Community Participation in determining standards in spatial planning

*The case of peri-urban Kisumu*

Regina Njeri Muchai
March, 2009
Community Participation in determining standards in spatial planning

*The case of peri-urban Kisumu*

By

Regina Njeri Muchai

Thesis submitted to the International Institute for Geo-information Science and Earth Observation in partial fulfilment of the requirements for awards in the degree of

**Master of Urban Planning and Management**

**Thesis Assessment Board**

Chairman: Prof. Dr. Ir. M.F.A.M. van Maarseveen
External Examiner: Drs. Huijsman, Marijk
First Supervisor: Dr. R.V. Sliuzas
Second Supervisor: Drs. E.J.M. Emile Dopheide
Disclaimer

This document describes work undertaken as part of a programme of study at the International Institute for Geo-information Science and Earth Observation. All views and opinions expressed therein remain the sole responsibility of the author, and do not necessarily represent those of the institute.
Dedicated to:
My parents, siblings and my lovely nephew
Abstract

The importance of appropriate planning standards has been emphasized by authors and planning professionals. It is truly not a novel idea. A key justification to the use of appropriate planning standards is to enhance infrastructure affordability by both the municipalities and the community as well as maximize on the use of scarce buildable urban land towards shelter provision strategies for the urban poor. In Kenya, there have been efforts to reformulate the planning standards in the past years. Despite these efforts, these standards have not been embraced by most of the local authorities while others have implemented these but only on ad-hoc and a project by project basis.

Employing a case study approach, this study compares the efforts of spatial planning from both community participation and official approaches in spatial planning. The study employs a Participatory GIS methodology in seeking to determine if a community participation planning approach is more effective in determining planning standards in spatial planning within the peri-urban area of Kisumu.

The study findings indicate that the official planning process is a relatively cheaper but less collaborative process of achieving plans. The community participation approach on the other hand presents a rather expensive planning approach where the planning standards achieved are a result of deliberations of the community and the planning officials. This approach therefore gives the community and the officials an opportunity to partake in the planning process and thereby derive standards that are responsive to the socio-economic and spatial realities.

The study observes a difference in planning standards proposed from a community participation perspective and those stipulated within the official circles. While the standards applied within the official approaches are still remarkably high, community participation indicates that it is possible to lower the planning standards as a collaborative process to meet the needs of the local community by whom the standards are negotiated, agreed and adopted.

Given the strengths and the weaknesses inherent in both processes and the standards proposed, the study concludes that the responsibility of determining the planning standards cannot be assigned to a single actor for effective urban development. Further to this, adopting Participatory GIS will enhance these planning processes as well as the determined standards. The study therefore recommends a platform where all actors; state, municipalities and community can negotiate planning standards that are commensurate with settlement characteristics.

Keywords: spatial planning, planning standards, community participation and official approach, participatory GIS
Acknowledgements

I thank God I managed, He saw me throughout the course. But with Him I would not have managed.

Many individuals and organisations enormously contributed to the success of my MSc studies. First I express my sincere gratitude to NUFFIC and ITC for their financial support towards pursuit of the programme. My sincere thanks go to Dr. R.V. Richard Sliuzas and Drs. E.J.M. Emile Dopheide for their unreserved comments and guidance throughout the thesis writing session. A lot of thanks go to the entire Urban Planning and Management Department fraternity for their undivided attention into sharing their information throughout the learning period.

My sincere acknowledgment goes to the following individuals and groups: the community with whom i worked during field work (Obunga, Bandani and Kogony). Special thanks to Mr Laurence and Mr Sunday Erickson who organised for meetings; Jack, Mathenge and Tom (Pamoja Trust) for sharing data and information for this study; Mr Kagema, Ms Olando, Ken Oguya (ministry of lands), Mr Charles Angira (former town planner, Kisumu); Ms Everlyne, Mr Edward, Mr Absalom Ayany,(Kisumu municipality); Mr George Onyango and Mr Kola (Maseno University); Mr P.S Adolwa (former Director; town planning)Their cooperation into my thesis findings, conclusions and recommendations was enormous.

I am truly indebted to Mr. Emmanuel Midheme, who apart from encouraging me in the research took his time to review my work and giving insightful thoughts and comments. To Mr R.K Mbwagwa for his encouragement in undertaking the course and for professional guidance, he has been a great mentor. To Edwin Wamukaya and Moses Kemboi, you have been an encouragement.

Thanks to my UPM programme colleagues and friends (2007-2009) who have laughed and cried with me throughout the course. Particularly I thank Elsa, Prosper, Eysu and Ronnie, Tahira, Sonam and Ugyen for the times shared. The memories will not fade. To all my Kenyan friends at ITC, special thanks to Njoki and Jane whose presence recreated a home away from home, “Asanteni sana”.

Finally, sincere and special thanks to my family. You always felt so close, yet so far.

Regina Muchai
Enschede, March 2009
# Table of contents

1. **Introduction** .................................................................................................................. 1
   1.1. Urbanisation in Kenya ................................................................................................. 1
   1.2. Government’s view about informal urbanisation ....................................................... 2
   1.3. Defining spatial planning ............................................................................................. 2
   1.4. Why peri urban area? ................................................................................................... 3
   1.5. Spatial planning efforts in peri-urban Kisumu .......................................................... 3
   1.6. Research problem ........................................................................................................ 4
   1.7. Research objectives ...................................................................................................... 5
       1.7.1. Main objective ........................................................................................................ 5
       1.7.2. Research questions ............................................................................................... 5
       1.7.3. Conceptual framework ......................................................................................... 5
   1.8. Background of the study area ..................................................................................... 7
       1.8.1. The Kisumu city .................................................................................................... 7
       1.8.2. Population ............................................................................................................ 7
       1.8.3. The peri-urban zone ............................................................................................ 7
   1.9. Research structure ........................................................................................................ 8
2. **Spatial planning and urban development policy** ............................................................ 11
   2.1. Spatial planning approaches to peri urban growth .................................................... 11
   2.2. Evolution of shelter strategies ..................................................................................... 11
   2.3. Tenure and infrastructure in spatial planning ............................................................ 12
       2.3.1. Conferring tenure security ................................................................................... 12
       2.3.2. Infrastructure development ................................................................................. 13
       2.3.3. The rationale of applying planning standards ...................................................... 13
   2.4. Comparing planning standards in East Africa ............................................................ 14
       2.4.1. Planning standards in Kenya ............................................................................... 14
       2.4.2. Infrastructure planning standards ....................................................................... 17
       2.4.3. Physical infrastructure ....................................................................................... 17
       2.4.4. Roads standards in Tanzania ............................................................................ 17
       2.4.5. Roads standards in Uganda ............................................................................... 18
       2.4.6. Social infrastructure ........................................................................................... 18
   2.5. Community participation in spatial planning ............................................................. 20
   2.6. Evaluating the planning process .................................................................................. 21
   2.7. Concluding remarks .................................................................................................... 22
3. **Research Methodology** .................................................................................................. 23
   3.1. The research process ................................................................................................... 23
   3.2. Research design ........................................................................................................... 24
   3.3. Case study approach ................................................................................................... 25
   3.4. Community participation approach ............................................................................ 25
   3.5. Official approach ......................................................................................................... 27
   3.6. Participatory GIS as data collection method ............................................................... 27
       3.6.1. Geo-coded Transect walk .................................................................................... 28
       3.6.2. Focus Group Discussions .................................................................................... 29
       3.6.3. Image and plan interpretation .............................................................................. 31
       3.6.4. Scale mapping ..................................................................................................... 31
3.6.5. Observation.................................................................................................................. 32
3.6.6. Strengths of data collection method ............................................................................. 32
3.6.7. Challenges of data collection method .......................................................................... 32
3.7. Key informant interviews ................................................................................................ 32
3.8. Data processing and analysis ......................................................................................... 33
3.9. Limitations of data collection method ............................................................................ 34
4. Socio-economic and spatial characteristics of the case-study areas ........................................ 35
   4.1. Obunga Informal settlement .......................................................................................... 35
   4.2. Official planning Kanyakwar B area .............................................................................. 40
   4.3. Summary of findings .................................................................................................... 42
5. The official approach-Kanyakwar B .................................................................................... 43
   5.1. The process of official planning approach .................................................................... 43
      5.1.1. Preparation of the plans .......................................................................................... 44
      5.1.2. Land allocation ...................................................................................................... 45
      5.1.3. Stakeholder’s role in the planning process .............................................................. 46
      5.1.4. The rationale of the proposed standards ................................................................. 48
   5.2. The standards achieved from the process ..................................................................... 48
      5.2.1. Planning for roads provision .................................................................................. 48
      5.2.2. Social services ...................................................................................................... 52
   5.3. Emerging issues on the planning process and standards ................................................ 54
   5.4. Concluding remarks ................................................................................................... 56
6. The community participation approach-Obunga .................................................................. 57
   6.1. Community participation approach ............................................................................ 57
   6.2. The process of community participation approach ....................................................... 57
      6.2.1. Stakeholder’s role in the planning process .............................................................. 60
      6.2.2. The rationale of the locations and standards selected ........................................... 60
   6.3. Planning standards applied ......................................................................................... 62
      6.3.1. Planning standards for roads provision ................................................................. 62
      6.3.2. Standards for Social services ............................................................................... 66
   6.4. Emerging issues on the process and standards applied ................................................ 68
   6.5. Concluding remarks ................................................................................................... 71
7. Comparison of the processes and standards ...................................................................... 73
   7.1. Adequacy of planning context ...................................................................................... 73
   7.2. Procedural validity ...................................................................................................... 74
   7.3. Efficiency .................................................................................................................... 75
   7.4. Adequacy of scope ..................................................................................................... 77
   7.5. Guidance for implementation ..................................................................................... 78
8. Conclusions and recommendations .................................................................................... 80
   8.1. Conclusions ................................................................................................................ 80
   8.2. Recommendations ..................................................................................................... 81
References ................................................................................................................................. 83
Appendices ................................................................................................................................. 87
List of figures

Figure 1-1: Population trends in Kenya: number and population size of towns respectively .............................................. 1
Figure 1-2: Conceptual framework ................................................................................................................................. 6
Figure 1-3: Location of Kisumu city in the national context ........................................................................................................... 7
Figure 1-4: Population trend in Kisumu city ......................................................................................................................... 7
Figure 1-5: Nature of road and facility distribution in the peri-urban area ........................................................................ 8
Figure 2-1: The catchment population for schools provision ............................................................................................. 19
Figure 3-1: Components of research design .............................................................................................................................. 24
Figure 3-2: The PGIS approach .................................................................................................................................................. 28
Figure 3-3: Waypoints and tracks derived from the transect walk ..................................................................................... 29
Figure 3-4: Recording GPS points and map interpretation ..................................................................................................... 29
Figure 3-5: Analysing Government plan and the image .......................................................................................................... 30
Figure 3-6: Community developed scale map ....................................................................................................................... 31
Figure 3-7: A generic model for plan evaluation ...................................................................................................................... 34
Figure 4-1: Generalised model of informal settlement evolution .......................................................................................... 35
Figure 4-2: A housing cluster in the settlement .................................................................................................................... 36
Figure 4-3: Row-housing development within Obunga ........................................................................................................ 37
Figure 4-4: The rights of way and parcel by sizes in the initial Obunga plan ....................................................................... 38
Figure 4-5: Household size distribution .............................................................................................................................. 39
Figure 4-6: Nature of land acquisition by landowners and evidence of land ownership ......................................................... 39
Figure 4-7: Kanyakwar B zoning plan ............................................................................................................................... 40
Figure 4-8: Current Part Development Plan ....................................................................................................................... 40
Figure 4-9: Housing typologies in Kanyakwar B.................................................................................................................. 41
Figure 4-10: Community developed scale map .................................................................................................................. 41
Figure 5-1: The procedure of analysing the official planning approach ............................................................................. 43
Figure 5-2: Kanyakwar B zoning and Part Development Plans ............................................................................................ 45
Figure 5-3: A section of the Kanyakwar B plan .................................................................................................................... 49
Figure 5-4: An ideal district collector road .......................................................................................................................... 50
Figure 5-5: District collector Kanyakwar B and by national standards resp................................................................. 50
Figure 5-6: An ideal local collector road ............................................................................................................................ 50
Figure 5-7: Local collector road in Kanyakwar B area .......................................................................................................... 51
Figure 5-8: Local collector road by national standards ....................................................................................................... 51
Figure 5-9: Local collector roads exceeding 150m in length ............................................................................................... 51
Figure 5-10: Ideal residential access roads ......................................................................................................................... 51
Figure 5-11: A graded and compacted road within Kanyakwar B ..................................................................................... 52
Figure 5-12: Service areas by primary school .................................................................................................................... 53
Figure 5-13: Service areas for proposed secondary schools ............................................................................................... 53
Figure 5-14: Service areas by the health centre .................................................................................................................. 54
Figure 5-15: Financial estimates for FY 2004/05 .................................................................................................................. 56
Figure 6-1: Photos of the verification exercise .................................................................................................................... 58
Figure 6-2: Spatial representation of the villages in Obunga settlement .......................................................................... 59
Figure 6-3: The rationale of the location and proposed standards ....................................................................................... 62
Figure 6-4: A schema of a local collector road based on the community proposals .......................................................... 64
Figure 6-5: Residential walking tracks ............................................................................................................................... 65
Figure 6-6: A non motorised access route only ................................................................................................................... 65
Figure 6-7: A schema of a higher order access road ............................................................................................................ 65
Figure 6-8: Illustrates the poor road condition .................................................................................................................. 66
Figure 6-9: Maximum distances travelled to schools ......................................................................................................... 67
Figure 6-10: A summary of the standards for the proposed health centre ........................................................................ 68
Figure 7-1: Procedure of formal land development ........................................................................................................... 78
List of tables

Table 2-1: Agencies Responsible for Formulation and Enforcement of Residential Standards .......................... 16
Table 2-2: A summary of the road types and their widths .......................................................... 17
Table 2-3: Standards for carriageways and rights of way .......................................................... 18
Table 2-4: Standards for rights of way in Uganda .............................................................................. 18
Table 2-5: A summary of the standards provided for education facilities ........................................ 19
Table 2-6: The users within a primary school ............................................................................... 19
Table 2-7: Land requirements for health facilities ........................................................................ 20
Table 2-8: Standards for social services in Uganda ....................................................................... 20
Table 3-1: Case study analysis ........................................................................................................ 26
Table 3-2: Summary of the selected case study area .................................................................... 27
Table 4-1: Size of structures (sq m) in Obunga ............................................................................... 36
Table 4-2: Land use coverage within Obunga ................................................................................ 37
Table 4-3: Household size in Obunga .............................................................................................. 39
Table 4-4: Land uses coverage in Kanyakwar B ............................................................................ 40
Table 4-5: Relationship of the settlements ..................................................................................... 42
Table 5-1: Typical steps followed for legal land allocation within urban areas ........................................ 44
Table 5-2: The role of different actors in land development process .............................................. 47
Table 5-3: Land use coverage in Obunga ........................................................................................ 49
Table 5-4: Standards adopted in Kanyakwar B ............................................................................ 49
Table 5-5: Summary of the standards for the proposed & existing schools ........................................... 52
Table 5-6: Summary of the standards for the primary schools .......................................................... 53
Table 5-7: A summary of the standards for the proposed secondary schools .................................. 53
Table 5-8: A summary of the standards for the proposed health centre ......................................... 54
Table 5-9: Summary of the proposed standards .............................................................................. 55
Table 6-1: Weighting table on the community needs ...................................................................... 63
Table 6-2: Comparison of the community and the national road standards ..................................... 64
Table 6-3: Area standards for social facilities .................................................................................. 66
Table 6-4: A summary of the standards for the proposed school .................................................... 67
Table 6-5: A summary of the standards for the proposed health centre .......................................... 68
Table 6-6: Summary of the proposed planning standards ................................................................. 71
Table 7-1: Plan evaluation indicators ............................................................................................... 73
1. Introduction

1.1. Urbanisation in Kenya

Urbanisation in developing countries is on the rise. Population projections indicate that developing countries population will increase from nearly 1.97 billion in 2000 to 2.25 billion in 2005 and will rise to approximately 5.3 billion in 2030 (2006) Moreover, although Africa is the lowest urbanized continent, its growth of urbanization is the highest with a consistency 4% per annum from 1950 onwards. One characteristic of this urbanisation is the gradual conversion of agricultural land in the peri-urban areas to residential and other urban land uses.

Kenya, like many other developing countries is experiencing its share of informal urbanisation. The urban population has increased steadily with a sharp increase between 1989 and 1999 a period which saw an additional 55 towns. The size of the towns is increasing both in size in terms of the resident population and in the absolute number. In 1999 for instance, the towns with a population size between 2,000 to 4,999 persons reduced as compared to 1989. It should however be noted that the towns accommodating 20,000-99,999 and over 100,000 rose significantly between the same years.

Kisumu city for instance had an area of 53 sq Km by 1971 and was then expanded to the current 260sq km thus accommodating higher populations (UN Habitat, 2005). The bulging population figures has partly been caused by rural-urban migration mainly in search of opportunities and also by the natural increase of the people already settled in the urban areas. Concomitant to the increase in population is the severe lack of the requisite urban services and infrastructure to meet the rising population needs (UNCHS, 1996). Two aspects of concern within the cities of developing countries are thus highlighted in Kombe and Kreibich (2000b) as the need for land management and provision of infrastructure resulting from speedy urban growth; seen in the backdrop diminishing financial and administrative resources.

Figure 1-1: Population trends in Kenya: number and population size of towns respectively
Source: (Kenya National Bureau of Statistics, 1999)
1.2. Government’s view about informal urbanisation

Prior to the 1970’s most of the governments in developing countries neglected the informal settlement’s situation. Other governments were even hostile to the people living in the areas to a point of ensuring forceful evictions. It was during this period that most of the governments excluded most of these settlements from the infrastructure plans (Fekade, 2000).

In the early 1970s, the Government of Kenya, like other governments of developing countries started to comprehend the realities of informal settlements (Fekade, 2000; Government of Kenya, 1970). The 1970/74 National development plan of Kenya amplified this which was later followed by policies that were geared towards addressing the informal settlement situation.

In order to legitimise their move, such policies as the provision of minimum services, provision of tenure security and physical upgrading, recognition of the legitimate role of informal settlement dwellers and stakeholders there in, and formulation of an all-inclusive National Slum Upgrading Programme under the Kenya Slum Upgrading Programme (KENSUP) have since then been put in place (UN-Habitat, 2007).

Closest enough to addressing the issue of infrastructure in the urban areas was the provision of sites and services schemes that were implemented in the major and secondary towns of Kenya. This included cities within Nairobi, Mombasa and Kisumu. Regrettably, the schemes did not meet the goal of housing the urban poor but were instead taken over by the middle income residents (Gulyani & Bassett, 2007; UN Habitat, 2005).

The most recent move by the government is the formation of Kenya Slum Upgrading Programme (KENSUP) a programme aimed at improving the lives of the people within the informal settlements. This is a move towards recognition of the informal settlements in their status which has set an environment within which a systematic upgrading can be undertaken. Further to this, the programme has been pegged within the framework of Poverty Reduction Strategy Plan, the Economic Strategy for Wealth and Employment Creation, National Housing Development Programme and National Housing Policy. All these policy documents recognise informal settlement upgrading as an integral part of shelter development (Government of Kenya, 2004b; UN Habitat, 2005).

1.3. Defining spatial planning

In many countries, spatial planning is understood to refer to physical land use planning characteristically based on three elements; the master plan, a set of planning and building standards and regulations and the last element being a development control system (UN Habitat, 1995). Spatial planning, designed to deal with the urbanization problems has evolved through several models, from the comprehensive blue-print planning of the 1930s to the 1960s, largely borrowed from the developed countries to strategic planning; between or along this has been the emergence of different approaches ranging from local planning, action planning, and neighbourhood planning approaches (Kisare, 1999). The traditional master plans and structure plans have been criticised for various reasons; nevertheless, in some countries, this basic approach still remains as the starting point to urban planning (Kombe, 2005). Some of these critiques include;
The master plan has not shown the relationship between economic and spatial planning initiatives in urban development thereby rendering many of its policies to be outdated and irrelevant (Rakodi, 2001),

- It does not promote public participation thus community groups, target beneficiaries and Non-Governmental Organisations are left out of the process,
- They pay little attention to the implementation process (Rakodi, 2001),
- It tends to divorce urban planning process with the sectoral processes in charge of urban finance and for providing urban infrastructure and services (UN Habitat, 1995) and
- Urbanisation in poverty has given rise to peculiar urban land developments that cannot be handled by the traditional planning processes (Kombe, 2005:pp 114)

Based on the critiques aforementioned, new planning typologies have evolved ranging from structure planning, local land use plans, action plans and strategic plans. Ideally, these plans have a general underlying value of community and stakeholder involvement and sustainability while ensuring interaction between physical and economic planning (UN Habitat, 1995).

More precise and detailed are the local land use plans backed by strictness on their approval procedures. They are less flexible and thus less easily altered. An implementation-oriented approach is achieved through the use of action planning. Largely dependent on the level of community participation for their success, action plans rely on experiences learnt from other contexts. Strategic planning on the other hand determines the interrelated strategies for the city development including finance, land and infrastructure and thus the final output is not just a physical development plan but rather a process of integrated urban development (Kisare, 1999; UN Habitat, 1995; WHO, 1999)

1.4. Why peri urban area?

The peri-urban area refers to the link between urban and rural, a diffuse zone which causes a blurring of the city boundary and cannot thus be easily delineated spatially (Nkosingiphile, 2003). In Kenya, peri-urban area is defined to be the area within 20 Km radius surrounding the main cities e.g. Nairobi or 7 Km for the other urban centres e.g. Kisumu (Ministry of Lands, 2005). Within Kisumu, this area is defined as that which was formerly outside the town boundary until 1972 when the boundary was extended. Problems stemming out of rapid urbanisation are being experienced more within the peri-urban areas. These are areas characterised with conversion of land from agricultural to residential, but barely provided with the required infrastructural services for development (Kombe, 2005; Lusugga Kironde, 2000).

1.5. Spatial planning efforts in peri-urban Kisumu

In Kenya, spatial plans are prepared by the Physical planning department whose mandate is outlined in the Physical planning Act Cap 286. The third schedule of the Act classifies the plans as long term, short term and redevelopment plans. Falling within the short term plans are the Action area plans, subject plans, advisory or zoning plans and the Part Development Plans (Government of Kenya, 1996). Spatial planning within Kisumu’s peri-urban areas is not a novel idea. A structure plan was prepared to guide the development within a time span ranging from 1983 to 2013. Covering the social economic and land use patterns and projections, the plan’s objective was to provide a long term framework on which the short term plans should be based (Physical Planning Department 1989). Needless to mention, the structure plan has been overcome by time and urbanisation within Kisumu rendering most of its proposals and policies unadoptable (UN Habitat, 2005).
Before the preparation of the structure plan, upgrading schemes had already begun during the colonial times in 1929; the USAID scheme which was a low-income where core units of two rooms, a wet core and a kitchen were built and allowed their low-income owners to develop the remaining units over time. This was later followed by Migosi site and service scheme which was launched by the World Bank and the Kenyan government to provide adequate land for low-income housing development (ibid).

