

**ASSESSING THE POTENTIALS
OF RURAL COMMUNITIES
FOR HOUSING PROVISION
IN GHANA**



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ASSESSING THE POTENTIALS OF RURAL COMMUNITIES FOR HOUSING PROVISION IN GHANA

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ABSTRACT

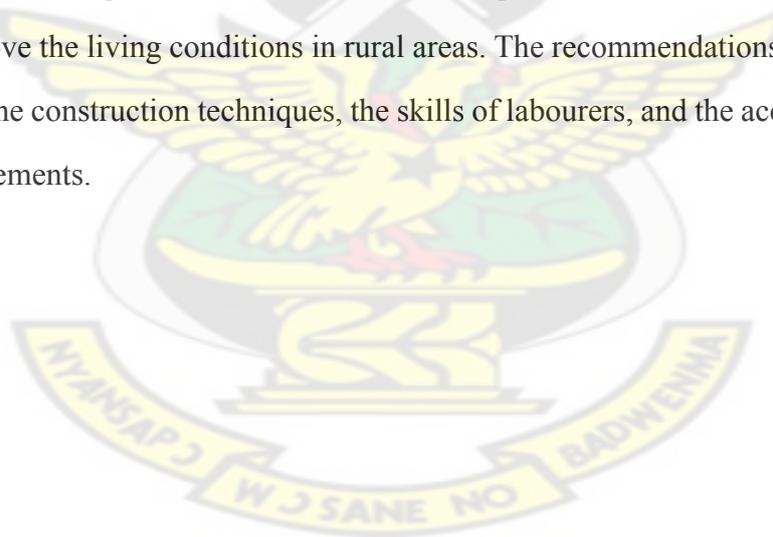
Housing is a fundamental piece of human development. During the last decades, the importance of housing in the development arena and how it can improve living standards has been extensively discussed. Housing has particular characteristics since it encourages development from two directions. On the one hand, by improving living conditions at household level and on the other, by promoting economic development of a complete country, since construction is a relevant economic sector. For the purpose of this study, housing is defined as a process; since every house is in constant change and evolution, it has not a clear end, but it is dynamic. For this reason, housing processes are a crucial area of development that is permanently generating needs and satisfactions.

Rural communities face up to housing with different challenges and advantages than urban centres. Housing in rural areas normally lacks sophisticated materials or skills, and it is developed by self construction. In these facts, that at first look may appear just as constraints, potentials that promote and improve housing processes in rural areas can be found. In these places several resources can be used more efficiently, helping to develop better places to live. In spite of this, many of them remain underutilized or are disregarded by the community. The case of Ghana is not different; in fact rural communities share most of these characteristics. So, it is possible to observe how living conditions in rural areas in Ghana are lower than urban centres, which have also encouraged people to migrate to cities with all the associated problems.

Having this in mind, this study was aimed at finding potentials of rural communities for housing development and to assess them in order to find paths to improve living condition in rural areas. The research was organized according the basic factors affecting housing development namely; Building materials, Labour, Land, Finance and Infrastructure. Later on, these factors were used as a guide to analyse and establish the potentials. For this purpose, the study was developed through field work in order to

collect useful and reliable data about housing processes in rural areas. The field work was performed in the Ejura-Sekyedumase District in the Ashanti Region of Ghana. This District counts with similar characteristics than other sectors in rural Ghana, therefore it is expected that some of the results can be extrapolated to other areas. Also secondary sources of data were used to contrast the results with national trends. The field work consisted in interviewing community members and authorities of the District Assembly to collect information regarding housing production and conditions. Later on, through an exploratory approach, the data were contrasted with the housing development factor to find potentials and constrains.

As an outcome, the study found potentials related to availability of raw building materials, labour and land. Also, it found potentials concerning the willingness of people to develop their houses and to invest their work and money on it. However, these potentials were limited by a low educational level and poor infrastructure. So, this study made recommendations to promote a better use of these potentials, overcome these constraints and improve the living conditions in rural areas. The recommendations are addressed to improve the construction techniques, the skills of labourers, and the access to the distant rural settlements.



DECLARATION

I hereby declare that this submission is my own work towards the MSc Development Planning and Management programme and that, to the best of my knowledge it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

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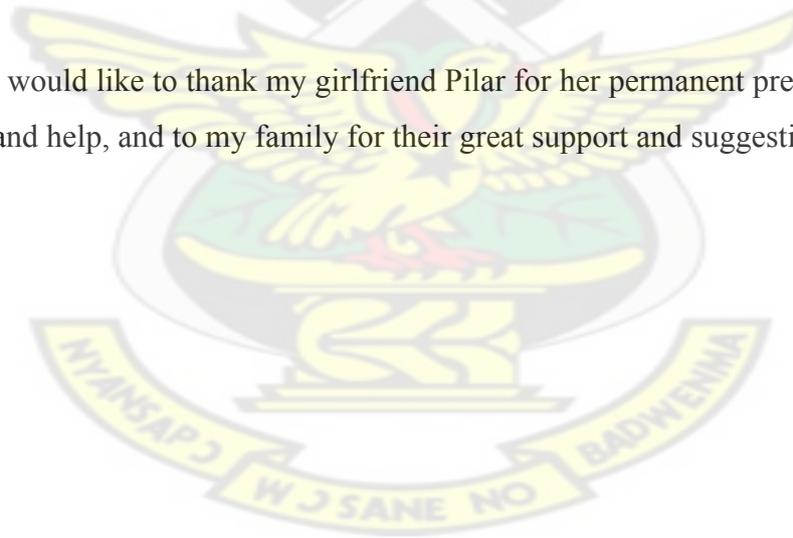


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ACRONYMS

DA:	District Assembly
DMTDP:	District Medium Term Development Plan
GSS:	Ghana Statistical Service
KNUST:	Kwame Nkrumah University of Science and Technology
NGO:	Non Governmental Organization
PV:	Photovoltaic
UN:	United Nations



CHAPTER ONE: INTRODUCTION

When considering the factors that determine the improvements of the people's standards of living, housing is a key element. A proper home and environment foster also health, education, family and social relations, among other important social activities. Housing is recognized as a place of cultural representation and cultural development. Through housing, communities and people express not only a need of protection from the environment, but also traditions, customs and beliefs. Developing housing is developing spaces for cultural transference, as teaching, healing, learning, expressing, self realizing, etc. (Norberg-Schultz: 1968).

Housing must be understood as something that goes beyond the house as an end product: it is a process of building, adapting and preserving the habitable space.. "For people from all income groups — but especially for the poor — housing is not a product, but a process. It is not something that is completed all at one time according to a plan, but is developed in stages, as a household's needs and resources change" (UNHABITAT: 2008b)." Following these ideas, it is a challenge for any society or group to build up these housing processes, which can vary depending on the place or group. In order to develop these housing processes, it is necessary to manage several factors including: provision of building materials, availability of labour force, type of technology, amount of economic resources, an adequate legal framework, among others. When all these factors are properly balanced, one can say that there is a positive housing environment which enables effective housing processes, making them to work smoothly.

A positive housing environment can assure access to housing to a major segment of the population (hopefully to everyone) under an organized basis, and to improve settlement planning by avoiding problems such as homelessness and overcrowding. Additionally, the housing environment should stimulate the economy through a strong construction sector and improve the general living standards.

Theories regarding the linkages between housing and economic development shifted considerably from 1950 to 1970. Primarily, housing was regarded as a non productive sector, however, it was subsequently considered as playing a central role in economic

development. Arku (2006) presents the point as follows: “At the beginning the issue seemed straightforward: housing was a “non-productive” element of development strategies. As such, investment needed to be made in basic facilities and industries to build economies, which would in turn, generate sufficient growth for housing to thrive as an industry. Since then, housing experts have emphasized the significance of housing in economic development. International institutions such as the World Bank, which initially opposed investment in housing, shifted their position in the late 1960s and 1970s and have become strong advocates of housing as an economic development tool. In the majority of developing countries, however, this new perception has yet to take hold.”

Therefore, as societies become more organized and look after economic development and the general well-being of all their inhabitants, housing takes an important place within the public agenda. “Housing has been pursued with zeal and financial commitment. They have been linked to the savings and investment process and have formed the basis of industrial development (Arku, Godwin: 2006)”. Also Forrest, Lee, and Wah (2000: p. 7) noted: “like it or not, housing for the masses in the last two decades has become an engine of growth for many Asian cities, such as Singapore and Hong Kong.”

Godwin (2006) also argues that “Housing investment should not be considered as a resource-absorbing, unproductive sector or merely as a social policy with little or no effect on other sectors of an economy. Instead, housing should be viewed as a resource producing and investment good. The economic benefits of housing need to be considered and planned for as a necessary component of wider national development strategies.”

Housing plays a primordial role in human development because it crosses several levels, from good habitability and living condition at home, to economic growth of a whole country. To promote housing is to promote development from a holistic perspective which is extensive to other areas. All in all housing is a fundamental piece of development from two directions. On the one hand, general economic development of a Nation or society; and on the other hand local improvement of individual households’ quality of life. Housing is a starting point to achieve a comprehensive development of human beings as a whole, as opposed to fragmented.

For the case of rural communities, housing processes have some characteristics that differ from the urban areas. The economic background, the availability of materials, and services are good examples of these differences. Usually, rural areas are more isolated and have scarcer economic resources. Likewise, in rural areas the influence and enforcement of norms, laws, codes, plans and policies is weaker and less controlled. This pushes the rural communities to rely more on their own knowledge and resources.

However, rural areas also have potentials which are not present in urban sectors and can be used to improve housing processes. Local knowledge of the area and wisdom of long lasting traditions are usually better preserved in rural communities. Also, the availability of raw materials and social linkages can be used to promote housing. These elements can be complemented and/or adapted in order to improve housing processes and living conditions.

These characteristics have been recognized as a way of developing a positive housing environment in Ghana. “Public sector housing solutions need to be targeted to households with incomes below average, and such solutions should supplement people’s efforts to produce housing informally rather than attempting to replace these efforts” (Ministry of Water Resources, Works and Housing: 2005, p6).

These local characteristics can be a starting point to build up a positive housing environment in rural areas. Also, this environment can provide better sustainability¹, due to the fact that it allows the processes to be developed permanently throughout time, and is more accessible to the poorer sectors by reducing the final costs. So, the core idea behind this research is to dig into characteristics and resources of local communities that can be used as a keystone to develop rural housing.

Therefore, there are several characteristics that can become potentials, if they are managed properly. These potentials can be reinforced to support and promote rural housing processes. Subsequently, these characteristics can also be a starting point to develop rural areas more independently and in a sustainable way.

¹ Sustainability: causing little or no damage to the environment and therefore able to continue for a long time. (Cambridge Dictionary On Line: 2010)

Finally, it is necessary to identify these potentials and understand how to use them to promote the housing development in an area. As a result, it will be possible to organize these potentials in order to make use of them in the best possible way. This can build up a positive housing environment which will facilitate housing processes for the rural inhabitants.

1.1 Problem Statement

According to UN-HABITAT (2008) figures, the housing deficit in Ghana is in excess of 500,000 units whilst supply figures vary between 25,000 and 40,000 additional units per annum as against annual requirement of 70,000-100,000 additional units. Also, the national annual housing supply to demand ratio (for new housing) is estimated at about 35%.

For the case of rural communities in Ghana, the housing sector is particularly disquieting; there is a general housing deficit of more than 500,000 units, and the current system has serious structural deficiencies (Ministry of Water Resources, Work and Housing: 2005). Likewise, the environment and surroundings of the settlements show problems, which are related to planning and organization. These include inadequate evacuation of water, inadequate waste disposal, erosion and/or sanitation. These issues have consequences like breeding of mosquitoes, fast degradation of buildings and low efficiency of the use of land.

Currently, the living conditions in rural areas of Ghana are not adequate and are much lower in comparison to urban areas. Rural communities have, among several factors, lower access to health (population with access to health service within 30 min. is 78.5% urban areas against 42.3% in rural ones, GSS: 2008), lower literacy levels (39.8% against 69.6%; GSS: 2008) and lower housing conditions (overcrowding, lower sanitary conditions, scarce infrastructure and lower quality buildings).

This also is increasing the cities' size due to migration, with all the already known problems: slums, overcrowding and/or unplanned settlements. Later on, if this situation is neglected, it can have two main consequences: on the one side it can cause a reduction of the quality of life in the city for the current and new inhabitants; on the other, it can be

the beginning of a diminution in rural activities which are nowadays the most important source of income for Ghana.

Currently, the housing processes and the settlements' planning in rural areas are carried out almost exclusively by local inhabitants. Several problems like isolation, cost of materials and/or difficulty to access to credits or loans leave the rural areas mostly on their own. However, in spite of this situation, these communities have particular characteristics that can help to solve problems on their own.

In other words, rural housing has a series of challenges, but also potentials. Most of rural communities have knowledge about the area, they know how to build structures within their context and they have availability of some raw materials at low cost or without any cost. Smaller groups also have the advantage of stronger links within the communities' members, strengthening the possibility of collaborative solutions. Generally speaking, these available resources can be used to strengthen the housing sector and also to improve the living conditions. Making use of these potentials can bring positive side effects, like more independence, sustainability and a better acceptance of the expected results from the part of the beneficiaries.

However, due to the fact that rural communities in Ghana have not yet identified these advantages, many of the communities' potentials are underused. For instance, several construction materials which are readily available are not properly combined with modern ones, which have increased the problems. Therefore, it is necessary to improve the use of these potentials and/or relocate them through policies and plans in order to generate a positive housing environment.

Currently, the main problem is that these potentials are unclear or used unproductively, then they cannot operate cooperatively, be combined or managed in the best possible way. This impedes the creation of a positive and efficient housing environment.

In order to encourage a strong housing development systems based on locally available resources, it is important to identify these resources to maximize their use. Once this is clear, it is possible to structure a housing provision scheme that can be accessible to a larger number of people, providing better results.

This will cause the results to depend less on external factors, and more on internal. In this way the results will not depend so strongly on external factors, but on internal ones. This will give to the process a floor, which is funded on each community's capacities. As an outcome, the process can enhance local potentials, helping to develop a more independent community, due to the fact that external resources are not pivotal, hence making the system more autonomous. Additionally, it can bring better sustainability, since the use of resources can be better planned, measured and administrated.

1.2 Research Questions

For the purposes of this research, the main question to be addressed is: How can the rural communities' potentials contribute to housing processes in Ghana?

Behind this, some sub-questions arise as part of the work.

- Which are the potentials of rural communities?
- How rural communities' potentials can be used to improve the rural housing provision?
- How is housing developed and understood in rural communities?
- What are the main materials and technologies used for housing development?
- How is the housing development financed in rural areas?
- How it is managed the land for housing in rural areas?
- What are the past and current interventions to improve housing provision?

1.3 Objectives

The main objective is defined as follows.

General Objective

- Identify and assess rural communities' potentials for housing development in Ghana.

Specific Objectives

- Identify locally available resources in rural settlements
- Assess the locally available resources in relation to their capability to contribute to the housing development

- Identify how local resources could be combined in order to improve the results of the housing development

1.4 Scope

This study was situated in the context of housing development, specifically in the necessary elements that facilitate housing processes. This means the review of different characteristics that promote or hinder housing processes and development. The work was concentrated in rural housing development and how the particular realities of rural communities influence these housing processes.

The research was carried out during the first semester of the year 2010, and the data collected are relevant to this period. For this study, Ejura-Sekyedumase District was selected because it is representative of a rural area in Ghana that is mainly devoted to agricultural production. This District experiences most of the problems and virtues of other rural areas and consequently, it is expected that some of the results can also be extensive to other regions. Nevertheless, it is not necessarily valid to any rural area of the country.

So, for this study people were selected from rural communities within the District, the interviewed people were heads of household because they can answer more precisely about income, family conditions, livelihoods and other particular characteristics of the family.

The approach of the research can be better understood if the main concepts used are clarified. According to the Cambridge Dictionary (2010), a resource is “something that a country, person, or organization has which they can use”. On the other hand, potentials are “qualities or abilities that may develop and allow someone or something to succeed”. Following these definitions, this research will identify available resources in rural communities, focusing on their potential as long as they have qualities or abilities to develop and improve housing processes.

1.5 Justification

Currently housing deficit is increasing in Ghana and migration will become more severe in the following years if nothing is done to prevent it. Therefore, is the moment to start preventing migration and tackle the problem before it constitutes a major issue in urban areas. An important way to prevent migration to urban centres is improve the rural living conditions, and housing in particular is a key factor.

Therefore, the study was aimed at finding potentials in rural communities that can be better exploited and to contribute to improving the housing conditions in these areas. This can help to develop the housing provision system in the country with more sustainable, affordable and suitable solutions.

1.6 Organization of the Report

The study is organized in five chapters. In the first chapter the problem and aims of the study are presented. Also, in this chapter are presented the research's questions and objectives. In the second chapter is presented a literature review focused in the housing development in Ghana and rural communities in the country. This chapter is useful to understand the floor of the research and the further development and structure of it.

In the third chapter is presented the methodology of the study and the tools that were used to collect the data and analyze it. Later on, in the fourth chapter is presented the analysis and review of the data obtained during the work. This fourth chapter is the base to develop the fifth and last chapter, where the findings, recommendations and conclusion are exposed.

CHAPTER TWO: HOUSING DEVELOPMENT AND RURAL COMMUNITIES

This chapter addresses three main points in order to identify and assess the potentials for housing development.

- 2.1 Housing and Rural Housing
- 2.2 Housing Development
- 2.3 Rural Communities in Ghana

2.1 Housing and Rural Housing

Housing plays an important role in human development. For many years it has been recognized as a central element for development. This development must not be understood just as individual households, but also in relation to how housing plays a central role in the economy of any country and household. The construction sector is normally closely linked to housing production, and in fact most of the constructions carried out in any country are for housing purposes. Construction requires materials, legal procedures and an important amount of labour which include different levels of training; professionals, technicians, carpenters, bricklayers, common workers and many others depending on the complexity of the construction.

Housing involves elements from the higher sectors of the economy to smaller elements of the individuals; from big industries of construction materials to how a household is organized internally. This means that housing is not just the buildings themselves, but all the elements that are necessary to develop them and their consequences in a particular context.

Therefore, developing housing can help enormously to develop a country. In fact, for some scholars, the economic success of countries like Japan and United States of America (USA) is due to a strong development of the housing sector. “Housing markets and housing construction in various economies have served as an engine of growth. The housing sector has typically played a leading role in the process of economic recovery from depression. This is especially true in wealthier societies, notably the US and Japan

(Godwin: 2006).” Housing has also the advantage of being an internal sector. Although some materials and labour can be imported, most of the needed resources must be obtained internally. So, when the sector is properly balanced, it can be used to achieve social and economic objectives simultaneously.

Housing development is not a static goal: It is a continuous and never ending process. It would be very difficult for anybody to find a single house that has not been modified and adapted throughout the time. Any house receives several improvements, changes, modifications, add-ons and/or maintenance through the years. Also, since human beings change, in age, tastes, family size, fashion and/or needs, the houses change with them. So, the housing sector is very dynamic and not static, creating a permanent source of needs and satisfactions.

Rural housing has particular characteristics when compared to urban housing. Rural population have normally different customs and livelihoods, which affects also the kind, shape and provision of housing. Therefore, the housing development layout in rural areas operates with some differences from that in urban sectors.

In comparison to urban housing, rural areas face different problems and advantages. The limitations, for example, are shifted from access to land in urban areas to accessibility to settlements in rural ones. Also, they change from availability of raw construction materials in urban areas, to finishing materials in rural sectors.

The social structure in rural areas also sets a floor for design. The fact that many families share the same space, made compound houses a very common layout of housing. At the same time, outdoor life is also more frequent, determining the organization of the space. These are facts that can affect how homes are perceived and needed. They also influence the way in which housing must be addressed in order to satisfy the needs of each particular context.

Housing processes in rural areas are carried out using the same kind of inputs (i.e. constituents, techniques, etc.), as in urban areas. However, these are balanced in a different way. In rural areas, they also rely more on local materials, help of the community and local knowledge.

2.2 Housing Development

As it has been argued, housing processes are the development of houses throughout a period of time, from the first construction throughout all the life span of the building. So, they guarantee a proper living place for people, dynamically through the years. Housing processes engage not only the house itself, but also it must enable all the other required processes to offer a proper place to live.

