform certain duties. However the investigation of the relationship between the two did not find enough evidence to accept

the hypothesis, as some member of the peasant household who are relatively more trained were opting for non peasant activities of the rural areas, leaving the peasantry with relatively less trained producers. Further more, the modernization theorists maintained that the use of modern farm inputs would improve productivity, but findings in the Buhoma district suggested that some of these modern farm inputs can also lead to low productivity in terms of slowing crop growth in some cases especially when some of those inputs were not used properly.

6.1.2. Conclusion

The evidence from both primary and secondary data tended to agree on the low productivity nature of the peasant mode of production, but the degree of the lowness took different aspects both in qualitative and quantitative aspects. The complexity of the productivity nature of the peasant mode of production, especially in Buhoma district lies in its power to affect the individual peasant' s long term productivity on one hand, and in the individual' s influence to slow peasantry production process on the other hand.

Therefore, the problem of productivity in the district seemed to have become a low productivity circle. Some of the personal characteristics of the individual peasant are shaped and some times ruined by his or her much involvement in some of the peasant activities. The end result goes back to the peasantry production process when the powerless peasant starts being involved in some of the peasant works. For instance, it was noted that personal characteristic such as level of education is affected by long-term involvement in peasant work. In such a case, the individual peasant becomes the casualty

of the production system. But later on, when the individual starts involving in some of the peasant work with little skills, his or her ability to produce becomes questionable. In such a case the peasant mode of production itself suffers.

6.1.3. Recommendations

As far as productivity is concerned, an understanding of the peasantry production process and its productive force is of a paramount importance. Consideration of productivity in terms of its quantitative and qualitative implication is another factor. This is so because peasantry production process is not concerned with material production alone but also with non-material life sustaining elements, including maintaining the ability of the individual peasant to produce.

Having a clear understanding of the peasantry should go hand in hand with a training of the slow scale agricultural farmer through agricultural extensional work in order to disseminate proper information on how to combine different efforts that can lead to positive change. As Chitere (1994: xvi) observed, training peasant through agricultural extensional work will empower people with skills which if put into use will bring about both material and non material growth. The compromise for investing so much time in peasant activities on expenses of other social activities like education aimed at improving individual's ability to becoming more productive will be dealt with through training and peasant workshop. The peasant will learn to balance time spent in peasant activities and that to be spent in activities that have power to effect positively the peasant's future ability to produce. Ram (1993: 26) recommends training among farmers, but training and

workshop for slow scale farmers should serve more than just providing modern education of literacy and high learning education but also provide training that aims at empowering peasant to strengthen peasantry production process.

Some of the farm practices such as extensive cultivation, which is common in the Buhoma district, should be minimized. Introducing hybrid crops can only do this and livestock that produce better agricultural yield without necessarily using many livestock or cultivating a large size of land. In that way, the peasant will use a smaller piece of land to produce the same agricultural yield and leave the other piece to be laid of for a reasonable time. Likewise, crops that take a relatively shorter time to grow for harvest should be introduced for the same purpose. These include for example hybrid beans, hybrid maize, hybrid avocados and the alike as those will grow faster and be harvested, hence leaving the remaining time for the land to rest. Moreover, while this land will be laid fallow, it will also serve as a grazing land for livestock.

In order to bring about the desired change in the existing cropping patterns in the Buhoma district, some effective measures, including the provision of appropriate incentives to the few who are still producing cash crops, should be provided so as to attract back those who are shifting cultivation to food crops alone. In the same way, means and ways to have access to cash crops production for those in fixed tenant, share cropping, and other tenant farming arrangement should be found through consulted efforts between and among peasant in the agreement, with government intervention where and when it is necessary.

Peasants in the newly created village estates should be provided with enough piece of land around their homestead for most of farming activities so as to avoid traveling far to and from the individual' s fields of production. Actually that has contributed in helping many peasants to engaging into tenant farming arrangements, hence opting to producing food crops alone, as the agreement requires. The provision of enough land around the individual's homestead can be done through exchange of plots and/ or parcels among peasants depending on the closest arable land and the closest village estate dwellers.

Peasants' cooperatives and associations should be introduced as a way of strengthening collaborations among peasants as they look into how they can improve their farm productivity. Peasant cooperatives will also provide a forum in which some of the problems that hinder peasantry production process will be discussed.

