PERI-URBAN SERVICE PROVISION PLANNING: CHALLENGES AND PROSPECTS IN ELDORET MUNICIPALITY, KENYA.

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DECLARATION

This dissertation is my original work and has not been presented for a degree in any other university or any other award.

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APPROVAL

We confirm that the work reported in this research project was carried out by the candidate under our supervision.

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DEDICATION

To the youngsters,
Kiprotich and Jepchumba.
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ABSTRACT

Eldoret municipality, like any other principal urban centres in Kenya, has experienced phenomenal expansion over the last four decades coupled with deterioration in environmental and social services. Service provision has become a major challenge to the local authority and government agencies, especially in peri-urban areas where development is rapid. Peri-urban areas suffer from acute deficiencies in service provision, with unplanned settlements being the most affected. The situation seems to grow day-by-day, spreading to new sites and degenerating in the earlier settlements. Little information is known why this scenario persists in peri-urban areas of principal urban centres. This study was designed to explore service provision planning in view of the severity of urban service provision difficulties in peri-urban areas of Eldoret. To achieve this effectively, first, it examined developmental trends and patterns in the context in which service provision planning problems can be understood. Second, investigated impediments to service provision planning. Third, assessed attempts made to enhance peri-urban service provision coverage and finally, provided framework for enhancing peri-urban service provision coverage.

Data was collected through questionnaires and urban report cards administered to peri-urban residents, interviews to key service providers, self-help groups, associations and community leaders, traverse observations and selection of secondary data from relevant sources. Stratified random and purposive sampling was used in primary data collection. Data was analysed using content analysis, descriptive statistics and ANOVA tests.

Service provision has lagged behind peri-urban development due to lack of planning. Service providers have failed to cope up with demands imposed by rapid population increase, peri-urban intensification and boundary extensions. Attempts
to provide services to peri-urban areas were plagued by ineffective planning, inefficiencies and resource constraints. Development in Eldoret peri-urban areas therefore proceeds in total disregard of planning regulation, infrastructural facilities and services. The study recommends a comprehensive service provision planning which include among others replanning of informal settlements, spatial decentralisation of public facilities, capital projects development, upgrading, municipal service capacities and land use planning.
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LIST OF ABBREVIATIONS

ELDOWAS : Eldoret Water and Sanitation Company limited
E.M.C. : Eldoret Municipal Council
EATEC: East African Tanning and Extract Company
RIVATEX : Rift Vally Textile.
ICDC : Industrial and Commercial Development Corporation
CBD : Commercial Business District
NGOs : Non Governmental Organisations
CBOs : Community Based Organisations
KPLC : Kenya Power and Lighting Company
KLB : Kenya Literature Bureau
MOH : Medical Officer of Health, Eldoret Municipality
CHAPTER ONE: INTRODUCTION

1.2 Background to the Problem

Third world countries are experiencing rapid urbanisation due to high natural population increase and rural-urban migration from rural areas and more traditional country towns to principal urban centres, especially to settlements located in and around the national capitals and regional industrial centres. Most of these peri-urban settlements that account for a substantial share of city population throughout third world, are the so-called uncontrolled settlements (Berry, 1976). Peri-urban areas, therefore, have become dominant growth centres of principal cities (Haar, 1968).

Kenya, like any other third world country, has been experiencing rapid urbanisation at an estimated rate of 7% per annum over the last three decades (Kenya, 1978-83). The rapid urbanisation coupled with highly priced and limited urban land in urban core has led to spill over of urban activities to urban peripheries. This has contributed to spontaneous privately developed informal settlements in many urban areas and especially the major urban centres in Kenya like the cities of Nairobi, Mombasa and Kisumu, Eldoret and Nakuru municipalities. The development of peri-urban areas have been overwhelming, with insufficient provision of facilities, services and amenities (Mitullah in African Urban Quarterly, 1992). Management of peri-urban areas has been poor and has resulted to haphazard development, lack of land for community facilities and services and absence of way leaves for utility lines (Rondinelli, 1983; Habitat, 1981).

The unprecedented urbanisation in these principal urban centres is occurring against diminishing investments in the provision of urban services. The services available within municipalities and town councils have already been over
stretched and mostly located in planned urban core areas. Developments of infrastructural services such as water, sewerage, public health facilities and schools have not kept pace with the overall demands. To make the situation worse, the financial base of local authorities has been deteriorating for a number of years (Clinard, 1996; Kenya, 1978-83). Urban services are important for urban economy. Until the deficiencies in basic social and municipal services can be reduced in secondary cities like Eldoret, government Growth Centre Policy of stimulating regional centres as industrial and commercial centres will fail. Such secondary cities will not be able to attract the productive investments that now go to the largest metropolitan centres like Nairobi and Mombasa, neither will it increase the productivity of their labour forces nor expand the purchasing power of their residents significantly. Therefore, a strategy for extending services in urban centres at cost-effective and appropriate to local needs and conditions needs to be formulated.

Deterioration in urban services and declining investments hit severely peri-urban areas where resources are rarely channelled. The situation is more worrying given that local authorities have not been able to maintain existing services nor extend to peri-urban areas where large numbers of people live over the years creating a big backlog (Ashford, 1980). The change of government policy from being main service provider to enablement, calls therefore, for a new strategy for service provision in hitherto unplanned for peri-urban areas.

For most part of the last four decades, local authorities have been focusing on planned urban parts mostly government land in provision of services relative to freehold peri-urban areas. This led to neglect of comprehensive planning for viable and efficient service provision strategy in peri-urban areas, which is largely freehold. Where attempts have been made to provide for community services in peri-urban areas, lack of proper planning and co-ordination of all stakeholders
have hampered it. There is need therefore, to plan for urban service provision in peri-urban areas, not only of major cities but also secondary cities like Eldoret.

1.2 Statement of the Problem
One of the major challenges facing local authorities and government agencies in Kenya is meeting the ever-rising demand for urban services such as water, sewerage, electricity, telephone, education, health and waste disposal. This challenge is even more pronounced in principal urban centres like Eldoret, which have experienced phenomenal expansion in the last three decades coupled with deterioration in urban services.

Peri-urban areas suffer from acute deficiencies in urban services with informal settlements being the most affected. The problem seems to grow day-by-day, spreading to new sites and degenerating in the earlier settlementsts. Service provision seems to have failed to cope up with rapid peri-urban expansion, intensification and service demands. Lack of way leaves and sites seems to thwart incremental service provision. Little information is known why this situation persists and how it can be arrested. There is an urgently need therefore, to come up with a strategy to provide for minimal level of basic services and community facilities and avoid further degeneration of peri-urban areas with potential negative environmental and health implications. This study therefore explores prospects of effective planning for service provision planning in peri-urban areas Eldoret municipality.

1.3 Research Questions
The following questions form the basis of this study:

1) What are the trends and patterns of peri-urban development in Eldoret municipality?
2) What are the impediments to service provision in peri-urban areas of Eldoret municipality?

3) What is the current attempts to provide services in peri-urban areas?

4) What are the appropriate planning strategies and policy recommendations for providing services in peri-urban areas?

1.4 Objectives of the Study

The following objectives form the core of the study:

1. To examine trends and patterns of peri-urban development in Eldoret municipality;

2. To investigate impediments to peri-urban service provision in the municipality,

3. To assess current attempts made to provide services in per-urban areas; and

4. To suggest appropriate planning strategies and policy recommendations for the enhancement of service provision service provision in peri-urban areas.

1.5 Study Premises

The central premise that guides this study is that planning for peri-urban settlements and municipal extensions is fundamental to peri-urban service provision. The specific premises of the study are:

1) Peri-urban development proceeds without planning, creating inefficient land use patterns and inadequate service provision.

2) Factors such as ineffective planning and resource scarcities are the major constraints to service provision in peri-urban areas.