Therefore, housing processes are not just about the production of houses, but also about providing possibilities to repair, maintain, modify and/or improve them. Since housing development is not a static goal, housing processes must enable the continuity of these processes and be responsible to provide solutions to this dynamic condition as well. In this way, it will be possible to avoid problems like severely deteriorated houses, overcrowding, lack of planning and dissatisfaction with the place of living.

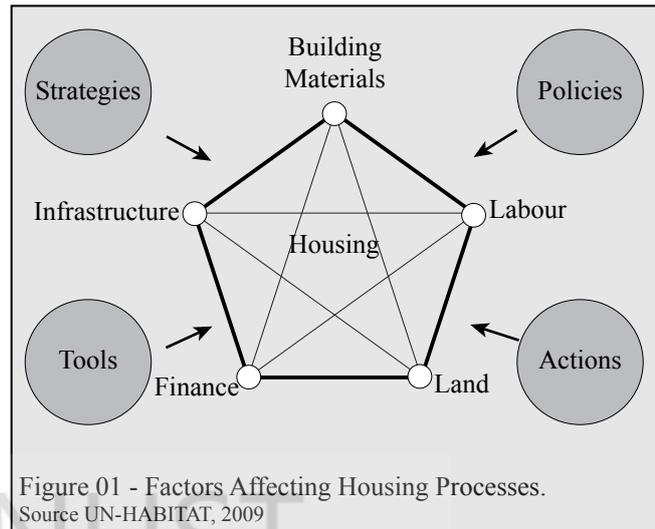
In any specific area, it is necessary that a series of elements are available and properly combined to have proper housing development. Later on, it is necessary to build up a positive housing environment that can ease the processes and reduce costs. Afterwards, this positive housing environment will develop into a proper set of conditions, to facilitate the housing delivery and to guarantee that the buildings will offer a satisfactory place to live throughout the time.

Hence, this positive housing environment is composed of factors which enable housing development. Once these factors are available and balanced, it is possible to say that the housing environment is proper.

UN-HABITAT (2009b) has classified the factors affecting housing development in a scheme. In this scheme five key factors are identified that must be managed in order to achieve this positive housing environment. The scheme proposes building materials, labour, land, infrastructure and finance. These elements are affected (or managed) afterwards by policies, actions, strategies and tools; all inside the institutional and legal and regulatory frameworks.

These factors are the basic elements that must be available to enable housing processes. However, availability is not the only required ingredient; it is necessary as well that

these elements are properly balanced and combined in each particular reality. Most of these factors have influence on the others and do not operate independently. Therefore, the crucial task is to first understand how they operate; and secondly, how they are affected by each other. Then it is necessary to balance them in the best way for



each context. Hence, later it will be possible to see how the available resources can fill the gaps and build up a positive housing environment.

2.2.1 Building materials and technologies

The first and most evident resources to construct any infrastructure are building materials, and for the case of housing there is no difference. However, and particularly for rural communities, the access to technologies is a relevant issue as well. Rural communities usually lack of modern technologies and of the necessary knowledge to use them. Therefore, the access to these resources is also restricted.

Construction materials can be categorized according to the level of processing and the inputs required for their production. For each level of processing, a different degree of training of the labour force and levels of latter maintenance is required.

2.2.1.1 Types of materials

First Level- Unprocessed materials: These are raw materials used without processing. Normally, these materials can be taken from the source itself and be used immediately. In this group we can find mud, thatched roofs, rocks, tree branches and logs, among others. Many of these materials are widely available in rural areas, normally with very low cost or no cost at all. These materials are widely used as primary materials in rural settlements in almost every place in the world. With these materials it is possible to build shelters like huts or small rooms that provide basic protection from the environment. Normally, rural inhabitants have knowledge about how to use these materials in each

particular location, and they are able to build up their homes on their own with these resources. Suithenbawk (1969) presents examples in Ghana and explain the construction techniques and materials used.

Second Level- Basic processing: These materials require some simple technology and processing before using them in a construction. These materials include adobe, simple backed bricks, wood boards and some forged pieces, among others. These materials are produced by artisans and in small scale. In most cases, not much technology is needed to produce them and only some basic sources of energy, as coal or charcoal. However, usually some processing tools are needed, like saws, hammers and others. Due to the fact that these materials can be made by artisans, it is possible to produce them in rural areas, locally if the raw materials are available.

However, due to the production system, the main problem of these materials is a low quality control, which generate uneven results, making them unreliable in general terms. Later on, these materials also have a tendency to suffer from fast degradation due to two main reasons. On one side, if organic materials are not properly treated and applied, they become rotten or decompose easily. On the other side, soil materials tend to suffer from erosion if they are not used and protected properly. Particularly wet environments are a big enemy of these types of materials.

Third Level- Industrialized materials: These materials need a higher level of processing, which normally involves several stages. They cannot be produced at small scale, due to the high fixed costs and economies of scale. Also, the production is normally constrained to bigger urban areas because of the need of inputs like high amounts of electricity and higher trained labour. These materials include iron rods, steel beams and bars, plastics, treated wood, industrialized bricks and blocks, cement, corrugated sheets, roof tiles and most of the finishing materials (handles, locks, floor tiles, windows, doors, glass, paint and others). Normally, the availability and use of these materials in rural areas is directly proportional to accessibility: as long as the settlements are connected, the materials are available, otherwise, they are not. However, the use of these materials is also influenced by other factors like adequate training of labour and traditions.

Some materials from the third level are used in mixture with traditional ones in many rural settlements. It is easy to find in many places mud walls roofed with metallic corrugated sheets, or adobe blocks pasted with cement. Several industrially manufactured materials have been very useful to cover the deficiencies of the traditional ones. Roof covers reduces leakages; paint and plaster prevents infiltration of water; and insulation helps to improve the thermal conditions of houses.

These materials however carry complications as well. Involving new materials in a construction entails new construction techniques (challenges for design), new supplementary materials (accessories and parts, like special bolts, nails, seals, etc.), more specialized labour (specific training) and new challenges for maintenance (spare parts for repairs or compatible items). In addition to this, industrialized materials tend to be expensive in areas with low accessibility and even more if they must be imported.

Fourth Level - High technology materials. For this level of materials, a complicated and expensive processing is required. Also, to use these materials for construction it is normally required to have highly trained labour and professional support. These materials involve elements like Photovoltaic Cells (PV), Thermopanel, solar water heaters, high resistance steel, curved glass, movement sensors, heat sensors, among others. The use of these materials is normally not applicable to rural areas, and even in urban places it is restricted to big buildings or high end housing. However, some elements have been used in rural settlements with the cooperation of expert parties, for example Photovoltaic Cells or solar water heaters.

Materials of high technology are not broadly used in rural areas; these materials are usually very expensive for the average income of a rural inhabitant and most of the time they do not provide a useful outcome in these places. It is only possible to mention Photovoltaic Cells or solar water heaters, but this is normally supervised by a highly trained party, as well as all the maintenance associated. Some examples are exposed by Bates and Stapleton (2003). PV Cells are introduced with support in countries like South Africa, Swaziland or The Philippines.

2.2.1.2 Cost of building materials

Since better quality building materials are normally more expensive, usually it is the cost of these materials that determines their use. Although, the influence of the building material's cost on the total budget of a construction is very variable, it normally takes the biggest share.

Therefore, it is very important to properly choose the building materials, so they can be covered by the budget from the point of view of the material itself and from the point of view of labour costs. In normal contexts, the ratio between material and labour cost is 70:30. However, there are experiences that demonstrate that by using materials and labour properly, this ratio can reach 60:40, leaving more money in the hands of labourers and/or reducing the costs of materials (UNESCO: 2007).

In rural areas the cost of building materials is strongly affected by accessibility. Since transport to distant and inaccessible areas is more expensive, the building materials also have higher prices. This also pushes people to use locally available materials, which are cheaper or with no cost at all.

Another important issue to consider, regarding costs of building materials is variability of prices in time. The construction process normally takes time, and during this period prices can change. Neglecting this fact can give rise to problems during construction; because if the project runs out of funds, the construction will not be finished. Therefore, it is important to observe the prices variation and trends of construction materials, and consider this to plan and design the construction projects.

2.2.1.3 Durability of building materials

Durability is strongly affected by the construction materials used; however it is important to consider that durability is affected by the skill level in using the material and by the level and kind of maintenance as well. Rural settlements usually have problems related to the durability of the constructions. These problems are normally associated with these three factors; quality of materials, quality of labour and level of maintenance.

Although using materials with longer durability can reduce the frequency of maintenance, probably it will increase the construction costs and can raise the maintenance costs in the long term. The cost of long-lasting materials is usually higher, as well as the materials required to provide maintenance.

So, in rural areas, where resources are scarce and labour is usually low skilled in relation to industrialized materials, the problem of durability is usually important. In most of the cases it is generated by lack of maintenance and misuse of materials. This is noticeable because, in spite of using good materials, buildings deteriorate rapidly.

All these characteristics of construction materials -type, cost and durability- are not operating in isolation but linked to each other. Therefore, any analysis or selection of materials must be done thinking about how each of these factors can affect the others.

2.2.2 Labour

According to classic economics, labour is “one of the four basic categories of resources, or factors of production (the other three are capital, land, and entrepreneurship). Labour is the services and efforts of humans that are used for production. While labour is commonly thought of as those who work in factories, it includes all human efforts (except entrepreneurship), such as those provided by clerical workers, technicians, professionals, managers, and even company presidents (Economic Glossary: 2008).”

For the purposes of this work, labour for housing production is understood as the real activity of people to develop housing processes. This includes physical and intellectual labour, no entrepreneurship. Therefore, it is the capacity to make use of materials and technologies in order to create substantial housing processes.

Labour is a key element of housing development which affects greatly the costs and the quality. Improving labour can have a boosting effect on housing, since it can increase the effectiveness of the workers, optimize the use of materials, and reduce losses.

Examples such as “Langpark Housing Project” in South Africa, show how improving the skills of the labour force in an area can have significant effects in housing condi-

tions. “With the help of the Department of Labour, beneficiaries were trained in the skills of building, plumbing, and carpentry. The trainees would then, with the help of a professional builder, use the materials supplied by the municipality and start building their own homes. The skills attained through the training, and consequent building of their home, endowed the recipients with a new set of employable skills, contributing to poverty alleviation in the immediate area” (Impumelelo: 2008).

The main elements affecting labour for housing production in rural areas are:

2.2.2.1 Availability of labour

The existence of labourers who are able to develop housing processes is mainly influenced by the number of people who are in working age and by the number of people who are willing to work. Later on, the people willing to work in housing processes depend on the type and level of employment in a region.

Firstly, the number of people in working age in rural areas is strongly affected by rural-urban migration. These migrants are usually persons in working age who move out to urban centres looking for a job. Therefore, depending on the kind of the available jobs, some areas may gain or lose specific groups of people. For example, industrial or mining centres attract mostly males in working age, while service centres may attract more women who serve in households or shops. Twumasi-Ankrah (1995) describes the situation in Ghana and explains how these migrations are happening in the country.

Secondly, the availability of people willing to work in the construction sector is also influenced by the kind and level of employment. If most workers of an area are dedicated to permanent jobs, it is difficult to expect they will come back home to build their houses or cooperate with other people on it. In rural areas the working load is closely linked to agricultural cycles, which means the availability of workers will depend on the crops seasonality. This can be observed as a positive condition for housing processes since, during some periods of the year, people could perform a secondary activity, improving their incomes and also getting a better place to live.

This is particularly noticeable in self-help schemes. In these schemes is expected that the community is involved directly and actively in the housing construction. Self help

schemes are not easy to carry out if people in an area are working full time and performing heavy duties, because they will not have enough time and strength to develop their houses. However, several programs and projects are grounded on self help schemes, but to achieve successful results they must consider the particular conditions of the population. “Hay bastante literatura y ejemplos de mejoramiento de asentamientos precarios y planes de reconstrucción a partir de lotes con servicios, densificaciones, etc, con buenos logros a partir de un contexto de escasez de materiales de construcción mucha mano de obra disponible y desempleada (There are plenty literature and examples of slums upgrading and reconstruction plans using serviced plots, densifications, etc., with good results. All starting from a context of scarce building materials, but plenty of available and unemployed labour) (Tapia: 2006)”.

Therefore, in order to know what is the availability of labour in an area, it is important to know the age composition in the area, the trends in migration and the major economic activities.

2.2.2.2 Training of labour

The level of training -and therefore the skills of workers- is a crucial factor which affects mainly the quality of the construction. But it also enables the use of a wider array of materials (since workers have the know-how to use them) and modify the costs, since highly trained labour is more expensive, but also may be more efficient.

A simple division of training of labour for construction is:

- First Level: Unskilled and Semi-Skilled - General site labour with little or no construction qualifications. This group includes everyone that hammers, sews, welds basic structures, digs and other similar tasks.
- Second Level: Skilled or Basic Technical Training- On-site managers who possess extensive knowledge and experience in their craft or profession. These are carpenters, electricians, concrete workers, plumbers, roofers, painters and other similar ones.
- Third Level: Professional and Management - Personnel with the greatest educational qualifications, usually graduate degrees, trained to design, manage and instruct the construction process.

Most part of the labour in rural areas is carried out using a first level of training skills and sporadically a technician is involved in the process. Consequently, several tasks that require a third level of skills are not properly executed. These involve architectural design, structural design, planning and quality control.

It is important to note that every time new materials are involved in a construction process, it is necessary to include extra technical and professional assistance, since common labourers probably do not know how to use them. These materials are generally expensive and it is worth to use them properly, otherwise, the extra cost and profit of the outcome are underused.

2.2.2.3 Cost of labour

The first factor affecting cost of labour is availability, which depends on the number of people available and accessibility of the area. In zones with low accessibility, the cost of labour (particularly professionals) will be higher.

The second factor influencing cost of labour is training. Higher wages are required for highly skilled labourers. Specialization in rural areas is usually scarce; hence, wages paid to workers are very low.

In a normal building, the costs are distributed between materials and labour in a proportion of 70:30 respectively (UNESCO: 2007). As it has been argued, in rural settlements some materials and labour are on occasions cheaper or more expensive than the average. Thus, this division should be analysed in each particular situation.

Regarding the cost of labour for housing processes, it is important to think about self-help schemes, which have been a pillar of many housing initiatives and policies. The self-help schemes are based on self construction by the owner and supervision by an expert party. This can reduce the construction costs in high degree, since labour cost is expected to be very low.

So far, and from a long time ago, rural settlements have solved their housing needs through self-help principles. Since the seasonality of the farm leaves people more free

during some periods, it is possible for them to use this time to build up structures. Also, the relative isolation of these settlements, forces them to act on their own and rely on their own capacities.

2.2.3 Land

Land is a fundamental element in any economic process, and in the case of housing it is not different. Land is the starting point of any housing project and due to its immobility, it establishes a rigid frame for design and planning. Likewise, land is an important asset of individuals, households and societies. Land improves the economic stability of a family or group; it can help to find financing using it as collateral or it can be sold in moments of need.

2.2.3.1 Availability of land

Free and available land for housing processes is the first factor to consider. In order to develop any new housing process it is necessary to have a place where the construction can be developed. This makes land for housing to compete with land for other uses and normally the main competitor is agriculture. However, this is more noticeable in the outskirts of cities, where urban expansion consumes the surrounding agricultural areas.

In the case of rural spaces, availability is normally not an important impediment for housing processes. Rural areas have very low density and the availability of free land is high. Also, the size of houses and buildings is not significant in comparison with the size of land for agriculture.

2.2.3.2 Land rights

Land rights consider the condition in which the dweller is using the land. Land right systems vary greatly depending on the cultural background, legal systems and/or region. The Figure 02 presents a scheme of how land rights can go from informal to formal. However, this array is blurred, and it is easy to find overlapping situations.

Africa is highly characterized by informal land rights; “Less than 10 percent of land allocations made by customary owners are registered” (Callistus and Adarkwah: 2006, p5). However, this situation is regarded as positive by several authors. “Customary lands

support the livelihoods of the majority of the population in the country and therefore sustainable management of such lands is critical to the overall socio-economic development of the country” (Water Aid: 2005: p.13).

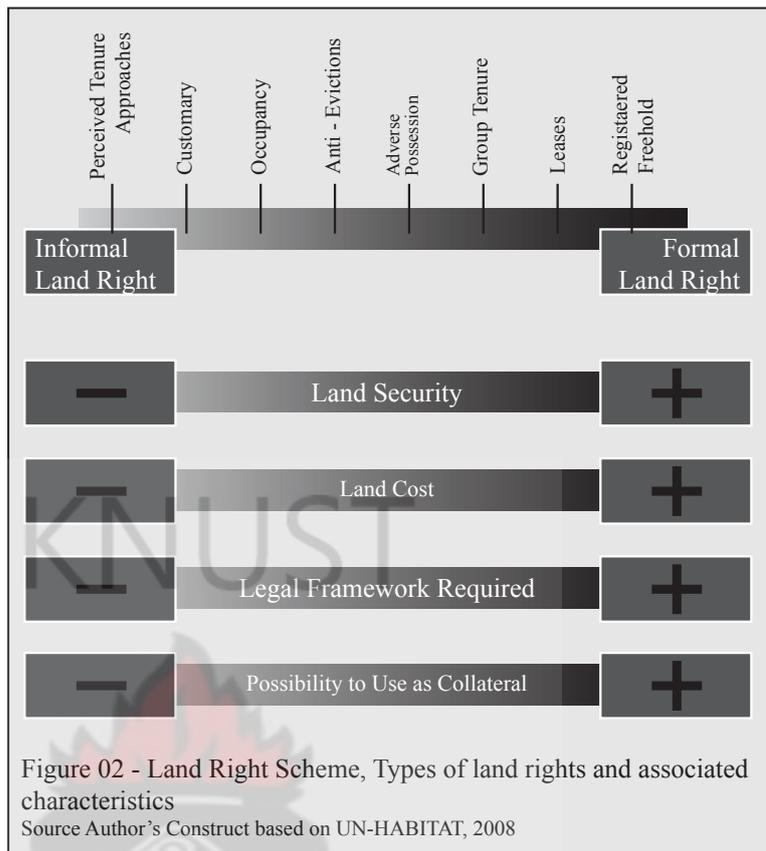
So, in order to know how land can enable or constrain housing processes, it is necessary to understand how the land right systems are managed in an area. In

the Figure 02 it is possible to see the further advantages and disadvantages of different land right systems. Generally speaking, as long as land rights become more formal, land security increases enabling the use of land as collateral, but there is also a general increase of costs, since the required legal framework is more complex. Later on, this can reduce accessibility to land to the sectors with scarcer economic resources.

2.2.3.3 Location / Planning

Physical location has normally strong influence on services, planning, quality of the land itself and therefore, price. This is one of the main factors which ease or restrict housing processes. Normally, good locations rapidly enable housing processes. They are used and appropriated, rising prices and reducing their availability. On the other hand, disadvantaged locations are not so appreciated, constraining housing processes. People living in bad locations usually declare they do not want to invest in their houses because they want to move out. However, in spite of this, people can live in these locations for many years.

Nevertheless, it is important to know what is a good location in each case. Depending on people’s housing needs and interests, a good location can vary enormously: For a



person who is looking for a calm and quiet place, a distant and isolated zone can be the best option, while for someone who gives more importance to the proximity to the place of work or to the house of relatives, an accessible zone is the best alternative.

In rural areas, this also differs: While in some countries rural settlements have scattered or even isolated houses, in others, dwellings are close together in small villages. Locations are usually selected according to availability of resources, water courses, shadow, sun, food or proximity of family members among other variables. Therefore, the value of the land will shift from one community to another, depending on their special needs.

2.2.3.4 Quality of the land

The quality of the land for housing projects is related to how complicated is to build a structure in a specific portion of land and its consequences on the cost. This variable is a very important factor that can stimulate housing processes.

Any construction requires a proper ground that supports the building. Therefore, the characteristics of the soil must be suitable for this purpose. For example, On the one hand building in a swamp will increase the construction costs due to the fact that deep and expensive foundations are needed. Furthermore, once the construction is over, humidity will easily penetrate the building, affecting its durability. On the other hand, a flat, resistant and dry portion of land will provide a better soil for construction; the required foundations will be smaller, the duration of the building will be longer, hence the whole process will be cheaper.