The application of the new techniques should be introduced gradually among the peasant households. The provision of modern inputs should be introduced, but as discussed in the above paragraphs, that should go hand in hand with providing training to individual peasants on how to use them efficiently. Proper equipments that can work faster should be provided to help peasant reduce time spent in some of the peasant activities done by using hand and traditional farm implements.

Finally, further research to focus on a single crop or type of animals should be done in the whole of Buhoma district to identify potentials and the productivity level of the specific

type of agricultural product in each and every farming zone in the district. More consideration should be given to economic cash crops since their production was found to be lower as peasants keep on shifting to producing food crops alone.

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OBSERVATION CHECK LIST FOR INTERVIEW SCHEDULE

My name is Thomas BISHYIZEHAGALI, an M.A candidate in Rural Sociology and Community Development at University of Nairobi. A study of the area you are involved in was selected in partial fulfillment of the course, and both the University and myself feel that you may be a good source of information. Because of that, you are kindly requested to contribute to the needed information as much as you can. In doing so, please be assured that your information will remain confidential and used for the stated purpose only.

I. SOCIAL DEMOGRAPHIC INFORMATION

1. Age
 - A: Below 18 years.....
 - B: 19 years to 45 years.....
 - C: Above 45 years.....
2. Level of education
 - A: Primary and literacy education.....
 - B: Secondary and post primary education.....
 - C: No modern education.....
3. Family size
 - A: Single.....
 - B: 2 to 10 members.....
 - C: More than 10 members.....

II. INDIVIDUALS' ACTIVITIES AND THE DIVISION OF LABOR

4. Are all your household members involved in peasantry production process?
 - A: Yes.....
 - B: No.....
5. Depending on your answer to question five, please mention the specific number, and explain how it affects your day- to- day activities.
.....
6. What are your peasant activities? Please list as many as you can starting from the initial ones
.....
7. When did you start involving yourself in some of those activities?
 - A: At below 18 years
 - B: At above 18 years.....
 - C: At this age.....

III. LAND USE AND CROPPING PATTERNS

8. Do you have any piece of land around your homestead?
A: Yes.....
B: No.....
9. If your answer to question 9 is yes, please explain its approximate size.
.....
11. How long does it take your household to till the whole of it?
.....
12. If your answer to question 9 is no, where else do you have land or lands?
.....
13. Which among the following is your common form of cultivation?
A: Fallow cultivation
B: Intensive cultivation
C: Extensive cultivation
14. Depending on your answer to question 14, please explain in details how you do it
.....
.....
15. If you neither have land at all nor have little, how else do you get access to land for your production?
A: Through tenant farming arrangement
B: Through share cropping
C: Through other farming arrangement, please explain
.....
16. Depending on your answer to question 16, please explain briefly how you do it
.....
.....
17. Being in a small scale agriculture suggests that you produce or rear certain type(s) of crops and live stocks, please list the specific crops and livestock you produce/rear very often, according to the following classification.
A: Food crops.....
B: Cash crops.....
C: Livestock.....
18. How do you rate your overall agricultural production?
A: Very satisfactory.....
B: Satisfactory.....

19. Which other livestock/ crops do you wish you could produce/ rear?
.....

20. Why are you not producing or rearing them?
.....

IV. TOOLS AND EQUIPMENT USED IN PEASANTRY PRODUCTION PROCESS

21. Depending on the farming activities you are involved in, please list the major equipments and other farm inputs you use very often, and how you use them
.....

22. Which other equipments do you wish you could use?
.....

23. Why are you not using them?
.....

24. How do some of the inputs including fertilizers contribute to your crop growth?
Please explain in details.
.....

Thank you for your contribution



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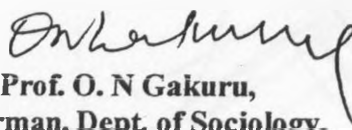
July 8, 2003

TO WHOM IT MAY CONCERN

RE: MR. THOMAS BISHYZEHAGALI

This is to certify that **MR. THOMAS BISHYZEHAGALI** is an M.A. student in the Department of Sociology, University of Nairobi. Mr. Thomas Bishyizehagali has completed his course work and is required to carry out research for his M.A. Project entitled: **"Peasant Mode of Production and Low Productivity: A Case Study of Buhoma District Ruhengeri Province of Rwanda"**.

Any assistance given to him will be greatly appreciated.


Prof. O. N Gakuru,
Chairman, Dept. of Sociology.