3) Alternative approaches to complement traditional municipal service provision are inevitable given rapid population growth and deterioration of urban services.
4) The existing policies and planning strategies for service provision in peri-
urban areas are characterised by several weaknesses and gaps and are
therefore not effective.

1.6 Justification of the Study

Peri-urban areas are often where the town’s greatest growth is and will continue
to take place with ever increasing population growth and limited public land
needed for various unmet urban land uses. The developments in such areas have
been fragmented and haphazard, and as such, present difficulties and high costs in
the provision of services. This therefore calls for proper planning if effective
provision in peri-urban areas is to be realised.

The choice of Eldoret is due to its extensive peri-urban zone within the
municipality and its designation as a regional growth centre, serving North Rift
region of Kenya. Its centrality in North Rift and Western Kenya, coupled with
rich agricultural hinterland has attracted high population and high demand for
investment in urban activities. This trend nevertheless, will continue to spur peri-
urban growth in the unforeseeable future.

Eldoret was proposed by 'Omamo' report to be elevated into city status and this
therefore calls for the enhancement of services. Urban services are important for
social, economic and environmental needs and therefore such services need to be
planned well to ensure urban economic productivity, comfort, public health and
safety. Institutions of government, commercial, industrial and residential
expansion is rapidly eating up peri-urban agricultural land. Planning and service
provision, however, had been lagging and often followed development thus
necessitating the choice of Eldoret for a case study of this study.
1.7 **Significance of the Study**

This study recommends policy suggestions on how planning and provision of services in the peri-urban areas can be effected. Such suggestions will assist policy makers and local authorities with a basis for refining their plans and strategies on peri-urban development and service provision coverage. The study contributes to knowledge on planning for service provision and skills to the researchers on peri-urban planning and service provision.

1.8 **Delimitation of the Study**

The spatial coverage of the study is restricted to Eldoret municipality. The scope of study is limited to planning for service provision. The variables of study analysed were first, trends and patterns of peri-urban development focusing on evolution of settlement structures, planning regulation, property rights and ownership regimes, causes of peri-urban development and patterns of settlement. Second, investigation of impediments to service provision which includes population increase, settlement structure, modes of service provision, resource availability and institutional and system efficiencies. Third, assessment of attempts made to provide services focussing on service capacities and coverage and service provision approaches.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter analyses literature on themes that guides the study. It has the following themes: urbanisation and peri-urban development, impediments to service provision planning, impact of service provision on urban economy, attempts made to provide for services in urban centre and conceptual model for peri-urban service provision.

2.2 Urbanisation and Peri-Urban Development

Early urban form was mono-centric. Most economic activities in mono-centric city were concentrated in the central core area (Sullivan, 1990). However, with modernisation processes brought by industrial revolution and world wars, suburbanisation growth and decentralisation movement led to multi-centric form. The forces behind suburban movement during 1900s were economic, technological, and social (Hall, 1975). World economic recession/depression between 1929 and 1934 resulted in low prices of primary products. This then led to construction and building materials being cheap and as such became affordable by the majority. Economic recession can however have a potential of causing low turnover in buying of houses in Kenya and thus a wave of people living in peri-urban areas that they can develop at low cost. Second, white-collar employees and salaried employment, which results to growth of middle class who aspires to buy a house of their own with the aid of mortgage schemes and/or own savings. Peri-urban areas become a destination to the employees where they can afford to buy land and put up housing. Third, transport technology extended effective commuting range through trains and buses. This allowed the effective area of the city to extend up to four or five times the previous limits. London for example in this period saw unprecedented population growth from 6.5 to 8.5 million and capital's
built-up area extended about three times. More so, extension of railway line into undeveloped areas resulted to a vast flood of speculative building cheaply built for sale. Human settlement is thus expected to follow transportation corridors. Service provision is expected to follow such precedence as well in Eldoret municipality. Hall (1975) further noted that local authorities also contributed to sub-urbanisation through housing schemes outside urban core between 5-7 miles from the city centre connected to it by rapid, frequent and cheap public transport. Improved transportation made so much land developable and as such low cost of land. Sullivan (1990) also noted that urban growth causes sub-urbanisation. As an urban area grows, most growth occurs on the periphery. This scenario is expected to prevail in Kenya where restriction is present in urban core and thus peri-urban areas will develop faster absorbing a lot of people.

In East Africa, which applies also to Kenya, peri-urban development has been attributed to colonial restrictive policies and unsustainable nature of physical planning process. First, are colonial containment and exclusion policies such as pass laws, which perpetrated exclusion of Africans from urban services and elimination of low-income settlements through demolition under local authorities' jurisdiction. These ensured that pre-existing indigenous settlements and substantial collection of local immigrants were for long treated outside the main design framework or put into special categories for special treatment (Hutton, 1970). Obudho (1981) observed that frequent demolition of houses often leaves several people homeless and with loss of considerable investment. People are thus left with no option except to seek informal settlements in peri-urban areas where tenure is secure and land is affordable. As such, a peripheral region where most of the African migrants built their settlements therefore often encircled colonial administrative centres. This situation was precipitated by colonial mentality, which saw towns as essentially non-African areas, in which they came only temporarily as unskilled labourers housed in labour lines.
Secondly, the unsustainable nature of physical planning processes which has been unable to cope up with the demands of rapid urbanisation and as such, urban development has taken place outside the planning 'rules of the game' in urban centres (Kenya, 2000A). Planning therefore has lagged behind development. Given service provision is preceded by planning, peri-urban settlements that usually develop without planning lack behind service provision. Replanning of such settlements however rudimentary will facilitate incremental service provision.

Third, inappropriate planning and building standards which entails the continued imposition of unrealistic high standards of construction, layout and zoning within the administrative boundaries of urban centres in relation to the income of the bulk majority of workers that is low to afford such standards (Hutton, 1970). Habitat (1996) concurs with Hutton (1970) that such standards which accompany urban [master] plans cause increased prices to the point where a high proportion of all land development and in particular low-income, are forced into informal, unregulated peril-urban settlements. With economic recession, inflation, coupled with inappropriate standards in planned urban core in Kenya, middle class is expected to fall within this bracket and therefore, vast growth of peri-urban settlement is expected to be sustained by middle class sub-urbanisation.

Fourth, the speculative subdivision and building of urban peripheral agricultural lands for urban activities (Johnson, 1974). Habitat (1981) adds that the lack of national urban policy for the extension of municipality's peripheries, coupled with inadequate co-ordination of urban land markets, have aided in the growth of quasi-legal subdivisions in cities with little land for large-scale invasion. As such quasi-legal subdivision have emerged as an important supplier of land for housing that official rules and procedures prevent from being fulfilled (Habitat, 1996).
Informal land markets provide land sites for housing at affordable costs by many, including low-income households and with the advantage of immediate possession with no paper work. Peri-urban housing is also established outside municipal boundary and pre-existing villages by small farmers who find they can increase their income by erecting shacks on their land to house city workers instead of putting into agriculture which is less competitive and fetches low rent revenue as compared to urban uses.

Fifth, the inefficiencies in land acquisition and registration in planned urban core, which has been attributed by Habitat (1996) to inefficient government procedures characterised by slow pace and complexity of land registration, slow and costly approval of development plans, and difficulties in land acquisition. Ghosh (1984) adds that failure of local authorities to acquire and plan for land within their jurisdiction has also caused peri-urban settlements. Ghosh (1984) attributed this to weak financial base and management capacities of local authorities.