Therefore the main factors affecting the quality of the land for housing purposes are the quality of soil and slope. Both of them affect greatly the construction costs, since soft soil and important slopes increase the amount of materials and involve more complicated techniques of construction.

2.2.3.5 Cost of the land

The cost of land is one of the main factors affecting housing development. In urban areas, the cost of land for construction can be really high and normally this is the main impediment to develop affordable housing processes. Furthermore, the real estate markets

and the land market in urban areas are suffering from speculative actions. This leaves the cities and neighbourhoods with empty spaces and undeveloped plots, which damages the whole urban network. (Callistus and Adarkwah; 2006, p8)

However, in rural areas the cost of land is low in comparison with urban sectors and normally this is not a factor impeding housing processes. This is particularly so when land rights are managed through customary systems; this reduces costs and assures that most of the people have access to a place to build a house. Nevertheless, it is very important to design a proper plan to use this resource without affecting other persons and buildings, ensuring the sustainability of the settlements.

2.2.4 Finance

Housing processes in any environment are not cheap; they require a high amount of physical, intellectual and material resources that must be financed. To finance, is to provide the money needed for something to happen. Therefore, adequate finance systems are required to enable housing processes, and as long as finance systems are more accessible and cheaper, housing processes will be encouraged.

There are several finance systems to cover the expenses involved in housing processes. These go from direct payment from the inhabitants to more complicated schemes like loans or credits.

For low income groups, the access to finance is difficult and more expensive due to two main reasons; first, they have a low saving capacity, and second, the access to standard credit systems is difficult, given their lack of steady income and collaterals. “There has been very little development of loan and savings schemes adapted to the needs and financial capacities of moderate and low-income groups” (Ministry of Water Resources, Works and Housing: 2005, p10).

Rural areas face these impediments with even deeper consequences. The instability of work, seasonality of the agricultural sector, insecurity of sales revenues and the traditional system of land ownership are considered as negative factors in the financial market. Therefore, for most of the people living in rural areas, access to traditional

finance systems is more difficult. “New mortgage providers have emerged, including commercial financial institutions and mortgage companies. But only middle and upper income households have access to such finance, while the poor are generally excluded (UN-HABITAT: 2009c).”

Loans and credits for low income groups in traditional finance systems are often harder to obtain and even charged with extra interest, because this sector is regarded as more risky. In particular for rural areas, where people live on unstable revenues, the risk of delayed payments is even higher (UN-HABITAT: 2008b).

There are several types of financing and, in most of the strategies to promote housing processes, they are used in combination. So, it is possible to see combined systems with credits, savings and subsidies for example. The most elementary systems are the following ones.

2.2.4.1 Savings

Each interested person or family is capable of financing their housing process through individual efforts. So, each family is capable of cumulating enough capital to pay for their house. In spite of the fact that poorer segments have a reduced capacity of saving and the incomes are very low, this is the main approach used within rural communities. However, it is usually combined with self-help and community support.

In countries where housing policies do not include support for the lower income groups, one can say savings are the main system to finance housing processes. Later on, when a positive economic ambient for savings exist; this can also have a big repercussion in housing processes.

2.2.4.2 Subsidies and external support

This is financing the housing processes through support from external parties which should not be paid back. Most of the public policies for housing are grounded in subsidies. In liberal economies, most of the subsidies are oriented to stimulate some sector of the economy, which should encourage individual housing processes. In more controlled economies this support is normally used directly to build houses, which later are rented or assigned to citizens.

However, this kind of finance system includes also all kinds of support from third parties like NGOs, donors, cooperation agencies and/or similar entities. In these cases, the finance system is mostly used to develop individual projects in a region or for research, but hardly to encourage massive housing.

2.2.4.3 Loans and credits

The system of loans and credits is widely used by private parties to have access to expensive assets, like housing. The strategy is to give a loan to the interested party to develop or buy a house, which must be paid back within a defined period plus interests. When applying for a loan, normally collaterals and proof about the capacities to paying back are required.

There are several levels and types of loans, which depend mainly on the institutions which provide them and the characteristics of the persons applying for them. Formal commercial institutions are dedicated to providing loans to safe target groups. In traditional lending schemes, rural inhabitants and the poorer sectors are normally not regarded as safe for loans; therefore, they must look for loans in alternative places, like cooperatives, informal institutions or within the social network. In addition, UNHABITAT (2008b) recognizes that “financial institutions are unwilling to extend credit to property holders without clear title.” This means that most of the rural settlements, where property rights are managed through customary land rights, are not able to access the formal credit market.

The categories mentioned above, describe basic elements of different financial systems. Nevertheless, in the search for proper housing finance systems, a big number of variations and combinations have been created and tested with different levels of success. These include material banks, micro finance, self help and housing cooperatives, among others.

2.2.5 Infrastructure

Housing is understood as a process that goes beyond the house itself, and then infrastructure is its support. The word itself reveals the core idea of something that is below the structure; the support or foundations. Infrastructure that supports housing processes

includes water provision, sanitation, accessibility and electricity. Willingness of people to develop housing processes and improve their living places is strongly influenced by the availability of infrastructure.

Infrastructure can enable and strengthen housing processes from three main perspectives. First, infrastructure is a key part of housing; a proper house cannot lack of basic services and sanitation. “Adequate housing provides protection from the elements, minimises the risk of disease and injury, and contributes to the physical, mental and social well-being of the occupants. Inadequate or poorly maintained housing and the absence of essential infrastructure, such as a supply of safe drinking water and effective sewerage systems, can pose serious health risks” (Australian Institute of Health and Welfare: 2004).

Second, areas with available infrastructure will encourage people to generate further improvements and housing developments. Normally people want to have the electricity, so they will settle and develop their houses where services like this are available.

Third, infrastructure that enhances connectivity and accessibility encourages housing processes since transport and communication costs are lower. Therefore, the costs of labour and building materials are reduced as well.

Furthermore, it is important to plan and design the construction of basic infrastructure beforehand in settlements, so later all the process of increasing the coverage of services will be easier and cheaper. “Advanced planning in the design of infrastructure to ensure easy add-on of expanded services is critical. A first wave approach of providing minimum basic infrastructure will allow the program to quickly reach large numbers of the population. This way, the community can experience the benefits and can better organize to participate in subsequent stages. With incremental follow-up, other infrastructure and social services, such as health and education facilities, and income generation activities, can be built on this foundation” (World Bank: 2002).

Several strategies to reduce poverty and improve living standards in rural settlements are focused on infrastructure provision. “It is recognised that improving basic environmental health conditions, such as access to clean water, safe food and adequate sanitation,

are critical issues that need to be addressed if better health outcomes for people living in the communities are to be achieved” (Australian Institute of Health and Welfare: 2004). Also Kim Byoungki (2007) presents how the introduction of electricity and transport in rural areas has boosting effects on housing and local development, mainly through the access to improved production techniques, better livelihoods and access to markets.

The main elements of infrastructure that support housing are:

2.2.5.1 Water

Water is a basic need, and easy access to safe drinking water is an essential requirement for the sustainability of any community. “An adequate supply should meet domestic needs for drinking, food preparation, bathing and general hygiene. The consumption of unsafe water can lead to serious illness and long term health consequences. (Australian Institute of Health and Welfare: 2004)”

Improving access to safe water is an important objective of housing; therefore housing and water projects usually go hand in hand. Any construction project meant for people to inhabit, must consider water. People want and need to live where water is available, so availability of water infrastructure will encourage housing projects and development.

2.2.5.2 Sanitation

An important number of the problems that housing addresses are related to health and sanitation. Living in a proper place necessarily requires proper sanitation; otherwise an important part of the attempted goals will remain unmet. In any place where improved sanitation is already available, it will be easier to develop housing processes and also it will be easier to expand this infrastructure in the future.

2.2.5.3 Accessibility

Accessibility is defined as the easiness to connect two places. Housing processes require adequate connectivity and accessibility. A house without proper access will hardly become a desirable place to live.

This has been observed also from the social point of view in some countries. “New roads, bridges and electrification projects not only enable unencumbered transport for

better marketing of goods and services in places such as Afghanistan, Serbia, Montenegro and Iraq, but they also bridge borders and facilitate social interaction, trust and dialogue among diverse religious and ethnic groups (Corporative Housing Foundation: 2009).”

Accessibility and communication can encourage housing processes, enabling productive processes and social interaction. Most of the people need to keep social and economic links, and proper connectivity between places is essential. Accessibility also facilitates any construction process, since materials, skilled labour and information can be transported and communicated easily.

2.2.5.4 Electricity

In most rural areas electricity is not widely available and it is regarded as infrastructure of higher level. However, electricity has the capacity to develop new productive processes and to improve housing processes. Keshbab Das (2006) exposes how electricity is a key factor in successful rural settlements. He also points out how electricity can be a support for housing processes and development.

At last, it is important to say that all these factors affecting housing processes are interconnected, and normally, when one is affected there is an impact on the others as well. Therefore, this positive housing environment for housing processes must be understood under this scope, and adequate arrangements must be done to ensure that all the factors are working cooperatively.

2.3 Rural Communities in Ghana

Agriculture is the main economical activity of Ghana, and evidently rural settlements are the areas where these tasks are carried on. From the total GDP, a 36.3% corresponds to agriculture. Agricultural exports have a primordial role, like cocoa (1,000 US\$ mill) and timber (255 US\$ mill) (World Bank: 2008).

Almost half of the population of Ghana lives in rural areas (UN-Habitat: 2009), but in spite of these areas carry on the principal sources of incomes of the country, they remain behind in development. Lower connectivity and isolation are common conditions in ru-

ral communities of Ghana. According to the Ghana Statistical Service (2008), they have in general a lower level of literacy (69.6% urban against 39.8% rural), satisfaction with the education (81.4% urban against 59.5% rural), less access to health (population with access to health service within 30 min. is 78.5% urban areas against 42.3% in rural ones) and safe sanitation (80.9% urban against 33.1% rural). Several reports observe some improvements, but at the same time they still state there is much to do. “Although there has been a substantial overall decline in the incidence of poverty in Ghana, poverty still has a firm grip on rural areas” (IFAD: 2009).

Rural communities also share other characteristics; normally households in rural settlements are bigger, 4.4 people in average compared to 3.5 in urban areas (Ghana Statistical Service: 2008). This is a common characteristic in rural areas, mainly because households are more conservative and family planning initiatives are less effective. This fact is recognized by the Ghana Statistical Service (2008) “the desire for large families exists in some traditional homes, especially in the rural areas.” Traditional families also back strong family linkages and bonds, a situation that also influences housing processes, since relatives tend to live close to each other or together, promoting housing processes in junction.

In the Country Studies of The Library of the Congress of USA, Ghana’s traditional society is defined as follows: “The extended family system is the hub around which traditional social organization revolved. This unilinear descent group functions under customary law. It is a corporate group with definite identity and membership that controls property, the application of social sanctions, and the practice of religious rituals” (The Library of Congress: 1994). This also encourages the fact that several communities operates very independently, due to lack of accessibility and also due to the cultural background.

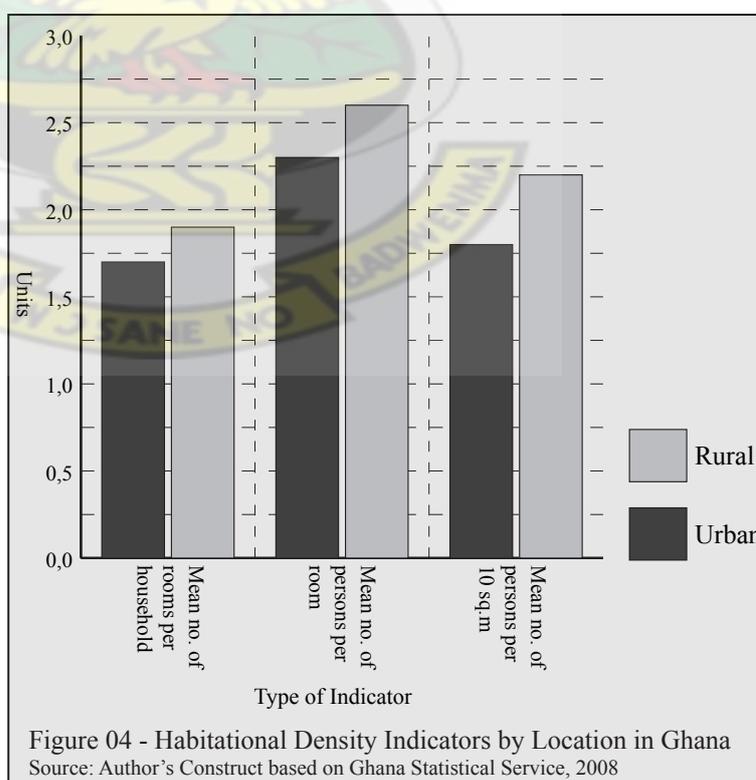
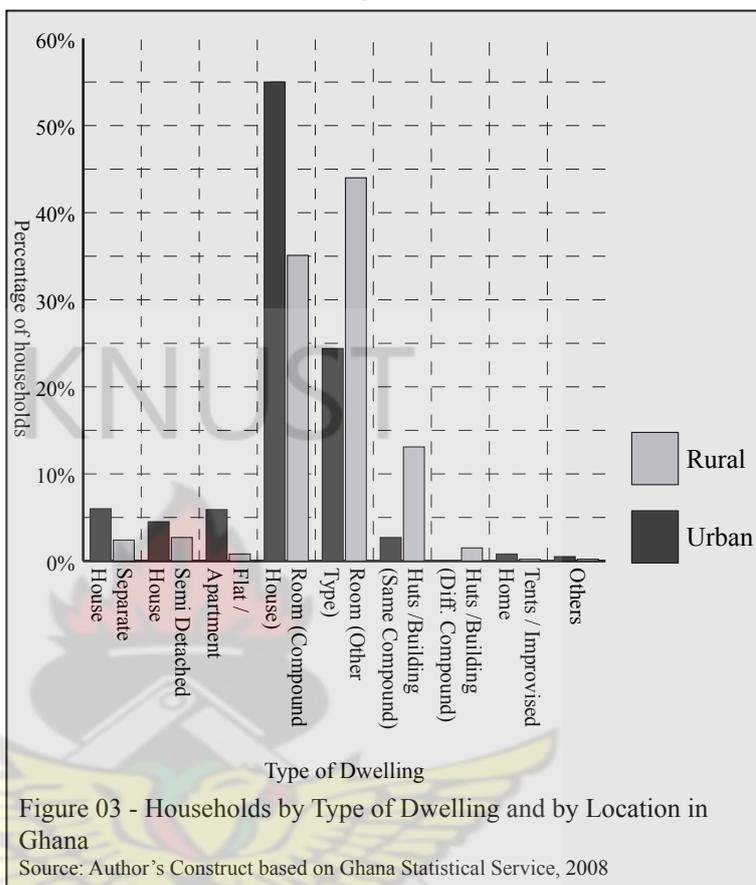
2.3.1 Houses and housing processes in rural communities in Ghana

The house layout in rural places is, in many cases, a compound house or a group of rooms arranged close to each other. Compound houses are formed by several rooms distributed relatively close or adjacent to each other, organized around a central courtyard. Not all the constructions are necessarily connected as part of a single structure, but they

are distributed in proximity. In rural areas, almost an 80 percent of the households live in rooms (compound houses or other type of closely located rooms), sharing services, and only a 2.4 percent live in individual houses (See Figure 03).

However, in small villages the houses or constructions are less organized and usually scattered around a certain area, normally around some resources like water. According to the Ghana Statistical Service (2008), the construction materials in rural areas are mostly mud/mud bricks for the walls (89.3 %), concrete or cement for the floor (70%) and palm leaves/ raffia/thatch (45.2) or corrugated metal sheet (49.6) for the roof. Most of the construction processes are carried out directly by the inhabitants and scarcely assisted or monitored by third parties.

Some positive indicators in rural areas have to do with density (see Figure 04). The percentage of households living in only one room is 51.9% in ru-



ral areas against 58.3% in urban ones (see Figure 05). This can be easily attributed to availability and cost of land, but also to the availability of construction materials and labour, at least to build a simple structure like a room. However, the amount of people per room and per surface is higher; this is probably attributed to bigger households. Also, in the Figure 6, one can observe that the proportion of households sharing dwellings is lower in rural areas.

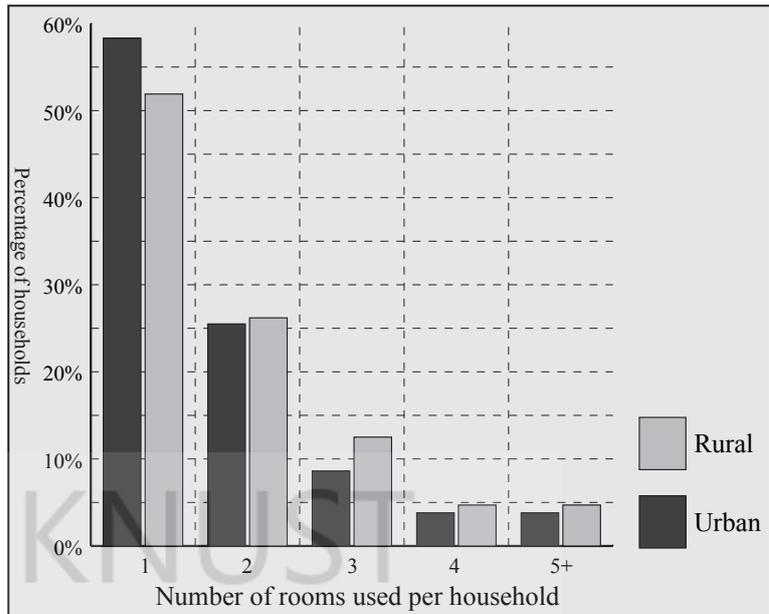


Figure 05 - Number of Rooms Used by Household by Location in Ghana
 Source: Author's Construct based on Ghana Statistical Service, 2008

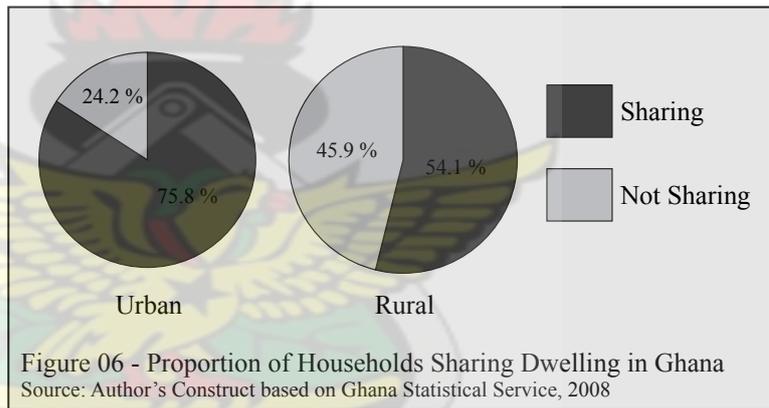


Figure 06 - Proportion of Households Sharing Dwelling in Ghana
 Source: Author's Construct based on Ghana Statistical Service, 2008

CHAPTER THREE: RESEARCH'S METHODOLOGY AND CONCEPTUAL FRAMEWORK

3.1 Research Design

The study was designed as an exploratory research in order to have flexibility and space to find innovative alternatives and schemes. Normally, an exploratory research is a type of research conducted because a problem has not been clearly defined, therefore it is useful to explore new areas. In this case, this enhanced the possibilities of the study to reach a wider array of elements and assess them correctly. The used methodology was useful due to the fact that characteristics and potentials were not pre-established and were proposed as part of the work.

The exploratory research provided insights into and comprehension of the issue or situation, however it does not always allow drawing definitive conclusions, but it opened spaces to further investigation.

This kind of research relies heavily on qualitative data and information. Qualitative data provide better sources of information in this case because the parameters to collect the data were defined openly according to the study. However, it was important to consider that qualitative methods produce information only on the particular cases studied, and general conclusions are mainly hypotheses.

Quantitative data helped to provide the fundamental connection between empirical observation and mathematical expression of quantitative relationships. This information was in particular useful when it was combined with the qualitative data, then it was possible to cross-check some information and draw more accurate conclusions. Quantitative data were used mainly to find relevant information regarding economic resources, income, used materials, among and other numerically measurable elements.