The peri-urban area has since then not received much attention from the municipality despite its unprecedented urbanisation. Expansion of the road network in the peri-urban area in the 1970s under the Urban II upgrading and site and service schemes were the latest change that was made to Kisumu’s road infrastructure. The rest of the peri-urban areas “remain stuck with roads built to rural standards, making it difficult for these areas to integrate into the urban transport system”. UN Habitat (2005, p.p 45)

The state in collaboration with the UN Habitat and has recently initiated an ambitious plan for Kisumu informal settlements whose objectives are to address the challenges of land tenure, housing, infrastructure and services. The same projects are currently underway in Nairobi’s Kibera informal area as a pilot project. Before the implementation of the projects take place, action plans have been prepared as a guide towards the upgrading process. The projects initiated are pegged within a stakeholder and community participation model that is geared towards an all-inclusive approach.

Similarly, the Municipal Council of Kisumu has had efforts in planning those areas within the peri-urban zone that are free from informal development. One of these areas is Kanyakwar area which is aimed at providing land for shelter development. These two approaches are aimed at providing land and the requisite infrastructure and services as enabling strategy for shelter development.

1.6. Research problem

Spatial planning for land development is to a large extent guided by the planning standards applied. Whereas planning standards are geared towards ensuring a safe and healthy environment Choguill (1999, pp 292) notes that “Standards can transform an opportunity into a burden”. Despite the comprehensive nature of official planning standards of developing countries cities’ it is conceived that they are disconnected from social and economic realities, imitative of the western standards, and indifferent to local experience (Awotona, 1988; Fekade, 2000; Gulyani & Bassett, 2007; Kironde, 2006). In Kenya, there have been efforts to reformulate the planning standards in the past years. Despite these efforts, these standards have not been upheld by most of the local authorities while others have implemented these but only on ad-hoc and a project by project basis (Agevi, 1995).

Community participation has been cited as an effective process towards implementation and sustainability development projects. Notwithstanding the financial and technical criticisms, (McCall, 2004) community participation within spatial planning has been applied in different countries with a varying degree and intensity of participation (Abbott, 1996; Magigi & Majani, 2006; McCall, 2004). The study seeks to determine if community participation approaches are more effective in determining planning standards in spatial planning within the peri-urban area of Kisumu.
1.7. Research objectives

1.7.1. Main objective
The study seeks to determine if community participation approach is more effective in determining planning standards in spatial planning.

Sub-objectives
- To determine the current nature of land utilization within the peri-urban area
- To compare the process of developing planning standards under community participation and official planning approaches.
- To compare the planning standards applied based on the projected infrastructure and social facilities under: community participation and official planning approaches
- To assess the effectiveness of applying planning standards under community participation and official planning approaches

1.7.2. Research questions
The research questions addressed include:
1) What are the spatial and socio-economic characteristics within the informal settlements?
2) What kind of planning approaches have been employed in each area and how does this relate to development?
3) What is the projected infrastructure and social facilities under each planning approach?
4) What planning standards have been employed and how do they compare to the national planning standards?
5) What are the positive and the negative aspects accruing from each of the planning approaches?

1.7.3. Conceptual framework
In order to clearly understand the research under investigation, the conceptual framework is outlined on figure 1-2. This is divided into three sections; the steps followed in making the plan, the standards that emanate from these processes and the effectiveness of the planning process and the standards proposed.

The steps: Describes the process of making the plan based on issues typical to most plans. These elements include looking into the initiators of the plan, the role of the community, government and other stakeholders (Baer, 1997; Magigi & Majani, 2006). The underlying argument here is that the process of planning is important and is determining the planning standards that are applicable.

Standards applied; although there are various planning standards within an urban area setting, the study focuses on roads and social services (schools and health facilities). This is based on the knowledge that roads provides a framework along which other infrastructure is provided whereas schools and health facilities are the minimum requirements of a settlement (Ministry of Lands, 2005; Payne, 1984).
Effectiveness of the process and the planning standards: The plans being evaluated have not been implemented yet. It is therefore to determine the impact of their implementation. Indicators of efficiency, relevance and feasibility have therefore been developed to help evaluate the planning process and the standards that have come from the planning process (Baer, 1997).

Figure 1-2: Conceptual framework
1.8. Background of the study area

1.8.1. The Kisumu city

Kisumu, the third largest city in Kenya, is the headquarters of Kisumu District, and Nyanza Province. The city is situated at Kavirondo gulf and has developed progressively from a railway terminus and internal port in 1901, to become a commercial, industrial, communication and administrative centre within the Lake Victoria basin an area that negotiates three provinces of Nyanza, Western and western Rift Valley.

![Figure 1-3: Location of Kisumu city in the national context](Source: University of Texas map collection, 2008)

1.8.2. Population

The city has an estimated population of approximately 500,000, 60% of which is within the peri-urban area (UN-Habitat, 2007). There has been a remarkable increase in population between 1970 to date. This has been attributed to two factors namely: One, the expansion of the city to include the peri-urban areas that were formerly within the county council jurisdiction and two, in-migration of people from the rural areas in search of better livelihoods (ibid).

![Figure 1-4: Population trend in Kisumu city](Source: (Kenya National Bureau of Statistics, 1999))

1.8.3. The peri-urban zone

UN Habitat (2005) notes that, in 1972, based on the Ogutu recommendations, the boundaries of Kisumu municipality were expanded to accommodate an area of 53 sq km. Up until the 1972 boundary expansion, the peri-urban area fell under the jurisdiction of Kisumu county council. This therefore meant that any planning that was undertaken was of rural type.

The city is characterised by major roads radiating from the centre of the city. Most of these roads are concentrated. Secondary roads serve more in the inner areas of the city’s formal neighbourhoods.
A study undertaken in Kisumu revealed that (Kisumu Municipal Council 2005):

- The roads in the peri-urban areas and the low-income settlements are, in poor condition, most of which are viewed as unplanned tracks.
- Accessibility to these areas is limited to non-motorised means mainly walking.
- Most of the areas are flooded during rainy season making the roads impassable.
- The inter-city roads connecting Kisumu to other towns in the region are in fair to poor condition. Conditions range from eroded edges and potholes, which are dangerous to users.
- Cyclists and other motorised traffic share the same space.

![Figure 1-5: Nature of road and facility distribution in the peri-urban area](image)

- Parking and movement, in many places, are on the same space.
- Walking and street trading are on the same space.

Social facilities such as schools and health facilities are inadequate in the seven slum settlements within the city. Where they exist they lack basic amenities such as playing grounds and sanitation facilities. The municipality runs most of the public primary schools within the settlements. Settlements like Obunga have no primary schools. Other settlements such as Manyatta “B” have one primary school serving large populations within the areas. Free primary school education established in 2002 has contributed to high enrolment rates and this partially explains congestion in these facilities. Likewise, many people within these settlements depend on the health facilities within the inner city out of lack of the same within their settlements (ibid).

1.9. Research structure

**Chapter one** is the introductory chapter of the thesis. It discusses the informal situation of the developing country’s cities, the evolution of the government’s attitudes towards informal urbanisation. It narrows down to spatial planning efforts within Kisumu’s peri-urban area, the research problem, objectives and questions. A brief introductory on the study area is also given in this chapter.

**Chapter two** provides a systematic theoretical background related to the study gathered through reviewing relevant literature. The literature is based on spatial planning within the peri-urban zones and the planning standards that have been developed to guide infrastructure development. It also compares the standards in East Africa while also addressing how the community has been involved in spatial planning in Kenya.
Chapter three describes the research methodology adopted to answer the research questions. It also details and discusses the case study approach and Participatory GIS as a method of data collection that have been adopted for this study. Methods of data processing and analysis have also been discussed herein.

Chapter four defines the socio-economic and spatial characteristics of the peri-urban zone

Chapter five defines the process of official planning, describes the standards emanating from this planning process and determines the effectiveness of the standards and the process.

Chapter six defines the process of community participatory planning, describes the standards emanating from this planning process and determines the effectiveness of the standards and the process.

Chapter seven; gives the concrete comparison of the process of devising the planning standards and the standards that are determined herein.

Chapter eight; provides the conclusions and recommendations
2. Spatial planning and urban development policy

2.1. Spatial planning approaches to peri urban growth

Peri-urban areas have been characterised as areas of spontaneous growth of settlements. Most of the peri-urban areas in the developing cities are characterized by informal settlements and as noted by Kombe (2000b) and Fekade (2000). There are a number of interventions that have been devised to tackle the spontaneous development of the settlements. The most commonly used method in the past has been the application of land use planning. This is a tool used by decision makers to determine how to use land by evaluating land and common patterns of land use and systematically determining on the most appropriate land use depending on the policies and goals set (Nkosingiphile, 2003).

Land use planning has been criticised on the basis of its prejudice on the type of land use to locate in a particular place. This may be based on the technicalities of each zone, though not considering the human and social connection to that land. The most common land use allocated is the one that favours the policy makers as in the case of most developing countries where the economy is mainly agriculture and therefore the land in these areas is mainly agro based (Chapman, 1990).

Daniels (1999) however notes that the growth can be controlled by providing a growth boundary which is an arbitrary line demarcating the area beyond which the city cannot grow. One suggestion has been the provision of infrastructure like sewerage to a certain limit beyond which developers get frustrated and shy away from developing. Others have been determination of green belts that act as boundaries of urban areas. These have been criticised as idealistic approaches which is only applicable in areas where development control and institutional policies behind it are very powerful (Kombe, 2005).

This notwithstanding, the peri-urban zones of developing countries have continued to be challenged with informal development (Kombe, 2005). Perhaps the most appropriate way to address spatial planning and the standards employed is a brief review of the evolution of shelter strategies especially with reference to the developing countries. The reason behind this is twofold;

- Most land for shelter provision and infrastructure problems are experienced in the peri-urban zone (Kombe, 2000b)
- Most of the development standards applied within the peri-urban area affect land for shelter provision (Dowall & Clarke, 1996)

2.2. Evolution of shelter strategies

Choguill (2007) addresses the evolution of shelter strategies in three phases. The first phase was the “public housing approach” as indicated by Harris et.al (2003, pp 174). This approach was borrowed from the British which is the provision of permanent housing at a subsidised rate for the residents. The drive behind this move was the public could not afford proper housing due to limited resources and thus only subsidies to the general public only could measure up (Choguill, 2007). This however did
not last long due to the skimpiness resources by most of the governments especially after the world war two.

Following this was the second phase where governments realised that they could not manage to sustainably provide housing at subsidized rates. A more sustainable approach was needed to address the problem. It was the works of Charles Abrams, John Turner and others that saw the advent of the World Bank-led sites and service schemes. In these projects, the state was a facilitator; the occupants had the responsibility of managing their living environments. The government provided chunks of land, subdivided it, provided requisite services and infrastructure and through credit and technological facilities, the beneficiaries incrementally built their shelter. Further to this, the planning standards and procedures that were to be observed were explicitly stipulated (Choguill, 2007). Worthwhile noting is that the reduced standards were not totally embraced by several local governments and the beneficiaries who cited the risk of the neighbourhoods degenerating into slums (Choguill, 2007; Gulyani & Bassett, 2007).

The “enabling environment” later followed where the World Bank shifted to advocating pro-poor policies that supported national shelter provision strategies in the financial, legal and institutional environments. What therefore are these pro-poor policies? This takes us to the next level of the two central elements that influence land for shelter provision in the peri-urban areas. tenure security and infrastructure provision (Gulyani & Bassett, 2007).

### 2.3. Tenure and infrastructure in spatial planning

Spatial planning, under a formal approach or an upgrading exercise is geared towards providing adequate land for shelter provision. Legalisation of the land to the developers and provision of requisite infrastructure and services are the heart to this achievement (Gulyani & Bassett, 2007; Kironde, 2006)

#### 2.3.1. Conferring tenure security

Over a long time now, security of tenure has been regarded as a drive towards improving the status of the residents of informal settlements. Turner (1972a) as cited in (Gulyani & Bassett, 2007) was adamant in his argument that residents do not lack resources and skills to develop their shelter, instead, the lack of tenure security that hinders them into developing the lands that they occupy. The provision of security of tenure has gained popularity as a pro-poor policy in most developing countries. The advantages accruing to this are outlined here under;

- The process of tenure regularization assists the implementation, maintenance and cost recovery within upgrading projects. The argument behind this is that the residents view themselves as long-term stakeholders and beneficiaries to the infrastructure and service improvements within the area.
- If tenure is provided through the issuance of a land title, then this is extra revenue for the government paid through taxes (Cohen, 2001; Geoffrey Payne, 2001; World Bank, 2000)
- Conferring land titles is seen by some proponents as a means of triggering income generating activities and thus trimming down poverty levels within the areas (Kigochie, 2001; Payne, 2001; World Bank, 2000)
Enhancing land tenure is thus associated with a lot of benefits ranging from enabling for shelter provision, investment in home-based enterprises, revenue base for the government, collateral for loans and thus in general spur the economic potential of the settlements.

Tenure security through legalization does not go without its criticisms where observers say that the entire procedure of land demarcation, paper work and payment of fees is procedural and time-consuming. Furthermore, legalization brings secondary effects of land sales, rise in land rents and land therefore transform into a market commodity (Gulyani & Bassett, 2007)

2.3.2. Infrastructure development

Other than improving security of tenure, infrastructure and service provision has been central, not just in upgrading projects, but also to provision of land for formal development. Urban residential physical infrastructures are an important pre-requisite to proper housing and living conditions where the main components of concern include providing roads, water, sanitation, drainage and street lighting among others (Choguill, 1999). Gulyani & Bassett (2007) note that as opposed to land legalisation, infrastructure provision is easily and quickly achievable.

Evidence from implemented projects for instance in Tanzania-Bondeni and Voi-Kenya demonstrate that shelter improvement does not exclusively rely on the provision of formal legalisation ((Gulyani & Bassett, 2007, pp 496). On the contrary, there has been a realization that residents may improve housing with the implicit understanding that the completion of the upgraded houses would be a catalyst towards attainment legalisation. Further to this, infrastructure has been seen to provide some “intermediate form of legal recognition” a move that has led to the decoupling of legalization process and infrastructure upgrading (ibid). In this light therefore infrastructure provision and formal legalization the informal settlements are equally important and what precedes the other rests in the preference and perception of the residents.

Infrastructure development within upgrading exercises have often run into the risk of inappropriate standards and poor cost recovery. Gulyani & Bassett (2007) show that the standards that are employed in infrastructure provision affect not only cost and affordability but also the demand and acceptability. Several projects in the past that have promoted appropriate standards have not necessarily been embraced by the local communities and the concerned governments. A case example is the Dandora settlement in Nairobi where lowered standards were applied for sanitation facilities and community facilities leading to opposition by the residents and thus delay in the implementation (Lee-Smith, 1988) as cited in (ibid).

2.3.3. The rationale of applying planning standards

Planning standards, like many other measures are used for development control within the inner city and the peripheries. Development control itself is an integral part of land use planning. It serves four key social functions including “promoting public interest, eliminate negative externalities, improving information base for decision making and redistributing costs and benefits”(Tang & Tang, 1999, pp 33). Development control therefore is geared towards ensuring that residential areas are protected from inappropriate use of land, protecting the green areas from encroachment, and sustain a healthy living environment. Most of the cities have developed various plans including master plans, structure plans, zoning plans and part development plans to guide the development. Pegged on to this plans are the
standards to be applied in terms of building regulations, codes and policies that are meant to shape the
development.

The regulatory framework for urban planning in Africa has consisted of a variety of instruments,
including planning standards (quality, minimum plot size, minimum frontages and minimum depths,
road widths and provisions for public and social and economic uses); planning regulations (land use
and zoning controls, plot use restrictions and building set-backs); and administrative procedures
(Kironde, 2005). All these are intended to ensure the systematic growth of cities and towns that meets
the development needs of different parts of the economy and different sectors of society.

However, the main criticism on the standards in developing countries is the use of high standards a
move which has seen various actors advocating for revision and application of lower standards. The
rationale behind these revisions is that;

• It is hoped that infrastructure will be affordable and thus serve the wider population including
  the lower income cadre (Agevi, 1995; Tuts, 1996).
• Proponents argued that low standards accommodate lower technology that would employ local
  contracts thereby improving the local economy and
• Lower standards can be adopted and progressively improved as and when the resources are
  available (Choguill, 1999)

2.4. Comparing planning standards in East Africa

Payne (2005) addresses the factors that influence the availability of urban land for access to shelter as
the administrative procedures, planning standards and planning regulations: The administrative
procedures are the processes that individuals have to go through in order to be recognised as the legal
owners of the land. Planning standards relate to the end quality in the settlement in terms of minimum
plot sizes, plot coverage, minimum frontages, road width, surface material and provision of social
facilities and services. Planning regulations on the other hand refers to the elements that permit land
use in terms of zoning control and plot use limitations (Kironde, 2006). This study focuses on planning
standards but will however constantly refer to the planning procedures and regulations reason being
these elements complement each other.

2.4.1. Planning standards in Kenya

The discussion on standards relaxation has had its momentum in Kenya since the late 1970s. Much of
its discussion has focused on:

• The historical background which still influences standards setting and implementation (Tuts,
  1996)
• The universal versus the particularistic nature of standards based on universal expectations
  and requirements and the contextual limitations (Adhikari, 1987)
• The maximum and minimum standards that are desirable while considering the prescriptive
  versus performance-oriented standards (Syagga, 1993).

*Grade I and II Building Order of 1968:* Its main objective was to permit the residents of the
agricultural peri-urban areas of municipalities to satisfy the building control requirements which were
however not seen in the urban context. Notwithstanding these by-laws the need and reasons for re-
addressing planning, building and infrastructural legislation and regulations was felt inevitable.
Unfortunately, this was not a priority for the government, not even in the face of sufficient empirical
evidence on the benefits of taking on appropriate standards particularly under low-cost housing. The irregularities of the by-laws were later felt in the 1970s after the mass housing in major urban centres such as Dandora “I” estate in Nairobi. The standards set herein were therefore not responsive to the needs of the poor cadre.

Low-Cost Housing By-laws Review Study of 1979: The government commissioned this study, an act which positioned Kenya on record as among the first developing African countries to undertake a comprehensive study of building and planning by-laws. An inter-ministerial and multi-disciplinary committee was made up in 1985 to formulate ways of implementing the proposals. Approval for legislative action on the By-laws was given, and the Ministers in charge of Housing, Health, Works, and Physical Planning; and Local Government, backed by the Attorney General, urged the implementation of by-laws immediately. Despite the Cabinet approval the recommendations from this review were not implemented (Agevi, 1995).

Town Planning Handbook: in the meantime, other efforts that were used to relax the standards. This included the town planning handbook that was fashioned by the Physical Planning Department. Research publications by Housing Research and Development Unit (HRDU) in the University of Nairobi also contributed greatly to understanding the planning standards and building by-laws. Agevi (1995) notes that Nairobi City Commission adopted Town Planning Standards in 1988 followed by major municipalities like Mombasa, Kisumu, Nakuru and Eldoret a few years later. However, these were applied on an ad-hoc basis. (Agevi, 1995; Syagga, 1993)

Re-visiting the 1985 recommendations: A Task Force led by Ministry of Lands and Housing to oversee and revise the 1985 recommendations was set in 1990. There was a common agreement of a need to update the regulations but a contentious disagreement was on the extent of change. A clear difference of opinion existed between institutes or NGOs who had worked with grassroots communities and planners who mainly worked from the offices. This task force however bore a report containing standards that were flexible and enabled the use of inexpensive building materials and techniques, and affordable infrastructure and services. Further to this, refined plans for the creation of a Permanent Board for updating building and planning standards on a continuous basis were also included. This report popularly known as “Code 92” was published in 1993 and circulated to local authorities. The revised by-laws were finally gazetted by the Minister for Local Government in 1995. Several years since the revised by-laws were gazetted; few local authorities have attempted to implement the regulations (ibid).

The failure to adopt the standards within code 92 can be summarised as follows:

- There has been a lack of a proper methodology to facilitate meaningful and effective local level participation in implementing the standards (ibid).
- The formulation of the standards did not involve the people at the grass root level for whom it was intended to impact on (ibid) (see table 2-1).

Revising the town planning handbook standards: The failure of complete adoption of the code 92 standards by most of the municipalities, has led to the revision of the town planning handbook. Furthermore, the recommendations of “code 92” were that all the existing enactments dealing specifically with planning standards be combined into one piece of legislation. Second, planning standards and requirements that were not covered were to be collected in
It has therefore become obligatory that physical planning standards and regulations be revised in order to fit within the new framework and also assist to guide land use planning. The supplements and standards therefore are premised to guide the process and practice of land use planning. Land use planning includes regional plans and local physical development plans as provided for in Section 16 and 24 of the Physical Planning Act (Cap 286). The current physical planning handbook has not yet been gazetted and has been prepared as a result of deliberations from the various city councils and municipalities and the various departments of the Ministry of Lands (Ministry of Lands, 2005).

Various agencies have been responsible in formulating the policies, setting the planning and building standards, plan approval and enforcement of the same. Table 2-1 summarises the engagement of each of the agencies.

**Table 2-1: Agencies Responsible for Formulation and Enforcement of Residential Standards**

<table>
<thead>
<tr>
<th>Agencies</th>
<th>Policy formulation</th>
<th>Standard setting</th>
<th>Plan approval</th>
<th>Enforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Roads</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Housing Department</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>National Housing Corporation</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Physical planning Department</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Commissioner of Lands</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Local Authority</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>KP &amp; L Co Ltd.*</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water Authority</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Provincial Admin/Chief</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Lending Institutions</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Employers</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Labour Department</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Architects/Engineers &amp; Designers</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Bureau of Standards</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Housing Research and Development Unit</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Donor Agencies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

*Source: Kenya low-income housing by-law study vol 2*

X Representing the public
0 Representing the public but with private interests
*Kenya power and lighting company*

As it is now, there are still several standards that are scattered in the building, planning and engineering statutes and regulations. This study therefore focuses on the physical planning handbook standards that have been applied to the official study area. Attached to the appendix 2-1 however are some of the code 92 revised standards that are applied on *ad hoc* basis (Agevi, 1995).
2.4.2. Infrastructure planning standards

Infrastructure services are grouped into physical infrastructure and social infrastructure. Physical infrastructure comprise of: roads, railways, airports, water supply, power line, pipeline and cables. Social infrastructure on the other hand encompass: health, schools, community centre, post office, administrative centres and police stations (Ministry of Lands, 2005). This study focuses on the roads, schools and health facility provision as discussed (refer to chapter one).