2.3 Impediments to Service Provision Planning

There are no comprehensive documented impediments to urban service provision. Several factors, however, in isolation or collectively are deemed to constrain service provision in urban centres and in particular, peri-urban areas. Mbogua in Habitat (1996) argues that urban services are deteriorating in many sub-Saharan cities and as such, majority of urban dwellers have no access to basic services like sanitation, portable water, waste disposal, health and educational. Mbogua attributes this to limited financial resources, poor management at local and central government level, rural-urban migration and unemployment. Mbogua further notes inefficient city management contributes to inadequate infrastructure provision. However, other factors might be fundamental in service provision apart from inefficient and poor management has argued by Mbogua. These may include
domestic policies which favour some parts of the urban centres in resource allocation, ever declining rate of economic growth for instance from 8.2% in 1977 to 0.4% in 1992, implementation of structural adjustment programmes and withdrawal of donor aid to Kenya throughout 1990s. Experience shows in agreement with Habitat (1996) that rapid urbanisation generally outstrips the capacity of urban institutions to cope up. The large percentage of population living in informal settlements (such as Mombasa 60%, Nairobi 55%, Dodoma 80%) means there is a large backlog of service provision in every city that is experiencing rapid urbanisation (Obudho and Mlanga, 1988). The backlog steadily increases as the expansion of these non-plan settlements occurs.

Settlement structure has been observed to impinge greatly on service extension and installations. Haar (1968) points out that the spread of settlement thinly and intermittently and scattering of such high intensity uses as shopping centres, schools and other public buildings frustrates a rational transportation system, requiring instead major highways where they do not belong. Johnson (1974) further notes that service provision to scattered settlement [as the case in peri-urban areas] is costly and heavy capital charges are required for installation of completely new services such as electricity, water, public transport and sewerage. Higher costs leads to lower level of service provision than planned urban core part. In addition, unplanned land development is not only inefficient and ineffective but also creates difficulties and adds costs associated with obtaining and maintaining right-of-way and access to utility lines that has to be provided later incrementally to unplanned settlements (Muntaz, 2001). More so complex layouts, lack of land for community facilities and services, and way leaves for utility lines causes delay and additional costs when extending services to unplanned peri-urban areas.
Lack of planning for incorporation of outlying settlements into the city boundaries results in lack of service extension and as such, alienation of the residents who must pay taxes to the local authority for their property (Kayongo-Male in Obudho and Mlanga, 1988). Urban segregation in service provision in terms of class/income and whether authorised or not propagates the colonial policy of minimal extension of services to unauthorised settlements in peri-urban areas. Resource allocation is therefore expected to be skewed towards maintenance of urban core, and planned residential neighbourhoods and a leap service to unplanned peri-urban settlements.

High costs in establishment and installation of such urban services as water borne sewerage, electricity and water makes it difficult to enhance its coverage concomitantly with population and urban expansion. This is made even worse in areas of pre-existing built settlements where installations would cause much demolition and/or follow unsuitable bends and curves in search of right-of-way (Muntaz, 2001).

Whereas most scholars point out lack of resources as among the major source of service provision deterioration in urban centres, Dellinger (1994) on the other hand argues that the amounts of funds devoted to urban infrastructure has been substantial. Experience in Kenya differs with Dellinger (1994) because both feasibility studies and construction of urban services such as sewerage, roads and water is mostly funded through external aid.

Urban poverty is perhaps among the major impediments to service provision. Poverty makes people unable to afford extension/installation and service charges. In most cases however, services are extended to poor neighbourhoods when disease outbreak occurs. Obudho (1981) notes for instance Mathare Valley in
Nairobi was ‘improved’ with minimum urban services after a cholera outbreak in some section of the city.

Poor neighbourhoods/households has been pointed by O’Connor (1983) to be poor or lacking in such services as water, sewerage, and waste disposal and garbage collection. O’Connor further notes that the same services are well catered for in central administrative and business district and high class residential areas and little effort to areas where most people live [peri-urban areas] and to even reasonably accessible but occupied by list influential or economically well residents. Resource allocation in Kenya and study area is envisaged to follow the same trend with wide disparities in service provision depending whether an area is core or peri-urban, prevailing income levels, and on whether that zone is depressed or not.

Habitat (1998) adds that among the factors that constrain service provisions in informal settlements are the failure to mobilise and organise communities, delay in land use planning in informal [peri-urban] settlements, and poor training of physical planners.

2.4 Impact of Service Provision on Urban Economy

One of the most visible and disturbing characteristics of the poorer cities of the developing world is the decline of their infrastructure base. The high rate of population growth and declining resource availability degrades urban facilities and services to the point that it impedes on cities capacities to operate as productive entities (Habitat, 1992). To be productive, cities needs well-functioning urban services such as roads, water, electricity network, telephone systems, schools, hospitals, and the like to facilitate both households and firms to operate efficiently.
Urban services are crucial for industries to remain competitive and sustain economic performance and operational maintenance. Habitat (1992) attributes the dramatic decline in growth of public stock and 80% reduction in productivity during 1950 to 1985 in United States to neglect of infrastructure investment in cities (Ascauer, 1988). In Nigeria, a study by World Bank (1991) demonstrates that unreliable services impose heavy costs on manufacturing enterprises. The high cost of operations consequently, prevents innovation and adoption of new technology and makes it difficult for firms to compete in the international markets. The level of infrastructural development in cities either undermines or attracts investments and therefore, it impinges positively or negatively on economic growth of local authorities.

Housing improvement in squatter settlements is largely dependent on the presence or absence of services (Strassman in Habitat, 1992). The rate of building investment doubles with access to services such as water and waterborne sewerage connections. Accessibility to infrastructure services leverage influence investment decisions in settlements.

2.5 Attempts made to provide for Services in Urban Centres

Rapid urbanisation averaging 7% in Kenya exerts too much pressure on housing and servicing of settlements. This has contributed to: private development of informal settlements in major urban centres like Eldoret; services are ‘officially’ not provided except for scantly services such has water points; and deterioration of public services (World Bank in Obudho, 1992). Many governments, including Kenya, responded to this situation by adopting policies geared towards improving settlement conditions in the urban centres particularly low-income earners.
Kenya (1970-74 Development Plan) pursued growth and services centre strategy as a way of reducing population concentration and primacy of Nairobi and Mombasa. This was to be effected through concentration of services and infrastructures in designated service centres hierarchy to stimulate rapid urbanisation of growth centres and spread urbanisation countrywide. However, what the policy did not provide for is how was the rapid population influx and concentration in major growth centres can be accommodated, serviced, and directed into the required zones within urban centres. Plans for extensive land acquisition a head of occupation/development was not elicited and therefore, population growth spill over to freehold peri-urban areas with low-level service provision are expected to prevail in these growth centres. The 1978-83 Development Plan observes that the high urban growth rate estimated at 7% over-stretches services provision within the municipalities and town councils. Development of such services as water, sewerage, housing, public health, and schools therefore lags behind overall demand. The low-income urban poor are worse hit, living in conditions that lack the basic services.

Due to deprivation and deterioration of local services in many human settlements [housing estates], wide support in favour of urban residential neighbourhoods seems to emerge. This call is in line with Stone (1973) who notes that residential neighbourhood is the most essential part of urban master plan, drawing attention from the lack of local services in many housing estates. As such, it provides good social context, utilities, and access to other parts of city. Experience in Kenya has shown to be in agreement with Clinard (1966) who notes that there is need to prepare for neighbourhood communities to share responsibility for the administration of services not adequately provided by the municipality. This is because first, urban centres have become so huge and sprawling and administrative units so large that effective supervision of sanitation, parks, schools and other services has become increasingly difficult. Second, the huge
backlog of services to peri-urban areas coupled with weak financial base of local authorities means that the colossal sum of money needed for establishment, extension and installation of services to peri-urban areas is not possible by one stakeholder. Government withdrawals as a major service provider call for neighbourhoods to take over some responsibility in meeting service provision gap through associations or partnerships. Neighbourhood strategy needs to deal with such current peri-urban problems as crime and insecurity, fire protection, waste collection, regulation of freehold land uses, and basic community facilities and services and management. Decentralisation of service provision and/or maintenance is feasible within the framework of a neighbourhood.