Bwana BISHYIZERAGARI Thomas

Impamvu: Kwemererwa gukora ubushakashatsi
mu Karere ka Buhoma.

Bwana,

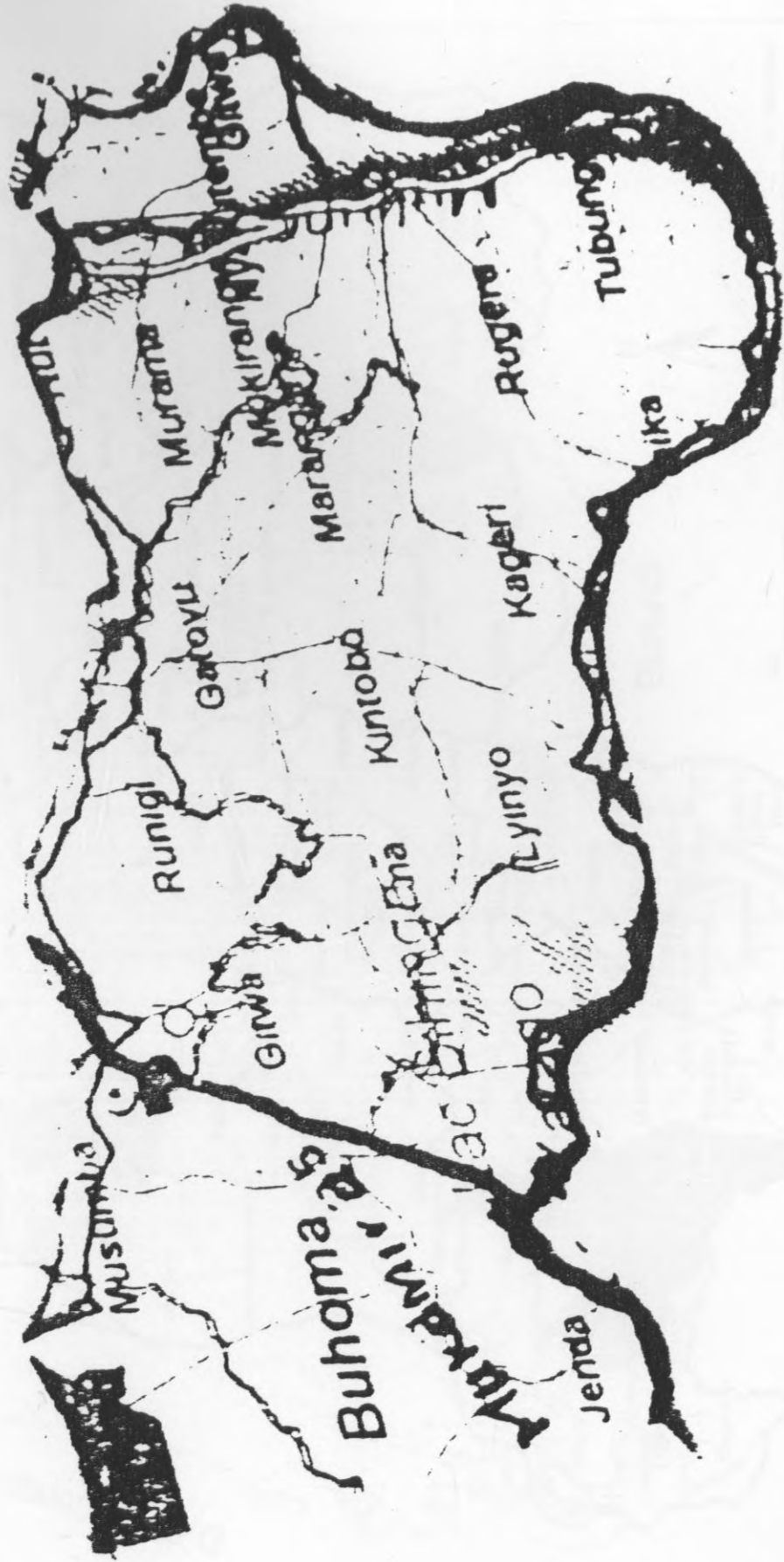
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Nkwandikiye nkumenyesha ko wemerewe.
Nkaba mboneyeho kumenyesha Abahuzabikorwa b'Imirenga n'Utugari kukorohereza muri ako
kazi.

Gira amahoro.