2.4.3. Physical infrastructure

Planning for roads in Kenya

The physical planning standards have stipulated that the planner needs to ensure that the correct hierarchy of roads is provided for, when planning a settlement or neighbourhood. Activities irreconcilable with traffic flow to be constrained from designated roads (Ministry of Lands, 2005). The national planning standards provide the standards for the right of way and carriage way as illustrated on table 2-1 below. A general roads classification has been distinguished based on the road functions within the urban areas. These are access roads, primary distributor, District distributors which are mainly bus routes, local distributor and access roads. These roads have different road widths and carriageways. The local collector roads are the lowest class that is expected to have bitumen carriageway pavement.

Table 2-2: A summary of the road types and their widths

<table>
<thead>
<tr>
<th>Type of road</th>
<th>Right of way (ROW) (m)</th>
<th>Carriageway (CW) (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Distributors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major communication routes</td>
<td>60.0</td>
<td>7.5 or more</td>
</tr>
<tr>
<td>Important through – routes</td>
<td>30.0-36.0</td>
<td>7.5 or more</td>
</tr>
<tr>
<td>District Distributors/collector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spine roads and roads in commercial or industrial area</td>
<td>25.0</td>
<td>7.0 or more</td>
</tr>
<tr>
<td>Bus routes</td>
<td>25.0</td>
<td>7.0 or more</td>
</tr>
<tr>
<td>Local distributor roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With no direct vehicular access to Individual plots</td>
<td>18.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Major access road exceeding 150m in length</td>
<td>15.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Access road not exceeding 150m in length (normal residential street)</td>
<td>12.0</td>
<td>5.5</td>
</tr>
<tr>
<td>Cul-de-Sacs or short connecting road</td>
<td>6.0-9.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Service lanes</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Cyclist lanes</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Footpaths</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

Source: (Ministry of Lands, 2005)

2.4.4. Roads standards in Tanzania

Planning standards in Tanzania are provided under Town and Country Planning (Space standards) Regulations of 1997 (Tanzania 1997). The regulations include sizes for “residential plots, building lines and set backs, plot coverage and plot ratios, health and educational facilities, golf courses,
passive and active recreation, public facilities by planning levels, public facilities by population size, parking and road width, and agricultural showground”(Kironde, 2006:pp 464).

The residential areas are divided into high medium and low income areas, a trend borrowed from the colonial times where the residential areas were regarded as low, medium and high density areas respectively. The space standards related to residential areas have developed from directives, and recommendations of reports. It dates back from the 1949 Dar es Salaam master plan (Tanganyika 1949). Land for access is provided for in planning schemes with standards specified for various categories of carriageways and right of way. Roads constitute 20 to 30 percent of land in a typical planning scheme (Kironde, 2006).

Table 2-3: Standards for carriageways and rights of way

<table>
<thead>
<tr>
<th>Type of road</th>
<th>Right of way (ROW) (m)</th>
<th>Carriageway (CW) (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trunk road</td>
<td>60.0-70.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Primary distributors</td>
<td>30.0-40.0</td>
<td>7.0-10.0</td>
</tr>
<tr>
<td>District distributors</td>
<td>20.0-30.0</td>
<td>7.0-10.0</td>
</tr>
<tr>
<td>Local distributors</td>
<td>15.0-20.0</td>
<td>5.0-7.5</td>
</tr>
<tr>
<td>Access roads(Shopping areas)</td>
<td>20</td>
<td>10.0</td>
</tr>
<tr>
<td>Access roads(Industrial areas)</td>
<td>18.0-20.0</td>
<td>7.0-10.0</td>
</tr>
<tr>
<td>Access roads(residential areas)</td>
<td>10.0-20.0</td>
<td>5.0-7.0</td>
</tr>
<tr>
<td>Local distributors(residential areas)</td>
<td>10.0-20.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Rural roads</td>
<td>15.0-20.0</td>
<td>4.5-7.5</td>
</tr>
<tr>
<td>Pedestrian access</td>
<td>10.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: (Kironde, 2006:pp 465)

2.4.5. Roads standards in Uganda

The planning standards are provided within a town planning handbook whose implementation specifications is pegged on to the Physical Planning Act currently under reviewed.

Table 2-4: Standards for rights of way in Uganda

<table>
<thead>
<tr>
<th>Type of road</th>
<th>Right of way (ROW) (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trunk road (arterials and freeways: including town bypasses; this should be wider for international highways)</td>
<td>50.0</td>
</tr>
<tr>
<td>Collectors(Primary distributors)</td>
<td>30.0</td>
</tr>
<tr>
<td>Local distributors(Feeders and tertiary roads)</td>
<td>20-25</td>
</tr>
<tr>
<td>Access roads(commercial areas)</td>
<td>20.0</td>
</tr>
<tr>
<td>Access roads(Industrial areas)</td>
<td>20.0</td>
</tr>
<tr>
<td>Access roads(residential areas)</td>
<td>10.0</td>
</tr>
<tr>
<td>Service lanes</td>
<td>5</td>
</tr>
<tr>
<td>Pedestrian access</td>
<td>10.0</td>
</tr>
<tr>
<td>Cycle lanes</td>
<td>3</td>
</tr>
<tr>
<td>Footpaths</td>
<td>2</td>
</tr>
</tbody>
</table>


2.4.6. Social infrastructure

Social infrastructure according to the national planning standards includes facilities such as, schools, community centre, police stations, post office and administrative centres. The standards set the catchment population that should be served by the education and health services, the maximum
distance of travel to the facilities, the land required to put up the facilities and the suitable location of the facilities. The standards requirements are summarised on table 2-5.

Table 2-5: A summary of the standards provided for education facilities

<table>
<thead>
<tr>
<th>User</th>
<th>Age limit</th>
<th>Catchment pop</th>
<th>Distance travelled</th>
<th>Land required</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day-care centres,</td>
<td>1-2 years</td>
<td>2500</td>
<td>300-500m</td>
<td>0.15-0.25ha</td>
<td>Integral to residential area</td>
</tr>
<tr>
<td>Kindergartens,</td>
<td>2-5 years</td>
<td></td>
<td></td>
<td></td>
<td>Along major pedestrian routes</td>
</tr>
<tr>
<td>Nursery/pre-primary schools</td>
<td>5-6 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary school</td>
<td>6-13 years</td>
<td>3500</td>
<td>300-500m</td>
<td>3.25ha (triple stream)</td>
<td>Integral to residential area</td>
</tr>
<tr>
<td>Secondary school</td>
<td>14-17 years</td>
<td>8000</td>
<td>500-600m</td>
<td>3.4-4.5 ha</td>
<td>Integral to residential area</td>
</tr>
<tr>
<td>Technical school</td>
<td>14-17 years</td>
<td>8000</td>
<td>500-600m</td>
<td>10.2 ha</td>
<td>Integral to residential area</td>
</tr>
</tbody>
</table>

Source: (Ministry of Lands, 2005)

In order to maximise the facilities provision, the catchment population threshold has been illustrated whereby within a catchment population of 5000 people there should be a primary school and two nursery schools and a secondary school should serve a catchment population of 25,000. Based on a three stream primary school, table 2-6 shows how the 3.25 ha of a primary school are planned for. This example uses a three stream primary school which is the maximum allowable size with a maximum of 960 pupils.

Table 2-6: The users within a primary school

<table>
<thead>
<tr>
<th>Use</th>
<th>Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>200</td>
</tr>
<tr>
<td>8 classroom (448 x 2)</td>
<td>896</td>
</tr>
<tr>
<td>1 laboratory</td>
<td>135</td>
</tr>
<tr>
<td>1 home science block</td>
<td>168</td>
</tr>
<tr>
<td>Sanitation block (40 x 2)</td>
<td>80</td>
</tr>
<tr>
<td>1 workshop (170 x 2)</td>
<td>170</td>
</tr>
<tr>
<td>1 Library</td>
<td>190</td>
</tr>
<tr>
<td>Assembly Hall</td>
<td>656</td>
</tr>
<tr>
<td>Circulation @ 6m per pupil x 960 pupils</td>
<td>5760</td>
</tr>
<tr>
<td>1 Soccer field (80 x 100) x 2</td>
<td>16,000</td>
</tr>
<tr>
<td>1 netball field (255 x 3)</td>
<td>765</td>
</tr>
<tr>
<td>Tennis court</td>
<td>140</td>
</tr>
<tr>
<td>Hockey pitch</td>
<td>5,060</td>
</tr>
<tr>
<td>Gymnasium</td>
<td>255</td>
</tr>
<tr>
<td>Swimming pool</td>
<td>135</td>
</tr>
<tr>
<td>Agricultural demonstration plot</td>
<td>800</td>
</tr>
<tr>
<td>Total</td>
<td>31,410</td>
</tr>
</tbody>
</table>

Source: (Ministry of Lands, 2005)

The national planning standards have provided recommendations for the provision of health facilities. These standards are summarised as follows;
• The preferred location for health services should be easily accessible by an ambulance and be provided with basic infrastructural services.

Table 2-7: Land requirements for health facilities

<table>
<thead>
<tr>
<th>Type</th>
<th>Area covered (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>National referral hospital</td>
<td>20</td>
</tr>
<tr>
<td>Provincial hospital</td>
<td>8</td>
</tr>
<tr>
<td>District hospital</td>
<td>8</td>
</tr>
<tr>
<td>Sub district hospital</td>
<td>4</td>
</tr>
<tr>
<td>Health centre</td>
<td>3</td>
</tr>
<tr>
<td>Sub-health centres</td>
<td>2</td>
</tr>
<tr>
<td>Nursing Homes</td>
<td>0.4</td>
</tr>
<tr>
<td>Veterinary clinics</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: (Ministry of Lands, 2005)

• Dependent on the level of health service, it is necessary to reserve adequate land for future expansion and for public cemeteries. However a minimum of the land requirements has been recommended derived from empirical observations are shown on table 2-7. The maximum threshold distances have been provided for within the “code 92” as 0.5-1 km.

Table 2-8: Standards for social services in Uganda

<table>
<thead>
<tr>
<th>User</th>
<th>Catchment pop</th>
<th>Distance travelled</th>
<th>Land required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery/pre-primary schools</td>
<td>1500-2000</td>
<td>300-500m</td>
<td>0.15ha</td>
</tr>
<tr>
<td>Primary school</td>
<td>3500-5000</td>
<td>1500</td>
<td>1-3ha</td>
</tr>
<tr>
<td>Secondary school</td>
<td>8000-10000</td>
<td>1000-3000m</td>
<td>2-4 ha</td>
</tr>
<tr>
<td>Health centres 1 &amp; 2</td>
<td>3000-5000</td>
<td>1000-1500m</td>
<td>0.25 ha</td>
</tr>
<tr>
<td>Health centres 3 &amp; 4</td>
<td>5000-25000</td>
<td>2000-2500</td>
<td>1-2 ha</td>
</tr>
<tr>
<td>Hospitals</td>
<td>&gt;25000</td>
<td>3000-5000</td>
<td>4-6ha</td>
</tr>
</tbody>
</table>

2.5. Community participation in spatial planning

Community participation, viewed as the process of inclusion of different actors is applied in slum upgrading exercises as well as in formal spatial planning exercises of the contemporary times. All the urban challenges abounding, there is need to understand the vital and indispensable role of grassroots institutions have to play in urban land management especially in a situation where public resources are inadequate and urbanisation in the rise (Magigi & Majani, 2006).

Community participatory planning approaches in Kenya have progressed from the adversarial dispute oriented approaches of pre-independence days to centrally organised spatial planning of post independence days. Efforts to include the community in the general participation on development issues were not until the 80s when the government created District Focus for Rural Development (DFRD). This was criticised because it only focused on the rural areas, largely sectoral and community participation was not really felt. To address this gap the Ministry of Local Government introduced Local Authority Development Plans (LADPs) specifically for local authorities.
A landmark event in the evolution of participatory planning methodology and law in Kenya was the passing of the Physical Planning Act in 1996. The Act allows for participatory planning in plan preparation and implementation. There has been an increasing awareness the role of community participation especially in the upgrading projects. Like Kenya, community participation in spatial planning is well supported by the Town and Country Planning ordinance cap 378 section 24 in Tanzania. It allows the residents of land that has been affirmed as planning area to prepare and submit the plan to planning authorities.

The challenge is that these statutory rights bestowed on residents are not a common knowledge. This can be explained by the fact that planning has been seen as too technocratic and thus a prerogative of qualified planners (Kombe & Kreibich, 2000a). Further to this, plans prepared by local communities have to comply with the normal official procedures. Principally, plans prepared by communities have to go through planning scrutiny before they can be approved for implementation. This does not auger well with the simplicity with which these plans are prepared nor is it in impetus with the growth of the informal areas for instance most of which are upgraded through community participation (Ibid).

Community participation is typically connected with the bottom-up approach (El-Masri & Kellett, 2001). This approach is more often than not contrasted with the top-down approach in which less financial, material, technical input and resources are obtained from the local community. The approach is based on the argument that:

(i) It is premised on the assumption that the community itself knows best their problems and therefore active participation is inevitable and mandatory in achieving the set goals.
(ii) It may lead to the acceptance of whatever proposals and therefore acceptance and harmony between the leaders and the community members (Magigi & Majani, 2006).
(iii) The community feels a sense of ownership to the process (McCall, 2004)
(iv) Achieve positive attitudes and creates awareness(Abbott, 1996)
(v) Utilization of community resources, accessibility to those in need, affordability and wide coverage are more likely if the people are involved in planning (McCall, 2004)
(vi) Feedback between various stakeholders becomes well established (Abbott, 1996).
(vii) It leads to a humanistic approach, and confers dignity and respect

There has been too much focus on the advantages of community participation that creates a belief that this is the best approach towards sustainable development (Lizarralde & Massyn, 2008). However, some challenges associated with the process include;

(i) There is a difficulty in integrating the community ideas within the urban project designs
(ii) There are problems of creating mutual trust e.g. between the community and the authorities
(iii) Sometimes the governments are reluctant to give power to low income groups (Davidson, Johnson, Lizarralde, Dikmen, & Sliwinski, 2007)

This leads us to the evaluation of spatial planning process especially in determining the planning standards.

### 2.6. Evaluating the planning process

The planning approach employed, whether it is the top-down or bottom-up or somewhere in between, influences the plan proposals such as standards to be applied and probably the implementation of the same. What then is the measure of the more effective approach of the spatial planning approach and
1) Relevance
This measure how sufficient the planning process in terms of:

**Adequacy of planning context:** There are elements within a plan that are not evident to the public. Adequacy of the planning context therefore explains the context and setting of the plan. In this case, the motivation and the purpose of the plan should be sufficiently adequate to explain the planning processes adopted and the standards applied. Similarly, settlement characterises tell more on the process and the standards as noted Magigi and Majani (2006) in their explanation on the need of social cohesion within a community participation approach to planning.

**Procedural validity:** This tells the public what went on during the process of making the plan. The question of “who” and “how” the plan was made is answered. Other pertinent issues such as whether or not the plan was circulated to the public and the feedback of the same considered are addressed. This procedures are measured the planning legal requirements as provided within the Physical Planning Act.

2) Efficiency
Efficiency is measured in terms of the time taken and the costs involved in the planning process. The most efficient plan is probably the one that takes the least time and the least cost to be developed. However, this is hardly the case because more often, cost is a function of the time taken.

3) Feasibility
This shows how practical plan is in terms of connection to the larger world and its guidance to implementation. This is seen in terms of; **Adequacy of scope,** which checks whether all elements such as physical, design, economic and social aspects have been considered. In this case therefore, whether or not the proposed planning standards can meet the purpose of the plan is important measure of feasibility. **Guidance to implementation** is the ultimate measure of feasibility of the plan. In this case, it is measured in terms of the priorities given to the plan and whether the agencies can be able to implement the proposals.

2.7. Concluding remarks
Three important issues are hereby noted.

- **Standards that have been proposed for road provision and social facilities in the three countries have some form of resemblance.** A few differences can be noted for instance Tanzania has wider carriageways than Kenya and Uganda, the road widths are more or less the same between the three countries. This only clarifies that the planning standards that were adopted from the colonial era have not been changed significantly (Awotona, 1988; Kironde, 2006; Syagga, 1993).

- **Efforts to revise the standards in Kenya have been lengthy and the resultant standards have not been applied or at least embraced by the municipalities.** This trend indicates that reformulating the standards does not end with an official recognition as were the code 92. The general public and the local authorities should be sensitised on the implementation of the standards.
3. Research Methodology

3.1. The research process

The research process included three phases

- Pre-field work phase; this entailed literature review focused on spatial planning, community participation and planning standards within the peri-urban areas. This assisted in getting the theoretical background to assist in conceptualizing the research study.
- Field work phase; data on the identified variables was collected through the use of Participatory GIS.
- Post field work; where analysis of the data collected was undertaken, conclusions drawn from the findings and recommendations given.

1) Pre-field work phase

This entailed literature review on scientific publications which included journals, text books, papers presented in official meetings and internet sources. The purpose of the literature review was to understand the research topic in depth. It was from this that the research problem and the goals of the research were established.

2) Field work phase

Data was collected on the ground based on a Participatory Geographic Information Systems (PGIS) methodology. This included Geo-coded transect walks, image interpretation, field observation, Focus Group Discussions, scale mapping and Key informant interviews. Data that was collected by Pamoja Trust was also used as provided to the researcher by the organisation.

3) Post-field work

This entailed data analysis within the cases selected. The analysis is dependent on the objectives and the research questions to be answered. It’s from this analysis that the conclusions and the recommendations are drawn.
3.2. **Research design**

The research strategy is designed to illustrate the processes that have been followed before, during and after the field work process.

![Diagram of research design](image)

*Figure 3-1: Components of research design*
3.3. Case study approach

According to Kumar (2005), a case study approach assumes that the case being studied is typical of cases of a similar type. This therefore implies that an intensive study on a particular case may help draw generalisations of cases of a similar nature. Similarly, Yin (2003) notes that case study may be applicable where:

1) The research is within a real world but outside control of the researcher,
2) The research is focused on present day events and
3) The research questions are explanatory.

The advantages of this approach is that the findings can be incorporated in the normal development activities, they provide both qualitative and quantitative insights, the undertaking can be done from real projects scales to life size research, the approach requires minimal control by the researcher and also the are easier to plan as opposed to other approaches (Neuman, 2005). However, the case study approach is challenged by the fact that if the study areas have little or no replication, they may give inaccurate results, confounding factors may also lead to difficulties in generalization and interpretations (Ibid).

It is hoped that the results emanate from this study will be radiated into areas of similar characteristics to those studied. Moreover case study approach focuses more on the “What”, “How”, “Why”, and “Who” questions (Yin, 2003). The present study seeks to answer the aforementioned questions hence the adoption of this approach for investigation.

Selection of case study area

The case study selection was guided by two criteria: 1). The cases were selected to represent areas planned under community participation and official planning approaches. This would provide an insight into the different planning processes and the planning standards that emanate from such approaches. 2) The cases were within the peri-urban zone which is a zone of urban expansion thereby reflecting the current urban realities.

Being a comparative approach, an ideal case study in this case would be one where both the community participation and the official approaches were applied in the same area thus having the same underlying influencing factors. Additionally, it would be practically beneficial if the said plans were already implemented and thus reflect some quantified results on the proposed planning standards. Since this was not available separate areas each representing the different approaches were selected. As the plans were not implemented yet, effectiveness of the plans could not be established. The eventual focus of the study is therefore on the different planning approaches and how they influence the planning standards proposed.

3.4. Community participation approach

The Government of Kenya is in collaboration with the UN-Habitat launched an upgrading project in 2003 within Kisumu city as a move towards meeting the Millennium Development Goal 7 target 11 on improving the lives of 100 million slum dwellers by 2020. Based on this, a social economic survey and a physical mapping have already been undertaken with community involvement. The study finds it suitable to study and reflect on these areas as a means of understanding if and how the community has contributed in determining the planning standards applicable to their settlement and compare the standards applied with those of the official approach.
The choice of a case for community participation approach

When the situational analysis of the informal settlements was undertaken in Kisumu (within the project indicated above) seven informal settlements were identified. These informal settlements include Bandani, Nyalenda, Manyatta Arab, Kaloleni, Nyamasaria, Manyatta and Obunga (UN Habitat, 2005). The choice on the settlement to be focused on was therefore based on the criteria in table 3-1.

### Table 3-1: Case study analysis

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Location of the settlement</th>
<th>Availability of plan</th>
<th>Have complete PIDs</th>
<th>Availability of high resolution imagery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obunga</td>
<td>Peri-urban zone</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bandani</td>
<td>Peri-urban zone</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Manyatta</td>
<td>Peri-urban zone</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Manyatta Arab</td>
<td>Within the old town boundary</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nyalenda</td>
<td>Peri-urban zone</td>
<td>No</td>
<td>--</td>
<td>Yes</td>
</tr>
<tr>
<td>Kaloleni</td>
<td>Within the old town boundary</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nyamasaria</td>
<td>Peri-urban zone</td>
<td>No</td>
<td>--</td>
<td>Yes</td>
</tr>
</tbody>
</table>

(Dis) qualifications

**Location criteria:** one of the fundamental considerations is that the area to be selected had to be located within the peri-urban zone. This is mainly because this study focuses on the peri-urban zone which according to (Fekade, 2000; Firman, 2000; Kombe, 2005; Magigi & Majani, 2006) is the area experiencing massive informal urbanization and hence the need of immediate attention. In this light therefore, Manyatta Arab and Kaloleni informal areas located within the old town boundaries were disqualified from this study.

**Availability of a plan:** essentially, all the informal settlements were surveyed during the situational analysis of the informal settlements within Kisumu in 2005. However, since then, only plans for Obunga and Bandani have managed to be prepared awaiting submission and approval by the Minister of Lands. The process to achieve this plan was well supported by state agencies and also there are various community initiatives on the ground. Since this study is well focused on addressing the process of spatial planning from the community and the official perspectives, the two settlements therefore offer a suitable case to addressing spatial planning from a community perspective.

**Have completed Preliminary Index Diagrams (PIDs):** PIDs are diagrams that indicate the property boundaries within an area that has been surveyed. Furthermore they show the delineations of the rights of way for planning purposes. It was therefore an important factor to consider when determining the study area. Bandani and Obunga informal settlements also qualify based on this criterion.

**Availability of high resolution imagery:** In order to undertake community mapping through Participatory GIS process, high resolution imagery was needed for the area. Available at the moment was a 0.6metre Quickbird imagery dated the year 2003. The area selected therefore had to be within the boundaries of the available imagery. Further to this the study was aimed to undertake Participatory GIS (PGIS) with the community and therefore high resolution imagery was essential.
Although Obunga and Bandani settlements qualified for these criteria, Obunga settlement was preferred on the strength that it was possible to reach the Obunga Neighbourhood Association members who were active in the plan preparation and whose contribution to understanding the process was vital.

### 3.5. Official approach

Kanyakwar B is the only neighbourhood that has officially been planned by the government within the peri-urban area of Kisumu. The area which is under leasehold tenure is just starting to experience development. Kanyakwar B, like the rest of the peri-urban Kisumu is developing without the requisite infrastructure and services and A zoning plan has been prepared for the area which was followed by a sub-division scheme by the planning department of the Municipality of Kisumu. The result of this has been a Part Development Plan (PDP) having land uses ranging from residential, educational to recreational. Kanyakwar B therefore offers an ideal case to study how the official planning is undertaken and the standards that are derived from such an approach within the peri-urban area. Its location advantages include:

- It is within the peri-urban area hence comparable with the community participation case
- It neighbours the community case making it easier to engage Participatory GIS.