The data required for this research were collected from primary and secondary sources. For the case of this research the district of Ejura – Sekyedumase was used as a centre for primary data collection. The district is essentially a rural area devoted to agricultural

activities and the characteristics of the area correspond to those of average rural sector of the Ashanti Region of Ghana or another with similar characteristics.

3.2 Sampling Methods

To obtain data from primary sources three sampling methods were selected according to the instrument and the type of data required.

a.- Household questionnaires. The questionnaires' respondents were adults, heads of the household or spouses. The questionnaires were applied using a multi-stage sampling method. First, a simple random sampling was applied to select a 4% of the total rural settlements² of the District. The percentage was chosen due to the relative homogeneity of the settlements in the District regarding housing conditions, and also due to time constraint and limited resources. The rural settlements in the District account for 85, out of them 4% were selected representing 3.4, then 3 settlements were chosen. This was done assigning to each of the rural settlements a code number from 1 to 85. Later on, using the computer, three numbers from 1 to 85 were randomly provided and those settlements were chosen. The selected settlements were Dwenewoho, Nkrampo and Nkwanta. Secondly, since the real number and location of the households in the settlements was not clear, a clustered sampling was applied. Using the paths and/or tracks of the settlements, they were divided into 6 clusters, from which 4 clusters were selected through simple random sampling (using a similar procedure than before from 1 to 6). In each of these clusters all the households were surveyed. The total number of household surveyed were 91 (22 in Dwenewoho, 31 in Nkrampo and 38 in Nkwanta). This sampling method was also useful to face the problem of scarce resources and time constraint. Also, since the settlements are fairly homogeneous in term of housing and economic activities, one can expect the sample is representative of the whole population. The respondents for the questionnaires were heads of households since they can provide the most reliable information regarding social organization, livelihoods and expected needs and desires.

b.- Interviews. The interviews were directed towards key informants that can provide qualitative, reliable and accessible data regarding housing processes in the District. For this purpose three main sources were selected; namely District Planning Office, Town and Country Planning Office and the Ejura's chief.

² According to National definitions of Ghana, a rural settlement have less than 5,000 inhabitants

c.- At last for the case of direct observation, photographs and sketches were taken during field visits to clarify and show the findings through graphic expressions.

Secondary data were collected from papers, books and publications related to housing provision. Secondary data were useful to complement primary sources statistics and to compare results with global trends. These data were helpful to support the primary data with a more general and wider perspective about the issues.

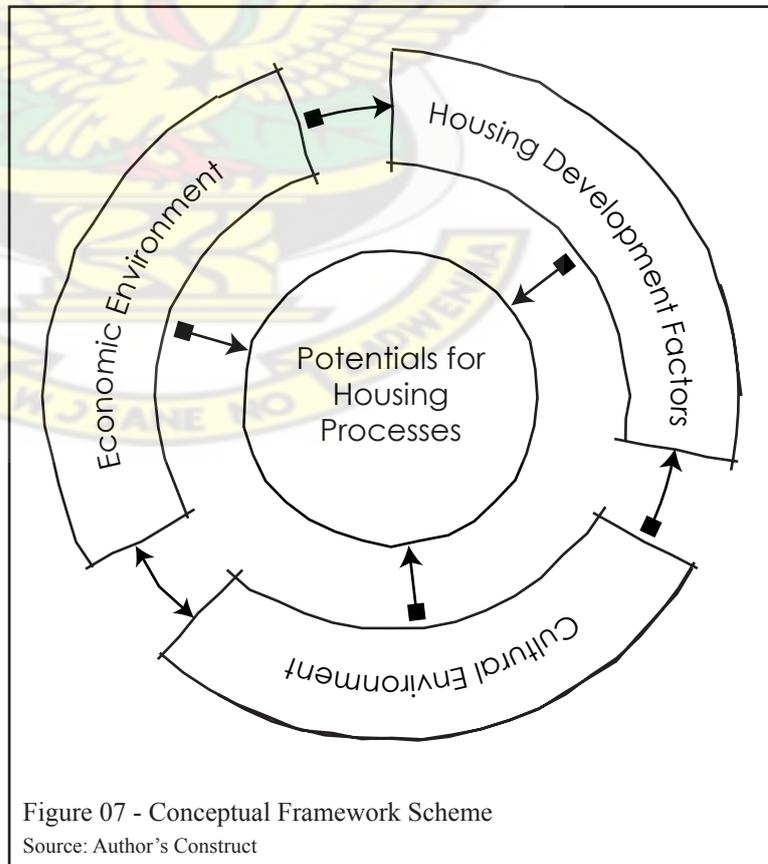
3.3 Data Analysis

In order to analyze the collected data, firstly it was necessary to organize the data according to the research objectives. This was carried out managing the data in a summarised form, normally visual presentations, graphs, tables and schemes. This summarised form of data was the base to link variables and elaborating deductions.

Later on, deductions are the core of the findings and generalization of the information. Through these deductions it was possible to identify elements and issues that allow answering the research's question and reaching the objective.

3.4 Conceptual Framework

A framework is the structure of an idea and how they are organized together. So, the framework of the study will set its limits and also the field in which the work will be executed. Therefore, the following areas will be tackled to provide answers for the research.



- Cultural Environment. This area involves the perception of house and home, the social organization, customs, beliefs and the most personal needs and requirements that a person or family can have.

- Economic Environment. These are professions, skills and activities of the people in order to generate income and economic development. This area sets the ground to understand how livelihoods can affect housing development and people's lives.

- Housing Development Factors. These are the elements that affect more directly the possibility to engage housing processes. These are building materials, finance, infrastructure, labour and land. All these elements are normally strongly linked to the first two.

Since livelihood and culture are strongly related; the economic environment and cultural environment are also affecting each other fiercely. Later on, these two elements affect the housing development factors, because these factors are influenced by the surrounding cultural and economic environment. Finally all converge to establish the potentials of rural communities to develop housing.

The areas presented in the diagram are the base to find potentials in rural areas and to understand how these potentials can contribute to rural housing development. Therefore the study plays in this field to find potentials for rural housing development. Afterwards it will be possible to find gaps or leads about how to link the areas and available elements in order to improve the development of housing.

CHAPTER FOUR: POTENTIALS AND CONSTRAINS FOR HOUSING DEVELOPMENT IN EJURA SEKYEDUMASE DISTRICT

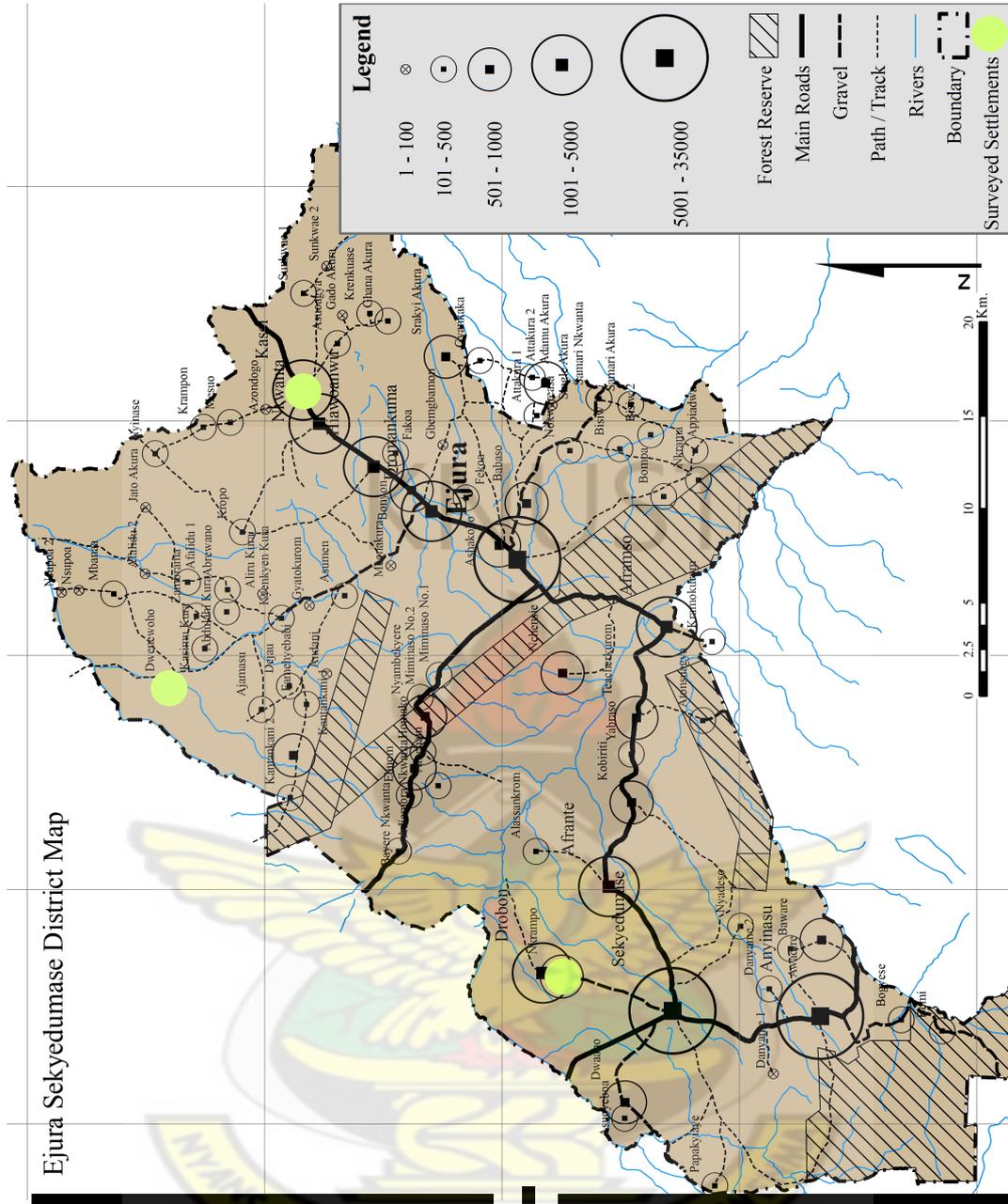
4.1 Profile of the district

The Ejura Sekyedumase District is located in the northern part of the Ashanti Region of Ghana, about 100 kilometres from Kumasi. The road that connects the capital of the District (Ejura) with Kumasi, allows travelling between the two urban centres in about two hours. The road is paved and in good condition, therefore the access is possible throughout the year.

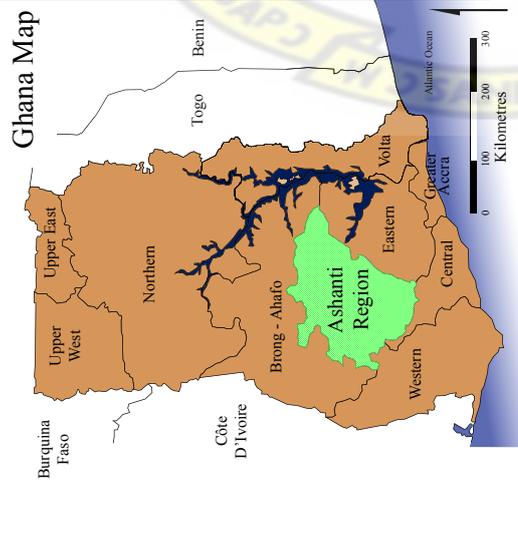
The District has an estimated population of 101,826 for 2010; roughly half of them are urban inhabitants distributed in the three urban settlements of the District: Ejura (34,043), Sekyedumase (11,647) and Anyinasu (5,436). The rest of the population is distributed in rural settlements throughout the entire district. These settlements vary from middle size settlements of about 3,000 inhabitants to small ones of less than 100 people.

The District is located in a climatic zone defined as a transitional zone, between the Semi - Deciduous Forest and the Guinea Savannah zones. This means that the northern part is mostly covered with sparse deciduous forest vegetation while the southern vegetation is denser. The annual rainfall is more or less evenly distributed across the District, and goes between 1,200mm and 1,500mm. This rain has common tropical characteristics, with strong but short waves of rain (MTDP: 2010).

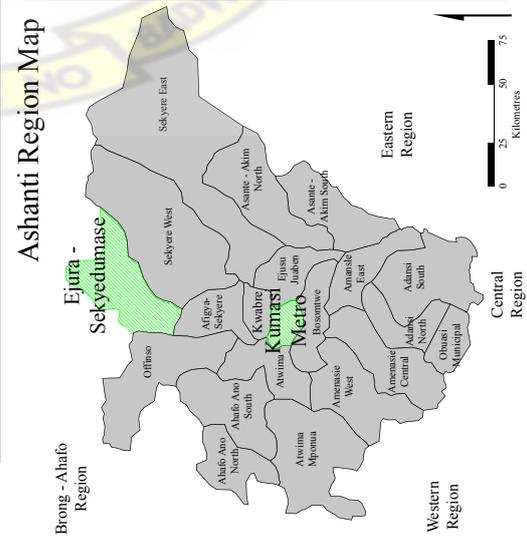
Agriculture is the main economic activity of the District, (68.2% of the population is employed in the agricultural sector according to the District Assembly) and its main city, Ejura, has one of the most important markets in the country. So, a major number of its inhabitants dedicate their livelihood to agricultural production and the market is an important centre to trade these products with other regions and to acquire goods that are not available within the District. Therefore, this weekly market establishes several patterns of behaviour within the community, because it is the most important centre for economic activities.



Ejura Sekyedumase District Map



Ghana Map



Ashanti Region Map

Figure 08 - Ghana Map, Ashanti Region Map and Ejura Sekyedumase District Map - Concentration of Population
Source: Author's Construct based on Ghana Statistical Service, 2008 and Ejura Sekyedumase District Assembly Maps, 2005

These economic characteristics establish some features of the district relative to housing and settlement organization. Since the population is mainly committed to agricultural activities, there are scattered settlements throughout the entire district. This entails several problems of accessibility and difficulties to reach basic services like health and public service offices. As well, since the settlements are more distant and less accessible, the enforcement of public norms, layouts and plans is weaker; this means that housing is developed without indicative instruments.

The nature of the settlements has stimulated the inhabitants to solve their habitational needs on their own; therefore it is possible to observe how most of the buildings are constructed with locally available materials, like clay, mud and vegetable products.

The District has several basic resources for construction like clay, gravel, sand and stone; however, so far, there is no major industrialized extraction. In most settlements these are the construction materials that people utilize the most. A majority of the buildings are constructed with raw earth for the walls (79%), locally available wood (94%), sand (85%), gravel (71%) and thatched roof (42%) (Field survey: 2010).

In the resources map (Figure 09) it is possible to observe the areas with higher availability of construction materials. These could be a solution for the region and the country if they were properly exploited. “There is still an overdependence on external markets particularly for building materials for which local substitutes can be developed and for which there is comparative advantage for localization of production” (Ministry of Water Resources: 2005, p11).

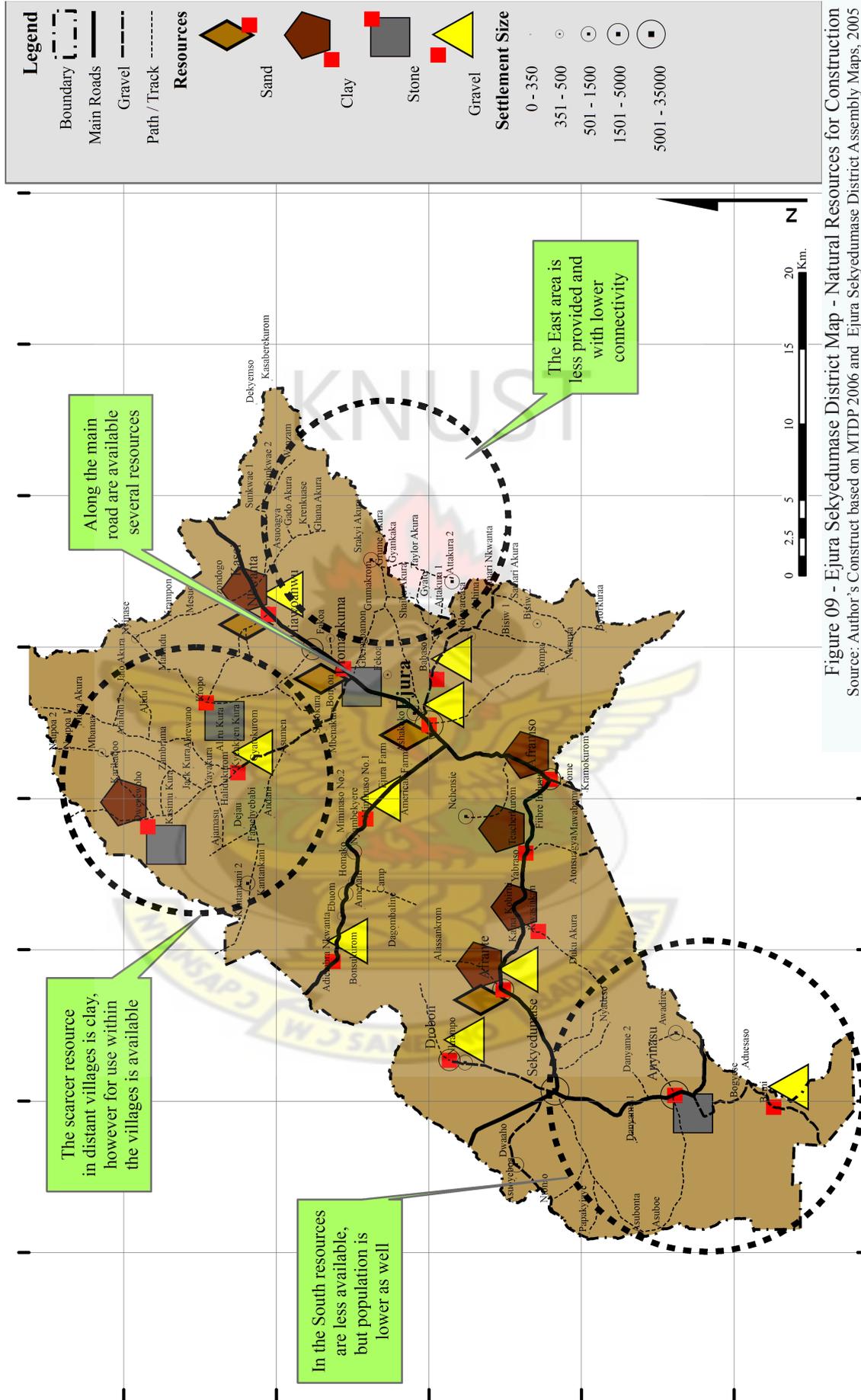


Figure 09 - Ejura Sekyedumase District Map - Natural Resources for Construction
 Source: Author's Construct based on MTPD 2006 and Ejura Sekyedumase District Assembly Maps, 2005

4.2 Housing Conditions in the District

From observing the data, it can be inferred that most of the families have been living for a long time in the settlements. In fact, 50 percent of respondents of the questionnaire stated that they had been living from 30 to 50 years in the village. Also, the coefficient of relationship between age of the respondent and years living in the village demonstrated an important relationship (0.6, Figure 10).

This means that people have been living almost all their lives there, and so far there is not a strong motivation to move out. Also, 87 percent of the people declared they were not planning to move out. However, the relationship between age of the house and years living in the village is lower (0.3), which demonstrates a high tendency to renew the house or to change residence inside the village.