Attempts have been made in the past and recent years to provide services to a wider segment of the urban centres. Sites and services strategy has been utilised to reach a wider segment of the urban poor. Implementation of this policy requires that government obtain land, prepare a well layout plan, provide basic infrastructure like electricity, water, sewerage system and roads, and allocate plots of land to the poor (Obudho, 1988). Mostly the land that governments buy is usually on the periphery of cities. Implementation of site and services schemes utilises both self-help and community development approaches while the construction are often incremental.

Sites and service schemes have encountered a lot of problems. These are first the failure to involve low-income households resulting in a situation where such schemes end up benefiting higher income groups. Second, community participation is often omitted in the initial stages as those planning and implementing the project do not consult the affected communities and finally lack of co-ordination of different activities (Habitat, 1998). Obudho (1988) further notes that relocation of the poor reduces their income since it removes them from employment sources leading to displacement and buying out of poorer community
members from their houses and therefore, non-recovery of infrastructure investments costs.

The poor financial base of government, structural adjustment programmes, withdrawal of aid to Kenya and continued rapid urbanisation questions the site and service schemes in meeting urban housing and service provision problems. The costs are already prohibitive and government policy has changed to enablement. This program have failed to meet the housing need of the majority of the urban poor who have continued to live in unplanned settlements (Habitat, 1998).

Urban upgrading programmes since late seventies has been adopted on spontaneous informal settlements. This entails improving services in informal settlements and resettling of displaced persons (Habitat, 1998). The program involves first, government formulating land tenure rights (tenure regularisation) in squatter settlements. Second, dwellings are aligned with organised thoroughfares. Third, installation of drains and storm ditches. Fourth, amenities, such as latrines, piped water and electricity are provided. Fifth, educational facilities, health care, and income generating activities, in some cases, are also provided (Obudho and Mlanga, 1988). Upgrading programmes does not dislocate large communities away from employment opportunities while providing basic services to improve the living conditions of the communities. Overcrowding, however, in these communities often continue as settlements expand due to rural-urban migration (Obudho and Mlanga, 1988).

Implementation of upgrading programmes has been constrained by several factors inter alia, overly designed infrastructure thereby making it expensive, development plans does not reflect the resident's aspiration, tensions between
communities and Non-governmental organisations (NGOs) [e.g. in Mathare 4A], and weak implementation capacity at all levels (Habitat, 1998).

This program like site and service schemes failed to meet the housing needs of the majority of the urban poor who have, as a result, continued to live in unplanned settlements. "To date, there is no clear policy on unplanned settlements and shelter initiatives have failed to address the realities of the urban poor" Habitat (1998: 12).

Partnerships have emerged in an attempt to enhance urban service provisions. The inability of the public sector to deal with human settlement problems led to realisation that all actors need to be involved in urban service provision. This is because provision of facilities, amenities and services is a massive undertaking regardless of the resources available (Mumtaz, 2001). Mumtaz (2001) further argues that local authorities alone cannot provide all services and infrastructure through its own efforts. Augmenting of municipal resources and capacity is thus inevitable. Partners in urban service delivery in Kenya include central and local government, NGOs, CBOs and training institutions (Habitat, 1998). NGOs (Habitat, 1998) make significant contribution towards the provision of infrastructure and services in informal settlements. They spearhead community-based approaches where the community provides free labour while the NGOs provides materials. They are involved in provision of water, drainage, and sanitation. Undugu Society of Kenya for instance, is involved in provision of housing, water, and sanitation (i.e. solid waste disposal) in informal settlements of Kitui-pumwani, Kibera, and Mathare in Nairobi in collaboration with local residents.

Several limitations exist in partnership ventures. These include lack of collaboration, weak co-ordination with other local partners, duplication of efforts
leading to inefficient use of resources, and lack of government support to [NGOs and CBOs] in informal settlements [located mostly in peri-urban] because the settlements are considered illegal (Habitat, 1998).

Collaboration and partnerships at the local authority level are key elements in addressing urban service delivery. Partnerships between households and local organisations and the private sector providers and between the private sector and the public sector offer a more viable and sustainable options in public-private partnerships in urban service delivery. As Mumtaz (2001) clearly puts "public-private partnership in [urban service] delivery is often an option to get more mileage out of limited local government resources". There is no doubt that with the ever-dwindling government resources, structural adjustment programmes, economic stagnation and rapid sub-urbanisation of peri-urban areas in Kenya, partnership ventures offer opportunities in enhancing urban service delivery. Different forms of partnerships exist namely contracting out tasks, franchising, built-own-operate, and built-operate-transfer arrangements.

Improving efficiency and social equity in the delivery of services entails an enabling framework that can permit CBOs, NGOs, individual households and private sector (both formal and informal) to contribute towards the provision and maintenance of urban services.

The process of privatisation of municipal services, which accompanied political and economic reforms of the 1990s in African countries, is a recent phenomenon. This came as a result of inefficiency of the public sector in delivery of urban services. Privatisation of municipal services is viewed as a decentralisation and/or reduction in local government involvement in the provision or ownership of certain services. Privatisation includes management contracts (i.e. solid waste management, public toilets and parking lots), concessions (i.e. public toilets),
franchises (solid waste management), leases, commercialisation (water), and pure private entrepreneurship such as transportation, health services, and schools (Habitat, 1998).

Privatisation operates effectively in middle and high-income residential neighbourhoods whose residents can afford to pay for the services. In most cases, large proportions of the poor and low-income neighbourhoods where the residents cannot pay for the privatised services are left out. Privatisation as such, questions the public policy issues of equity, efficacy and effectiveness of its performance in municipal service provision and management given its recent introduction. More so, there is lack of clear policies on privatisation, absence of appropriate legislation to support and guide privatisation of municipal services. The foregoing reasons, coupled with failure of liberalisation would thus make privatisation questionable approach in municipal service delivery.

2.6 Conceptual Model

Components of urban service delivery are based on expanding capacities of infrastructural facilities to keep up with population increase and area coverage. These include upgrading capacities of water, sewerage, electricity, solid waste and communication facilities. Second, improving social facilities, whereby neighbourhood communities as the case with peri-urban estates should be provided with adequate and accessible community facilities, services and amenities (i.e. education, health care, recreation, water, solid waste collection, electricity, and communication services) which can only be attained through rational planning. Third, Management of developmental trends and patterns is essential to avoid urban sprawl and difficulties in service provision. Managing land use and developments through land use planning and development control can attain this. Fourth, improvement of physical infrastructure, especially
transport, communication and sanitation network is a crucial element of urban service provision. Fifth, co-ordination of all stakeholders in provision of urban services is paramount to achieve comprehensive and cost-effective service provision. These elements of urban service provision can only be achieved through comprehensive municipal wide planning. Where service provision lags behind peri-urban development, peri-urban service provision planning should be undertaken to provide for minimal community facilities, services and amenities and efficient patterns to facilitate incremental service provision.

The framework is applicable to all levels of urban centres, from principal cities to secondary cities like Eldoret. Although urban service provision is mainly an engineering domain, planners are critical for policy formulation. Planning proceeds engineering designs and construction. Optimal spatial location of urban services and facilities, development control, way leave establishment, and merging of facilities with population falls within the spatial planning domain. Therefore planners provides framework within which engineers, municipal inspectorate department and service providers base their location and concentration of services, development control, and service capacity. This framework presupposes resources such as financial, human and operation facilities are not limited. Fourth, it assumes local authorities practise efficient management of municipal affairs.
Figure 2.1 Conceptual Framework

Urban Service Provision

- Upgrading Municipal Capacities
- Improving Basic Social Services
- Improving Physical Infrastructure
- Managing Land Use and Development

Comprehensive Planning

Ineffective Planning

- Inefficient Trends and Patterns
- Inadequate Services
- Under Capacities

Peri-urban Service Provision
CHAPTER THREE: AREA OF STUDY

3.1 Physical Features

Eldoret lies between latitude 031' North and longitude 35'16" East. It is situated in Uasin Gishu district in the Rift Valley province and it is the fifth largest town in Kenya after Nairobi, Mombasa, Kisumu, and Nakuru (Figure 3.2). Eldoret town is about 64 km North of Equator and at an altitude of 2042m above mean sea level (E.M.C., 1986). The average means temperature of Eldoret is 18°C with a maximum of 25°C. The highest temperatures occur in February and the lowest in July.
Figure 3.2: Kenya Urban Development Patterns.
Eldoret receives a bimodal rainfall. The distribution of rainfall indicates that precipitation is mainly during April and May with a dry spell in June followed by increasing rainfall in July and August and trailing off in September and October (Figure 3.3). The average rainfall is 1,124mm. However, the average rainfall between 1988-1995 was 1,077mm, and while 1995-recording 980mm.  