<table>
<thead>
<tr>
<th>Table 3-2: Summary of the selected case study area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria</strong></td>
</tr>
<tr>
<td>Obunga</td>
</tr>
<tr>
<td>Kanyakwar B</td>
</tr>
</tbody>
</table>

### 3.6. Participatory GIS as data collection method

Two situations are evaluated herein using PGIS; the existing situation and the proposed situation of the settlements. The existing situation focused on a wider peri-urban area while the proposed situation focused on the community participation and the official planning area as described in the previous section.

The essence of a wider area for the existing situation analysis was to determine the interrelationship of the peri-urban settlements in terms of roads and social services. On the other hand, focusing on two informal areas for the proposed situation gives an in-depth analysis and the clear difference of the official and the community approach to planning the peri-urban area. The PGIS approach is thus illustrated on figure 3-2.
Primary data collection took place from the 19th September to 9th of October 2008. Within PGIS the tools employed included the use of transect walk, field observation, image interpretation, scale mapping and focus group discussions. These processes are hereby discussed:

3.6.1. Geo-coded Transect walk

Training

The community members that undertook the exercise were first trained on the use of the PGIS tools that were available. This was the use of the GPS, the camera and also exercises were done on the image interpretation and thus the transect walk was more community involving.

After the training, transect walk basically entailed systematically walking with the local residents throughout the area of interest. Field discussions, listening and discussing issues formed part of the walk (Waters-Bayer, 1994) The use of GPS to locate the positional data and situations such as social facilities, physical conditions of roads, railway crossings, bridge and drainages. This idea is borrowed from Mohammed et al (2000) who illustrate that a geo-coded transect walk entails using a GPS receiver to collect positional data and noting all information in a field note book and the attributes associated with such observations. The assumption behind the transect walk was that all the routes followed led to the key social facilities within the area.
The study made use of a Garmin 12 hand-held GPS receiver by which waypoints of the social facilities and situations along the paths such as road encroachment, bridges, railway crossing were recorded. In order to ensure that there was a backup of this, the positional points together with their attributes were also recorded in a field note book. The output of this was a transect map showing the waypoints and the tracks that were followed during transect.

During the transect walk, the existing plans were referred to in order to gauge the community’s awareness about the plans. This was some form of measure on the community involvement in the previous plans. The transect walk was one of the key indicators of community involvement within the previous planning process.

Figure 3-3: Waypoints and trucks derived from the transect walk

Figure 3-4: Recording GPS points and map interpretation

Source: field survey 2008

3.6.2. Focus Group Discussions

Several sessions of focus group discussions were held with different communities within Bandani, Obunga and Kogony. It was however difficult to get members of Kanyakwar B because the area is sparsely developed. The community members within Bandani, Obunga and Kogony are quite aware of
what happens in Kanyakwar due to the latter’s proximity to the stated neighbourhoods. As such, it was possible to glean important information concerning Kanyakwar B from the residents of the neighbouring Bandani, Obunga and Kogony.

Having undertaken the transect walk with some community members, it was easy to undertake the focus group discussions because there was already some basic knowledge on the area of study both to the community members and the researcher. The focus on the first section of the discussions was:

- The social facilities and the state of the roads on the ground.
- The existing “community-participation plans that have been prepared that have been prepared within the slum upgrading project
- The proposals on road provision and social facilities based on the plans mentioned above

The discussions at this level were aimed at getting a conceptual base of the community’s feeling on the level of involvement in the participatory process in the prior planning processes. as well as propose the way in which they would want the entire area to develop in the future.

The second section of the focus group discussions with the community came when the plan from the municipality on the Kanyakwar B area was availed. The main focus of discussion on these sessions was on the key differences and similarities between the official plans and the community participation plans and the manner in which the plans could affect development in the area.

The focus group discussants were drawn from the Obunga Neighbourhood Association which is a community organisation initiated by SANA International\(^1\) focusing on water and sanitation. Settlement Executive Committee (SEC)\(^2\) was also represented in some discussions, their main input was on the manner in which the Obunga informal area has been tackled within the current upgrading exercises and the preparation of the Obunga Informal settlement Action Plan. Other members were not necessarily attached with any organisations most of who had just finished secondary level education.

Another focus group discussion undertaken on 2/10/2008 involved the Municipality officials a group that included the deputy physical planner, municipal surveyor, GIS specialist and the land rates officer. Most of these officers were included as stakeholders in the planning of Obunga and were therefore in a

\(^1\) An NGO working with the community in the provision of water and sanitation
\(^2\) A committee drawn from the community members that took part in developing the Obunga Informal Settlement Action Plan
position to discuss at length about the plans. Further to this the official plan on Kanyakwar B area was discussed in terms of the roads standards in relation to plot sizes, other infrastructure like sewer and the rationality of possible implementation of the plan. Discussed also was the procedures involved to develop land within the area and the factors that are influencing its development.

3.6.3. Image and plan interpretation

Image interpretation was a very powerful tool to the data collection process in this research. The available 0.6 metre resolution imagery was printed to in different scales. An image printed at a scale of 1:10000 that covered the entire Kisumu city was used to give comparable information on the different developments. Two other images; one that covered Kogony and Bandani area and another covering Obunga and Kanyakwar B areas each printed at a scale of 1:4,000 were used to provide site-specific information and to assist in ground identification of features at each respective study area. Image interpretation was particularly important in determining the proposed roads and the other social facilities. Compared also were the community participation plan (Obunga) and the official plan (Kanyakwar B). This was done in order to glean the similarities and differences of the standards provided.

3.6.4. Scale mapping

“Community mapping is a mapping process carried out by the community for the community” (Water Aid, 2005) P. g. 3. Scale mapping is one example of community mapping where others include sketch mapping and ephemeral maps. Although sophisticated, scale mapping assists in generating geo-referenced information where the community can generate other maps that can facilitate discussions with interested parties (McCall, 2004). Pre-field ensured that the imagery was gridded, properly scaled with a northing to ease image interpretation.

During the transect walk and during the focus group discussions, the community indicated their proposals on the imagery. Initially, it was hoped that the proposals would be done on transparencies. This proved futile because it was taking too long and yet the proposals were not clearly visible. This led to the use of the imagery on which the proposals were directly made.

![Figure 3-6: Community developed scale map](image-url)
3.6.5. Observation

Physical observation constituted an important tool of data collection mainly done during the transect walk. This was done together with image interpretation in order to verify features on the ground. The data observed was recorded with the use of oblique photographs and downloaded for reference during focus group discussions. The road widths and building set backs were determined through pacing where it was deemed necessary.

3.6.6. Strengths of data collection method

Participatory GIS as a process of data collection was identified to have its strengths. These can be summarised as follows:

- Through the use of Quickbird imagery the study areas were visually represented community members
- Possible to visualise other formally and informally developed areas bringing in practical comparisons (the initial image printed covered the whole of the city; both formal and informal areas.)
- It was possible to compare the Kanyakwar B and the Obunga plans giving a clearer understanding of the “standards” concept.
- This approach brings together the “formal” and the “informal” planning processes while imparting some knowledge on the community on image interpretation and GPS reading.
- The scale map, a copy of which was left with the community for future references

3.6.7. Challenges of data collection method

- The process is very slow and time consuming because deliberations with the community are repetitive
- PGIS process is unstructured as compared to other methods of data collection; very little control comes from the researcher.
- The Quickbird imagery and plans are just tools of planning and therefore there is need of knowledge to explain failure of which much may not be explained.

3.7. Key informant interviews

Since it was not possible to have Focus Group Discussions with many parties who were versed with knowledge on the peri-urban developments, key informant interviews were also undertaken. The importance here was that:

- The information gathered herein was compared with that which was gathered during the focus group discussions (triangulation)
- More information than the one collected through PGIS was elicited

At the municipality key informants included the physical planning officer, the deputy rates officer, and the municipal engineer. Interviews were aimed at determining the role of municipality in within the entire upgrading process, its role in planning of Kanyakwar B area, the possibilities of the municipality in implementing the plans and the role of the GIS section in the planning process. Further clarifications on the planning processes in the peri-urban zone were sought from two former planning officers that included more insights into the collaboration of Pamoja trust with the municipality within the social economic data collection. These were in office at the initiation of the projects and during the social economic and physical data collection.
At the Central Government were the provincial physical planner, the district planner, surveyor and the land registrar who provided insights into the Kanyakwar B zoning plan, the relationship of the planning department in Municipality Council of Kisumu and Ministry of Lands and their level of community involvement in the plans developed. The officials also discussed their role in the preparation of Obunga settlement plan. The officials provided information on the importance of the Preliminary Index Diagrams in determining the roads within their area and also the challenges faced in the implementation of the plans.

Discussions with the staff of Maseno University shed light on the functionalities of Municipal Council of Kisumu in as far as spatial planning and development control is concerned. Particularly, the chairman of the Department of Urban and Regional Planning shared his experiences of the initiation of the slum upgrading process where the department at the university was directly involved. Particular in their interest is the deteriorating GIS office within the municipality which they banked on to facilitate the upgrading exercises.

From the private sector was the Centre for Urban and Regional Planning Director who was contracted by Pamoja Trust as the planning consultant. He was involved in planning for the Obunga settlement in collaboration with the Ministry of Lands. The insights derived here dealt mainly on how the community participated in making the plans, the planning standards that were used and why they were proposed, the challenges faced within the planning exercise and the possibilities of implementation of the plans.

Within the NGOs was Pamoja Trust which, other than collecting the socio-economic data within the informal settlements is very instrumental in organising the communities in self help groups. The NGO represents the community within Obunga on settlement development matters. Other NGOs that were not directly involved in plan preparation such as Cordaid and SANA International were contacted to give views on the plan prepared.

Community Based Organisations were also contacted with the view of understanding their contributions towards the planning processes within the peri-urban area. Settlement Executive Committee (SEC), Obunga Neighbourhood Association and Muungano wa Wanavijiji were the major contacts on the plans prepared.

### 3.8. Data processing and analysis

Data collected from the ground included qualitative data that was compiled during the focus group discussions and key informant interviews, the scale maps that were prepared by the community, socio-economic data that was availed by Pamoja Trust on a household survey undertaken in 2005 and the plans and PIDs for the respective settlements. The household survey data which in database files was transformed into SPSS format for analysis of some number of records. Scanning, geo-referencing and digitizing of some of the plans and the PIDs in hard copy was undertaken. This enabled the analysis of the plans using ArcGIS. Determining the allocation of services within the case study areas was conducted using both flow map and Euclidian distances in ArcGIS.

Data analysis involves first quantitatively addressing the socio-economic and spatial characteristics of the study. This is followed by qualitatively addressing the planning process and the standards as were
discussed during field work. This focuses more on the community approach to planning as an Obunga settlement case study and official approach case study as the Kanyakwar B case study.

In order eventually determine the effectiveness of the planning process and the planning standards determined herein, an evaluated generic model was adapted from Baer (1997) as summarised on figure 3-8

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Efficiency</th>
<th>Feasibility (practicability)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Adequacy of planning context:</strong> (explains the setting)</td>
<td><strong>1) Time</strong></td>
<td><strong>1) Adequacy of scope</strong>(shows how the plan is connected to the larger world)</td>
</tr>
<tr>
<td>• Motivation of the planning process</td>
<td>• Time taken to achieve the plan</td>
<td>• Have all pertinent issues been considered (physical, social, economic, design)</td>
</tr>
<tr>
<td>• Settlement characteristics considerations</td>
<td></td>
<td>• Can the planning standards accomplish their intended purpose if implemented?</td>
</tr>
<tr>
<td><strong>2) Procedural validity (Who and how of plan making)</strong></td>
<td><strong>2) Costs</strong></td>
<td><strong>2) Guidance for implementation</strong></td>
</tr>
<tr>
<td>• How collaborative is the planning process?</td>
<td>• Costs of making the plan</td>
<td>• Are there priorities for implementation?</td>
</tr>
<tr>
<td>• Were the preliminary drafts circulated to the public</td>
<td></td>
<td>• Can the responsible agency realistically be expected to implement the plan?</td>
</tr>
<tr>
<td>• Feedback and responsiveness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-7: A generic model for plan evaluation
Adapted from: (Baer, 1997)

3.9. Limitations of data collection method

- Since the beginning of the year, the government changed a lot of officers and moved them to other municipalities and Districts. The people who are currently holding the government offices are not the ones who initiated some of the plans. Some found it rather difficult to explain much about the plans. In some case, I had to hold a meeting with the planner who was previously in office, but now in a far away municipality on clarification of issues.

- Getting the officials in order to hold Focus Group Discussion sometimes proved difficult. In this case, this was compensated by the use of key informant interviews where eliciting information from an individual is much easier than having to allocate time for meetings.

- The fact that the plans have not been implemented limits the quantitative evaluation of the standards. This has however been compensated with the use of pre-implementation plan indicators (figure3-8).
4. Socio-economic and spatial characteristics of the case-study areas

This chapter addresses the socio-economic and spatial characteristics within the study area. It begins with Obunga Informal settlement as the community participation planning study area and then the spatial characteristics of Kanyakwar B area which is the official-approach planning area. It is premised on the need to understand the socio-economic and spatial characteristics of an area before spatial planning. Lack of this has been the major criticism in setting up inappropriate planning standards (Awotona, 1988; Fekade, 2000; Gulyani & Bassett, 2007; Kironde, 2006).

4.1. Obunga Informal settlement

In order to best understand the characteristics of the area, a generalised model for the informal settlement evolution will be the baseline as described in (Fekade, 2000, p.g 142; Kombe & Kreibich, 2000a; Kyessi, 2002; Nguluma, 2003). In their analysis, they describe a three stage evolution of an informal settlement as the infancy, consolidation and saturation stage. Understanding the stage of growth of settlement sets a stage for analysing upgrading efforts within the area and possibly the applicability of the planning standards that are proposed for the area. The assumption here is that the stage of settlement development explains the planning process and planning standards applied.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Name</th>
<th>Main characteristics</th>
</tr>
</thead>
</table>
| I     | Infancy stage      | • Development of the urban periphery  
• The area is predominantly agricultural  
• Land is principally a social asset normally under customary land tenure  
• Commencement of residential land use due to entry of land buyers from outside |
| II    | Consolidation phase| • A booming stage characterised by change from agricultural residential land use  
• Surfacing of informal land markets  
• The social networks among the settlers strengthens |
| III   | Saturation phase   | • Land markets are on the rise  
• Building densification through infill and encroachment on the public spaces  
• Social cohesion diminishes and collective responsibility is replaced by pursuits of private livelihoods |

Figure 4-1: Generalised model of informal settlement evolution  
Adapted from Nguluma 2003
1) Spatial characteristics

Density of development

Table 4-1: Size of structures (sq m) in Obunga

<table>
<thead>
<tr>
<th>N</th>
<th>Valid</th>
<th>Missing</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2292</td>
<td>0</td>
<td>66</td>
<td>53</td>
<td>2.3</td>
<td>49</td>
<td>560</td>
</tr>
</tbody>
</table>

The settlement exhibits a highly dense settlement with approximately 36 buildings/hectare. The density of the settlement based on roof coverage is approximately 24%\(^3\). The structures range from as small as 2.3 sq meters to 560 sq meters as explained by the high standard deviation on table 4-1. Most of the small structures are toilets, kiosks and water points. The larger structures are further subdivided into multiple dwellings thus accommodating several households per structure. The dwellings are however located haphazardly without physical harmony with the neighbouring structures. These buildings are mainly row housing and small detached structures forming clusters as shown on figure 4-2. The houses depict horizontal densification. Several buildings such as pit latrines, water points, and business kiosks protrude on the walkways. Some residential buildings mainly the rental houses also encroach on the walkways, some completely blocking the passages.

Figure 4-2: A housing cluster in the settlement

Most of the buildings in Obunga are single storey row and detached houses. About 62% of the structures constructed are semi-permanent, 12% are permanent while 26% are temporary. The row houses are simply built with a single structure having several rooms. These rooms are rented and occupied by different households. This scenario therefore explains the high number of tenants living in the area. The parcel owner’s house is most of the time separated from the rentals but there are situations that the owner lives within the rental structure.

\(^3\) This is a gross percentage of roof coverage that assumes that all land in the settlement is residential
**Land use**

Table 4-2 gives an indication that land predominantly residential much of which has been converted from agricultural use over the years. Worth noting is the residential/commercial land use where residents put up informal business within the settlements, mainly as a small extension to the main building. This is undertaken mainly to supplement the household income.

<table>
<thead>
<tr>
<th>User</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>2.0</td>
</tr>
<tr>
<td>Institutions</td>
<td>2.3</td>
</tr>
<tr>
<td>Residential/commercial</td>
<td>8.9</td>
</tr>
<tr>
<td>Public facility</td>
<td>0.5</td>
</tr>
<tr>
<td>Residential</td>
<td>85.3</td>
</tr>
</tbody>
</table>

The records within the survey department in the Ministry of Lands indicate that Obunga informal settlement has 2905 plots. These plots range from 20 sq m to 6,937 sq m. The planning standards stipulate minimum plot sizes for slum rehabilitation and upgrading schemes as 223 sq metres for detached houses, 148 sq metres for semi-detached and 111sq metres for row housing. This means that according to Ministry of Lands almost all the plot are within their minimum plot size limits. On the contrary, much development has taken place unrecorded. Due to the informal land development in the area, the settlement has outgrown the survey records.

**Roads and social facilities**

The preliminary Index Diagrams (PIDs) that gave the outlined survey of the area provide for the rights of way for the area. The primary road is the major by-pass that is 60 metres wide. A secondary road that was initially designed as a 6 metre road runs through the settlement to connect to Kakamega road. Figure 4-6 indicates that most of the plots were designed to be accessed via footpaths while a few of the plots have no means of direct public access. Unfortunately as mentioned elsewhere, several buildings such as pit latrines, water points, and business kiosks protrude on the walkways and others fully blocking the footpaths.

---

4 Discussions with the District surveyor
The settlement has no public primary school. It is served by Kudho Primary School which is located within Kanyakwar B approximately 1km away from the centre of Obunga settlement. This therefore means that many students travel further than the required primary school distance threshold which is 300-500metres. Also lacking in the settlement are facilities for secondary school education. The nearest secondary school where most of the Obunga students attend is Kanyamedha School situated within Bandani settlement 3kms from the centre of Obunga settlement. This is also below the stipulated standards which recommend 500-600 metres travelling distances to secondary schools.

Residents here rely on the New Nyanza General hospital for treatment and two municipal health facilities located one in Lumumba and another off Obote road in the industrial area. All these health facilities are within the formal area of Kisumu which is approximately 4kms from the peri-urban area. Poor access to the existing health institutions has led to the people resorting to use of private clinics and small pharmacies which are not only inadequate but also expensive considering the income levels in Obunga.

2) Socio-economic characteristics

According to the Pamoja Trust database, Obunga informal settlement accommodates approximately 4800 households with an average household size of 5.1 persons. The population in the settlement is therefore approximately 24,500 persons. With an area of 63.6 hectares, the settlement has a population density of approximately 385 persons per hectare. The population is almost equally distributed between male and females (50.5% being male and 49.5%). About 40% of the household heads are self-employed in the informal sector while 9% have some form of employment in the formal sector as civil servants. The others are casual labourers in the industrial area and juakali\(^5\) sector. Some of the informal livelihood activities are undertaken within the neighbourhood and also informal businesses along the main road and by-pass.

\(^5\) Small scale industries practised in the informal sector
Table 4-3: Household size in Obunga

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Valid</td>
<td>4,804</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>8</td>
</tr>
<tr>
<td>Mean</td>
<td>5.14</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4-5: Household size distribution

Approximately 40% of the households are owner-occupiers while the rest - 60% are tenants. About 30% of the land owners have acquired the land through purchasing, 9% through inheritance and 1% through government allocation. The ratio of tenants to land owners has an effect on the social cohesion, networks and collective responsibility in as far as dealing with settlement developmental matters (Magigi & Majani, 2006: pp 1078).

Interestingly, majority of the land owners have some form of evidence to indicate land ownership. Contrary to this, the municipal surveyor acknowledges that land sub-divisions are undertaken without undergoing the formal processes. A study undertaken in Kisumu’s peri-urban area showed that informal land markets operate with local recognition. This may therefore explain the high percentage of landowners with evidence of land ownership evidence (figure 4-6). Availability of the land evidence document therefore does not infer the use of formal land transactions; on the contrary, local actors within provide land transaction documents that are locally recognised (Okonyo, 2008, pp 60)

Figure 4-6: Nature of land acquisition by landowners and evidence of land ownership
4.2. Official planning Kanyakwar B area

1) Spatial characteristics
The plan of Kanyakwar B started off with a zoning plan (figure 4-8) that stipulated the different land uses for development purposes. Much of the land (67.7%) was designated for residential purposes, transportation (14.1%) and a large chunk of 14.2% for recreational purposes. This is explained by the rough terrain on the northern part of the settlement towards the Kogony hills.

<table>
<thead>
<tr>
<th>User</th>
<th>% coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>67.7</td>
</tr>
<tr>
<td>Educational</td>
<td>2.0</td>
</tr>
<tr>
<td>Open space</td>
<td>0.4</td>
</tr>
<tr>
<td>Industrial</td>
<td>1.6</td>
</tr>
<tr>
<td>Transportation</td>
<td>14.1</td>
</tr>
<tr>
<td>Recreational</td>
<td>14.2</td>
</tr>
</tbody>
</table>

Kanyakwar B Part Development Plan (figure 4-9) presents varying plot sizes where residential plots have already started being sub-divided. All the plots are safely within the development standards of the council’s formal areas which are 450m². The plots herein have been allowed with a large buffer with the justification that the area has not been instituted with sewers and therefore need for on-site sanitation.

Housing
Although minimal development in terms of housing construction has already begun, the settlement portrays diverse characters in terms of housing typology and space uses. Unlike Obunga, most of the houses that are being constructed here are permanent. Most of them are modern single-story detached dwellings with spacious compounds. The relatively low plot coverage has enabled practicing urban agricultural and poultry keeping. Also appearing are the semi-detached permanent housing units mainly for rental that are already being constructed devoid of infrastructure.

---

6 Discussions with the municipal planner
Figure 4-9: Housing typologies in Kanyakwar B.

Roads and social services

Due to the fact that the area is not much developed, most of the roads existing in the area are informal. Residents of the neighbouring informal settlements have in the past developed informal routes connecting to the main roads. These routes do not however follow the proposed roads and therefore people trespass through unfenced property (figure 4-11). This explains potential future disputes between developers and residents as was observed through focus group discussions with the community members as they mapped out this with the belief that they are the formal routes. Social facilities on the other hand have been proposed in the Part Development Plan.