There is a very high level of dissatisfaction in relation to the house where people are living in: 91 percent said they were very dissatisfied. This dissatisfaction is slightly linked to the age of the building, with a correla-

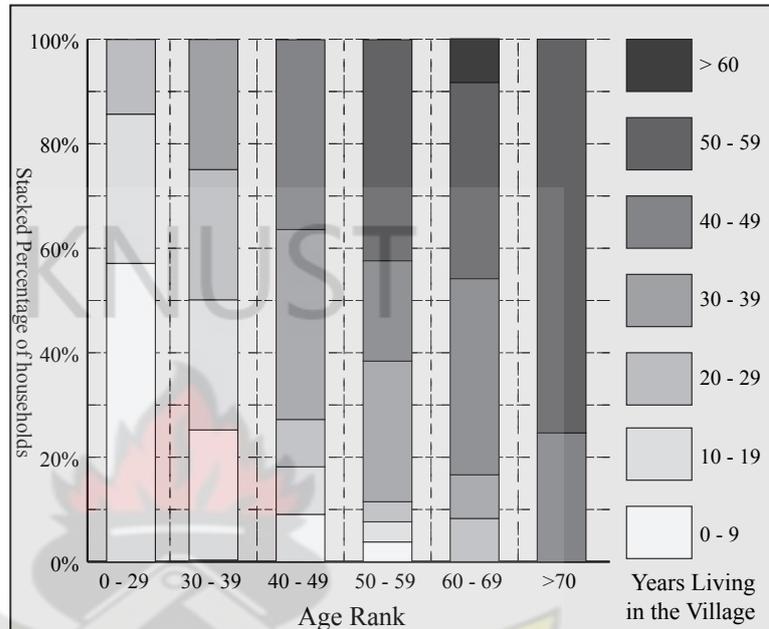


Figure 10 - Relationship between years living in the village and age of the respondent - Rural areas Ejura Sekyedumase District
Source: Field Survey: 2010

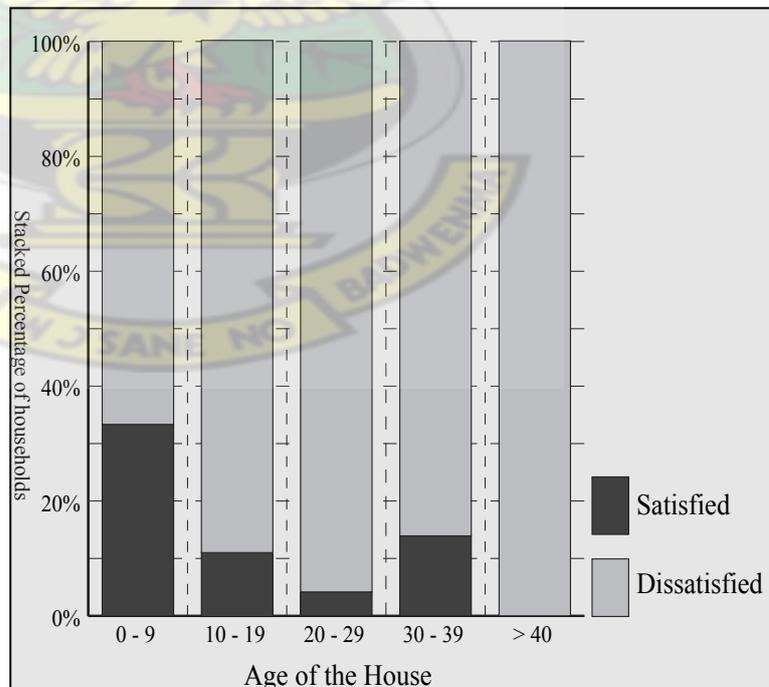


Figure 11 - Relationship between age of the house and satisfaction with the building - Rural areas Ejura Sekyedumase District
Source: Field Survey: 2010

tion factor of 0.25, (Figure 11). The connection between dissatisfaction and overcrowding is almost non-existent (0.02). This fact shows traces about the community's perception of what a proper house is. They are not so much concerned about the amount of persons living in a room, but other characteristics, like electricity, are highly relevant..

Some other important information regarding housing conditions of the rural communities of the District is a lower level of overcrowding, compared to the District average. In the District, the overall average people per house is 8.16, while in the rural areas is 7.46.

The District Assembly (Ejura Sekyedumase DMDTD: 2006) points out that about 62.5 percent of the buildings are affected by erosion. This situation debilitates the foundations of the buildings, weakening the whole structure. Most of the deterioration of buildings and infrastructures in the District is due to wrong management of rain and waste water.

4.3 Potentials and Constrains for Housing Development in the District

4.3.1 Building materials

In Ghana, there are problems regarding the provision and availability of building materials. This situation is recognized by local institutions: "The vast raw material resources of the country have not been exploited to maximum advantage of the local building industry" (Ministry of Water Resources, Works and Housing: 2005, p11). However, some of the local administration offices are not promoting the use of traditional materials. In fact, the previous Medium Term Development Plan 2006 – 2009 for Ejura – Sekyedumase District does not encourage or support the use of locally available materials. On the contrary, the plan states that "houses built with cement / concrete blocks are generally in good condition and this building material could be recommended for future constructional purposes to maximize returns on building material" (Ejura – Sekyedumase District: 2006, p84).

However, for some researchers like Antwi-Barfi (2001), the use of traditional technologies is the answer to solve some of these problems. "Before independence, there was plenty of proof available that Ghanaians had used alternative building material (stones,

bricks and wood) to build quality churches, schools, homes and civic centres. Now the new builders, sometimes with no help from their architects, are using foreign exchange enhanced materials in construction delivery. The advent of modern building materials technology makes it more promising to look in our own back yard for answers. This new thinking and approach to solving our problems will open Ghana's rural areas to development and reverse the migration of job seekers to urban areas."

Certain local institutions, like the Building and Road Research Institute and the Centre for Settlements Studies of KNUST have developed some improved construction materials like claybricks and landcrete blocks. These materials are an upgraded version of the local and traditional materials. However these materials still do not have a strong impact at local levels, mostly due to lack of training at the local level and because the costs are still too high for people living in rural settlements. Several of these materials still requires a high amount of cement to produce brick, (like the landcrete, which reduces the need of cement in only a 25%). Also, there have been no major training about the production and use of these improved materials at the local level. Hence in most of the villages these materials are unknown or not used properly. During the 1970s were developed other techniques like the compressed earth blocks. These blocks require only a 5 to 10 percent of cement on their composition, and some examples and demonstrations were carried out during this period. However due to lack of training and uncontrolled fabrication of these blocks, the outcomes were very low, which led to a short life of these techniques.

In Ghana, the provision and supply of building materials is a difficulty, and currently the building materials industry is running low. This has brought problems for all kinds of housing projects, especially in the sectors with lower income. Several of the processed building materials are imported and prices are simply unaffordable for most citizens. Furthermore, the reduction of the local industry for building materials also undermines the local economy. As Antwi-Barfi (2001) points out, "If Ghana does not change its import habit then Ghana will merely be providing income and employment to foreign producers of clinker and other materials".

Therefore, average people are forced to look for cheap solutions in the local context, which means materials with low level of processing are the more common ones.

4.3.1.1 Types of materials

Construction in rural areas is characterized by the use of building materials with a low level of processing. According to the Town and Country Planning Department of Ejura Sekyedumase District, the main building materials used are mud, straw, landcrete blocks, wood and cement. According to the Ghana Statistical Service (2008), the most commonly used materials in rural areas are mud for the walls, cement or concrete for the floor and metal sheets for the roof (see Figure 12). The field survey confirms these trends and also shows what are the locally available resources in the District (see Figure 13). In this figure, it is possible to observe that sand, gravel, mud or clay, organic products and wood are widely used and are obtained in the proximities of the village. The only material with low level of processing, but

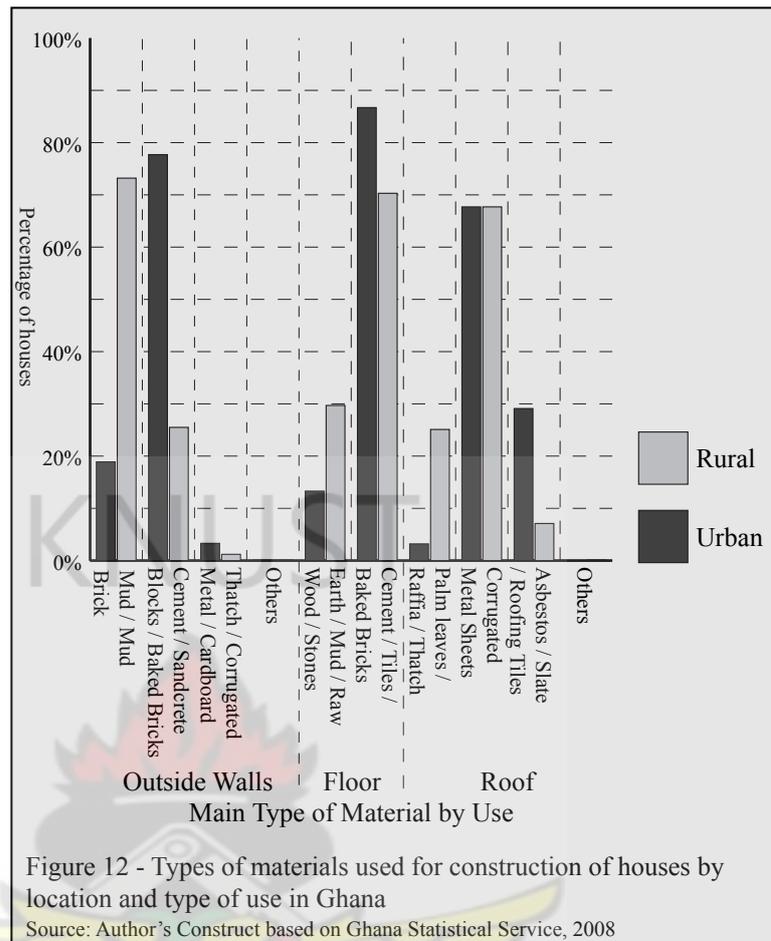


Figure 12 - Types of materials used for construction of houses by location and type of use in Ghana

Source: Author's Construct based on Ghana Statistical Service, 2008

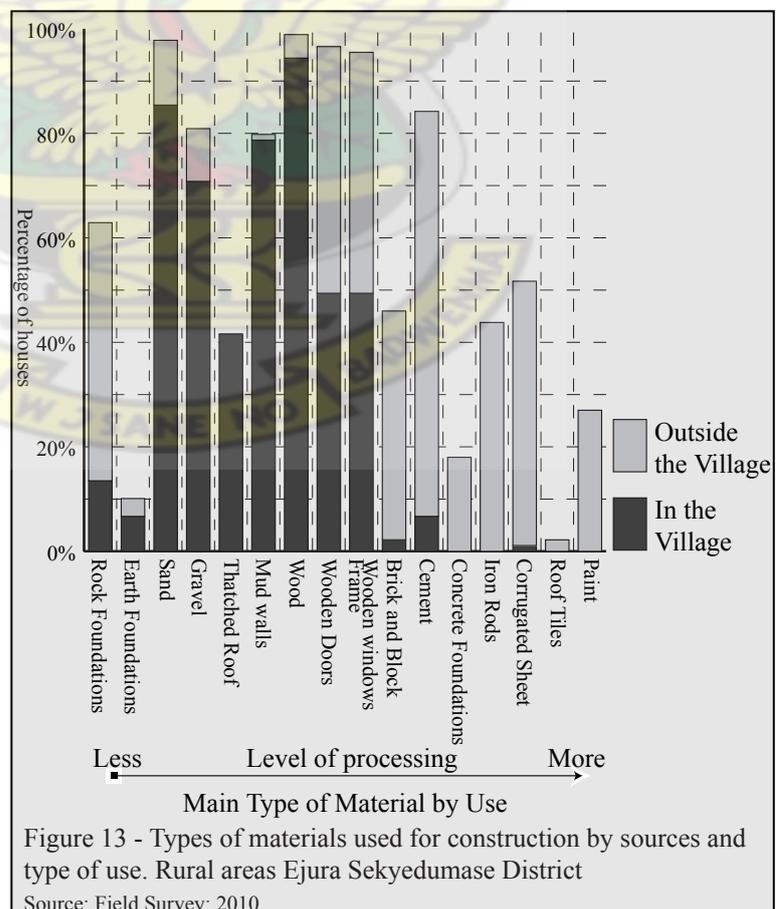


Figure 13 - Types of materials used for construction by sources and type of use. Rural areas Ejura Sekyedumase District

Source: Field Survey: 2010

which is not obtained in the village, is rocks. This evidently can have a repercussion in the construction of proper foundations, where rocks are required.

In the Figure 09, one can observe that the District has several sources of raw materials namely: sand, clay, rock and sand, which are mostly distributed along the roads. In the Figure 13 one can observe the utilized materials and where these materials were obtained by the owners. These are organized from less to more processed, and also presented according to where the people found them or bought them for the construction. Smaller sources of materials can be found in these settlements, since most of the buildings are constructed with materials taken from the proximities of the villages (see Figure 13). Therefore, these materials are a potential for housing in the District, because they are abundant and can be obtained in the nearby areas.

A widely used material, which must be carried from outside of the village in most of the cases, is cement. This is also the case of corrugated metallic sheet, iron rods and bricks, but they are used in smaller amounts.

Currently, a problem to increase the use of traditional materials is the fact that people consider them as of inferior quality and not well regarded by others. The Town and country planning office point out that people do not want to build their houses with traditional and local materials, but imported ones as a symbol of status.

However, traditional materials should not be regarded as inferior or of inferior quality. "Traditional mud houses are known to have the advantage of thermal flywheel effect. This happens because mud absorbs the excess of temperature during the day, keeping the interior of the rooms cool and releases the stored heat into the clear night sky thereby regulating the amount of heat at different times of the day. Another advantage is the fact that, materials needed for construction are readily available in communities where they are built. Furthermore; traditional mud houses are capable of resisting fire and are waterproof. (..) Although mud has advantages, prolonged exposure to rain and sunlight causes erosion of mud walls (Otchere, Edwin: 2006, p11)." Rural communities are normally rich in these traditional materials, which have also the advantage of being available and abundant, at zero or very low cost.

The use of finishing materials, like paint or tiles, is low. These materials are in many cases considered as part of the aesthetic only. Hence they have the capacity of preventing deterioration and greatly extend the life span of the building.

Because of the price of modern materials is high for these levels of income, it is important to look for alternatives that can reduce this cost, and improving the quality of the results. “The government may be able to encourage and/or subsidize loans for firms specializing in production of local building materials. Local production of building materials could lower the costs and increase the availability of building materials and in turn help to reduce the high cost in building houses” (Fiadzo, Houston and Godwin: 2001).

4.3.1.2 Costs of building materials

The costs associated to construction materials are directly related to the level of processing and also with transport. Therefore, it is simple to understand why highly processed materials produced in distant places are much more expensive.

In the urban areas of the District, the cost of construction materials for a regular size building (40 - 50 mt²), is about GH¢ 2,800 to 3,000 (using processed materials like cement, bricks and corrugated metal sheets) (GH¢ 65 / mt²) (Habitat for Humanity: 2009). However, in rural areas, most of the materials used for housing are not industrialized; and then the direct cost of construction materials could be as low as zero, if no industrialized materials are used. Nevertheless, in most cases, some materials like cement and metallic corrugated sheet roofing are used; therefore, the cost can reach around GH¢ 30 / mt². So, the total cost of a 15 mt² room, using a combination of locally available materials and industrialized ones could reach about GH¢ 450.

This cost is still very high when compared with the income of the average rural inhabitant, most of whom have an income lower than GH¢ 1,000 a year, with an average of GH¢ 777 a year (Field Survey: 2010). Therefore, most structures are not built with these standards, but lower ones.

Therefore, regarding the costs of construction materials, potentialities are in the locally available ones, as long as they are widely available and possible to find in the proximi-

ties of the villages. This alternative reduces the costs of the materials themselves and of transport.

4.3.1.3 Durability of building materials

The durability of a construction it is not only related to the type of material used, but also to the proper utilization and its maintenance. An important problem of constructions in rural areas of Ghana is fast degradation and dilapidation due to misuse and lack of maintenance.

The average age of the houses in the District is 22 years, (calculated since the first part of the building was done, Field Survey: 2010) which is fairly low for a building (also considering that the housing provision it is not enough for all). This may be shows that people are renovating and rebuilding the houses frequently, probably due to the deterioration of the previous residence.

The low durability of constructions is normally attributed to the low quality of the materials used in these areas. Nevertheless, there is plenty of evidence of use of the same materials in buildings that have stood for long time (Kennedy: 2008). Earth as a construction material has been used throughout history and several very old buildings are still standing. Examples of this can be found in north Africa, the middle east and in Andean countries like Peru and Bolivia.

As it was argued, besides the quality of the materials there are other key elements that affect directly the durability of the construction: maintenance and a proper use of the materials.

4.3.1.3.1. Maintenance

There is no structure that can support the passing of the years without some level of maintenance. The case of buildings constructed with traditional materials is not different. According to Otchere (2006), two main elements must be revised periodically to prevent degradation of traditional structures (Wattle and Daub, Atakpame Wall, Sun Dried Bricks and Thatched roof): first, the condition of the roof, and second, that the walls must be copped with ample size and clean drains at the base. “The copping of mud

wall and provision of rain water drainages to sufficient channels or soak ways are the first priorities for preventive maintenance of mud brick walls” (Otchere: 2006, p32).

Traditional materials have an important advantage concerning maintenance. Normally, this process is done using materials that are similar to the original ones. Therefore, if a building is executed with expensive external materials, maintenance will be equally expensive and complicated. Therefore, using traditional and locally available materials can simplify the process of maintenance, making it highly affordable.

Several cases of degradation are a direct consequence of low maintenance. Re-painting, re-plastering, repairing and cleaning are key actions to ensure longevity to the buildings. The District has the potential of locally available materials. Hence maintenance should be cheap and easy to carry out.

4.3.1.3.2. Use of building materials

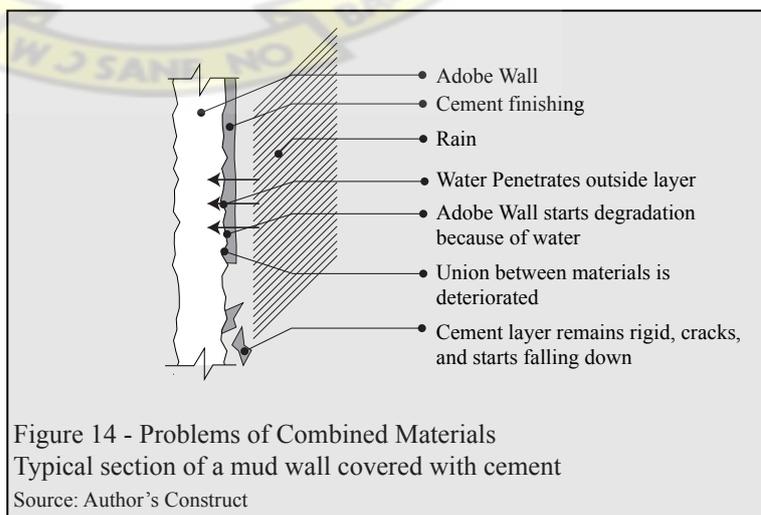
Although, there is frequent use of materials with low level of processing, there is a strong trend to mix them with some modern materials. This is normally the case of cement and corrugated metallic sheets for roofing. These materials have many advantages. Cement, in particular, has shown its virtues since historical times, but also can produce problems.

A new material requires specialization and knowledge about how to use it properly. Otherwise, the outcome can be worse, with higher costs. The District presents extensive cases of misuse and/or not properly combined materials.

These can be organized in three main issues:

a. Inappropriate mixture of cement and earth.

The introduction of ce-



ment as part of the construction process has, on several occasions, worsen the outcomes. Frequently, it is possible to see how cement is improperly mixed with raw earth to construct. Several buildings use cement to lay adobe blocks or to give a finishing to a mud wall. The outcome is walls that are eroded from the inside and cement pieces and plates falling in pieces (see Picture 1, 2 and figure 14).

This is an evident misuse of two materials that can be combined properly. The improper use of a rigid but porous material in a mixture with a raw earth which is easily affected by water, leads to problems of union and griping. Consequently, after some time the two materials are not working in union anymore, generating a fast and irreversible degradation of the building.



Picture 1 - Materials combination problems. The image shows how the inadequate foundations and erosion have dilapidated the building, in spite of this was built with cement and corrugated metallic sheets.