![Figure 3.3: Rainfall Distribution-1995](image)

Source: Kenya (2000B)

### 3.2 Historical Features

The town began in 1910 as an isolated Post Office to serve the white farmers who had settled in Uasin Gishu district. The new town was proclaimed “Eldoret” (From a Maasai word “Eldore” meaning stony river) in the official Gazette of November 14th 1912 with an area of 11 km². The growth of Eldoret was hampered by lack of communication in early stages until the coming of Kenya-Uganda Railway in 1924. This led to increased commercial activity, import of manufactured goods and export of farm produce. Provision of township services could not keep pace with the rapid commercial development. The township
committee headed by the District Commissioner had no legal authority to control urbanisation process (E.M.C., 1986).

Eldoret was elevated to municipal Board status in 1929. In the same year, piped water supply was installed from Sosiani River. In 1930, a loan of £5,314 was obtained to build low rental housing and a market in the town’s African location. In the same year the aerodrome was licensed for all types of aircraft. The advent of Second World War stagnated the growth of the township. In January 1958, Eldoret town was elevated to municipal status with an area of 25 km². During 1960-69 period, the municipality experienced stagnation. During 1969-1979 decade however, the municipality experienced industrial expansion and development.

The municipal boundary was extended from 25 km² to 59 km² in 1974. Municipal boundary was extended again in 1988 to the current 147.9 km². The extension brought a lot of agricultural land and spontaneous peri-urban development under the jurisdiction of Eldoret Municipal Council. These include Langas, Munyaka, Maili Nne, Kimumu, Upper Elgon View, Kapyemit, Huruma Mwiyenderi, Ya Mumbi, Sikunanga, Kapkoros, and King’ong’o among others. Urban extensions and rapid population growth led to the municipality's population increase from 111,882 in 1979 to 197,448 in 1999.

3.3 Social Features

The population of Eldoret municipality will serve as a basis for assessing the scale of demand for social amenities: water, sewerage, telephone, electricity, education, health, commerce, industry, recreation, housing, transportation and the amount of land required to cater for all these amenities in the short and long run. Since its declaration as an urban centre in 1912, Eldoret population has grown due to:
Natural increase of urban population,
In migration to the town,
Incorporation of the surrounding settlements and rural communities through urban extensions
Subdivision of large scale farms incorporated during urban expansion
Daily commuting nature of the population from its immediate rural hinterland and beyond North Rift.

The foregoing factors account for the sharp increase of Eldoret population since 1969 (table 3.1)

Table 3.1: Population Growth of Eldoret, 1948-1999

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<tbody>
<tr>
<td>Population</td>
<td>8193</td>
<td>19605</td>
<td>18196</td>
<td>50503</td>
<td>111882</td>
<td>197448</td>
</tr>
<tr>
<td>Intercensal Growth Rate</td>
<td>6.4</td>
<td>1.1</td>
<td>10.7</td>
<td>8.3</td>
<td>5.8</td>
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Source: Kenya Population Census

3.4 Economic Features

Eldoret is not only a farmer's town but also a major industrial, commercial and educational centre in Western Kenya. The industries in Eldoret range from food processing, textile production, garment manufacturing, saw milling, engineering fabrications and pharmaceuticals. Companies like Ken Knit, Kenya Industrial Estates, Rai Ply Wood, national Cereal and Produce Boards, Corn Production Company, EATEC, Unga Flour Mill, and defunct RIVATEX, Kenya Co-operative Creameries, Raymond, and Furfural, to mention only a few, made Eldoret an important industrial centre in Kenya. Kenya Pipeline Company has developed depot in Eldoret. Inland container depot has been developed as well by the Kenya Ports Authority.
Eldoret hosts important National Education Institutions like Moi University Town and Chepkoilel Campus, the Eldoret Polytechnic, Military Training Centre at Moi Barracks, Nursing Training School and National and Provincial Secondary schools.

3.4.1 *Factors influencing Growth of Industrial and Commercial Activities*

Rapid growth of commercial and industrial development since inception of the town in 1912 to date is due to:

- **Creation of administrative centre for both central and local government.** Many administrative officers are located in Eldoret namely Wareng county council, Town Hall, Central Bank, Telkom Kenya and Kenya Power regional officers and banking institutions such as Standard Chartered and Barclays bank.

- Construction of the Uganda railway line thereby opening up the town for exports and import of goods.

- The selection of the town as regional industrial and service centre in western Kenya under the Government’s Growth centre policy. Concentration of facilities and services to serve wider hinterland accelerated urban growth in the municipality.

- A rich agricultural hinterland that readily provides raw materials for industrial support, enabling the town to function as a (i) production, (ii) collection, (iii) processing, (iv) distribution, and (v) commercial centre of its rich hinterland.

- A growing and diverse market for finished goods. High population concentration within Eldoret municipality and wider and rich hinterland comprising of several districts offers a diverse and large market for goods and services.
Adequate serviced and unserviced land suitable for all sectoral development. Cheap and relatively flat land suitable for urban activities is available in Eldoret.

Adequate supply of water from Ellegerini, Sosiani and Chebara Dams, to meet the towns need till 2010. Water is a critical factor in urban development. Adequate and reliable water supply attracts industrial, commercial and institutional development and thus urban growth.

Its situation well served by tarmac roads to Kisumu, Kapsabet, Iten-Kabarnet, Bungoma, Kitale, and Nakuru-Nairobi facilitates expedient transportation and linkages to wider hinterland and market spheres.

Existence of well established support services and facilities such as postal services, commercial banks and the Central Bank that serves the hinterland and municipal residents.

Eldoret is an educational centre; home to a national university, a national polytechnic, a referral and teaching hospital and military barrack. These institutions make Eldoret foci of development and population concentration.

The construction of a Kenya ports inland container depot and the pipeline depot with a possibility of extension to Malaba. It serves as a strategic energy reserve for industrial, commercial and domestic activities.

The construction of Kenya's Third international airport to link the town with the outside world, serve the horticultural farming community and boost development.

The proposed establishment of an export processing zone and the industrial commercial development (I.C.D.C.) 150-acre industrial town. It gives a boost to Eldoret industrial base, enhance employment and thus demand for cheap peri-urban housing.

Industrial, commercial and service sectors are major source of formal employment in the municipality. The growth of formal employment is indicated in figure 3.4 between 1982-1999.
The decline in employment since 1997 can have an implication on peri-urban development. The affected Unemployed who loses jobs would be forced to relocate to peri-urban areas where rents are low. Decline in formal employment can be attributed to shutting down of industrial plants in Eldoret such as Raymond, Furfural, RIVATEX and Kenya Co-operative Creameries (K.C.C.). This can result to under-use of services that had been planned for such as water, power and industrial land use designated.