2) Estimated population of Kanyakwar B

The estimated population density within Kanyakwar B is 40 households per hectare. This is based on the provisions of the semi detached and row housing within the high density formal neighbourhoods (Ministry of Lands, 2005: pp 9). With an average household size of 5 persons, the population per hectare therefore is expected to be approximately 200 persons per hectare.

3) Relationship of the settlements

The nature of the peri-urban area as mapped using participatory GIS is outlined on figure 4-11 and table 4-5. It gives an impression how the peri-urban area is functioning based on more settlements than the ones in focus. Most of the services are currently being shared among these settlements.

Figure 4-10: Community developed scale map
Table 4-5: Relationship of the settlements

<table>
<thead>
<tr>
<th></th>
<th>Obunga</th>
<th>Kanyakwar B</th>
<th>Bandani</th>
<th>Kogony</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land legal status</td>
<td>Customary land to freehold</td>
<td>Customary land to government leasehold</td>
<td>Customary land to freehold</td>
<td>Customary land but currently changing to freehold</td>
</tr>
<tr>
<td>Density of development</td>
<td>Densely built</td>
<td>Sparsely built</td>
<td>Relatively dense</td>
<td>Relatively dense</td>
</tr>
<tr>
<td>Main landuse</td>
<td>Mainly residential</td>
<td>Residential, agricultural, undeveloped land</td>
<td>Residential and scanty agriculture</td>
<td>Residential and agricultural; having rural character</td>
</tr>
<tr>
<td>Width of roads</td>
<td>Narrow (roads encroached)</td>
<td>Mostly informal roads and footpaths</td>
<td>Narrow (roads encroached)</td>
<td>Defined rural roads measuring the characteristic 6m</td>
</tr>
<tr>
<td>Nature of roads</td>
<td>Unpaved surface, poorly drained</td>
<td>Well drained</td>
<td>Unpaved surface, poorly drained</td>
<td>Unpaved but well drained defined roads</td>
</tr>
<tr>
<td>Schools</td>
<td>No school</td>
<td>Kudho primary school</td>
<td>Kanyamedha primary school</td>
<td>Okoth Ogendo primary school</td>
</tr>
<tr>
<td>Secondary school</td>
<td>No school</td>
<td>No school</td>
<td>Secondary school sharing a plot with the primary school</td>
<td>No school</td>
</tr>
<tr>
<td>Health facilities</td>
<td>No health facility</td>
<td>No facility</td>
<td>No facility</td>
<td>One Health facility</td>
</tr>
</tbody>
</table>

4.3. Summary of findings

Based on the model of the informal settlement growth, Obunga depicts both the consolidated and the saturation phase characteristics. These characteristics are;

- The area is marked with increasing informal land markets
- Much of the land has already changed from agricultural to residential
- Building density is relatively high with 36 buildings per hectare. This is concluded in reference to Kombe and Kreibich (2000a:pp 80) who note that housing densities in old informal settlements range from 40-50 houses per hectare.
- Some development have encroached on the public spaces

This therefore shows that the settlement is in the shift from the consolidated to the saturated stage of informal settlement development. Further to this, most of the residents do not have school and health facilities. Kanyakwar B on the other hand has started off with a clear development plan. Occupation has however commenced before any infrastructure is in place revealing the realities of the peri-urban area.

The subsequent two chapters address the planning process employed and the planning standards determined within the case study areas.
5. The official approach-Kanyakwar B

This chapter addresses official approach as a process of achieving a spatial plan for Kanyakwar B settlement. Three steps are undertaken within the approach; the process of achieving the plan, the standards that are proposed within the plan and the effectiveness of the approach and the proposed standards.

**Figure 5-1: The procedure of analysing the official planning approach**

5.1. The process of official planning approach

The land within Kanyakwar B was expropriated from the original owners in 1972 when the urban boundaries were expanded. It has in the past received attention from the planning departments of both the Ministry of Lands and the municipality.

Kanyakwar B is located within a zone of urban expansion. According to the situational analysis undertaken in Kisumu, it was proposed that the area should provide a land bank for future residential development. Strategically located, bordering two informal settlements, Kanyakwar was proposed to provide affordable buildable land for the low income earners within the informal areas and the expected in-migrants. UN Habitat (2005:pp 5) notes that “areas with lower population densities, like Kanyakwar, provide opportunities to establish land banks for municipal development and particularly in connection with slum upgrading strategies” the municipal authorities conquer with this and they have this remark; *Kanyakwar B beyond doubt provides suitable municipal land which is proximate to the Central Business District and thereby a good vent for the land for shelter problems within the municipality*.

Kironde (2006:pp 460) however notes that the “regulatory structure adopted in many urban areas of the developing countries has been blamed for aspiring at unrealistically high planning standards and for being bureaucratic thus putting legal land for shelter out of reach for the poor households”. In order for households to acquire land for development within an urban area, typical steps should be followed to allocate land available. Table 5-1 illustrates the formal process that is followed from the preparation of the plan to the granting of titles to individuals for development purposes.

---

7 Focus Group Discussion with the municipal officials
Table 5-1: Typical steps followed for legal land allocation within urban areas

<table>
<thead>
<tr>
<th>Action</th>
<th>Time*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Director of physical planning prepares a development plan or Part Development Plan (PDP) for the general purpose of guiding development of infrastructural facilities and services.</td>
<td>6</td>
</tr>
<tr>
<td>2. Valuation of plots to establish their market value by a chief valuer</td>
<td>1</td>
</tr>
<tr>
<td>3. Advertisement of the plots in the Kenya Gazette by the Commissioner of Lands. The applications forms obtained at a non-refundable fee</td>
<td>1</td>
</tr>
<tr>
<td>4. Interested persons collection and fill in request forms from the local authorities</td>
<td>1</td>
</tr>
<tr>
<td>5. Submission of completed request forms and payment of a refundable fee</td>
<td>-</td>
</tr>
<tr>
<td>6. Recording and listing of all applications</td>
<td>3</td>
</tr>
<tr>
<td>7. Consideration of applications and balloting for allocation</td>
<td>1</td>
</tr>
<tr>
<td>8. A list of successful applicants is compiled and notified to the Commissioner of Lands</td>
<td>1</td>
</tr>
<tr>
<td>9. Issuing of allotment letter by the Commissioner of Lands to the beneficiaries indicating development conditions</td>
<td>1</td>
</tr>
<tr>
<td>10. Payment of stamp duty and other fees (e.g. ground rent, road charges etc)</td>
<td>1</td>
</tr>
<tr>
<td>11. The Surveys department commences plot survey, preparation of deed plan and the approval process</td>
<td>24</td>
</tr>
<tr>
<td>12. Preparation of the certificate of title, signing and sealing by the Commissioner of Lands</td>
<td>12</td>
</tr>
<tr>
<td>13. Registration of certificate of title by the Chief Land Registrar</td>
<td>6</td>
</tr>
<tr>
<td>14. Notification of owner to collect Title</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 58

* Time in months

Several important issues are noted in this process; these issues are discussed in preceding sections.

5.1.1. Preparation of the plans

Kanyakwar B zoning plan was prepared by the Ministry of lands planning department. The primary objective of the plan is to clearly indicate the types of activities that are acceptable in different locations identified within the neighbourhood while providing buildable land through provision of both physical and social infrastructure. The zoning plan showed the various land uses such as residential, recreational, and educational and the like. When the zoning plan was prepared, like in many other areas, it was expected that the preceding planning to adhere and ensure that it is implemented. Unfortunately, the zoning plan was not approved by the Authorities. Guided by the Land Planning Act (Cap 303) before it was repealed, section 8 of the Act empowered the Minister to:

“Approve any town plan, area plan, sub-division and use plan or any amending plan submitted under this Part of these Regulations either without modification or subject to such conditions or modifications as he may consider necessary, or may refuse approval and may require the preparation and submission of new plans.” (Government of Kenya, 2004a)

The provincial planner attributes such a lack of approval by the authorities as the result of the bureaucracies and the long processes involved in plan approvals. In practice, it may take longer than the six months stipulated in the Physical Planning Act.
5.1.2. Land allocation

Most of the land in the area was allocated through direct application and administrative approval system. The applicants directly applied land to the Municipality after which the applicants received allotment letters. The applicant was however required to pay 20% of the market value of the land as a standing premium. The successful applicants were awarded leasehold interests in the area.

Various disadvantages accrued with this system of allocation. Since the plots were not advertised, it was not clear how transparent the system of allocation was. Moreover, Kironde (2006) notes that the traditional “acquisition-clearance-planning-allocation” approach to getting urban land left most of the former owners displaced from the land they previously owned mostly held under customary land tenure. This phenomenon is also observed in Kanyakwar B where most of the previous owners, after compensation could not afford land in the planned area, some of them are living in Obunga and Bandani informal settlements as tenants8.

---

8 Discussions with Bwana Laurence who owned land in Kanyakwar B (currently residing in Obunga informal settlement)
5.1.3. Stakeholder’s role in the planning process

The Government

The Act empowers the Director of Physical planning to prepare local physical development plans. According to sub-section 3, the local physical development plans may be prepared for the general purpose of guiding and coordinating development of infrastructural facilities and services of an area (Government of Kenya, 1996). The District Planning office therefore represents the Director of Physical planning on matters of land development within their area of jurisdiction. The municipal planner and other municipality officials to ensure that the plans are implemented as per the plans and standards set are adhered to. This therefore means that there are two-tiers of development authorities.

The regulatory framework is conceived and executed mainly by the ministry of lands which is under the central government. The local authorities may instigate their own land use plans but the authority of endorsement and approval lies with the central government. The other agencies providing infrastructure and services such as water, roads, electricity, schools, health and the like operate either independently while others are departments within the municipality. However they work within the municipality jurisdiction.

Planning consultants

It is not until 1996 when the Physical Planning Act (Cap 286) was enacted that the role of registered private planners recognized. The Local Authorities may consult registered private practicing planners on matters of land use development. However, the services of the consultants are more exploited by the developers when they want to undertake development. The lengthy procedures and the slow pace of approving land development have resulted in the use of these consultants to prepare and follow up the development approvals within the municipality. A private planner operating within Kisumu noted that “the bureaucracies at the municipality and the slow pace in development approval is worrying, its therefore easier to hire a private planner who undertakes the process of development and the follow up, of course at a fee”.

The role of the community/developers

As noted earlier, the land was acquired through the traditional “acquisition-clearance-planning-allocation” approach; the former land owners from whom the land was acquired were not consulted. Of course the rationale behind this is that the government has compensated them and therefore they have no further interest in that land. This therefore meant that the plan had no input from the community which is not surprising because the role of the community within the planning process has only been appreciated in the recent past, yet gradually (Rakodi, 2001).

The community is therefore mainly involved in the land development where they determine the type of development that they would want to undertake within their plots. This comes in the form of change of land use and sub-division and building constructions which are the main land developments within Kanyakwar B currently. It is an obligation under the conditions in a lease that any land development must be approved by both the Commissioner of Lands and respective Local Authority. The importance of this requirement must be emphasized because unapproved constructions may be dangerous to human lives, health and the general environment.
Table 5-2: The role of different actors in land development process

<table>
<thead>
<tr>
<th>Task</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Development application is accompanied by a plan duly prepared as provided by the Physical Planning Act. 1996 section 41 (2)</td>
<td>7 days</td>
</tr>
<tr>
<td>2. Building plans should be provided showing drawings and stipulations prepared by a Registered Architect and the site plans by a registered planner</td>
<td></td>
</tr>
<tr>
<td>3. The local Authority receives the development application, circulates it to the District Physical Planner and other relevant authorities in the District for comments the District Land Officer, District Surveyor</td>
<td>30 days</td>
</tr>
<tr>
<td>4. The Physical Planner considers and processes the application and record in a register. He and the other authorities then send it back to the local Authority with their comments</td>
<td>7 days</td>
</tr>
<tr>
<td>5. The local Authority approves or disapproves the development communicated in writing to the applicant based on the comments of the authorities (there are however conditions see note 6)</td>
<td>60 days</td>
</tr>
<tr>
<td>6. Conditions to approval of any application for permission to develop are stipulated on form PPA 5 (Certificate of compliance) by the District Physical Planning Officer. The certificate is issued when the applicant accomplishes all conditions attached to the approval on Form PPA 2</td>
<td>90 days</td>
</tr>
<tr>
<td>7. Where development entails subdivisions the developer furnishes the surveyor with consent by the Land Control Board and the District physical planner. The surveyor prepares survey plans after which the physical planner issues the PPA5 form indicating approval of such a plan</td>
<td>90 days</td>
</tr>
<tr>
<td>8. If the land is under leasehold, All applications for development permission circulated to the Commissioner of Lands/District Lands Officer for consent before approval by the local authority. Once approval for such applications is granted, the local authority will communicate this decision to the Commissioner of Lands/District Land Officer through Form PPA 2 and form PPA 5 to enable the Commissioner of Lands effect the necessary documentation as required under the relevant laws.</td>
<td>30 days</td>
</tr>
<tr>
<td>9. A local authority can issue an Enforcement Notice where development has taken place without development permission or in contravention of development condition. Such a Notice should specify the offensive development or condition and the corrective action required within a specified period.</td>
<td>14 days</td>
</tr>
<tr>
<td>10. The Minister has power to direct a local authority take such action, as he considers appropriate for development control without undue delay on the part of any person.</td>
<td>30 days</td>
</tr>
</tbody>
</table>

Total 268*  
Approximately 9 months  
Source: Ministry of Lands

Two issues hereby noted are that the process of getting the development permission is long and tedious, its expensive and confusing not just to the developer but also to the different departments that

9 The application is made on a form PPA 1 form shown on appendix  
10 That the plan be prepared by a registered Physical Planner.  
11 The approval or disapproval is made on a form PPA 2 form shown on appendix  
12 This is the shortest time that can be taken; at times it takes more than three years as observed by a private planner in Kisumu and Nairobi.
have to keep all these records. Any regulatory system entails a substantial administrative capacity which is typically deficient within these government departments. The problem is amplified by the fact that these offices operate the manual documentation and filing system.

The involvement of the community in both the planning and land development processes is low. In this regard therefore its conclusive that the role of the community in both the planning process is more passive than active.

5.1.4. The rationale of the proposed standards

The area has been planned with the inclusion of infrastructure in terms of roads and social facilities such as schools and health facilities. Planned through a typical top-down approach, the social services and the roads have been prepared in reference to the national planning standards. The rationale that has been applied in setting the resultant standards include;

- Way leaves for trunk services such as water and sewerage, underground telephone cables and high voltage power lines, when provided along road reserves require additional provision of the road reserve.
- Additional street furniture that has to be provided where in most instances roads have to accommodate several functions that have to be separately provided in design.
- Further, the role of the informal sector in job creation in urban areas has now been recognized. Most of the informal activities are footloose and heavily dependent on passing trade. They therefore require specific provision when located within road reserves.
- It is recommended that the width of streets or access roads in a residential area be determined by the number of dwelling units or plots to be served. Further to this, the street network be hierarchical so that in the future urban areas will have a high rise urban morphology in residential areas. The minimum street width differs with the number of the plots to be served for instance for 1-20 plots, a 9 metres street is advocated while a 12 metres road should serve a 20-50 plots (Ministry of Lands, 2005)
- That the plot sizes for the various facilities be adequate to provide future expansions for additional classes and laboratories for schools and maternity facilities for health centres.
- The facilities should be adequately located in proximate walking distances to serve the residents

5.2. The standards achieved from the process

5.2.1. Planning for roads provision

The national planning standards handbook provides guidelines that should be followed when undertaking plans for respective settlements (Government of Kenya, 1996). Ideally, the factors that should be borne in mind while determining the roads standards are; storm-water drainage, water supply, sanitation, electricity and street lighting (Payne, 1984).

These infrastructures determine the road reserve that is needed for their provision. Access and circulation is also a major determinant where planners determine the size of the roads developed in relation to; the number of plots to be served by the roads, the size of the plots, and the density of development (floor area ratio, plot ratio and plot coverage).
Table 5-3: Land use coverage in Obunga

According to Kanyakwar B zoning plan, transportation has consumed 14.1%. Large carriageways are generally justified on the grounds of lack of public space (Kironde, 2006). However, it’s observed on table 5-3, open space and recreation have already been provided for within the neighbourhood. The part development plan has had the access roads provided which measure from 9-12 metres as indicated in figure 5-4. The additional access and circulation has resulted in an increase of the land consumed by transportation to 105 Ha from the total land area of 631 Ha. This therefore means that 17% of the total land has been consumed by transportation. The percentage is obviously expected to increase further given that only a small proportion of the plots have been subdivided to residential plots. Figure 5-3 represents a situation where the large plots are subdivided resulting into more plots with access roads.

Figure 5-3: A section of the Kanyakwar B plan

Table 5-4: Standards adopted in Kanyakwar B

<table>
<thead>
<tr>
<th>Type of road</th>
<th>Right of way (ROW)* (m)</th>
<th>Carriageway (CW)* (m)</th>
<th>Kanyakwar B area (ROW) (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Distributors</td>
<td>60</td>
<td>7.5 or more</td>
<td>60-70</td>
</tr>
<tr>
<td>District Distributors</td>
<td>25</td>
<td>7.0 or more</td>
<td>40-50</td>
</tr>
<tr>
<td>Local distributor roads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No direct vehicular access to Individual plots</td>
<td>18</td>
<td>5.5</td>
<td>30-36</td>
</tr>
<tr>
<td>Major access road exceeding 150m in length</td>
<td>15</td>
<td>5.5</td>
<td>15</td>
</tr>
<tr>
<td>Access road not exceeding 150m in length</td>
<td>12</td>
<td>5.5</td>
<td>9-12</td>
</tr>
<tr>
<td>(normal Residential Street)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service lanes</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyclist lanes</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Footpaths</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*Right of way (ROW) *Carriageway (CW)
1) Road widths

**District Distributors (collector)**

These are the highest order roads feeding into the local distributor roads. The road widths constitute of the carriageways and the road shoulders. Road shoulders are not intended for regular traffic function. In African context these space is used for conflicting functions such as walking, parking, loading and unloading (both pedestrians and luggage), petty trading and overtaking manoeuvres (De Langen, 2001). Carriageways have varying widths ranging from 7 to 8 metres on primary distributors. Study undertaken in African cities specifically in Nairobi and Dar es salaam De Langen (2001) recommends a 6 metre wide carriageway for collector roads and 1.5 metre cycle tracks as illustrated in figure 5-4. The standards proposed for Kanyakwar B are higher than the national standards provisions.

![Figure 5-4: An ideal district collector road](image)

**Local distributor (collector) roads**

These roads are the links between access roads and the district collector roads. Ideally these links should have a 6 metre carriage-way with open drains on the sides and walkways (ibid). A separated walkway is provided because failure of this increases traffic accidents and also significantly reduces the performance of the road. Unfortunately, a study undertaken in Kisumu shows those walkways are non-existent and undefined (Kisumu Municipal Council 2005) Figure 5-6 shows a schema representing an ideal local collector road within African cities.

![Figure 5-6: An ideal local collector road](image)

National planning standards stipulate 18 metres road reserves for local distributor roads with no direct vehicular access to individual plots (figure 5-7). Kanyakwar B on the other hand has planned for 30-36 metres as the provision for these roads (figure 5-8). Ideally, the roads are designed with 5.5 metre wide carriageway with open shoulders and no designated walkways. Major collector roads exceeding 150m in length are designed with a 15m width based on the expected volume of people and plots to be served by the roads (Ministry of Lands, 2005).
Access roads

These are also a form of local distributor roads which are in two types: the major access roads exceeding 150m in length and the normal residential streets. Various options are provided for access road which is dependent on many factors such as the amount of reserve available, safety, speed and the cost of construction. In Kanyakwar B these are the roads that are proposed to provide access to the plots. However the proposed width ranges from 9-12 metres meaning that they are will be designed to accommodate motorised transport. Figure 5-10 indicates that Kanyakwar B access road standards are higher than what is regarded as ideal for the developing countries (De Langen, 2001).

Surface material

According to the provisions, unless otherwise agreed by the local council, all roads shall be levelled, paved, kerbed, channelled, lighted and sewer ed prior to their recognition and thus classification. In the case of Kisumu, other than the roads constructed during site and service scheme and the main corridors, most of the other roads are graded and compacted due to low budget allocation for paving roads. Although Kanyakwar B proposes paved roads it is clear that this provided standards may not really match up with Kanyakwar B kind of development.

---

13 Discussions with the city engineer and field observations
From the foregoing analysis, it is clear that most of the roads that have been designed to serve Kanyakwar B are way above the standards required. While this is justifiable because the municipality is expecting the area to have high populations of approximately 200 persons per hectare, two concerns hereby arise:

- Aren’t the roads too wide for a peri-urban area where buildable land is scarce to accommodate the increasing urban populations?
- Assuming that the municipality implements the proposals, how can the rights way be guarded to ensure that encroachment is avoided bearing in mind that municipalities have been lenient in controlling development?

5.2.2. Social services

Schools

The social services that are proposed in the area were expected to serve the population on Kanyakwar B. The proposed schools measure 3 and 7.7 hectares as compared to the national standards that provide for 3.25 hectares. As it is already, Kudho primary school which is located herein serves the larger population of Obunga informal settlement (which neighbours Obunga). The plot sizes proposed for secondary schools are even larger especially because the region has only one secondary school serving Obunga and Bandani settlements.

Plot sizes

Table 5-5: Summary of the standards for the proposed & existing schools

<table>
<thead>
<tr>
<th>User(social facility)</th>
<th>Kanyakwar B standards</th>
<th>National standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary schools</td>
<td></td>
<td>3.25Ha</td>
</tr>
<tr>
<td>1. Proposed</td>
<td>3.0Ha</td>
<td></td>
</tr>
<tr>
<td>2. Proposed</td>
<td>7.7Ha</td>
<td></td>
</tr>
<tr>
<td>3. Existing</td>
<td>2.7Ha</td>
<td></td>
</tr>
<tr>
<td>Secondary schools</td>
<td></td>
<td>3.4-4.5Ha</td>
</tr>
<tr>
<td>1. Proposed</td>
<td>5.2Ha</td>
<td></td>
</tr>
<tr>
<td>2. Proposed</td>
<td>8.1Ha</td>
<td></td>
</tr>
<tr>
<td>Health centre</td>
<td>6 Ha</td>
<td>2 Ha</td>
</tr>
</tbody>
</table>

Coverage/Distances

The distance and the coverage of the schools differ according to the standards. In the case of primary schools the threshold distance that should be travelled is 300-500 meters while that of secondary schools is 500-600 meters. Figure 5-13 indicates that although the area has been provided with primary schools, more than sixty percent of the expected population will have to travel longer than the
standards stipulated within the official standards. The maximum distance to be travelled is 1.8km to primary schools. The estimated population of Kanyakwar B is approximately 125,000 persons under an area of 631 Ha. In that case, the distances to be travelled, and the catchment population expected are illustrated on figure 5-12

Table 5-6: Summary of the standards for the primary schools

<table>
<thead>
<tr>
<th>Distances</th>
<th>Area (ha)</th>
<th>Percent</th>
<th>Catchment population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-300</td>
<td>84.5</td>
<td>13%</td>
<td>16,887</td>
</tr>
<tr>
<td>301-500</td>
<td>132.7</td>
<td>20%</td>
<td>26,500</td>
</tr>
<tr>
<td>501-1000</td>
<td>288.1</td>
<td>43%</td>
<td>57,546</td>
</tr>
<tr>
<td>1001-1500</td>
<td>131.4</td>
<td>20%</td>
<td>26,240</td>
</tr>
<tr>
<td>1501-1900</td>
<td>27.3</td>
<td>4%</td>
<td>5,456</td>
</tr>
</tbody>
</table>

Figure 5-12: Service areas by primary school

Table 5-7: A summary of the standards for the proposed secondary schools

<table>
<thead>
<tr>
<th>Distances</th>
<th>Area (ha)</th>
<th>Percent</th>
<th>Catchment population</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-600</td>
<td>186.0</td>
<td>28%</td>
<td>37,151</td>
</tr>
<tr>
<td>601-900</td>
<td>152.2</td>
<td>23%</td>
<td>30,397</td>
</tr>
<tr>
<td>901-1200</td>
<td>129.4</td>
<td>19%</td>
<td>25,850</td>
</tr>
<tr>
<td>1201-1800</td>
<td>147.0</td>
<td>22%</td>
<td>29,357</td>
</tr>
<tr>
<td>1801-2400</td>
<td>49.4</td>
<td>7%</td>
<td>9,872</td>
</tr>
</tbody>
</table>

The distance threshold to secondary schools is 500-600m. Figure 5-13 indicates that although two schools are provided, only 28% expected population are within the travel distance thresholds stipulated within the official standards. The maximum distance to be travelled is 2.4km to secondary schools.