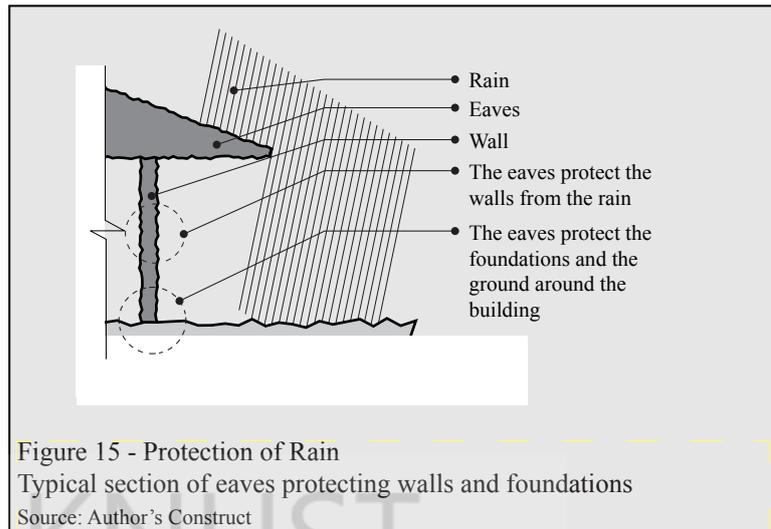
Picture 2 - Materials combination problems. The image shows the union problems of inadequate mixture of cement with adobe blocks. As a result the raw earth wall is rapidly exposed to rain again.



Picture 3 - Roof Design - The use of short eaves do not protect the walls from rain. In particular walls made with some some technique based on raw earth should be protected againt rain and moisture.

b. Improper use of corrugated metallic sheets

Corrugated metallic sheets have several advantages: flexibility, lightness and resistance, among others. Their size and design, leave almost no chinks where water can seep through, providing a very good protection from the rain and climate.



However, protecting the interior of the house is not the only purpose of the roof. In places where buildings are constructed with raw earth, it is imperative to protect the walls and foundations from rain and moisture. These are the main enemies of the structure and finally these are the ones which will set the lifespan of the building. Therefore, protecting the wall from water is pivotal. As different from straw or leaves, metallic corrugated sheets do not absorb part of the water which is later liberated as vapour, then, the sheets on the roof conduct all the water out.

But most of the buildings which are using corrugated metallic sheets are built with very short eaves, which are not protecting the walls and foundation. Quite the opposite, the roof is conducting all the water straight to the base of the wall, accelerating the deterioration process. So, it is important to use the corrugated sheets properly, with long eaves or roof-gutters. So, they will protect the interior and the surrounding of the house, and then the life span of the building will be longer and the maintenance costs lower (see picture 3 and figure 15).

c. Use of bricks and cement blocks without proper foundations

In rural Ghana, several traditional constructions use light structures for walls and roofs, like organic materials and earth finishing. Therefore, traditional foundations have characteristics according to these materials and their weight.

However, with the introduction of cement, blocks and bricks, the requirements for foundations are different. Rigid and heavy structures require bigger and deeper foundations so they can receive the static and dynamic effects of the load. Also the weight of these wall structures must be supported by a proper soil, which must be protected from water and erosion.

As a result, the misuse of these materials in rural areas has accelerated the dilapidation of buildings and structures (see picture 2). It is not difficult to observe how buildings in rural areas are affected by this situation. Most of them are integrating some type of modern materials like cement and metallic corrugated roof cover, (more than 80 percent and more than 50 percent respectively, field survey: 2010). However, in most cases they are not properly combined with the traditional or local inputs.

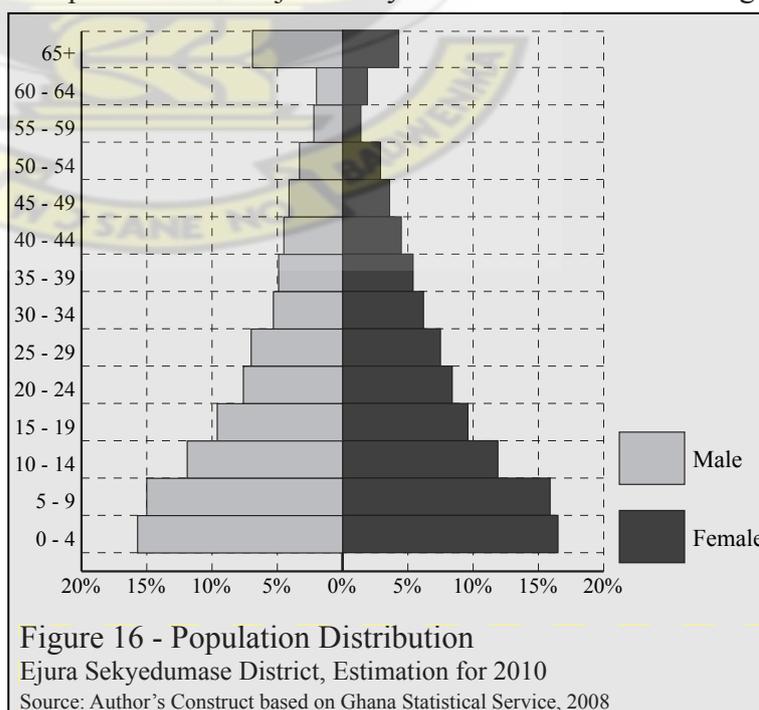
As well, the use of some finishing materials helps to prevent degradation. Items such as paint, roof gutters and plaster are not just for aesthetics; these materials protect the structure from rain and weather. For example, metallic pieces will suffer strongly from the weather if they are not protected with an adequate paint. This will extend the life span of the components in many years, for a fraction of the cost of replacing the piece.

So far, durability of constructions and materials is one of the main constrains or impediment for proper housing development in The Ejura Sekyedumase District. Buildings degradation is fast and there is not enough culture of maintenance.

4.3.2 Labour

4.3.2.1 Availability of labour

The demographic distribution in the District presents common characteristics of a region in the first stage of development



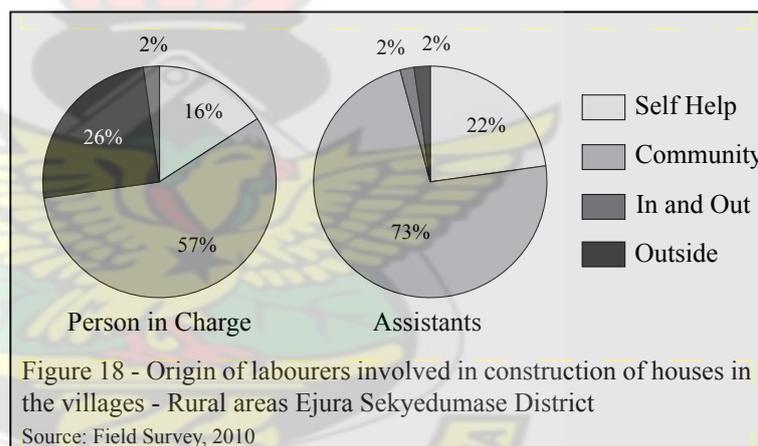
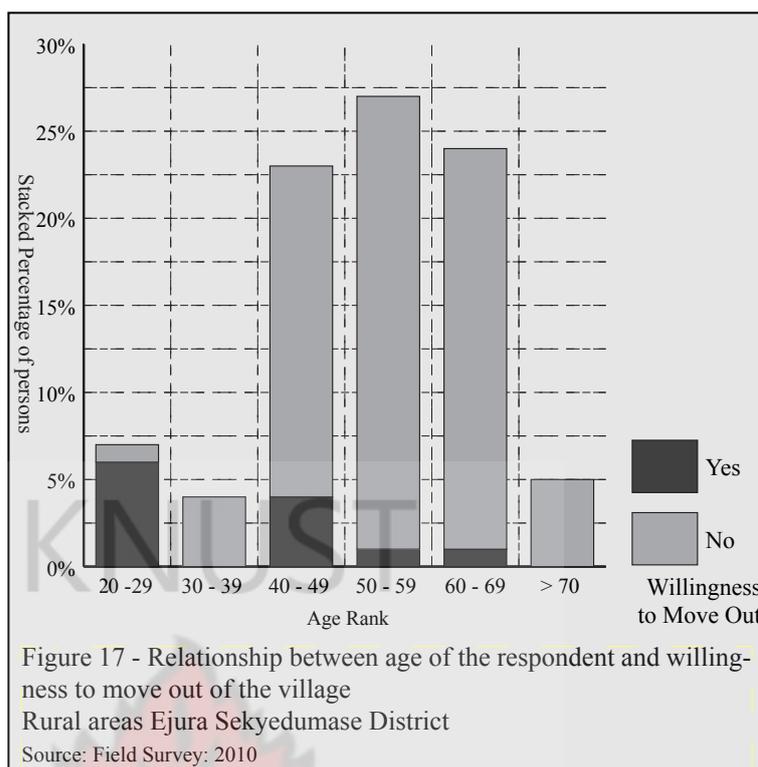
(Figure 16). This means a much broader base with a narrow top. Therefore, an important number of people are economically active (49 percent, representing 49,849 persons).

Although the country is experiencing a rural – urban migration phenomenon; there is no strong evidence that this area is currently affected. The distribution remains between normal standards and one can see that the available workforce is still living in the District. However, it is important to consider that younger people declared more often their intention to move

out. This can be observed in the Figure 17, where the lower cohort express more often their intention to move out with the family to other place. This pattern of behaviour must be considered when analysing future availability of workers, since apparently this is a phenomenon that can grow stronger in the future.

In rural areas, due to the nature of the economic activities, labour load is generally unsteady since, farming activities require manpower depending on the season, in particular for small scale farmers.

In the District, it is possible to observe how most of the labour utilized for construction comes from inside the region. In a 72 percent of the cases, the person who was in charge



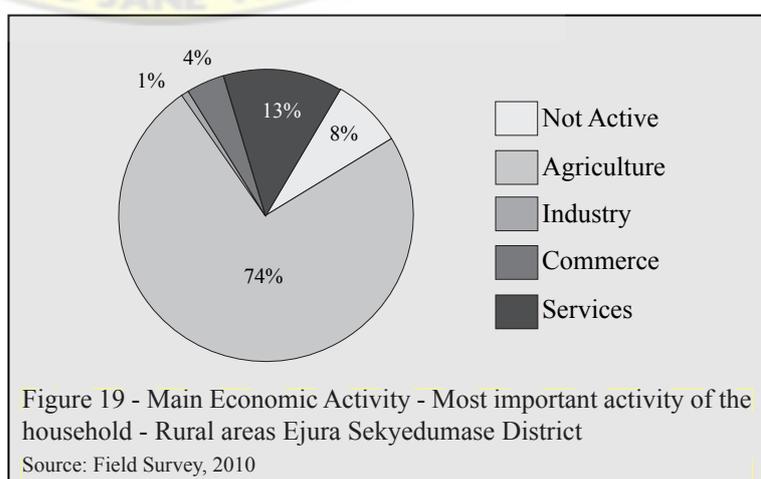
of the construction came from within the community and in a 96 percent of the cases the persons who assist in the construction came also from inside the community (see Figure 18). One can also see how in almost one fourth of the cases the owner was involved in the process. These characteristics show that people in the district are normally willing to invest their labour force in housing processes. However, since more than 70 percent of the people are dedicated to agriculture activities (see Figure 19) it is important to consider the farming cycles that probably will affect the availability of work.

4.3.2.2 *Training of labour*

In the Ejura Sekyedumase District, the illiteracy reaches 52.3 percent, slightly higher than the national average, 51 percent (Ghana Statistical Service: 2008); however, in rural areas can be high, reaching in some cases more than 70 percent.

The District does not have a centre for advanced technical training in construction or planning (Town and Country Planning Office, Ejura: 2010). Therefore, the only way in which individuals are trained in construction, is through traditional apprenticeship. This had opened a gap to introduce new materials in the housing processes. While people in the District learn from the elders, new materials are incorporated in the housing production system, but older people do not know how to use them properly.

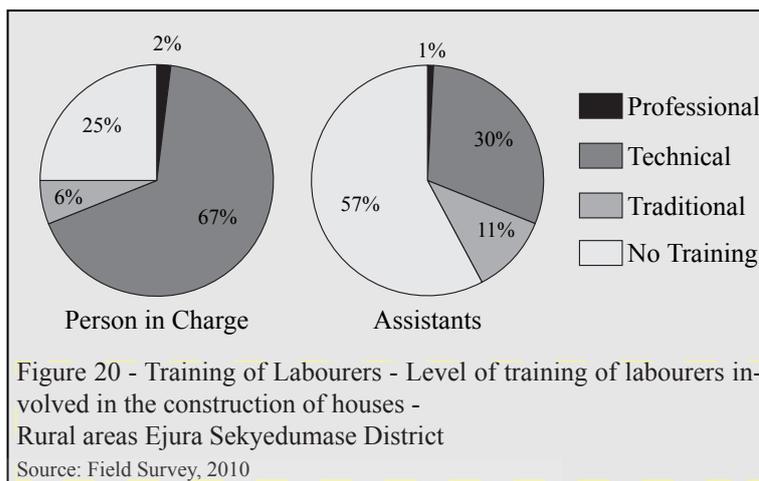
The levels of training can be divided in four categories, first no training; second traditional apprentice meaning learn informally, third technical apprentice meaning learn formally and fourth professional meaning learning at university levels. The field survey (2010) shows that in more than 65 percent of the cases, the construction process was led by someone with some level of technical training. However, this gap in the knowledge about the use of industrialized materials is evident while observing the results. One of the reasons for these results may be the deficient technical training and lack of professional supervision.



Professionals were present only in a 2 percent of the cases (see Figure 20).

The Figure 20 shows that a big number of buildings are executed with no trained labour as assistants. However, in spite of

this, it is admissible to think that at least some of the workers have knowledge about construction; otherwise there would be no buildings. This is a characteristic that can be exploited and used as a potential if training were provided, because most of them have practical experience.



4.3.2.3 Cost of labour

The cost of labour within rural communities can deviate from normal patterns. Since within the communities exist stronger links and connections, it seems this affects labour. Later on the work is done for small salaries or no salaries at all, when it is executed inside the community. The average wage paid for the person in charge was GH¢ 367, while the average wage paid to the assistant was GH¢ 96. However, these are the averages just for the cases where a salary was paid. In many cases the construction was carried out by members of the village or by the owner himself, with no payment (Field Survey: 2010).

Therefore, it is possible to observe that labour costs in rural areas are lower because of the low training level of the workers, the strong social network and the high number of people willing to work. Thus, this is a good potential for housing development, since labour costs entails and important portion of the total costs of housing.

At last, it could be argued that the main problem in rural settlements regarding labour is qualification; most of the people have a low educational level and/or outmoded qualification. Also, professional level workers are scarce or non existent.

4.3.3 Land

The Ghana Living Standards Survey (Ghana Statistical Service, 2000) suggests that less than 25 percent of urban households have an income that is sufficient to participate in the land and housing market. In Accra, this could be as low as 12 percent. As rural urban migration increases, the land supply situation is expected to become even more acute in Ghana (Callistus and Antwi; 2006, p2). However, rural areas face another reality.

4.3.3.1 Availability of land

In the case of rural settlements land it is not considered scarce: “for housing in the rural areas and small towns supply of land it is not much of a problem, but the suitability of the land qualitatively for housing is the issue to be addressed carefully” (Ministry of Water Resources, Works and Housing: 1999: p 14).

The District has a total area of 1,292 square kilometres. Land for agriculture was estimated in 262.33 square kilometres for 2009 (Department of Agriculture, Ejura Sekyedumase District, 2010) and 212.8 square kilometres are part of the Forest Reserves. In addition, the District has some highly risky areas for housing development like steep slopes and floodable sectors, estimated in 100 square kilometres. Therefore, approximately 720 square kilometres are still available for development.

In the District, most of the people declared to own the land where the house is built; therefore, they live in a legal situation (see Figure 21). In the Figure 22 is presented how people have access to land, family lineage (inheritance from family), communal land, must acquire (the person must buy the land from an external owner) or other possibilities. Most of the people do not have problems to access land for housing development, because they can use family land or community land (see Figure 22). However, according to the Town and Country Planning Department of the District it is becoming a common practice of the chiefs to

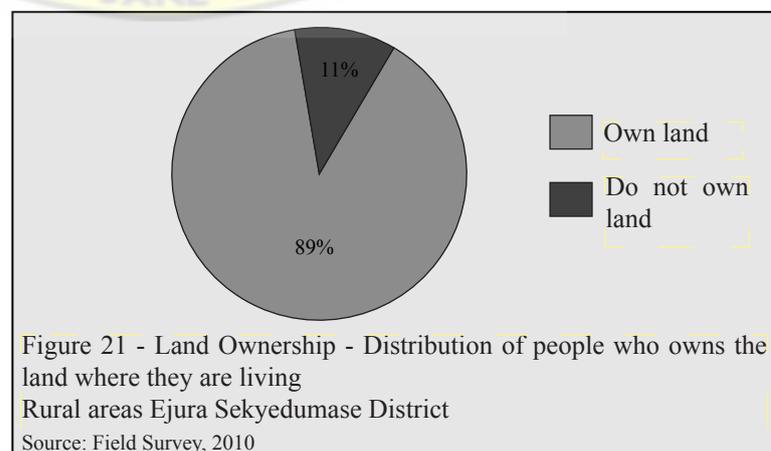
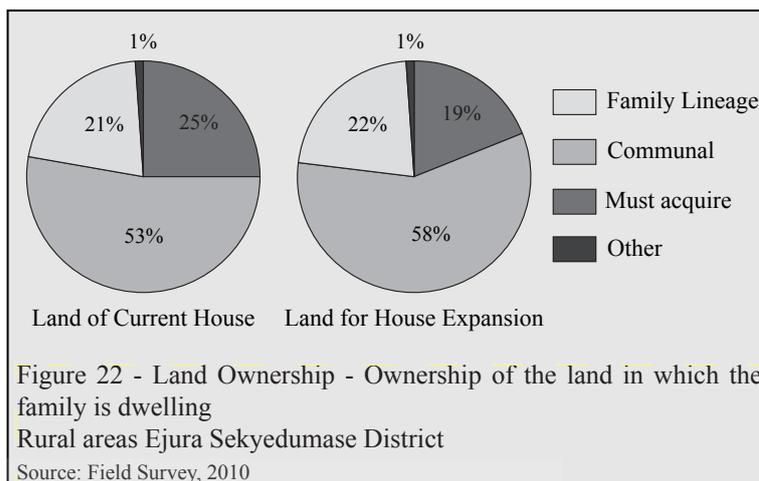


Figure 21 - Land Ownership - Distribution of people who owns the land where they are living
Rural areas Ejura Sekyedumase District
Source: Field Survey, 2010

sell land to commercial farmers instead to local inhabitants. This trend must be observed in the future since it can reduce the access to land from the poorer sectors.



All in all, availability of land is a potential for housing processes in the District, since most of the people have access to land and there is still available spaces to develop housing.

4.3.3.2 Land rights

The system of land ownership is in many occasions not properly registered and organized in Ghana (UN-HABITAT; 2008a). This situation generates difficulties for investments, in particular from the private sector, but it also increases the prices, when titling and/or registration is required.

However, in the District most of the land is owned and administrated by the chiefs through customary land tenure system. In these cases cost is reduced, and in several occasions this is the unique possibility for peoples' access to land. In the district there is a majority of people who had access to land through customary land rights (see figure 21). In 78 percent of the cases the land was acquired through a customary process: family lineage or community land.

The land right system in the District is a potential for affordable housing, particularly in rural areas. The procedure to use land for housing development is not complicated and expensive; so it enables housing processes easily.

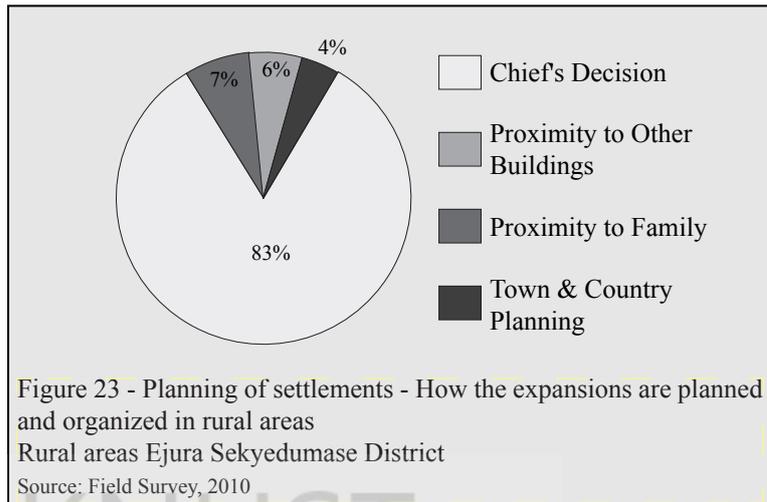
4.3.3.3 Location / Planning

Rural settlements in the District have clear problems of organization and planning. There is no proper organization, use of land and prevision for future difficulties. Problems like waste management, drainage and erosion are frequent and are related to lack

of planning. It is required to leave correct spaces to drain rain and waste water. Proper planning can also help to prevent deterioration by insects, sun, trees' roots and other natural elements.