3.5 Land Tenure Ownership Features

The land tenure regime in Eldoret is a product of colonial land ownership patterns that concentrated land in the hands of a few white settlers. This situation changed after independence when most of the Europeans land was transferred to Africans under million acre settlement schemes to government, land buying companies, co-operatives, self-help groups and individuals.
Today, land ownership in the municipality can be classified under four major categories, namely:

- Government-owned land
- Council owned land
- Kenya Railways Corporation limited
- Freehold

Figure 3.5 shows the existing land tenure system in Eldoret. The use, control and management of land in each tenure system vary. Private freehold land is under Registration of Titles Act, Registered Land Act. Freehold Titles offers absolute ownership under the constitution of Kenya. An important legislative in this respect is the Land Acquisition Act, which can be used to acquire privately owned land for public purpose and the Physical Planning Act in planning and regulation. The effectiveness of these Acts is questionable in regulating peri-urban development and service provision. The bulk of land in the peri-urban areas of the municipality is under freehold tenure and is subject to extensive peri-urban activities.

3.5 Urban Service Provision Statutory Institutions

Service provision in Eldoret is under various institutions. These include Kenya Power and Lighting Company, Telkom Kenya, government departments (physical planning, survey, lands) and Eldoret municipal council, which is the main stakeholder in service provision. Eldoret municipal council by law (Local Government Act, Cap 265) is charged with the duty of providing a wide range of services including health, primary education, road construction and maintenance, water supply, sewerage, housing, drainage, markets, solid waste management and social services.
Figure 3.5: Eldoret Land Tenure Ownership Pattern
Statutory provisions exist that assist the smooth running of the councils’ affairs. These include the Local Government Act, Building Codes, Physical Planning Act, Public Health Act, The Land Planning Act and local Authority Development Programme.

Eldoret municipality has a legislative arm whose major function is policy formulation and executive arm dealing with implementation of policies. Eldoret is composed of 15 elected councillors each representing a ward and 5 nominated by the Minister for Local Government. The council operates on a committee basis whereby each committee performs specific functions. The standing committees are:

- Town Planning and Works Committee
- Education Committee
- Public Health and Environment Committee
- Finance and General Purposes Committee
- Water and Sewerage Committee*
- Social Services and Housing Committee

* Water and sewerage services have been transferred to ELDOWAS but the council still monitors and regulates services under covenant agreement.

The committees consider matters pertaining to their functions, which are forwarded to the council that in turn passes and ratifies the decisions as resolution for implementation at full council meeting. The chief officers of relevant departments and professionals advise the committees. The duties of council officers and committees are stipulated in the Local Government Act to ensure transparency and accountability in decisions taken. The executive arm of the council is divided into six departments excluding office of the Town Clerk. These departments are Municipal Education, Public Health, Environment, Municipal Treasurer, Municipal Engineer and Social Services departments.
CHAPTER FOUR: RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This chapter deals with how this study went about in exploring the problem of peri-urban service provision planning. It looks at the research method, sampling of the population that provided the data, instruments used to collect the needed information, and finally, mode of data analysis and presentation.

4.2 Research Design

The study utilised survey design as the principal method of primary data collection. Primary data was obtained through a field survey undertaken in April/May 2002 on five peri-urban estates of Eldoret municipality and key service providers in the municipality. The estates were Kimumu, Munyaka, Langas, Maili Nne and Upper Elgon View. The method relies on administration of questionnaires, interviews and documentary analysis as the principal data collection procedures. These three procedures were employed to gather information deemed necessary to answer the research questions articulated in chapter one.

4.3 Sampling Frame and Size

The study utilised stratified random and purposive sampling in primary data collection. Stratified random sampling was used in gathering of information in peri-urban estates. Estates were stratified in terms of classes elicited in municipal zone classification: high (Elgon view), medium (Kimumu), medium/low (Maili Nne), low (Munyaka), while Langas was selected because renewal/upgrading had been undertaken and exhibited both low and medium class characteristics. Most
peri-urban estates were lacking in uniformity and thus the reason for sampling two estates that exhibit low/medium class characteristics. Langas also was selected to provide information on problems and attempts made in provision of services in uncontrolled settlements through upgrading and replanning programmes.

Purposive sampling was used in interviewing key institutions involved in service provision. Purposive sampling in this case was preferred because some of the information required were very particular and could only be obtained from specific subjects. The sampled populations were from Eldoret Municipal Council, Telkom Kenya, Kenya Power and Lighting, ELDOWAS, government departments, self-help groups and administrators.

This study sampled about 30% of estates in Eldoret municipality and 60% of the peri-urban neighbourhoods. A total of 127 persons were sampled out of which 100 were peri-urban residents.

4.3 Data Collection Techniques

Questionnaire and urban report card incorporated on last part of questionnaire was administered on the five neighbourhood residents. Samples of 20 questionnaires were administered randomly on each estate. 12 questionnaires per estate were used in the analysis. Both plot owners and tenants were sampled because they are involved in service delivery.

Interviews were done on major urban service providers. They include Municipal Social Services and Housing Deputy Director, Municipal Education Officer, Municipal Public Health Officer, Director of Environment and Town Clerk of the municipality. ELDOWAS and Telkom Kenya the sample were Technical
Manager and Growth and Estimate Department officers respectively. Kenya Power and Lighting Company interviews were Marketing Manager, Distribution Engineer and Draughtsman. The current and former Physical Planning Officer Uasin Gishu, 4 Heads of primary schools, 2 Assistant Chiefs, 3 Wazee Wa Mtaa, District Statistical Officer, 2 members of self-help water projects and 1 leader of Munyaka power self-help groups and the District Surveyor was also interviewed.

Traverse observations were undertaken to gather information on settlement structure, solid waste management, pattern of service provision lines, drainage conditions, nature of settlement structures and circulation systems. This was utilised as a rapid assessment technique to acquire information.

Examination and analysis of both published and unpublished literature, sketch-maps, physical development plans and corporate reports were also used.

4.4 Nature and Sources of Data

This study made use of both primary and secondary data. Primary data was obtained through questionnaire administration to peri-urban residents, 20 per estate. Interview schedules were conducted on individuals representing service provision institutions and affected parties as indicated in 4.3 above. Traverse observations were conducted in all the studied estates, major thoroughfares and major urban land uses to elicit information mainly on trends and patterns of peri-urban patterns, service distribution and facilities.

Secondary data was used to collect information from secondary sources. It involved critical examination and selective extraction of information from published documents of Eldoret municipal council and government, drawings/sketches of power, water and sewerage reticulation, physical
development plan of Eldoret, water and sanitation consultant reports and Eldoret and ELDOWAS corporate report.

4.5 Data Analysis and Presentation Techniques

The study utilised both descriptive and inferential statistics and content analysis. Content analysis was used to analyse information from interviews, corporate reports, appraisal reports and council documents and publications.

Descriptive statistics was used to describe, summarise and present data. This includes frequencies, percentages and figures. Colour shading in the figures was used to distinguish variables. Sector and land economic theories were used in analysing trends and pattern of peri-urban development.

Quantitative statistics was performed utilising Analysis of Variance and chi-square tests. One-way ANOVA was performed to show if there were significant differences on service provision, reliability, adequacy, affordability, and satisfaction between the five estates. Tukey-HSD tests were performed to show variability on service provision, reliability, adequacy, and affordability and income levels between the five estates. Tukey-HSD tests therefore, indicates which estate differs with which on service provision variables. Chi-square tests were performed to determine significant differences on the way people responded towards service provision variables on urban report card. It was performed to provide generalisation of the status of service provision in peri-urban areas. Chi-square tests (unlike ANOVA which analysed data estate by estate and comparison made) offered an overall analysis of service provision variables in all the estates without discriminating on estate basis.
4.6 Limitation of the Study

- The study was constrained by the following factors:
- Finance was a major constraint to the study. Being a self-sponsored student it was not possible to buy satellite maps to depict trends over time through aerial survey and digitising small-scale maps.
- Suspicion and lack of adequate co-operation by some service providers’ management. It became difficult to acquire urban infrastructure maps. It therefore, constrained analysis of service coverage connection, spatial network and determines precisely distances of utility line passage without connection along the line.
- Time was a major constraint to this study as the time allocated for fieldwork was only three weeks.
CHAPTER FIVE: TRENDS AND PATTERNS OF PERI-URBAN DEVELOPMENT

5.1 Introduction

Urban centres have developmental trends that shape their patterns. They are, by and large, a function of intervening factors, which affect service provision planning either positively or negatively. This chapter examines trends and patterns of peri-urban development in Eldoret municipality in two phases: colonial and post-colonial period. The underlying argument is that peri-urban development proceeds without planning, creating inefficient land use patterns and inadequate service provision.