Figure 5-13: Service areas for proposed secondary schools
Health facilities

Table 5-8: A summary of the standards for the proposed health centre

<table>
<thead>
<tr>
<th>Distances</th>
<th>area covered</th>
<th>percent</th>
<th>Catchment population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-500</td>
<td>78.3</td>
<td>12%</td>
<td>15,662</td>
</tr>
<tr>
<td>501-1000</td>
<td>172.1</td>
<td>27%</td>
<td>34,418</td>
</tr>
<tr>
<td>1001-1500</td>
<td>194.8</td>
<td>31%</td>
<td>38,956</td>
</tr>
<tr>
<td>1501-2000</td>
<td>135.6</td>
<td>21%</td>
<td>27,122</td>
</tr>
<tr>
<td>2001-2500</td>
<td>50.2</td>
<td>8%</td>
<td>10,042</td>
</tr>
</tbody>
</table>

The plot size of the proposed health facility is larger than the national standards requirements. This is however in line with the requirements of future expansions as proposed within the official planning. This means that in the future if resources are available it can be expanded to provide more services like those of sub-district hospital of in-patients and maternity services. The official standards stipulate the travel distances to a health centre as 0.5 to 1 kilometre.

Figure 5-14: Service areas by the health centre

If this were to be strictly observed, then it therefore means that all people will reach the hospital within approximately 15 minutes walking time. How practical is this?

Compare this with a threshold of 40 minutes’ walk time as used in Amer (2007:pp 211) in his study in Dar es Salaam. In this case, an average walking speed of 4km per hour yields a maximum travel distance of 2.6km. In this case therefore all the residents are covered within a 40 minutes walking distance. The threshold distance proposed herein reflects more of the reality than what the prevailing standards.

5.3. Emerging issues on the planning process and standards

Stakeholder participation
The two-tier institutional system has been a challenge to planning within the municipality. There is the Central Government and the local authorities both of who are endowed with planning responsibilities within the area. The zoning plan has been made by one specialist planner within the ministry of lands. The Part Development Plan is then done by a planner within the municipality. The then designing of the roads should be undertaken by undertaken by a specialist engineer within the Municipality. Where as in reality these sectors are closely linked and that the decisions taken on the standards of provision of one sector may well adversely affect another sector, there is little collaboration in the undertaking. This therefore has followed the “traditional approach to the provision of services and infrastructure has been and has to a large extent remained to that of giving an already agreed layout to engineers with instructions to design the various infrastructure networks to fit the plan and to meet the existing design standards” (Payne, 1984:pp 233).

The plan has already been provided with adequate rights of way
Borrowing Angel’s (2008: pp 149) argument, “the municipality should be able to reserve adequate rights of way for road networks that can carry public transport and trunk infrastructure into areas of

Figure 5-14: Service areas by the health centre

Compare this with a threshold of 40 minutes’ walk time as used in Amer (2007:pp 211) in his study in Dar es Salaam. In this case, an average walking speed of 4km per hour yields a maximum travel distance of 2.6km. In this case therefore all the residents are covered within a 40 minutes walking distance. The threshold distance proposed herein reflects more of the reality than what the prevailing standards.

5.3. Emerging issues on the planning process and standards

Stakeholder participation
The two-tier institutional system has been a challenge to planning within the municipality. There is the Central Government and the local authorities both of who are endowed with planning responsibilities within the area. The zoning plan has been made by one specialist planner within the ministry of lands. The Part Development Plan is then done by a planner within the municipality. The then designing of the roads should be undertaken by undertaken by a specialist engineer within the Municipality. Where as in reality these sectors are closely linked and that the decisions taken on the standards of provision of one sector may well adversely affect another sector, there is little collaboration in the undertaking. This therefore has followed the “traditional approach to the provision of services and infrastructure has been and has to a large extent remained to that of giving an already agreed layout to engineers with instructions to design the various infrastructure networks to fit the plan and to meet the existing design standards” (Payne, 1984:pp 233).

The plan has already been provided with adequate rights of way
Borrowing Angel’s (2008: pp 149) argument, “the municipality should be able to reserve adequate rights of way for road networks that can carry public transport and trunk infrastructure into areas of
projected population expansion”. These proposals should avoid any inconveniences in the future on the need to adjusting and altering the boundaries of parcels abutting road reserves and the rights of way. Further to this the parcels will have adequate accessibility. On this matter, the provincial planner notes that

*Providing wide road reserves means that we can accommodate higher populations within the area. Notice that the peri-urban area has very little government land, allowing high rises will accommodate more households and may be deal partially with the shelter problem. Higher populations will demand wider roads for access, better services such as sewer.*

While such this justification can be quickly understood, a further look into the lessons of sites and service schemes reveal otherwise. The main guideline to cost effective provision for access and circulation is in the percentage of the total project area taken up by roads or footpaths. These projects reduced from 40% to 20% of the access and circulation. A general rule provides that most efficient layouts will result from providing a cluster of housing served by footpath access from vehicular access cul-de-sac, which is turn connected to vehicular circulation routes (Payne, 1984: pp 239).

Kanyakwar B has its 17% covered by transport infrastructure. Is sub-division plan continues to allow for 9 metre and 12 metre access roads as proposed, then definitely the percentage of roads will be more than what has been empirically challenged in the sites and services.

**Standards for services**

As observed larger populations are not covered within the stipulated maximum travel distances to schools. However, the plot sizes area adequate to accommodate more students in the future for instance and sharing facilities such as the playfield. In this sense, this standards set here were observed to be futuristic. However, caution was made here on the need to safeguard these proposed plots against allocating different user by the municipality.

**Table 5-9: Summary of the proposed standards**

<table>
<thead>
<tr>
<th>Type</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads:</td>
<td>They are higher widths than those of the national standards</td>
</tr>
<tr>
<td>Primary school:</td>
<td>33%</td>
</tr>
<tr>
<td>Percent of population within the threshold distance</td>
<td>1.9km</td>
</tr>
<tr>
<td>Maximum distance to be travelled</td>
<td>One plot sizes is the same while the other is larger than those of the national standards</td>
</tr>
<tr>
<td>Plot sizes</td>
<td></td>
</tr>
<tr>
<td>Secondary schools</td>
<td>28%</td>
</tr>
<tr>
<td>Percent of population within the threshold distance</td>
<td>2.4km</td>
</tr>
<tr>
<td>Maximum distance to be travelled</td>
<td>Larger plot sizes than those of the national standards by 50%</td>
</tr>
<tr>
<td>Plot sizes</td>
<td></td>
</tr>
<tr>
<td>Health facility</td>
<td>2.5km</td>
</tr>
<tr>
<td>Maximum distance to be travelled</td>
<td>Larger plot sizes than those of the national standards by 200% margin</td>
</tr>
<tr>
<td>Plot sizes</td>
<td></td>
</tr>
</tbody>
</table>
Development has already started without any implementation

Although the municipality has not provided for the infrastructure as planned, the owners of the plots have already started developing their land. Individual developers have constructed residential houses and rental houses. The municipality attributed the deficiencies to the low resource allocation to developmental issues such as infrastructure. Previous financial estimates from the municipality indicate local revenues are the highest contributors towards the municipality’s income. However, LASDAP allocation, where infrastructure and services are funded receives a mere 6.3% allocation. This may be explained by observations noted by Choguill (1999, pp 290) “infrastructure is frequently seen as postponeable expenditure, and is subsequently given low priority in the scheduling of budgetary expenditures.

Figure 5-15: Financial estimates for FY 2004/05

<table>
<thead>
<tr>
<th>Income</th>
<th>KShs(^{14})</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATF04/05</td>
<td>70,422,767</td>
<td>16.7</td>
</tr>
<tr>
<td>Local Revenue</td>
<td>331,897,690</td>
<td>78.9</td>
</tr>
<tr>
<td>Other External Revenue</td>
<td>16,367,440</td>
<td>4.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenditure</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>238,843,388</td>
<td>57.0</td>
</tr>
<tr>
<td>Debt Resolution</td>
<td>27,496,285</td>
<td>6.6</td>
</tr>
<tr>
<td>Councillors</td>
<td>4,700,000</td>
<td>0.1</td>
</tr>
<tr>
<td>Operations and Maintenance</td>
<td>125,816,363</td>
<td>30.0</td>
</tr>
<tr>
<td>LASDAP(^{15})</td>
<td>21,831,862</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Source: (UN Habitat 200: pp 52)

5.4. Concluding remarks

- The plan has been undertaken without much of consultation of stakeholders so it is a typical top-down approach to planning
- Most of the proposed road width standards and plot sizes for the services are within or have gone beyond the national standards. The standards for time travelled to services is however way under the requirements
- Although intended for formal land provision for housing infrastructure has also not been provided although; development has already ensued.
- Implementation of the plans has also not been undertaken based on the poor funding

\(^{14}\) 1 USD =77 Kenya shillings in the year 2004/2005
\(^{15}\) Local Authority Service Delivery Action Plan
6. The community participation approach—Obunga

This chapter addresses the community participation as a process of achieving a spatial plan for Obunga Informal settlement. Three steps are undertaken within the approach; the process of achieving the plans, the standards that are derived from the plan and the effectiveness of the approach and the proposed standards.

6.1. Community participation approach

6.2. The process of community participation approach

The planning process has been undertaken in two phases. The first phase entailed the deliberations of the project processes with the stakeholders, identification of the unplanned settlements, awareness campaigns, preparation of the base maps and social-economic data collection. The second phase involved the physical planning stage. These stages will be briefly discussed in order to shed light on to the community participation process.

Awareness campaigns
In order to elicit participation by various stakeholders, a steering committee that comprised of key stakeholders was formed including the municipality officials, NGOs, Maseno University (researcher), local area civic leaders, CBOs and representatives of the UN Habitat and NGOs. Awareness-raising was carried out at different scales: At the municipality level, the stakeholders involved were the various departmental heads, area councillors and Member of Parliament and representatives of the central government. At the local level, a Settlement Executive Committee (SEC) was formed. Community participation was deemed very important in this process and was achieved through selection of members from the communities as representatives. The membership of the Settlement SEC within Obunga settlement were drawn mainly from

- Women representatives (selected from competent women groups)
- Youth representatives (selected from competent youth groups)
- Plot owners and Tenants

Preparation of the area base maps
A satellite imagery covering the Kisumu’s old town and the peri-urban areas were used to facilitate the exercise. Digitization was undertaken at the secretariat where the main goal was to determine the spatial organisation within Kisumu’s informal settlements. Different layers of features were thus developed representing the buildings, roads, rivers and other features on the ground. A Quickbird image dated 2003 with a 0.6 metre resolution was used to develop this baseline information. Its resolution was substantial thus making it relatively easy to discern all the features within the informal areas from the base imagery.
Social-economic data collection
Social-economic data within the informal settlement was collected with the help of the community members. The SEC members were instrumental in socio-economic data collection; their tasks during this exercise included:

- Recruitment of enumerators (data collectors)
- Supervision on the ground/field work
- Receiving and forwarding the completed enumeration forms to resource centre where they were as well having four of their appointed representatives overseeing the data entry exercise
- Receiving funds from Pamoja Trust and paying the enumerators their daily allowances

The data that was collected may be categorised in three aspects close to what is advocated in Abbott (2001). The data included the spatial and physical data which is specific to Obunga area, demographic and socio-economic data that is community-specific. The Quickbird imagery was used as a back drop that guided the data collectors. Other than just collecting the census-type socio-economic data pertaining to the number of dwellings, number of people in a dwelling, and demographics of a settlement, the data collection went further into analysis of the system of tenure and land ownership that prevails within the settlement. Data was then handled by Pamoja Trust as custodians for the Obunga settlement community.

Verification process
Registers bearing the names of the residents and the plot owners were then produced after the entire process. The registers were put in strategic places within the settlement so that the residents could verify their inclusion into the register and also ensure that the numbers and details were up to date.

Figure 6-1; Photos of the verification exercise

The planning process phase
The planning process was actually triggered by the Obunga Neighbourhood Association (ONA) who felt that the zeal that already existed after the enumeration should not be squandered. They felt that it was important to push on with the community spirit that was there during enumeration exercise. Pamoja Trust who acted on their behalf mobilized the Municipal Town Planner and other professional planners including private planners to engage in the planning exercise. Other people that were involved were:

16 Discussions with the SEC members and former Pamoja Trust representative
17 Discussions with Pamoja Trust representative
18 A community association formed to oversee development in water and sanitation in the settlement
involved here were the GIS experts working both in municipality and Pamoja Trust who are endowed with knowledge of image interpretation.

The planning process started with the notification of the intention to plan through publication of notices through the media (Ministry of Lands, 2006). The first stakeholders meeting was held in April 2006. The main objective of this meeting was to bring ideas from the community perspective and those of the municipality and other stakeholders on a common platform. This was followed by a series of meetings that were geared towards addressing the planning issues at hand but also soliciting support from other organisations working within Obunga settlement on the planning efforts.

The planning team used the 2003 Quickbird imagery as a backdrop with the digitised layers of the informal settlement development. Preliminary Index Diagrams (PIDs) acquired from the Survey of Kenya, digitised and geo-referenced were also used to refer to the development that had been undertaken in the area. During the planning exercise the Obunga Neighbourhood Association roles were:

- Assisting the planning team in identifying the public land especially the road extents
- Identification of priorities and institution placement i.e. according to population where dispensary, school, social centre and other social amenities need to be placed for general accessibility
- Determining the type of roads for accessibility that are appropriate for the settlement upgrading

**Planning at the village level**

![Spatial representation of the villages in Obunga settlement](image-url)

The planning focused at the village as the lowest level of planning. Through the stakeholders meetings held in the four villages of Obunga namely Obunga Central, Kasarani, SegaSega and Kamakowa, issues were raised and a priority list given based on the village characteristics. The assumption was the settlement is heterogeneous and their needs may differ accordingly. The villages that make up the Obunga informal settlement are illustrated on the figure 6-2.

---

19 Discussions with a former municipality planner
20 Discussions with the ONA members and Pamoja Trust planning consultant
6.2.1. Stakeholder’s role in the planning process

The main stakeholders involved in the planning process can broadly be categorised as; the government agencies, the community and the consultants. Their role in the entire process is thus discussed here under.

Government agencies
When the Cities without Slums (CWS) programme was initiated, a Multi-stakeholder Support Group was established, as the overall policy organ. This comprised of Municipal Council of Kisumu, the Central Government (represented by key ministries), Civil Society Organisations, Slum Settlement Neighbourhood Association and the Programme Secretariat. For the purpose of the planning process within Obunga Informal Settlement, the Settlement Programme Implementation Unit (SPIU) which is the lowest organ within the programme organisation was the most important. The Municipal Council of Kisumu was part and parcel of the planning process represented by the departments in charge of roads, health, education, sanitation and the GIS section that worked hand in hand with the other planners. The Physical Planning Act Cap 286 empowers the Director of Physical planning to “prepare with reference to any Government land, trust land or private land within the area of a city, municipal, town or urban council or with any reference to any trading or marketing centre, a local physical development plan” (Government of Kenya, 1996:pp 17). In this light therefore the department of physical planning had the responsibility of preparing the planning layout according to the deliberations that were achieved after the ground exercises.

Community
The community institutions that were instrumental during the planning process were the ONA and the SEC that were representing the community during the meetings. The SEC members were more instrumental during the data collection process but were later joined by the ONA that sought further community representation in the planning process. At a household level the community members were used to provide information about their social, economic and the state of land ownership and detail pertaining to their settlement.

Consultant
Planning process requires specialised and technical expertise. The Physical Planning Act Cap 286 provides for the services of private practicing planners as advisers on planning matters. Given that Pamoja Trust mobilised the other stakeholders on behalf of the community, it became apparent that they would involve their planning consultant to advice from a community perspective. His work was only limited to advising the community and liaising with the planners from the Ministry of Lands to ensure that common agreements are achieved on matters of planning21.

6.2.2. The rationale of the locations and standards selected

The rationale that was applied in the determination of the nature various roads to be implemented within the area was influenced by the nature of the existing developments, consideration of future provision of services like piped water and drainages, the ability of the main roads to accommodate both motorised and non-motorised traffic and the funding for the provision of the roads. These factors are elaborated here under.

- Existing Development
Obunga informal settlement depicts different kinds of developments. Although most of the parcels abutting the roads are developed, the structures are temporary in nature. The proposals included road

21 Discussions with the Pamoja Trust Planning Consultant
expansion of the main road; in this case, the proposed width was sensitive to the fact that the plots that are to be affected are already developed. The access roads and the footpaths are expected to cause minimal destruction to the developed plots. The parcels that were selected for the provision of the education and social facilities were centrally placed and proximity to the main road was also regarded as important for the proposed location of the health facility.

- **Funding**

Funding for roads within the settlement is expected to be sourced from the municipality, the Kenya Roads Board (KRB) and the Constituency Development Fund (CDF) and Kenya Slum Upgrading, Low Cost Housing and Infrastructure Fund (KENSUF). Within the municipality, the roads are funded through Local Authority Transfer Fund (LATF) which is currently pegged at 5% of the national Income tax collected in a financial year. Local authorities access LATF from the central government based on the relative population of the local authorities, performance criteria such as timely preparation of budgets and the preparation of Local Authority Service Delivery Action Plan (LASDAP). Introduced in 2001, LASDAP is mandated to include the community members in identifying and prioritizing the local needs. However a study undertaken in Kenya revealed that LASDAP is faced by mismanagement, lack of accountability by local authorities, political interference and pure lack of community involvement which makes this a challenge in implementation of the local needs (ActionAid Kenya, 2006).

Constituency Development Fund (CDF): The committee at the sub location level makes proposal based on the priorities of people’s needs at the grass root. These needs come inform of bridges, school improvement and road maintenance. Prioritization on the issues to be handled is based on; Availability of finances and urgency. Fundamental to the CDF is that its majorly used for improving roads other than providing new roads. Improvement of roads here means putting up bridges, culverts, drainages as the implementation minimum standards. Ideally, the committee alerts the municipality on their intention to improve a particular section of the road in order to avoid any conflicts. Any proposals of new roads are referred to the municipality and the Ministry of Works.

The Kenya Roads Board has the responsibility to determine the allocation of financial resources from any other source available to the Board required by road agencies for the maintenance, rehabilitation and development of the road network. Fifteen percent (15%) of the monies from the Fund is allocated in respect of the Urban Roads Authority as stipulated in Kenya Roads Board Act, 1999. Coupled with governance and transparency short comings, the three sources of funding have in the past not been enthusiastic in improving the road situation within the peri-urban areas of Kisumu.

Kenya Slum Upgrading, Low Cost Housing and Infrastructure Fund (KENSUF) on the other hand is a fund established as a central depository of all mobilized financial resources for slum upgrading – these include funds from donors, CBOs, private sector and Government budgetary allocations through the Ministry of Housing. Although the regulations governing the fund were gazetted in December 2006 a Board of trustees drawn from public, private, NGO, CBO and key donor organisations for management purposes has not been appointed making it difficult to operate the fund as yet (Ministry of Housing, 2008).

- **Function of the roads**

The function of the road is defined as the purpose for which the road has been provided. Although viewed as a planner’s concept, it assists in determining the width of the roads required within an area
(De Langen, 2001). The future functions of the roads proposed in the informal area were considered. This brings in the element of main roads, access roads and footpaths.

The local collector road, running from Tom Mboya Estate through Obunga to connect to the Kakamega road has been proposed as 15 metres wide. The road is expected to handle both motorised and non-motorised traffic running across the neighbourhood. The non-motorised transport expected to use the road are pedestrians, bicycles and carts which are common modes used within Kisumu. Carts are normally used for transporting goods for informal businesses within the informal settlements. Motorised transport is also anticipated which includes matatus and motor bikes which is the most commonly used mode of public transport. The access roads will accommodate both motorised and non-motorised transport but its main use is to access the plots. Motorised transport especially the use private transport is however expected to be very low given the socio-economic situation of the residents.

- **Provision of services**

Services such as piped water, drains and sewers were the major considerations when proposing the roads. Electricity already exists within some parts of the residential area and therefore only requires expansion. The community considered a wider road to allow provision of these facilities in future. An allowance therefore considered sufficient for laying down the service infrastructure in the future.

![Figure 6-3: The rationale of the location and proposed standards](source: Focus Group Discussion)

### 6.3. Planning standards applied

#### 6.3.1. Planning standards for roads provision

The planning that was undertaken was guided by the stakeholders and community involvement. The process was sought to address the issues within the informal settlements based on the villages that constitute the informal settlement. In this light all the villages prioritised roads as the most important followed by drainage, electricity, piped water and the rest as illustrated on table 6-1 below. Roads and social service provision will be addressed as a concern in the current study. The basis of weighting was on the rank that was accorded to each issue at the village level. The weights then bore the overall rank for each issue.
When planning for road accessibility, it was determined that the roads that were previously provided for within the Preliminary Index Diagrams measured mainly six metres which is the standards designated for rural roads (Ministry of Lands, 2005). This, according to the current national planning standards is not adequate for urban plot accessibility. Although road reserves are shown on PIDs, the procedure of land allocation and boundary determination is not as elaborate as that which gives rise to Registry Index Diagrams (RIDs). During the planning process, it was revealed that most of the roads are indeed built upon by developers. Most of the roads have been eaten up, leaving behind dimensions as small as four metres. The reasons luring developers to road encroachment were elicited as:

- **Lack of awareness:** When one developer extends his building onto the road reserve, the subsequent developments follow the same pattern leading to a strip of encroachment which may be translated as lack of awareness by the developers.