A proper planning should also include some green areas that can absorb rain water and control the erosion. These buffer areas can be situated around the buildings, so the foundations will be protected from running water and rapid degradation (see picture 4 and 5).

So far, within rural settlements in Ghana, most of the planning and organization is done by the chief (see Figure 23). The town and country planning office has little influence on planning rural settlements; only 4 percent of the people said the department is guiding development.



Picture 4 - Degradation of buildings. the surrounding of building lacks from proper drainages and walls are not protected from erosion.



Picture 5 - Degradation of buildings.

Since most of the planning is carried out by the traditional authorities it is necessary to assist and advise them on these issues, so later the planning of villages and small settlements can be improved. In spite of the fact that planning it is not properly done, is still a potential that someone is behind the process. This can simplify the assistance process because it can be directed to these persons who are already in charge of this task.

4.3.3.4 *Quality of the land*

Most of the region has suitable characteristics for housing processes; normally there are no important slopes and the quality of the soil is suitable. However, the soil must be well prepared and selected for construction. Choosing the proper place to build and prepare the soil to receive foundations and the building goes hand in hand with the quality of the land.

4.3.3.5 *Cost of the land*

Due to land tenure system is mostly managed through customary land rights, the cost of land is reduced. In fact, most of the people declared to own the portion of land where their house is built, and only a small group declared to have acquired the land through another process. Therefore, the cost of land is not a major impediment for housing processes in rural areas.

However, since competition of the commercial farmers is growing, the cost of land can have an increase as well. This must be observed in the future, since this trend could change the costs, making prices unaffordable for some people.

4.3.4 *Finance*

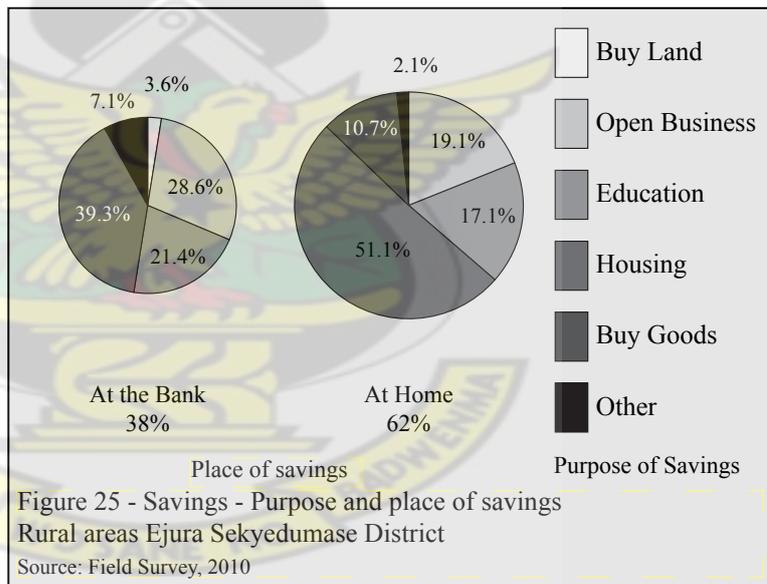
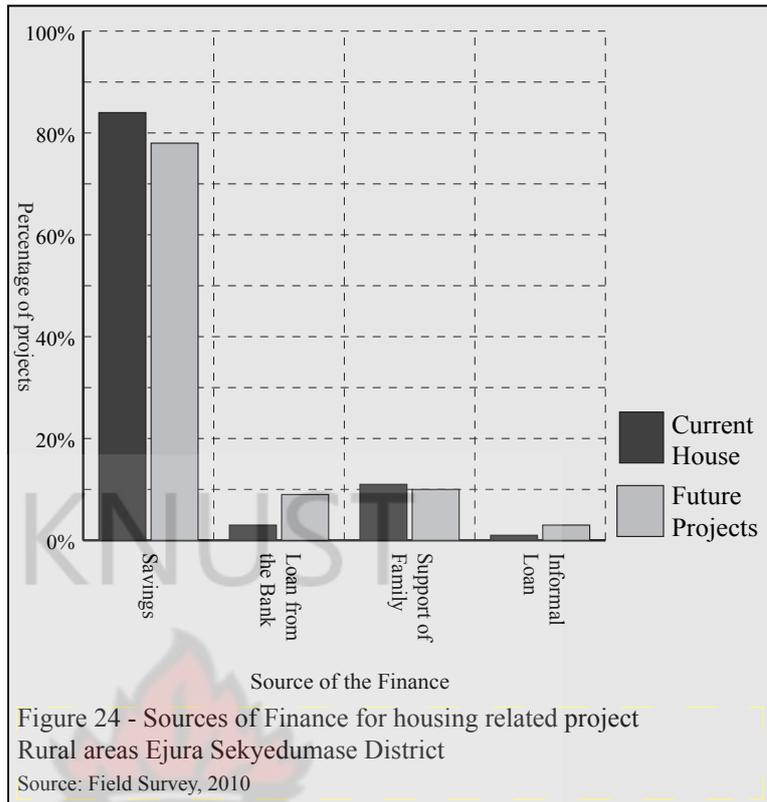
Financing a venture like a house is particularly complicated for people with scarce resources. A complete small building can reach more than GH¢ 7.000, including materials, labour, professional services, etc. However, the average annual household expenditure in rural localities is GH¢1,514 (Ghana Statistical Service; 2008). Expenditure for food accounts two-fifth of the total household expenditure, while the imputed value of own-produced food consumed by households represents a further 10.5 percent. Expenditure on housing in Ghana averages just 2.4 percent of the total household expenditure (Ghana Statistical Service; 2008).

This leaves a small margin to be invested in housing processes. In the District the yearly average income per household is GH¢777. Considering that the expenditure on housing in Ghana averages 2.4 percent of the total household expenditure, it is fair to think that out of GH¢777, there is only GH¢19.4 invested in housing yearly. This demonstrates that developing housing processes through formal paths is very difficult for a normal inhabitant of rural Ghana.

The rural population has also difficulties to access loans and credits. In fact, only a 4 percent had access to any kind of loan to finance the current place of residence. This can be

attributed to personal preferences, but also to the low income and to the land tenure system; usually loans from formal institutions require collaterals, most of the cases land, however it must be formally registered

In almost all cases, financing came from personal savings and, in spite of the low income of the households, 84 percent of them declare to save money (see Figure 24). From them, approximately half are designating these saving to housing (see Figure 25).



This is an evidence of the importance that people give to improve the place where they live, and a proof that people are capable to save for housing.

The big potential regarding finance for housing is the willingness and capability of people to save for this purpose. Therefore, it is possible to think in a future scheme that encourages the population to save and invest in housing processes.

4.3.5 Infrastructure

The level of infrastructure in rural settlements of Ghana is generally low. Many rural areas remain very isolated, using kerosene for lighting (72 percent of the cases) and charcoal or firewood for cooking (94 percent of the cases). This has contributed greatly to the rapid deterioration of the natural environment in the surroundings of rural settlements (Ghana Statistical Service: 2008).

4.3.5.1 Water infrastructure

Water provision in the district is generally good: 72 percent of the population have access to potable water. Most of the population have access to a secure source of water in less than 10 minutes walking and 73 percent of them fetch water from a borehole (field survey 2010).

In the District, provision of water is not an important issue constraining housing processes. Most of the time water is available at a reasonable distance and people have no problems to develop housing in the proximities. So far, availability of water is a potential for housing processes in the District.

4.3.5.2 Sanitation infrastructure

Sanitation is an important problem and normally in rural settlements there is scarce or no organization to solve sanitary problems. Generally, houses do not have drainage systems and waste management is carried out without planning.

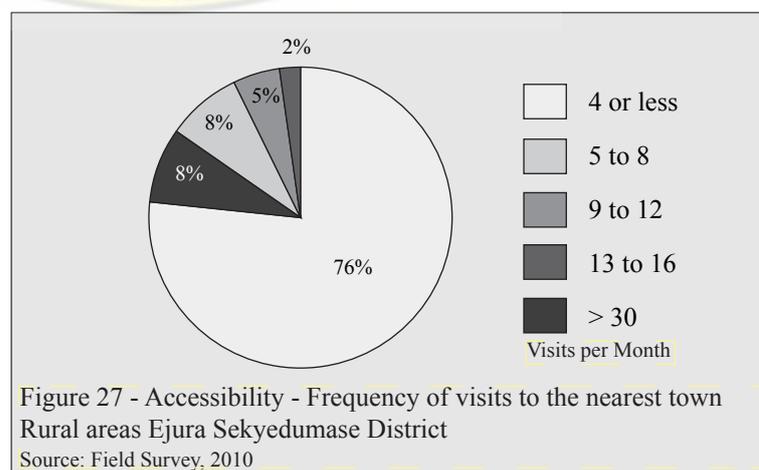
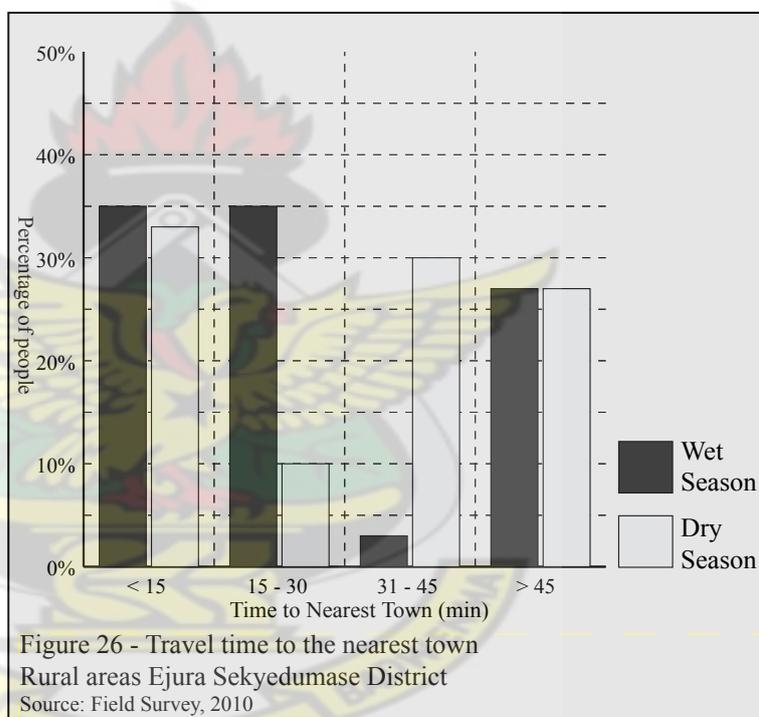
More than half of the population indicate drainage as the main problem of the community regarding housing conditions. People also indicate this situation as one of the main elements they would like to have in a proper home, and therefore the idea to move out to settlements with improved sanitation. (Field survey: 2010)

One can say that sanitation in rural settlements of the District is an issue limiting housing processes from two sides: first, due to health reasons and second, because of the rapid deterioration of buildings. So, people are not willing to invest resources in housing in places which cannot provide a proper environment to live.

4.3.5.3 Accessibility / Communication

Accessibility and communication are still a problem, and many rural settlements in the District lack of year-round connectivity. This endangers housing development efforts because any kind of supply that must be transported is scarcer and more expensive. Lack of communication also threatens the processes due to problems of co-ordination.

In the District, accessibility and communication are not evenly distributed. Some areas have good accessibility and connection towards the District's main towns and other important economic areas, while others remain highly inaccessible (see Figure 28). The average travel time to the nearest town is 45.9 minutes in dry season and 52.3 minutes in wet season. The standard deviation for each case reaches 46.2 and 43.1 respectively, showing a high variability between settlements. Therefore for some, the access is easy and adequate, while for others it



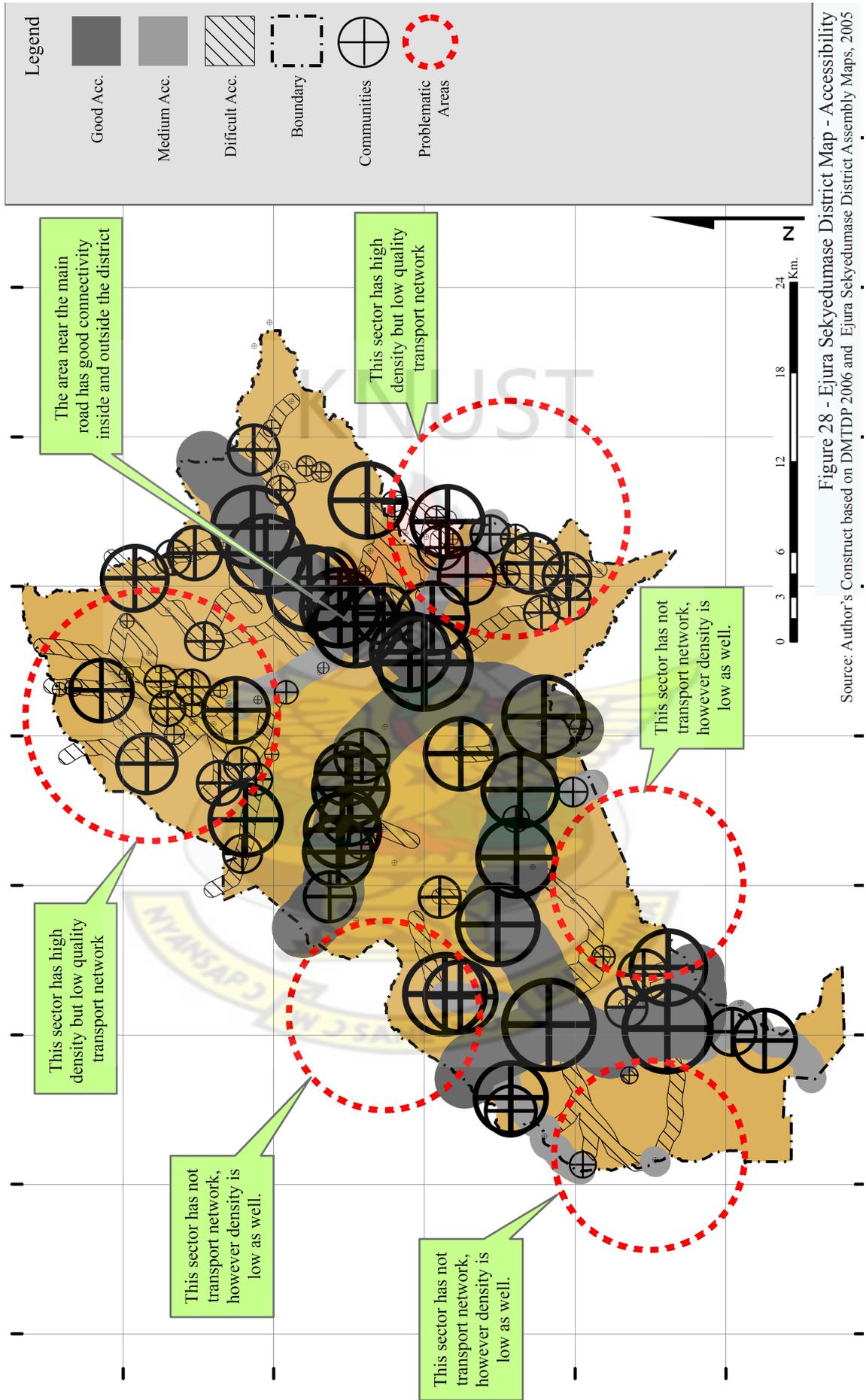


Figure 28 - Ejura Sekyedumase District Map - Accessibility
 Source: Author's Construct based on DMITDP 2006 and Ejura Sekyedumase District Assembly Maps, 2005

is complicated and costly (field survey: 2010). In Figure 26 and the map it is possible to observe the time required to access the nearest town, and its high variability.

The frequency with which people visit the nearest town is not linked to the cost or the travel time. The correlation coefficient is 0.06 and 0.07 for each case. This demonstrates that in spite of the isolation, people need to access to towns for a variety of reasons, and less accessible towns are worst off (field survey: 2010). However, most of the people visit these urban centres more or less once a week, coincidentally with the weekly market (see Figure 26).

Accessibility remains a factor distributed unevenly. In some areas it is fairly good and it can be said that it is a potential, while in others; it is very deficient and remains a constraint for housing processes.

4.3.5.4 *Electricity*

Access to electricity is a challenge in rural areas. Normally, most of the settlements do not have access to electricity and the costs are too elevated for them to be covered.

In rural sector of the District, a 90 percent of the houses do not have access to electricity, and the average monthly bill costs for those who have it is GH¢ 9.11. Therefore, the problem of accessibility to electricity is not only coverage, but also cost. As it has been stated, the average yearly income of the household is GH¢ 777. Hence, electricity is still only reserved for the higher income groups.

Lack of electricity is undermining housing initiatives, in particular because it eases construction processes and also because people prefer to live where electricity is available.

CHAPTER FIVE: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

So far this research has been able to identify characteristics that are fostering and supporting housing processes or hindering and constraining them. Therefore they will be presented in the following sections.

From the data it is possible to present summarised findings, which are the essence of the potentials of rural communities to develop housing. From these findings it is possible to develop recommendations that can help to make good use of them.

5.1 Summary of Findings

In identifying potentials in rural communities for housing provision, the previous analysis presents several opportunities that can be utilized or strengthened to improve housing processes.

5.1.1 Building materials.

- The settlements have, in most of the cases, plenty of raw materials to build structures, but with low level of processing. These materials are clay, sand, wood, gravel and other organic elements. They are still broadly used and most of the constructions incorporate an important share of them. This abundance of cheap construction materials is a big potential that should be the pillar of affordable housing projects.
- Most settlements have introduced industrialized materials in the construction process, in particular cement, bricks and corrugated metal sheets. However, there is a misuse of these materials in conjunction with traditional ones.
- The cost of construction materials is fairly low; most of the inputs are locally available materials. However, when plenty of industrialized materials are used, costs rise to unattainable levels.
- The low culture of maintenance is endangering the housing processes. Most buildings suffer from fast and irreparable degradation. If locally available materials are used, maintenance is inexpensive, but it is necessary to introduce the culture and techniques of maintenance.

5.1.2 Labour

- The District has sufficient economically active people who are able to develop housing. However, since the main activity is farming, the availability becomes variable because it is very much influenced by agricultural cycles. In addition, it is also important to consider the probable increase in rural-urban migration in the near future, which can affect greatly the amount of work force in these rural sectors.

- In spite of people having some knowledge about traditional materials and techniques, the labour force is unskilled and unprepared to cope with quality building work. There are problems in several levels of training, from misuse of construction materials to mistakes of architectural and structural design. Training centres are scarce or non-existent and then people must rely on traditional learning, which impedes the easy introduction of improved construction techniques and materials.

- The cost of labour for housing initiatives is, in most of the cases, low. Generally housing processes are developed by the owner with help from his close community (people from the village or relatives), which reduces costs even further. Also the structured social organization in the villages helps to reduce labour costs, since in many cases there is support from them.

5.1.3 Land

- Land for housing processes in rural area is a big potential. In general, it is available, affordable for the people of the community and accessible.

- Land management and planning is, however, an important difficulty: low quality or no planning generates problems for housing production.

5.1.4 Finance

- People in rural areas are willing to save and to invest these savings in housing processes. This is an important potential enabling housing processes. In fact, in most of the cases this is the unique way for the people to cover the expenses for their houses.

- Inaccessibility to formal credits is constraining development of rural housing development. The people's profile does not fit in what a formal institution sees as a "good customer"; therefore it is very difficult for them to have access to formal finance systems.