Umuyobozi w'Abaturage ka Buhoma
MBERABA



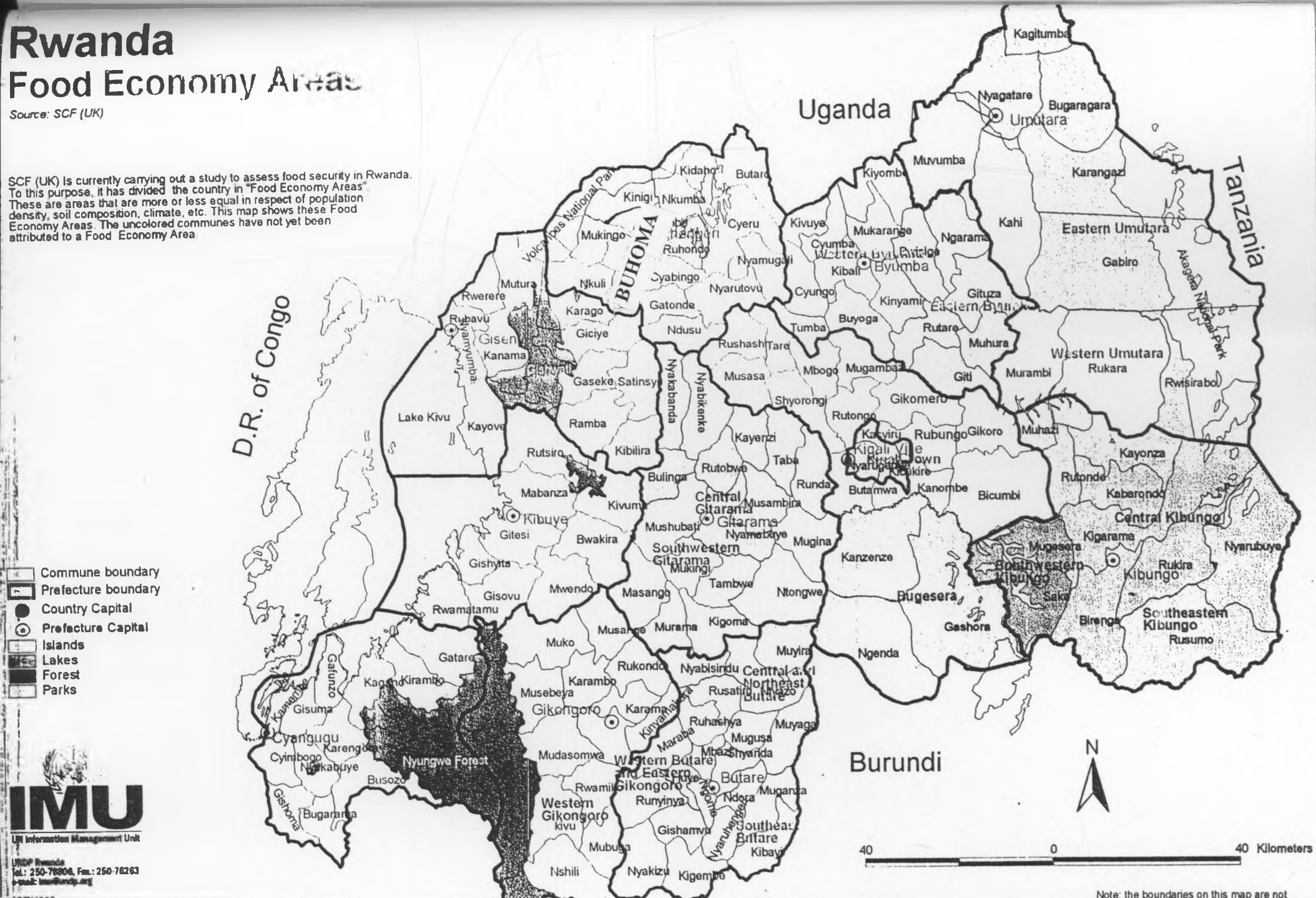


Rwanda

Food Economy Areas

Source: SCF (UK)

SCF (UK) is currently carrying out a study to assess food security in Rwanda. To this purpose, it has divided the country in "Food Economy Areas". These are areas that are more or less equal in respect of population density, soil composition, climate, etc. This map shows these Food Economy Areas. The uncolored communes have not yet been attributed to a Food Economy Area.



Note: the boundaries on this map are not