5.2 Developmental Trends during Colonial Period, 1912-63

Eldoret began in 1910 as an isolated post office to serve European farmers who had settled in large areas made accessible by the coming of the railway to Londiani. Massive immigration of European settlers in 1908-1910 period led to declaration of Eldoret in official Gazette of November 14, 1912 as British administrative centre for Uasin Gishu and Trans Nzoia Districts, with an area of 11 km². Farm 64 was selected as the site for the new township because it was on a poor, stony place of ground that no farmer wanted (E.M.C., 1986). Farm 64 was close to Sosiani River for water supply and was sloping gently southwards to the river, which was good for natural drainage system development.

Urban growth in the early years was very slow, constrained by lack of communication linkages to the outside world. The nearest communication network was 64 miles away at Kibigori, entailing a hazardous journey over wild terrain and through rivers by ox-wagons, horses or on foot. The extension of
Uganda railway in 1924 saw unprecedented growth of commercial development, importation of manufactured goods and export of farm produce. The growth led to a brief spell of spontaneous unregulated development and difficulties in provision of services. In those early years, the management of the township was under interim body composed of District commissioner assisted by a township committee with no legal authority or means of collecting funds to run township affairs. This situation was remedied in 1928 and 1929 when piped water supply was installed from River Sosiani with storage capacity of 2,300m$^3$/d and township elevation into a Municipal Board respectively. The elevation of township to Municipal Board gave it legal powers to levy rates to help meet the cost of the first budget, control development and improve settlement conditions (E.M.C., 1986).

In 1930, the first loan of £5314 was obtained to build low-rent housing and market in the town's African locations (E.M.C., 1986). This is the well-planned and serviced neighbourhood of Eldoret West. Houses for the Africans were one-roomed labour lines to cater for employment needs and to control African movement to the town. The African housing was located in the periphery of the then urban core in accordance with colonial policy of separate development. In the same year aerodrome was taken and licensed for all types of aircraft. This marked the first peri-urban land use conversion from agricultural to transportation and plans for extension of water beyond the escarpment, which the existing gravity flow intake at Sosiani could not reach. The East Africa Power and Lighting Company Limited in 1933, installed electricity plant to meet power demands of rapid urban growth since arrival of railway line in 1924 and enable the municipal Board top light up the main streets (E.M.C., 1986).

Site and service schemes were introduced in early period of township development (1930s) to enhance service provision and regulate pattern of
settlement development, for instance Kidiwa, Railway Quarters and West Indies. Site and service schemes introduction began the beginning of containment policy of demolition and imposition of high standards in the municipality. The containment policy dictated planning and provision of services in the township government/municipal land to date (Konyango, 2002).

The period 1939 to 1945, Second World War affected the town’s growth and expansion greatly. The 1946-56 decade saw rapid growth of population at 6.4% (Table 3.1) and urban development. Rapid growth necessitated the East Africa Power and Lighting Company to begin hydroelectric scheme on Selby Falls and Municipal Board to seek loans for large scale installation of main sewerage, improve cleanliness, tarmac roads, public gardens and provision of services. In 1956, Town Hall was build to facilitate urban management functions.

Urban growth during 1912 to 1957 occurred on present blocks 1, 2 3, 4, 5 6 and 7 (Figure 5.3). The blocks are large junks of individual land ownership that has been used as a unit to control developments in Eldoret municipality. The township spread from the then one street commercial centre that comprised the Post Office and Standard and Barclays Banks towards railway station and River Sosiani. It was sandwiched between railway line on the north, River Sosiani on south and streams on both eastern and western parts, giving a natural boundary. It therefore occurred on both sides of the present day Uganda road. Water development had to be developed on then upper ground at Kapsoya treatment works and sewerage downstream at Eldoret West to facilitate gravitational flow.

The boundary was extended to 25 km² in 1958 (Figure 5.1). It was across River Sosiani on the south and the stream on eastern part. It covers present day blocks 8, 12, 13 and 15, which was a fertile farm and forestlands (5.3). Development across River Sosiani was middle and low-income residential of Pioneer and Kipkarren
respectively while across the stream was the high-class Kapsoya Gardens. Planning preceded urban boundary extension and services were planned to match with population size to be accommodated by the settlement. Eldoret experienced stagnation during 1960-63 transition period caused by independence euphoria. Two Rivers Dam, nevertheless, was completed in 1960 with a capacity of 2,300 m$^3$/d.

5.2.1 Developmental Patterns During Colonial Period

The 1912 and 1958 boundaries are composed of the current old town area and largely planned and serviced industrial and residential estates. The old town area comprises of differentiated land uses, namely:

- commercial and light industrial, block 3;
- commercial and low-density residential, block 4;
- town centre and commercial, block 6 and 7;
- high density residential, block 1 (Shauri Yako);
- high density residential light industrial, block 2 (Eldoret West); and
- medium density residential, block 5 (West Indies).

Institutional housing developments ensured that workers live close to place of work. Middle and low-income housing was located in close proximity to industrial siding zone. Mixed urban uses, for instance block 2, 3 and 4 in one block or neighbouring attributes to the foregoing patterns. Urban services were provided to meet population requirements such as open spaces in West Indies, Playing field in Eldoret West. Closed neighbourhood plan was adopted that ensured residents in a neighbourhood were close to community services and facilities. It was also a cost-effective design that could cut down cost for provision of services.
Figure 5.1: Growth and Evolution of Eldoret Municipality
The 1958 boundary extension (Figure 5.3) also exhibits differentiated land uses, namely:

- Low density residential, block 8 (Kapsoya Gardens) and 13 (Elgon View);
- Medium density residential, block 12 (pioneer); and
- High density residential blocks 15 (Kipkarren).

Industrial establishments in Eldoret exhibited mono-centric patterns due to railway siding. Early urban development was multi-centric because both the road and railway network were both used and the fact that the first commercial street was located on the main road. Urban development therefore occurred on both sides of the road and westwards from the railway yard.

The 1958 municipal boundary is the part that is largely well planned and serviced by water borne sewerage. Site plans were prepared before development was undertaken and circulation systems designed to ensure service provision were adequate. Estates were planned into distinct neighbourhoods, such as West Indies, Pioneer, Eldoret West, Shauri Yako and Kapsoya Gardens. The neighbourhoods were well served with social services and near places of work.

Planning preceded 1958 boundary extension, which was then peri-urban area, through preparation of development plans, installation of infrastructure and housing put up before people occupied. Thus, it followed sites and services scheme principal of land-infrastructure-housing-people. Urban development was merged with development of service provision capacities. This was achieved through enhancing of service provision capacities such as water and sewerage (Table 7.1) and electricity at Selby Falls.
5.2.2 Factors that Shaped Colonial Urban Development Patterns

The factors that shaped colonial developmental patterns in the municipality were:

- Elevation of township into municipal Board and Status in April 1929 and in 1958 respectively, which gave powers the council to levy rates to meet councils’ budgetary needs, control development, provide services and high government allocation to finance urban services (E.M.C., 1986).
- Separate development and occupation policy that was based on sanitary preposition.
- Town planning Ordinance of 1931 that empowered the local governments to regulate land developments to guide investment locations and density (class differentiation).
- Site and services schemes
- Ordinances such as Native Registration (1915), Vagrancy (1896) and Master Servant Ordinance of 1904 that regulated movements of Africans to urban centres.
- Railway line and Uganda road (present class A104) that shaped the direction of growth of the township.