5.1.5 Infrastructure

- Water provision is a potential that is enabling housing processes, since in most of the settlements it is available in the surroundings areas and people consider that as positive.
- Sanitary conditions in the rural settlement are so far constraining housing processes. There is scarce or no organization at all regarding waste (liquid and solid) management. This fact does not encourage people to develop their houses since the living conditions are generally low.
- Lack of proper accessibility and connectivity is constraining housing processes in rural areas. Roads are in bad condition and transport networks are scarce, so far, many rural communities are highly inaccessible. Therefore, any kind of professional advice, materials or resources are more expensive and more difficult to obtain.
- Electricity remains a constraint for housing production since it is not readily available and fairly expensive for the average income of the rural population.

Summary of the major potentials of rural communities in Ghana for housing provision

- Availability of raw building materials.
- Basic knowledge about construction techniques within the communities
- Availability of labour
- Structured social organization
- Availability and accessibility to land
- Willingness to invest and develop housing.
- Water is normally available.

Summary of the major challenges of rural communities in Ghana for housing provision

- Fast deterioration of the constructions
- Poor habitability of the buildings
- Low trained and educated workforce
- Unplanned use of land
- Low income
- Difficult access to the financial market
- Poor Sanitation
- Difficult accessibility to the settlements
- Low coverage of the electricity network and high prices

5.2 Recommendations

After clarifying the major findings and potentials of rural communities for housing provision in Ghana, it is important to propose some path that can help to make the best use of them and improve housing processes in the region. The recommendations are not necessarily specific to a single factor affecting the housing development, but can tackle multiple issues.

5.2.1 Improve Construction Techniques and Building Materials

Improve and introduce construction techniques that are grounded in locally available materials with low level of processing. There are simple and effective techniques that require simple skills and materials. They can help to improve the outcome and durability of constructions. For this case it would be very useful to introduce construction techniques like soil-filled fabric sacks or tubes called Earthbags. The sacks are a cheap material to produce and transport, which later is filled with earth on the construction site. Earthbags can be used to build water resistant walls and domes. These materials do not require heavy industrialized inputs, like cement or bricks. Therefore the necessary sacks to build a complete house can be easily transported in a small truck. Techniques like this can boost the use of locally available materials at low cost.

Improve construction techniques and materials is a complicated task that must involve several sectors. The research and development of new construction techniques must be carried out by academic institutions and in most of the cases should not be developed as an income generating task, since probably these materials will be used by people with scarce economic resources. Secondly it is necessary to spread the knowledge, therefore the central government through the Department of Rural Housing must develop strategies to transfer this knowledge to the local level. It is imperative to create more training centres where some people from the communities can improve their skills and learn new ones. At last, local governments must be in charge of supervise and guide the building processes at the construction sites.

5.2.2 Extend Durability of the Buildings

To improve housing conditions it is equally important to build new structures as to maintain and preserve the current ones. In order to extend their durability two main areas must be tackled.

5.2.2.1 It is necessary to improve the design and promote the use of some simple items that can protect the building and reduce maintenance. First, eaves and drains to protect the walls and foundations from water and humidity. Second, proper foundations and soil treatment for construction. For example lime can be used in several ways to help fix these problems like drying and stabilizing the soil. These two simple elements can protect walls and foundations from rain and erosion, extending the lifespan. These design principles must be promoted from the Department of Rural housing and should be controlled on site by the District's Town and Country planning Department.

5.2.2.2 In order to preserve the infrastructures, maintenance is a key factor. So, to assure good maintenance, it is imperative to stimulate it from two areas. First, encourage the use of construction materials that can be easily and cheaply maintained. This does not mean use of cement and concrete, but materials that are available, accessible and abundant in the proximities. Using locally available materials like earth will provide an endless source of material to maintain and repair the buildings. Second, promote the culture of maintenance among the community. The people must be aware that maintenance it is not a waste of resources, but quite the opposite, making infrastructures to last longer. The building maintenance tasks should be undertaken by the owners of the buildings, however this maintenance culture and skills must be promoted locally by the District's Town and Country Planning Department.

5.2.4 Train Labour

To make the best use of the available workforce, it is necessary to make it efficient and qualified. It is important to train the labourers in improved techniques and or construction materials; however it is important to consider the educational level at the time to do this. So, trainings and techniques must be simple and easy, carried out with on-site demonstrations, so people can review results and repeat the procedures. This will help to transmit the knowledge to and within the population as well. All this will keep the price of the labour low and will spread the effect of the training. These training must be planned in line with the development of construction techniques and must be executed by local governments.

5.2.5 Optimize and Improve Use of Land

To improve the use of the land and to prevent deterioration of the infrastructure, it is fundamental to plan and organize the settlements, in particular to avoid erosion. It would be useful to establishing some simple zoning of the settlements like spaces to circulate, to drain, to build, to feed the animals and areas to prevent land slides. These simple measures will help enormously to avoid erosion and building deterioration. Training and assistance about these issues must be performed at grass-roots levels, because mostly the planning is done within the villages and not from the District Assembly. Also, this assistance must be carried out permanently, since every settlement is also a process and it is in constant development. At last, as a way to prevent future problems, the settlements or the expansions must be planned since the beginning of their formation, so later developments can easily be added. The Town and Country Planning Department must reinforce the assistance to local and traditional authorities to develop a good land management. This should be done on-site, under requirement of the traditional an local authorities, since trainings and workshops are not very effective in these instances.

5.3.6 Extend Financing Mechanism

People are, in most of the cases, willing to save and to invest in housing. Most of the population save money at home, so they do not profit from the advantages of the formal system, probably also because formal institutions are normally not interested in providing loans or credits to rural population. It would be useful to promote and ease the alternatives of rural people to save in formal institutions and to have access to loans to promote housing. Housing cooperatives could be fostered and supervised from the DA, therefore people form the villages can have an extra financing mechanism for their houses.

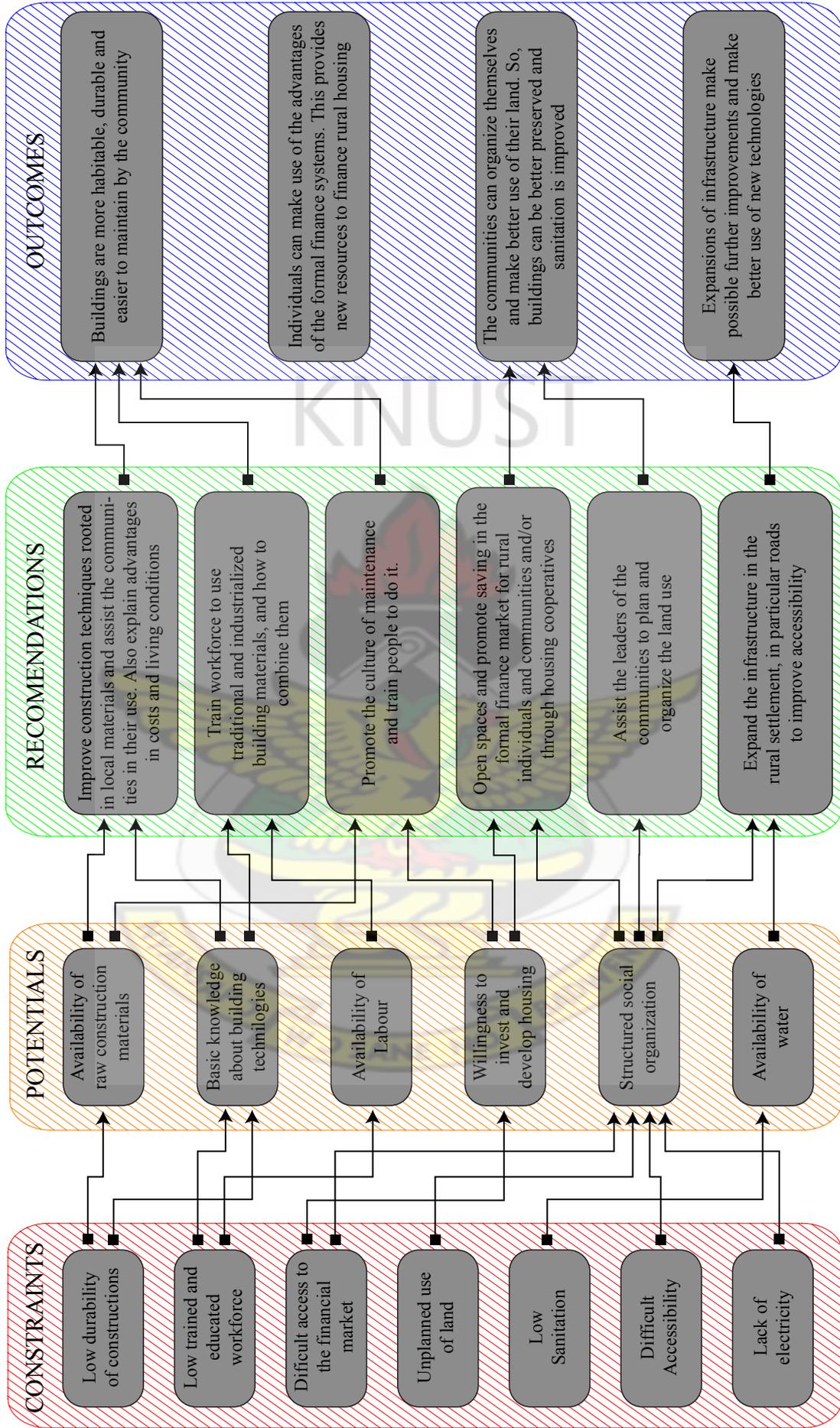


Figure 29 - Summary of constrains, potentials, recommendations and expected outcomes. . Source: Author's Construct

5.3 Conclusion

This research has discussed the idea that rural communities have their own potentials to develop efficient and autonomous housing processes. However, many of them remain underused, constraining their possibilities of improving their living conditions.

Therefore, the study has carried out an assessment of these potentials to establish a ground on which rural housing can be developed. This work has been designed on the basis of an exploratory approach, so the flexibility of the scheme enables new findings. Rural communities in Ghana were chosen as target group, in particular the Ejura Sekyedumase District because they represent an average district in the mid forest area of Ghana, therefore, some of the results can be extrapolated to others rural areas.

The research has found that rural communities in the District have several potentials for housing processes. Availability of land, availability of raw construction materials and labour are some of them. So far, the whole housing sector in rural areas has been developed mostly due to these potentials. But, housing in rural areas of Ghana is not free of problems and inconveniences. Fast deterioration of buildings, low habitability and problems of planning and organization are affecting seriously these settlements. Several of these problems could be solved if these potentials were properly linked or combined to achieve a better outcome.

The educational level and training in rural areas are very low, and, in spite of several construction materials that are widely available, skills to use them are not good. In addition to this, the introduction of industrialized materials has created a gap in the knowledge of construction techniques. Consequently, the outputs of constructions executed with these industrialized materials are in many cases lower than before and it has increased prices. Therefore, it is required to enhance the scheme of technical assistance and training, in such a way that some technicians or professionals can guide and provide advice about what to do and how to do it. In particular young generations, who are more open to learn new techniques, should be trained in two areas. First, improved use of traditional and locally available construction materials and second, how to combine them with industrialized ones when necessary. This can trigger down to further learning inside the community, since young generations can spread the knowledge.

The planning and design of houses and settlements is, in several cases, developed with traces of a transitory or non permanent settlement. Therefore important items that a permanent settlement needs are not considered, examples of this are drainage, waste management or sanitation. This has led to big problems of erosion, fast deterioration of structures and health problems among others. It is imperative to support the design and planning in regard to these problems.

Rural communities in Ghana have even more potentials. Strong family and community links enhance the possibility of group solutions. This also facilitates any external support, since people can be trained, assisted and/or grouped easily. This is a big potential that improves the availability of labour, eases the financing process and simplifies training programs.

Lastly, the building materials industry may improve during the following years and/or social programs can be developed; but it will take still a long time for them to be accessible to the poor farmers in distant rural settlements. Therefore, it is necessary to support and use local potentials. This could give the villagers a better standard of living for less money, in shorter time and also provide independence and self reliance. Furthermore, there are enough examples of housing development based on local resources like simple materials and local labour that can stand for many years and provide good habitability.

Rural housing in Ghana can be developed with great success if assistance and training is provided to people. The potentials of rural communities are enough to improve greatly their living condition. However, these potentials remain underused mostly due to lack of training and capacity building. It would be possible to improve the living conditions in high degree if proper training is introduced, without affecting the construction costs. This can have significant effects in the housing processes and living conditions in rural areas.

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APPENDIX A

HOUSEHOLD QUESTIONNAIRE

Kwame Nkrumah University of Science and Technology
Faculty of Planning and Land Economy
Department of Planning

MSc. Development Planning and Management
Study: “Assessing the potentials of rural communities
for housing provision in Ghana”

Household Questionnaire

1. General Information

- I. Sex of the respondent M/F
- II. Age _____
- III. Location (settlement)
- IV. How long have you lived in this place? (years)
- V. Are you planning to move out during the next year? Y/N
- VI. How many people live in your house? _____
- VII. How many bedrooms are there in your house? _____
- VIII. How old is your house? (years of the first building) _____
- IX. What do you think about your current house? (from 1 satisfied to 4 unsatisfied)

- X. What would be the next improvement for your house?
 - i. No Improvement
 - ii. New bedroom
 - iii. Space for cooking
 - iv. Self contained toilet
 - v. Finishing up
 - vi. Electricity
 - vii. Others (specify) _____

2. Construction Materials and technologies

I. Which materials do you use to construct your buildings?

	Y/N	N/A/B/C/D	\$/unit
i. Rocks for foundations	_____	_____	_____
ii. Concrete for foundations	_____	_____	_____
iii. Earth for foundations	_____	_____	_____
iv. Mud walls	_____	_____	_____
v. Adobe (raw earth block)	_____	_____	_____
vi. Brick (backed)	_____	_____	_____
vii. Wood	_____	_____	_____
viii. Cement	_____	_____	_____
ix. Sand	_____	_____	_____
x. Gravel	_____	_____	_____
xi. Iron Rods	_____	_____	_____
xii. Roof tiles	_____	_____	_____
xiii. Corrugated metal sheet	_____	_____	_____
xiv. Thatched Roof	_____	_____	_____
xv. Paint	_____	_____	_____
xvi. Floor tiles	_____	_____	_____
xvii. Wooden doors	_____	_____	_____
xviii. Metallic doors	_____	_____	_____
xix. Wooden windows	_____	_____	_____
xx. Metallic windows	_____	_____	_____
xxi. Others (specify)	_____	_____	_____

II. For each material identify where it is available

- i. It is not available (N)
- ii. It is available as raw material in the proximity (A)
- iii. It is possible to buy at the village (B)
- iv. It is possible to buy within the district (C)
- v. It must be bought from outside the district (D)

III. How much did you pay for each of the utilized construction materials? (including transport) (include units of reference) (identify each one)

3. Finance

- I. What is your main economic activity during the year?
 - i. Not active
 - ii. Agriculture
 - iii. Industry
 - iv. Commerce
 - v. Service
- II. What is your mean income in a year?
 - i. Less than 1000
 - ii. More or equal to 1000 but less than 2000
 - iii. More or equal to 2000 but less than 5000
 - iv. More or equal to 5000 but less than 10000
 - v. More or equal to 10000
- III. If you save money. Where do you save this money?
 - i. I do not save money
 - ii. At home
 - iii. At the bank
 - iv. Other (specify)
- IV. If you save money. For which purpose do you save money?
 - i. Buy land
 - ii. Open a business
 - iii. Education of children
 - iv. Build something or improve the house
 - v. Buy some goods
 - vi. Others (specify) _____
- V. If you would like to construct a building or improve your house. Where would you look for money?
 - i. Savings
 - ii. Loan from the bank or another formal institution
 - iii. Support from external organization (NGO)
 - iv. Support from family members or the community
 - v. Loan from the informal sector
 - vi. Other (specify) _____
- VI. How did you pay for your current buildings?
 - i. Savings
 - ii. Loan from the bank or another formal institution
 - iii. Support from external organization (NGO)
 - iv. Support from family members or the community
 - v. Loan from the informal sector
 - vi. Other (specify) _____

4. Infrastructure

- I. Do you have electricity at home? Y/N
- II. If Yes. How much do you pay in average monthly? _____
- III. How long does it take to reach the nearest town?
 - i. Dry season (minutes)
 - ii. Rainy season (minutes)
- IV. How much does it cost to reach the nearest town?
- V. How often do you keep contact with the town?
 - i. Go there (times in a month)
 - ii. Call by Phone (times in a month)
 - iii. Others (letters, newspapers, magazines, etc) (specify) (times in a month)_____
- VI. Where do you fetch water?
 - i. Open Source (how far in time)
 - ii. Hand Pump Well (how far in time)
 - iii. Borehole (how far in time)
 - iv. Piped water (how much do you pay monthly?)

5. Labour

- I. Who was in charge of constructing your buildings?
 - i. Yourself
 - ii. Somebody from the community
 - iii. Somebody from outside the community
 - iv. A group of people from inside and outside
- II. How much have you paid to this person?
- III. Has this person any training/studies to do this?
 - i. Professional training
 - ii. Technical training
 - iii. Traditional apprentice
 - iv. No training
 - v. Other (specify) _____
- IV. Who else collaborate to construct your buildings?
 - i. Yourself
 - ii. People from the community
 - iii. People from outside the community
 - iv. A group of people from inside and outside
- V. How much have you paid to these persons?
- VI. Have these people, in general, any training/studies to do this?
 - i. Professional training
 - ii. Technical training

- iii. Traditional apprentice
- iv. No training
- v. Other (specify) _____

6. Land

- I. Do you own the land where your house is built? Y/N
- II. If yes. How did you acquire the land?
 - i. Family Lineage
 - ii. Community Land
 - iii. Self acquired
 - iv. Other (specify) _____
- III. If you need to expand your constructions. Where do you get more land?
 - i. Family Lineage
 - ii. Community Land
 - iii. Must acquire
 - iv. Use without authorization
 - v. Other
- IV. How do you decide where a new building will be constructed?
 - i. Chief's decision
 - ii. Proximity to resources (water, firewood, food). Which one? _____
 - iii. Proximity to other buildings. Which one? _____
 - iv. Proximity to family members
 - v. Town and Country Planning Department decision
 - vi. Other (specify) _____

7. General Issues

- How it would be an adequate house for you? What do you expect of a proper home? (please name some characteristics like location, size, no of people per room, infrastructure, materials, etc)
- What are the main problems with the houses in the village?

APPENDIX B

INTERVIEW GUIDE

Kwame Nkrumah University of Science and Technology
Faculty of Planning and Land Economy
Department of Planning

MSc. Development Planning and Management
Study: “Assessing the potentials of rural communities
for housing provision in Ghana”

Interview Guide

1. General Information

- I. Department
- II. Name
- III. Position
- IV. What is the role of your department?
- V. How is your department dealing with housing provision in rural settlements?

2. Construction Materials and techniques

- I. What are the main materials used to construct buildings in the rural settlements?
- II. Where do the materials to construct buildings in the rural settlements come from?
- III. Where are the processes like bricks, iron rods, roof tiles, metal sheets, cement and finishing up materials fabricated or developed?
- IV. What is the price of these construction materials in the district?
- V. Is there any initiative to promote and improve production of local materials?

3. Finance

- I. How the people in rural settlements finance the construction of buildings?
- II. What are the main economic activities of people living in the rural settlements? (Farming, Industry, Services, Professional work, others)
- III. What is the average income for these activities?
- IV. Do people save part of the income?
- V. What is the purpose of these savings?
- VI. Is there any financial support from the DA for rural housing provision?

4. Infrastructure

- I. Which is the basic infrastructure provided for rural communities?
- II. What infrastructure do you think is necessary to improve the housing conditions in the villages?

5. Labour

- I. What is the educational level of people living in rural settlements?
- II. What are the main economic activities?
- III. How are the buildings constructed in the rural settlements?
- IV. Is there any program to train persons in construction techniques?
- V. If yes. Where are they offered and how much do these cost?

6. Land

- I. How works the land tenure system in the district?
- II. How are the rural settlements planned?
- III. Is there any development plan designed for the rural settlements?
- IV. Is there any support to plan and design rural settlements?

7. General Issues

- I. What are the main problems of buildings in the rural settlements?
- II. How the department keep contact with people at the villages?