- **Economic reasons:**
  - Other structures along the roads are temporary small scale business premises where residents make out additional incomes. These areas are preferred because the businesses attract passing clients.
  - There has been greed by developers to construct many rental units and maximise on the rents paid by the tenants. This has drawn many land owners to constructing rentals beyond their plot boundaries.

The minimal use of motorised transport within the settlement is limited to the main road, which runs from Tom Mboya Estate through Obunga to connect to the Kakamega road, despite its poor condition\(^{22}\). The residents therefore gave preference to roads provisioning based on the following reasons: That the roads will provide a basis for subsequent provision of piped water by KIWASCO\(^{23}\), that the road will provide for motorised transport within the informal area and thus open up the settlement to development and that through planning for the roads, the drainage will be improved thereby forestalling flooding incidents within the settlement.

---

\(^{22}\) See map on appendix

\(^{23}\) Kisumu Water and Sewerage Company
As earlier mentioned, the road to service the area had already been provided for within the Preliminary Index Diagrams. Following the already predetermined roads layout within the PIDs, it was agreed that this should form the basis of road provision\(^{24}\). The standards that were proposed for the various road widths are as indicated on table 6-2. The road that was designated to be widened to 15 metres runs across the settlement joining the by-pass to Kakamega road\(^{25}\). All the other roads were determined to be expanded to the level of 5-8 metres for access roads and 2-4 metres for footpaths.

**Table 6-2: Comparison of the community and the national road standards**

<table>
<thead>
<tr>
<th>Nature of the road</th>
<th>Obunga Road standards</th>
<th>National standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main road</td>
<td>15 meters</td>
<td>15 metres</td>
</tr>
<tr>
<td>Access roads</td>
<td>5-8 metres</td>
<td>9-12 metres</td>
</tr>
<tr>
<td>Foot paths</td>
<td>2-4 meters</td>
<td>4-6 metres</td>
</tr>
</tbody>
</table>

*Source: (Ministry of Lands, 2005) and (Ministry of Lands, 2006)*

- **Local collector roads**

  The proposed local collector road measures 15 metres. It is aimed to provide motorised and non-motorised transport within the neighbourhood. Open drains are important in order to reduce the cases of flooding within the area. Further to this, a 3.75 metre width on either side will be available as walkway and for small scale businesses. The small scale businesses are meant to help the residents improve the economic status and therefore in this light the road will not only provide transport solutions but also economic uplift. Figure 6-4 shows a schematic representation of the local collector road according to the needs of the residents of the informal settlement.

- **Access roads**

  Many options of the access roads are available depending on the amount of land reserved for each particular stretch of road development. For convenience, both the footpaths and the access roads will be addressed within this section. According to the access roads standards provided for Obunga informal settlement, the alternatives available will be provided here under;

---

\(^{24}\) Discussions with the Pamoja Trust Planning Consultant

\(^{25}\) Ibid
Residential walking access roads (footpaths) without motorised traffic are the most commonly used mode of plot accessibility especially within most informal settlements. The rationale for using such access roads here is that there will be reduced cases of demolitions of already built up areas. This type of access roads will provide accessibility to the plots that have been sub-divided to very small sizes and without accessibility. Practically, it will be difficult to pave these roads and also drainage problems will be solved through the use of simple technology that can easily be maintained by the community members.

**Figure 6-5: Residential walking tracks**

![Figure 6-5: Residential walking tracks](image)

- The poor and inadequate funding for infrastructure development,
- The municipality does not consider these to contribute towards an overall municipal net benefit, they are typical public goods\(^{26}\) (Angel, 2008; De Langen, 2001)

In this sense their width will accommodate pedestrians, cyclists and motorised transport, however, if the roads are not paved, the condition of the road naturally excludes the motorised transport. The schema in figure 6-6 below therefore illustrates a four meter access road which can accommodate all modes if paved; in this case the motorised transport is not considered because the roads of this type will hardly be paved within the informal areas. Open drains will be provided for draining the rain water thus the road dries fast enough. They will progressively be murramed to harden the surface. They will be provided and maintained by the community.

**Figure 6-6: A non motorised access route only**

*Source:* adapted but modified from (De Langen, 2001)

Figure 6-7 represents a higher level of an access road that serves more plots and can accommodate walk, cycle and motorised transport. This is typical to what the community referred to within the proposal with a smaller width but of course drains are very important whether the road is paved or unpaved. The Obunga case will not tarmac this but murraming will give a stable surface especially during the dry seasons.

**Figure 6-7: A schema of a higher order access road**

*Source:* (De Langen, 2001:pp 220)

\(^{26}\) Discussions with the municipal engineer
Surface material
The proposals provide for paving of the main road. All the other roads will be graded and murramed. Figure 6.7 shows a typical situation of an access road within the informal settlement. Obunga has however poorly drained soil and therefore roads of this status should be murramed as the minimum standards to sustain the roads and thus enhance accessibility.

6.3.2. Standards for Social services

Schools
The settlement has no public primary school. It is served by Kudho Primary School which is approximately 1km from the settlement. Also lacking in the settlement are facilities for early childhood and secondary school education. One of the considerations of proposing one primary school within Obunga was the fact the residents are already served by Kudho primary school situated within Kanyakwar B. This may have disregarded the fact that Kanyakwar B’s population is also on the rise.

1) Plot size
The plot sizes proposed herein were way below what is stipulated within the national planning standards. The primary school and the secondary school were proposed to be located within the same plots especially because there is need to share facilities due to scarcity of land. Table 6-4 outlines those standards that were proposed as compared to the national standards. The official standards accommodate such facilities as swimming pool, tennis court, hockey pitch, netball field. All these measure an accumulated total of approximately 2 hectares. These were hereby not considered as a necessity within this settlement.

<table>
<thead>
<tr>
<th>User (social facility)</th>
<th>Obunga standards</th>
<th>National standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary and secondary school</td>
<td>0.86 Ha</td>
<td>3.25 ha and 3.4-4.5 ha respectively</td>
</tr>
</tbody>
</table>

Source: (Ministry of Lands, 2005) and (Ministry of Lands, 2006)

2) Distances travelled
The official standards require that the maximum distances travelled to primary school are 300-500 metres and 500-600 metres for secondary schools. Figure 6-9 indicates the area covered within the required distances.
3) Coverage and distances

Since only one primary school and secondary schools were proposed within this plan, it was expected that eventually, the entire neighbourhood should be served by the same. The settlement measures 63.6 Ha which is the coverage of these facilities. One primary and secondary schools have been proposed and therefore, the population that should therefore be served by these facilities is approximately 24,000 persons which is the entire settlement population. The area has approximately 385 persons per Ha. Given the statistics above, 56% of the population in the settlement are within the stipulated official standards travel distances to primary schools. The rest of the population are within a travel distance of 501 to 1,012m which is maximum distance travelled.

Table 6-4: A summary of the standards for the proposed school.

<table>
<thead>
<tr>
<th>Distance(m)</th>
<th>Area(Ha)</th>
<th>Persons within each ring*</th>
<th>Percent of pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-300</td>
<td>19.0</td>
<td>7,313</td>
<td>30</td>
</tr>
<tr>
<td>301-500</td>
<td>16.8</td>
<td>6,473</td>
<td>26</td>
</tr>
<tr>
<td>501-700</td>
<td>14.2</td>
<td>5,483</td>
<td>22</td>
</tr>
<tr>
<td>701-900</td>
<td>11.7</td>
<td>4,510</td>
<td>18</td>
</tr>
<tr>
<td>901-1012</td>
<td>1.9</td>
<td>739</td>
<td>3</td>
</tr>
</tbody>
</table>

* Assuming that the population is equally distributed

Health facilities

Residents in Obunga rely on the New Nyanza General hospital for treatment and two municipal health facilities located one in Lumumba and another off Obote road in the industrial area. All these health facilities are within the formal area of Kisumu which is approximately 4kms from the peri-urban fringe. Poor access to the existing health institutions has led to the people resorting to use of private clinics and small pharmacies which are not only inadequate but also expensive considering the income levels in Obunga.
1) Plot size
The proposed plot size is 0.12Ha, a size way below the stipulated standard of 2Ha for a sub-health centre. The plot is however close to the main road and therefore emergency vehicles can easily get to pass through.

Coverage and distances
Figure 6-10: A summary of the standards for the proposed health centre

The official standards stipulate the travel distances to a health centre to be 0.5 to 1km. If this standard were to be adopted, it indicates that all the residents will adequately access the health facility. Indeed in this case all the residents are covered approximately 15 minutes walking distance which is 1km. therefore within the stipulated official distances. Table 6-5 indicates that over 50% of the population are covered with a 500m radius.

Table 6-5: A summary of the standards for the proposed health centre

<table>
<thead>
<tr>
<th>Distance(m)</th>
<th>Area(Ha)</th>
<th>Persons within each ring*</th>
<th>Percent of pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-250</td>
<td>14.0</td>
<td>5,406</td>
<td>22</td>
</tr>
<tr>
<td>251-500</td>
<td>24.0</td>
<td>9,246</td>
<td>38</td>
</tr>
<tr>
<td>501-750</td>
<td>15.7</td>
<td>6,054</td>
<td>25</td>
</tr>
<tr>
<td>751-900</td>
<td>7.0</td>
<td>2,715</td>
<td>11</td>
</tr>
<tr>
<td>901-1065</td>
<td>2.8</td>
<td>1,097</td>
<td>4</td>
</tr>
</tbody>
</table>

*Assuming that the population is equally distributed

6.4. Emerging issues on the process and standards applied

1) Stakeholder participation;
Measured against other strategies\(^{27}\) that have been used in the improvement of the livelihood of the residents of Obunga informal settlement, the planning exercise was multi stakeholder inclusive. The community, municipality and the central government were all represented at particular levels of planning process. UN Habitat (2005:pp 2) notes that “The high degree of enthusiasm displayed by the informal settlement community during the preparation of the report is a clear indication of their readiness to embrace change and partake in any efforts that would contribute to the improvement of conditions in the slums.” This enthusiasm was carried on to the data collection and the planning phase within Obunga informal settlement.

The community members participated, not only in attending the meetings but also giving their views within the planning exercise. For instance, the roads within the informal areas need to be expanded to

---

\(^{27}\) Strategies such as improving water, sanitation and the general infrastructure by the various NGOs
give way to development of the informal area. During the planning process, the residents abutting the main road gave their commitment to recede the boundaries of their plots to give way for road expansion\textsuperscript{28}. However it was clear that the roads need to be surveyed and demarcated on the ground clearly showing the intended road expansion.

2) Incremental improvement;

There are elements that were determined that need to be followed in order to achieve the implementation on the plans. One approach is the Progressive improvement referred to as “incremental improvement”\cite{Ministry of Lands, 2006, pp 3}. It was proposed that the implementation of the roads and the proposed social services in the area should be undertaken progressively. Its however important to note here that, although the intention to progressively improve the roads is clearly mentioned, a clear outline of the how this may be achieved is not elaborated \cite{Ministry of Lands, 2006}. The stakeholders and the community did not however come up with a strategy on how the incremental development may be achieved.

3) Plan approval

The Obunga plan is still undergoing plan approval process almost two years since its completion. Obunga plan was not approved by as at September 2008. Plans prepared with local communities have to comply with the normal official procedures. Principally, plans prepared by communities have to go through planning scrutiny before they can be approved for implementation. This does not auger well with the simplicity with which these plans are prepared nor is it in impetus with the growth of the informal areas for instance most of which are upgraded through community participation. This inhibitive trend has also been noticed in the procedures of plan approval in other countries like \cite{Kombe & Kreibich, 2000a}. Lack of plan approval was cited as one of the reasons why the implementation has not begun.

4) Implementation mechanisms;

There was an agreement during the planning stage that any of the community members who already developed on the roads should clear as a move towards opening up the roads. At this point the community members whose land was to be affected by the expansions gave their commitment that they would allow road expansion at no cost as a gesture to take advantage of the “planning gains”.

Within the implementation framework, the first priorities were given to the roads because that is what had been proposed by the community members in the prioritization session. The local authorities pledged to survey and open up existing road reserves, improve road condition and road widening as the initial implementation technique. However, they have since lacked the will power and ‘champion’ within its establishment to follow up the municipality’s commitments. This has been received with mixed feelings among the community members and the stakeholders that were involved in as far as the possibility of implementation of the proposals are concerned. In his remark, the Pamoja Trust planning consultant concerns were;

\begin{quote}
“There is the need to have an ‘urban pact’ where all stakeholders with responsibilities within the plan can sign up for their commitment to implement the plan. This was not done and need to be carried out if the entire plan will have an impact on the lives of the residents.”
\end{quote}

\textsuperscript{28} Discussion with the SEC members and the planners
The budget that had been estimated for the provision of roads and drainage only within a span of 5 years in Obunga informal settlement amounted to 64.5 million Kenya shillings\textsuperscript{29}. The amount is budgeted for removing of the structures on the roads reserves, surveying of the roads, murramming selected roads, grading all access roads and paving the local collector road (main road). The main source of the funding is deemed to emanate from the LATF and CDF which as previously discussed have financial and management shortcomings. Other institutions and government ministries were assigned responsibilities but on other different arenas of the upgrading exercise.

5) Low community institutional capacity
Analysts of this process of upgrading have started placing some blame on the community’s institutional capacity. As earlier mentioned, formation and operations of CBOs and associations is not a novel idea within Obunga informal settlement. Indeed, members are in the recent past organising themselves through Muungano wa Wanavijiji\textsuperscript{30} and Pamoja Trust to operate Savings schemes to improve on the livelihoods. On the same breath, community members have been credited for having initiated the planning process through Pamoja Trust who mobilised the planning team, the municipality who bore the Obunga spatial plan.

Planners note that the community is lacking proper institutional capacity to “push” the municipality into starting up the implementation process. The Pamoja Trust Planning consultant notes that “The saving schemes with Pamoja Trust are an excellent idea, it will strengthen the community power especially the land owners on housing improvement. However the community should work faster and harder towards seeing access roads provided...otherwise opening up the roads should precede other developments here, poor roads are the main obstacles to development within Obunga...”

6) Standards adopted for roads proposals
The proposal of the standards to be applied for the provision of the roads is seen to be achievable given the circumstances of the residents of the area and also the setting of the area. (Payne, 1984:pp 234) notes that “rights of way and construction standards should reflect the likely level of use and a reasonable forecast on traffic volumes”. In this light, there are factors that are clear within Obunga informal area;

- The area has a high population of approximately 385 persons per hectare
- The area has people with a low socio-economic status
- Development of the area has already started without required infrastructure
- Although narrow, rights of way have previously been provided for but encroachment has chocked them further.

Based on the outlined characteristics, the area is expected to have a low traffic volume and thus the major use of the roads will be non-motorised traffic. Smaller road widths will thus adequately serve the area.

\textsuperscript{29} 77 Kenya shilling=1USD during 2006
\textsuperscript{30} “Muungano wa Wanavijiji has its base on saving schemes that provide a community structure for governance and housing initiatives. Muungano and Pamoja Trust seek to improve housing both through regularization and upgrading of the settlements. Pamoja Trust is a member of Shack/Slum Dwellers International (SDI), the international” (Weru, 2004)
7) **Standards adopted for services.**

It was observed that the densities of Obunga settlement are increasing. While determining the standards within the informal settlements, the question of population densities is inevitable. The community proposed one school for the entire area. Although there is Kudho primary school currently existing within Kanyakwar and being used by the Obunga residents. There was a complete disregard of the fact that Kanyakwar B population is also on the rise. The small plot sizes of 0.86Ha deemed to serve both the primary and secondary school is not futuristic especially because the settlement population is growing. The risk indeed is that in the future, it may be even more expensive to expand this plots or purchasing others for the same purpose. A summary of the planning standards are summarised on table… below.

The most important facilities hereby considered were administration block, classrooms, library, laboratory, sanitation block, and workshop, circulation at 6m per pupil and assembly hall. The official standards accommodate such facilities as swimming pool, tennis court, hockey pitch, netball field and soccer field. All these measure an accumulated total of 2.2 hectares.

**Table 6-6: Summary of the proposed planning standards**

<table>
<thead>
<tr>
<th>Type</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roads:</strong></td>
<td>They are lower widths than those of the national standards</td>
</tr>
<tr>
<td><strong>Primary school</strong></td>
<td>(Percent of population within the threshold distance: 56%)</td>
</tr>
<tr>
<td></td>
<td>Maximum distance to be travelled: 1km</td>
</tr>
<tr>
<td></td>
<td>They are plot sizes than those of the national standards by 85% margin</td>
</tr>
<tr>
<td><strong>Secondary schools</strong></td>
<td>(Percent of population within the threshold distance: 56%)</td>
</tr>
<tr>
<td></td>
<td>Maximum distance to be travelled: 1km</td>
</tr>
<tr>
<td></td>
<td>Smaller plot sizes than those of the national standards by 85% margin</td>
</tr>
<tr>
<td><strong>Health facility</strong></td>
<td>Maximum distance to be travelled: 1km (within the required time)</td>
</tr>
<tr>
<td></td>
<td>Smaller plot sizes than those of the national standards by 90% margin</td>
</tr>
</tbody>
</table>

6.5. **Concluding remarks**

- The community participation approach shows a practical approach\(^{31}\) to an informal settlement upgrading with emphasis on setting planning standards of the infrastructure and social service provision. Community and stakeholder involvement is relatively high not only during the data collection exercise of the project but also during the planning process.

---

\(^{31}\) Magigi and Majani (2006) note that Ubungo Darajani Dar es salaam residents were able to prepare land use plans and execute joint cadastre surveys covering the whole settlement
• The standards proposed herein are lower than those employed within the official circles. The minimum level of service in the provision of on-site roads and footpaths relate primarily to the provision of reasonable access to all buildings for pedestrians. Paths and walkways provided for this purpose should be well compacted, not subject to flooding.

• Although the standards for roads have been justified, planning standards provided for social facilities especially schools may not be futuristic in terms of the expected future densities.

• Generally, the findings however indicate that it is possible to lower the planning standards as a collaborative process to meet the needs of the local community by whom the standards are negotiated, agreed and adopted.
7. Comparison of the processes and standards

This chapter gives a comparison of the planning processes and the planning standards proposed that have been applied in the case study areas. Indicators shown on table 7-1 are used to analyse the planning process and thus the standards that are proposed within approach.

Table 7-1: Plan evaluation indicators

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Efficiency</th>
<th>Feasibility (practicability)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Adequacy of planning context: (explains the setting)</td>
<td>2) Time</td>
<td>1) Adequacy of scope (shows how the plan is connected to the larger world)</td>
</tr>
<tr>
<td>• Motivation of the planning process</td>
<td>• Time taken to achieve the plan</td>
<td>• Have all pertinent issues been considered (physical, social, economic, design)</td>
</tr>
<tr>
<td>• Settlement characteristics considerations</td>
<td></td>
<td>• Can the planning standards accomplish their intended purpose if implemented?</td>
</tr>
<tr>
<td>2) Procedural validity (Who and how of plan making)</td>
<td>2) Costs</td>
<td>2) Guidance for implementation</td>
</tr>
<tr>
<td>• How collaborative is the planning process?</td>
<td>• Costs of making the plan</td>
<td>• Are there priorities for implementation?</td>
</tr>
<tr>
<td>• Were the preliminary drafts circulated to the public</td>
<td></td>
<td>• Can the responsible agency realistically be expected to implement the plan?</td>
</tr>
<tr>
<td>• Feedback and responsiveness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adapted but modified from: (Baer, 1997)

7.1. Adequacy of planning context

Motivation of the planning process and standards set

The official planning approach has the principal objective of providing buildable land through provision of both physical and social infrastructure. The community participation planning approach on the other hand was guided by the need to provide accessibility and social facilities within an already built up settlement. Although unmentioned within Obunga plan, it is anticipated that with improved infrastructure, the residents will improve housing (Gulyani & Bassett, 2007). The clear difference between these approaches is that the official planning was initiated before land occupation while the community participation approach was initiated after occupation. The similarity within these two approaches on the other hand is that they are both deemed to eventually provide a habitable land for the residents of the peri-urban zone.
The two approaches therefore have a clear view on the purpose of plan preparation. This has been measured against the local housing needs where over 60% of the Kisumu’s 500,000 population is living in the peri-urban area.

**Settlement characteristics**

The official case is a formal settlement which has been designed to accommodate the low income cadre as a high density housing zone within the peri-urban area. Having been expropriated from the initial owners, the plan of the area was prepared in a typical top-down approach. It is therefore not surprising that planning has therefore been undertaken by the planning experts without community involvement or consultation. The standards thereby proposed are the official standards provided for by physical planning handbook.

Obunga, the community participation case which has been reviewed herein, is experiencing a shift from the consolidation to the saturation stage within the model of informal settlement development described in Nguluma (2003) (refer to chapter 4). At this stage, social cohesion is still considerably high, therefore community participation is applicable. Social cohesion and networks among the settlers strengthens at the consolidated stage of development while the same diminishes and collective responsibility is replaced by pursuits of private livelihoods at the saturated stage of settlement development. “Social cohesion is important for collective development” as noted in Kombe and Kreibich (2000a:pp 151) and also determines the level of community involvement in development projects. This observation may be used to explain the community involvement and participation during the data collection and planning phases of the settlement. Similarly the lower planning standards determined herein reflect the level of informal settlement formation, a consolidated phase with most of the land already changed from agricultural to residential and some structures already encroaching on road reserves.

Based on the settlement characteristics, it is clear that the official case is applying standards that are high and do not reflect the current spatial and socio-economic realities of the peri-urban area. Community participation case has related the proposed standards with the high densities and low socio-economic characteristics of its settlement.

### 7.2. Procedural validity

The official planning was a typical top-down approach. There was no consultation with the community who are the intended long-term beneficiaries. Similarly, little collaboration exists between the planners in the ministry of lands and those at the municipality. This is explained by the dichotomy that has been created by the planning systems where the Ministry of Lands (central government) is responsible for plan preparation and the local authorities is responsible for implementation of the same. The plan was not circulated to the general public for comments as is the requirement of the Physical Planning Act\(^\text{32}\). Had there been some community participation on the planning process, the planning standards proposed in the plan would perhaps reflect better the needs of the community. In this sense, the procedure was not in line with the Physical Planning Act which provides for community involvement in the planning process.

\(^\text{32}\) Remarks made by a land owner in Kanyakwar B
Community participation planning on the other hand was collaborative. This collaboration was enabled by vigorous awareness and sensitization of the involved stakeholders. The community needs were articulated by Pamoja Trust (NGO) who was the link between the community and the government stakeholders. This link was necessary because it created some confidence on the part of the community and the government stakeholders. As noted in Magigi & Majani (2006: pp 1077) that many CBOs become strong with proper linkages to other institutions. However, the community at the household level were only used to provide socio-economic data that was later used for planning. This was through data collection period. Furthermore, noted within this approach was the poor communication to the community on the completion of the plan. Ideally, the same should be strategically placed to elicit community comments. While this was done, community representatives mentioned that many community members felt that it would have been modest to call for meetings and discuss the proposals. Otherwise without an arena of discussions, it was difficult to raise any comments and concerns by the stakeholders. The Obunga plan has not been approved yet as at September 2008. This is close to two years since its completion. This is attributable to the plan approval bureaucracies that can take as long as one and half years. This indicates that the approval procedure does not auger well with the rate at which the informal settlements are growing.

In order to improve on community participation at a deeper level, observations made during field work showed that using Participatory GIS methods may be more involving than the community participation process. The use of the imagery and a GPS during the transect walk attracts community members who are not necessarily in the planning team and thus informally eliciting the community’s views on the plans and probably the standards that should be employed. This therefore ensures that not only the “community planning team” are involved in the process but also the other community members. Furthermore, this creates more awareness on the planning process to the community.

7.3. Efficiency

Time taken to achieve the plan

The official plan was made within a period of approximately six months. The official plans in within the ministry of lands in Kisumu are until now manually developed. A shorter planning time is therefore only achievable where the land is undeveloped as were Kanyakwar B. In case an area is habited, then in practice this may take a longer period due to ground manual work.

Involving the community participation approach on the other hand required time. This ranges from time to call for meetings, awareness campaigns and the lengthy discussions on the planning issues. In the case of Obunga settlement, community involvement and deliberations with other stakeholders in planning had begun during socio-economic data collection. This long process was tantamount to high costs that are incurred with a community participation planning process. It should however be noted that the time for the actual plan preparation took approximately one month. The entire process was undertaken from 11th April 2006 to October 2006 when the plan was ready for circulation, a period of approximately 7 months (Ministry of Lands, 2006:pp 3).Base data were ready as this had been collected during the physical and social data collection phase.

33 Focus Group Discussion with the Obunga community
Within the community participation approach more emphasis was given to deliberations and consultations with the stakeholders in the community approach. GIT was primarily employed in the base data collection and the planning phase. Having the base data for the already habited area tremendously reduced the planning time. On the other hand, working with analogue technology makes the planners work longer to complete one given plan as was the case with the official planning approach.

Comparing the two approaches, the community approach is more efficient because the digital data collected was shared for further planning and analysis as is the present study. The use of GIS technology that was upheld may probably enhance planning within the peri-urban zone. Furthermore, this approach should be able to accommodate enhanced methods of planning such as Participatory GIS as earlier observed. Participatory GIS application to planning was however observed to be time consuming since the tools provided such as the plans and imagery elicit all sorts of questions from the community. As such, deliberations are expected to take a longer time.

Costs of making the plan
Within the official circles, the stakeholders involved in making the plan are government employees whose remuneration accrues direct from the employer. Further to this, the planners herewith applied and still apply analogue mapping technologies that are relatively cheap. On the contrary, the Obunga settlement involved many stakeholders who were remunerated based on the number of days involved and the kind and level of engagement.

For instance, the amount to a planning consultant like that who represented the community within the Obunga settlement who apart from receiving Ksh 200,000 for the entire planning period as the consultation fee, was also paid a subsistence allowance for the Consultant at the rate of 3,000 per day and a return air ticket from Nairobi to Kisumu. Further to this the data collection enumerators and the Settlement Executive Committee had a daily allowance of Ksh 500 and 1,000 respectively. Other costs that are incorporated herein include the cost the imagery, (although this covered all the formal and informal areas and hence the cost is distributive), the people hired for digitization, and per diem for other officers. The actual number is however hereby not available.

On the other hand, the officers within planning department have their remuneration accruing from the employer ranging from Ksh 28,000 to 35,000 gross salaries per month depending on the job group. Other costs notwithstanding, the remuneration fees between this approaches shows that a community approach is really an expensive endeavour especially in a resource-stripped environment such as the informal settlement. While it may be not conclusive to make a clear judgement on the more or less costly procedure, the community participation case already shows a lot of costs attached to it. It should be noted hereby that if a more community involving Participatory GIS were to be applied within the planning, the costs would probably rise as a function of the time taken for extended deliberations as explained in the previous section. However, Participatory GIS has longer term of potential for future cost savings when communities are well informed and aware of plans and their goals and henceforth use the plans and images for continuous planning.

34 1 USD =78 Kenya shillings in the year 2006
7.4. Adequacy of scope

The formal planning case is a formal settlement which has been designed to accommodate the low income cadre as a high density housing zone within the peri urban area. Having been expropriated from the initial owners, the plan of the area was prepared in a typical top-down approach. It is therefore not surprising that planning has therefore been undertaken by the planning experts without little community involvement or consultation. The standards thereby proposed are the official standards provided for by physical planning handbook.

Based on the previous efforts that have been used to relax the standards, Kanyakwar B still applies high standards as already observed. Its close proximity to the informal areas, and based on the motivation and objectives, the standards especially in road designs are exceptionally high and may require to be revised downwards so as to reflect the realities of a low income area. Observations made during site and service schemes noted that high standards lead to wastage of land that would otherwise be put to more gainful uses in such a resource-deprived area. On this state, Payne (1984) has these observations:

“...Its a matter of record that in one early sites and service schemes a major road was laid out with a 60 metre wide right of way. This colossal waste of high-value land was to some extent remedied by new squatters who set up informal shopping strip some 20 metres wide down the centre of the right of way. In real terms, however it remained net land wastage of at least 20-25 metre in overall width which could have been developed for housing or other revenue-generating use” (Payne, 1984: pp 234)

Conversely, the long term considerations or demands for land for services are systematically incorporated in the formal land development process. It is expected that populations will increase in the peri-urban area and thus land for services will be demanded. In this regard, land use for facility provision in Kanyakwar B is future-oriented. However, development control mechanisms should be put in place to control any unwanted developments use on the proposed plots.

The community participation case on the other hand is an informal settlement. At the consolidated stage, it is expected to grow to the saturated stage with time. The road standards proposed herein can adequately serve the area to its full density. However, if implementations are not undertaken and encroachments go on unchecked, then the standards will not suit the saturated stage. Similarly, the plot sizes proposed will not accommodate future informal settlement densities. There is therefore need to provide larger plots for future expansions of the services especially schools that have to serve larger populations in future. On this matter, Kombe and Kreibich (2000a) in their study on informal land management noted that:

“Land use in informal sector is not future-oriented...facilities which are presently missing cannot be efficiently provided due to lack of sites in the future.” (Kombe & Kreibich, 2000a: pp 156)

Based on the above argument, it is clear that none of the approaches is very keen on all the pertinent issues and especially the projected populations and the economic situation of the peri urban areas. This is the reason why for instance the official case proposes very wide roads while the community participation on the other hand proposes too small parcels for school provision.

As observed during field work, the use of Participatory GIS can be used to overcome planning oversights. For one, it was possible to visualize the densities of the four neighbouring settlements and
comparing this with the type of the road sizes existing and the proposed. Discussions with the community indicated that Kanyakwar B had proposed high standards that do not reflect the social and economic realities of the peri-urban area. Similarly, comparing the densities of the settlements with the plot sizes proposed for facilities using the imagery and the plans; combining this with the discussions on population trend based to the community local knowledge give an indication of a risk of too low standards for facilities within the community participation case. Participatory GIS thus could offer a clearer picture of the planning standards thus proposed.

7.5. Guidance for implementation

The official circles have been blamed for their lack of proper outline on how they should implement their plans. The municipality for instance lacks proper infrastructure strategies to back up their physical plans. Figure 7-1 illustrates the ideal procedure that should be followed within Kanyakwar B to ensure that the objectives of the plan are met. Buildings and occupation have leapfrogged infrastructure provision. The characteristics of settlement now reveal that buildings and occupation have taken root, the lack of infrastructure notwithstanding.

Figure 7-1: Procedure of formal land development

Community participation approach on the other hand was keen in highlighting who will implement the proposals, how they will be implemented, the cost of implementation and the duration that should be undertaken to implement the same (Ministry of Lands, 2006: pp 24-34). The initial implementation was due to commence in the third quarter of 2006 but none of these had begun as at September 2008. As noted before, plans prepared by communities have to go through planning scrutiny before they can be approved for implementation. This does not auger well with the simplicity with which these plans are prepared nor is it in impetus with the growth of the informal areas, a phenomenon also noted in Kombe & Kreibich (2000a). Of course one cannot attribute the lack of plan implementation entirely to plan approval but it is a fundamental stage that cannot be ignored.

Observed within the two approaches is that the various departments in the municipality, Kenya Roads Board and the Constituency Development Fund are the major contributors towards implementing the proposals on roads and services. Based on past experience, as discussed elsewhere, the capability of these institutions to implement is deteriorating.

The budget that had been estimated for the provision of roads and drainage only within a span of 5 years in Obunga informal settlement amounted to 64.5 million Kenya shillings part of which is provided within LASDAP, the highest infrastructure financier within the municipality (refer to figure 5-12). If the amount allocated is thus compared with a mere 21 million Kenya shillings which is allocated through LASDAP for the entire municipality for the provision of infrastructure, then it is clear that the capacity of the municipality to achieve this within 5 years is questionable. From a fiscal

35 Personal discussions with the deputy physical planner
From a point of view, these institutions should attempt more plausible measures of keeping up with the peri-urban development.

The comparison of the two approaches is summarised in terms of SWOT (strengths, weaknesses, opportunities and threats) analysis on the tables below. Following the discussions in the preceding sections, a SWOT of the two approaches is hereby outlined. It should be noted that each one of the both of these approaches have great potentials of preparing and achieving implementable standards.

### Official approach

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It is a cheaper process</td>
<td>• Collaboration is lacking</td>
</tr>
<tr>
<td>• It is expert led so technical issues are immediately covered</td>
<td>• The standards applied for roads are too high</td>
</tr>
<tr>
<td>• Poor guidance to implementation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recognition by the Physical Planning Act Cap 286</td>
<td>• Low priority implement by the municipality</td>
</tr>
<tr>
<td>• Existence of the revised standards as guidelines</td>
<td>• Time taken to approve is very long</td>
</tr>
</tbody>
</table>

### Community participation approach

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It is a collaborative process – higher awareness and support from community</td>
<td>• The standards on service provision are too low.</td>
</tr>
<tr>
<td>• Has applied GIT in planning</td>
<td>• Expensive endeavour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recognition by Physical planning Act Cap 286</td>
<td>• Requires strong social cohesion to plan and implement</td>
</tr>
<tr>
<td>• Leads to strengthening of the grassroots organisations</td>
<td>• Time taken to approve is very long</td>
</tr>
<tr>
<td>• Existence of the revised standards as guidelines</td>
<td></td>
</tr>
</tbody>
</table>
8. Conclusions and recommendations

The main objective of this study is to determine if community participation is a more effective approach to planning and determining planning standards in spatial planning; this chapter provides conclusions and recommendations to this effect.

8.1. Conclusions

Reflecting on sub-objective 1
The first sub-objective sought to determine the current nature of land utilization within the peri-urban area. The rationale behind this was premised on the need to understand the socio-economic and spatial characteristics of an area before spatial planning. The findings reveal that Obunga settlement is in the shift from the consolidated to the saturated stage of informal settlement development. Further to this, the area is not currently served by a school and health facilities. Kanyakwar B on the other hand has started off with a clear development plan with proposed roads and social facilities. Building and occupation has however commenced before any infrastructure is in place revealing the realities of the peri-urban area.

Reflecting on sub-objective 2
The second sub-objective sought to compare the process of developing planning standards under community participation and official planning approaches. The motivation being to document and compare these processes based on the initiators of the plan, the role of community, government and other stakeholders, time taken to develop the plans, the costs involved and expertise involved. The findings observe that community participation is a more collaborative process, involves experts from the government but however an expensive endeavour. The official planning approach on the other hand although less collaborative involves experts and is relatively affordable.

Reflecting on sub-objective 3
The third sub-objective sought to compare the planning standards applied based on the projected infrastructure and social facilities under: community participation and official planning approaches. The rationale behind this was to evaluate if there are differences between the proposed standards and if so, the nature of difference. The findings indicate that there is indeed a difference in the standards proposed within the different approaches as discussed below.

Road widths proposed within the official planning case have adopted the official standards but some roads widths are higher than the official national standards. The road widths adopted for the community approach are significantly lower than the requirements within the official circles. This is explained by the fact that the official case was guided by the national standards while the community participation negotiated the standards based on the settlement situation.

Surface material: the official approach proposed paved roads while the community approach provides a mixture of paving, murraming and grading for the different roads. Field work evidence however indicated that the roads are hardly paved within the official planned areas. The highest level has in the past been grading and murraming for the rights of way in the peri-urban area.
Plot sizes for services; the official planning case proposes significantly large plot sizes for service provision than the official requirements. On the other hand, community participation approach was observed to have proposed significantly small plot sizes for service provision.

Coverage and maximum distance travelled to services; within the official planning case, the larger population (over 70%) is not covered within the threshold distance of 500 and 600 metres for primary and secondary schools respectively. The larger population will be travelling for distances over 2 kms to schools. Only 40% of the population is within the 1km threshold to a health facility with a maximum distance travelled at 2.5 kms. Within the community participation case, half of the population is within the threshold distance for schools while the entire population is with the required threshold of 1 kilometre to the proposed health facility.

Technically speaking, there is none of the approaches described above that are following the stipulated standards to its satisfaction. There is however, for road widths, surface material and the plot size for services, an inclination of lower standards being proposed for the community participation case and higher or similar standards with the official standards within the official case. In the case of maximum distance travelled to services, longer distances are observed within the official case but this is however explained by its large area of covered by Kanyakwar B.

Reflecting on sub-objective 4
This sub-objective sought to assess the effectiveness of applying planning standards under community participation and official planning approaches. This is summarised in a SWOT analysis of the two approaches. It has been observed that each one of the approaches has its strengths and weaknesses and thereby conclusively choosing one approach over the other would be too decisive.

Given the strengths, weaknesses, opportunities and threats of the two approaches, this study concludes that there is need to integrate the positive elements within each approach and thus develop a realistic approach to planning the peri-urban areas and thus achieve the most appropriate standards. Further to this, having engaged Participatory GIS during data collection, findings indicate that Participatory GIS can enhance the planning process and thus the proposed planning standards based on the following reasons:

- It enhances community practical participation in planning process while imparting planning knowledge to the community
- It increases a “lower” level community participation in that it includes the community at the household level and not necessarily those in the planning team
- It reduces planning oversights when determining standards through visual representation of information on maps and images.
- It brings the “informal” and formal planning together.

8.2. Recommendations
In the light of the foregoing discussions and conclusion, the recommendations are hereby given;

- **Apply planning approaches commensurate with the settlement characteristics**
  The official standards provided are deemed to be applicable to all settlement regardless of the diverse characteristics. However, settlements exhibit diverse characteristics especially in social and physical terms. The standards that are adopted should therefore be justifiable based on the existing and
expected situation in the settlements. If therefore standards adopted cannot be justified, then they should not be proposed in a particular environment.

➤ **Adopt the revised standards as a starting point for spatial planning**

The standards review process has been slow but as Agevi (1995) notes, the process of relaxing the standards was highly consultative. There should therefore be an effective dissemination strategy from the central government to sensitise the planning authorities both at the District and the municipalities on the benefits accruing on the consideration of the revised standards as a starting point to spatial planning. The planning process of a particular settlement may therefore use this as a base for planning and then focus on the needs and adjust the standards accordingly to suit the current and the expected situations the settlement.

➤ **Establish clear guidelines of the community participation planning**

Although recognised, community participation is not in the mainstream within the Physical Planning Act. The Physical Planning Act should be more elaborate on the community participation on the planning process. Similarly, the plan approval time for plans should also be re-evaluated to be in impetus with the rate at which the peri-urban areas are developing.

➤ **Adopt Participatory GIS within the planning process.**

The use of participatory GIS should be incorporated within the future peri-urban planning process. This process will come with its costs and benefits which include; longer time taken to plan and consequent increase in costs attached to the process.

The benefits that will accrue are that it is not only easier to achieve more realistic standards, but it also imparts knowledge to the community on the use of the PGIS tools as it brings the “informal” and formal planning together. There is also the benefit of potential for future cost savings when communities are well informed and aware of plans and their goals and henceforth use the plans and images for continuous planning.
References


Ministry of Lands (2005). *Physical planning handbook (draft).*


Water Aid (2005). Community mapping; A toll for community organising 21


Appendices

Appendix 1: Obunga advisory plan
Appendix 2: Obunga plan

INTERGRATED SPATIAL PLAN

LEGEND
- open drainage
- paths
- power line
- river
- roads

land use
- <all other values>
- 0, Angola Industrial
- 0, Health Centre
- 0, Collection point
- 0, Play Ground
- 0, Chiefs Office

- 0, Primary & Secondary School
- 0, Tree Nursery
- 0, Market
- 0, Public Toilet
### Appendix 3: Infrastructure related standards

<table>
<thead>
<tr>
<th>Scale</th>
<th>Legislation</th>
<th>Subject</th>
<th>Specifications (existing and proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neighbourhood</strong></td>
<td><strong>Infrastructure standards</strong></td>
<td><strong>M Reserve</strong></td>
<td><strong>Set back</strong></td>
</tr>
<tr>
<td>Primary distributor (bus)</td>
<td></td>
<td>20.00</td>
<td>9.00</td>
</tr>
<tr>
<td>Primary distributor (no bus)</td>
<td></td>
<td>18.00</td>
<td>9.00</td>
</tr>
<tr>
<td>Residential distributor(local)</td>
<td></td>
<td>12.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Minor access road</td>
<td></td>
<td>9.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Vehicular/pedestrian way</td>
<td></td>
<td>6.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Path(+emergency vehicle)</td>
<td></td>
<td>5.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Pedestrian path</td>
<td></td>
<td>3.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Existing</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Proposed, ad hoc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Drains

- **Peak storm frequency**: 5 years, 2 years
- **Finish**: Closed: open PC lined covered, Open uncovered; earth (except when steep slopes)
- **Culverts**: At vehicular crossing and car access plots, reduced
- **Sewerage**: Minimum sewer dimension
  - 225mm
  - 150mm, 100mm depending on population
- **Material**: Precast concrete (PC), PC and PVC
- **Wayleave**: 3m on each plot, 1.5m on each plot
- **No of manholes**: Individual connections, 1 in 4 plots
<table>
<thead>
<tr>
<th>Street lighting</th>
<th>Distance between poles</th>
<th>30m, or 1 10 plots</th>
<th>60m: security lighting: + in all communal areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of poles</td>
<td>Metal</td>
<td>Wooden poles</td>
<td></td>
</tr>
<tr>
<td>Density and ratios</td>
<td>Plot density</td>
<td>10 to 25 plots/ha: 20-25 plots/ha</td>
<td>35-40 plots/ha: 86 units/ha</td>
</tr>
<tr>
<td></td>
<td>Plot ratio</td>
<td>N/A</td>
<td>1:2 to 1:3</td>
</tr>
</tbody>
</table>

Source: (Republic of Kenya, 1993)
<table>
<thead>
<tr>
<th>Facility</th>
<th>Population catchment</th>
<th>Max. walking distance (m)</th>
<th>Land Requirement (ha)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery school</td>
<td>2,500</td>
<td>2 - 300</td>
<td>0.15 - 0.25</td>
<td>Some integrated with primary school</td>
</tr>
<tr>
<td>Special purposes area</td>
<td>5,000</td>
<td>4 - 600</td>
<td>0.25 - 0.50</td>
<td>Religious, social hall etc.</td>
</tr>
<tr>
<td>Primary school</td>
<td>3,500 - 5,000</td>
<td>3 - 600</td>
<td>2.0 - 3.0</td>
<td>Combined use for open space due to land constraint. Public access to facilities for meetings, functions, etc.</td>
</tr>
<tr>
<td>Local shopping centre</td>
<td>5,000</td>
<td>4 - 800</td>
<td>0.2 - 0.50</td>
<td>Integrated with local market</td>
</tr>
<tr>
<td>Playing field</td>
<td>5,000</td>
<td>4 - 600</td>
<td>1.0</td>
<td>Combined use with primary/ secondary school and general open space.</td>
</tr>
<tr>
<td>Secondary school</td>
<td>8 - 10,000</td>
<td>1 - 2km for day school</td>
<td>2.0 - 4.0</td>
<td>Combined with open space. Assembly hall and classrooms used for social functions.</td>
</tr>
<tr>
<td>Post office</td>
<td>20,000</td>
<td>N/A</td>
<td>0.2 - 0.40</td>
<td>Combine with savings bank, building society outlet, etc.</td>
</tr>
<tr>
<td>Community Centre</td>
<td>20,000</td>
<td>500 - 1000</td>
<td>0.4</td>
<td>Centrally located in urban areas.</td>
</tr>
<tr>
<td>Community Market</td>
<td>20,000</td>
<td>2km</td>
<td>0.4 - 2.0</td>
<td>Centrally located in urban centre.</td>
</tr>
<tr>
<td>Light Industrial area</td>
<td>20,000</td>
<td>N/A</td>
<td>1.0 - 2.0</td>
<td>Combined with local or community market, depending on location of site.</td>
</tr>
<tr>
<td>(workshop)</td>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Centre with maternity</td>
<td>5 - 20,000</td>
<td>0.5 - 1Km</td>
<td>0.25</td>
<td>Should relate to other activities in the community centre.</td>
</tr>
<tr>
<td>Hospital</td>
<td>25,000</td>
<td>0.5 - 1Km</td>
<td>4 - 6</td>
<td>Inclusive of staff housing.</td>
</tr>
<tr>
<td>Police</td>
<td>50,000 - 80,000</td>
<td>N/A</td>
<td>0.5 - 2.5</td>
<td>Specific requirement will depend on the need.</td>
</tr>
<tr>
<td>Branch Library</td>
<td>80,000</td>
<td>0.5 - 1Km</td>
<td></td>
<td>Part of Community centre</td>
</tr>
<tr>
<td>Major shopping centre</td>
<td>100,000</td>
<td>0.5 - 1Km</td>
<td>2 - 3</td>
<td>50 shops</td>
</tr>
<tr>
<td>Fire Station</td>
<td>100,000</td>
<td>N/A</td>
<td>0.5</td>
<td>Centrally located in urban areas.</td>
</tr>
<tr>
<td>Sport centre</td>
<td>100,000</td>
<td>N/A</td>
<td>5</td>
<td>Should be within easy reach.</td>
</tr>
<tr>
<td>Bus station</td>
<td>100,000</td>
<td>1 - 2Km</td>
<td>0.8</td>
<td>Located near market.</td>
</tr>
<tr>
<td>Administration</td>
<td>100,000</td>
<td>N/A</td>
<td>0.5</td>
<td>Requirement will be determined by the government.</td>
</tr>
<tr>
<td>Commercial District</td>
<td>100,000</td>
<td>1 - 2Km</td>
<td>4 - 6</td>
<td>Integrated with other commercial Activities.</td>
</tr>
</tbody>
</table>