5.3 Post-colonial Developmental Trends, 1963-2002

Eldoret experienced stagnation during the 1963-1969 period. This however, happened against expectation of rapid growth due to abolition of containment policy after independence. This can be attributed to the township hinterland occupation by European settlers. Modalities of land transfer under million acre settlement schemes was in progress and thus the Europeans and Asians were moving out while the Africans moving into outlying farms transferred to them, coupled with imposition of high standards and slum containment policy inherited in Kenyan urban centres. The decline in population growth during this period
from 6.4% to 1.1% created under-utilisation of developed capacities and service coverage.

In 1969-79, rapid industrial development attracted massive population increase due to employment creation reaching unprecedented growth rate of 10.7%. Growth of informal peri-urban settlement in the municipality accelerated. The rapid peri-urban development was caused by high standards for housing development, inadequate institutional housing for workers, which was only 5% and high land prices in urban core. Majority of people therefore, looked for alternative and cheap housing in peri-urban areas. This precipitated boundary extension in 1974 from 25 km² to 59 km² in an attempt to control peri-urban development (Rotich, 2002B). The extension covered blocks 9, 10, 11, 14 and 15 (Figure 5.3). Boundary extension brought both government/council and private land under municipal control. Railway line and blocks acted as natural boundaries of the municipality. It brought unplanned peri-urban settlements of King’ong’o, Huruma Mwiyenderi and Kipkenyo, railway siding industrial zone and planned residential area of Kapsoya. Rapid peri-urban development accelerated both within and outside 1974 municipal boundary leading to third boundary extension in 1988 to 147.9 km².

Table 5.1: Land Distribution in 1986 (Hectares)

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Amount (Ha)</th>
<th>Land Use Category</th>
<th>Amount (Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-density residential</td>
<td>215</td>
<td>Existing and planned development</td>
<td>2,350</td>
</tr>
<tr>
<td>Medium-density residential</td>
<td>372</td>
<td>Developed area</td>
<td>1,602</td>
</tr>
<tr>
<td>Low-density residential</td>
<td>653</td>
<td>Differed</td>
<td>2,370</td>
</tr>
<tr>
<td>Total residential area</td>
<td>502</td>
<td>Total municipal area</td>
<td>5,900</td>
</tr>
</tbody>
</table>

Source: Eldoret Municipal Council (1986)
The existing and planned development, which was 2,350 hectares, was below the 1912 township area, which was 2,770 hectares. Development therefore, proceeded faster outside municipal boundary (peri-urban) than inside the 1974 boundary as depicted by the rapid population growth that was 10.7% and 8.3% in 1969-79 to 1979-89 decades respectively. Informal settlement development preceded planning and service provision. This scenario created staged development, poor accessibility and mixed urban land uses in peri-urban areas of Eldoret. Population distribution spread over expansive land creating low population densities which is not cost effective in provision of services (Figure 5.2)

The 1988 boundary extension brought in Kimumu, Munyaka, Upper Elgon View, Maili Nne, Ya Mumbi, King’ong’o, Langas, Kamugunji, Huruma, Jerusalem and Ngomongo (Fig 5.3). Present peri-urban development is occurring on freehold tenure except Kamugunji (Fig 3.6). This presented a major planning problem for peri-urban land use developments and service provisions. The big backlog of service provision in these peri-urban settlements incorporated in 1988 boundary extension coupled with resource constraints experienced by major service providers militates against achievement of sustainable socio-economic development in these unplanned and poorly serviced settlements.

Development expanded and developed faster along major thoroughfares, namely Uganda, Kaptagat, Kisumu/Kapsabet, Moiben/Iten and Turbo road. It spilled over the escarpment (Kimumu, Munyaka, Ngomongo and Jerusalem estates) and adjacent blocks in all the sides except block 24. This boundary extension brought into municipal boundary large agricultural land and informal settlements.
Figure 5.2: Population Distribution in Eldoret Municipality

LEGEND
- Old Town Area (CBD)
  100-200/Ha
- Residential cum commercial
  21-50/Ha
- New residential areas
  6-20/Ha
- Farms cum residential
  1-5/Ha (Pen-urban)
Figure 5.3: Factors Influencing Land Use Patterns and Development

LEGEND
- Railway line
- Road
- Medium density residential
- High density residential
- Low density residential
- Commercial
- Industrial
- Railway Yard
5.3.1 Causes of Current Peri-urban Development

Several factors have been attributed to current peri-urban development that came as a result of 1988 boundary extensions. First is cheap and affordable land in peri-urban areas. Land in peri-urban areas was noted by 50% of respondents as unlimited, cheap, and affordable and does not come with leasehold periods. Government land they said, comes with a lease period, attracts high rates, and under direct planning authority, as such, the cost of planned and serviced Government land was too prohibitive. They further observed that municipal insistence on building on bricks, blocks or stones was too high to be met by the majority of the people in peri-urban areas. Type plans were also viewed as high, which were KShs. 5,000, 3,000, and 1980 for low, medium and high density residential housing, excluding supervisory costs which included about five times car hire to bring the municipal engineer to the site for one to acquire certification.

Second is the nature of peri-urban residents’ income. It is estimated that 60% of population in Eldoret are unemployed (ELDOWAS, 2000). The survey found that of the employed, 45% are low-income with earnings less 10,000 (Figure 5.4). The low-income group was found out to borrow co-operative loan to buy land individually or in partnerships. They then build temporary housing structures for own occupation and/or rent out until such a time that they get enough money to construct permanent structures incrementally. The low-income people revealed that it was not possible to develop land incrementally or buy it as a group on planned urban land unlike peri-urban areas. 19% responded that they were motivated to reside in peri-urban areas because of low rents.
Third, quasi-legal subdivision of freehold land done by private surveyors, who accelerated peri-urban development and growth of unplanned settlement structures. Freehold subdivision formed a significant mode of plot acquisition as showed by 69.8% of respondents. Peri-urban land although initially was mostly bought under land companies, societies and groups of people, only 20.9 of respondents acquired their plots from subdivision from the same indicating high rate of peri-urban land subdivision (Figure 5.5).
All peri-urban estates came as a result of subdivision of schemes and large farms (Figure 3.6 and Appendix D) and later sale of small size plots. For instance, the Nandis' sold their farms in Langas because of insecurity and encroachment of urban activities and moved to more rural parts. It was found out that some people sell $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}$ (Figure 5.6) of part of their land in order to develop the remaining, mainly residential or mixed commercial and residential land uses.

Land was available without much bureaucracy in peri-urban areas. This was as a result of private surveyors and advocates who facilitated land transfer transactions expeditiously though without title ownership before enactment of Physical Planning Act of 1996. The quasi-legal process of land transfers in the municipality preceded without planning standards to guide development or regulation of densities with lack of and/or poorly designed circulation systems and land allocation for community services. The surrendering of land for public utilities was very rare, except for a few inadequate spaces for primary schools. This was because most people did not acquire permission before development as indicated by 61.4% of respondents who did not acquire part development plans. Peri-urban settlements were thus unregulated. This was further shown by plot sizes that were not uniform in various estates (Figure 5.6).

![Figure 5.6: Plot Size Distribution in Peri-urban areas](image)

Source: Field Data (2002)
Fourth, extension of municipal boundary affected the speed and quality of settlement development in the peri-urban areas in Eldoret. The municipality sanctioned the residents of peri-urban areas to seek permission for any development within the municipal boundary. The requirement was pointed out by the municipal engineer to have made people construct unauthorised structures during the night, public holiday or on weekends when the municipal inspectorate personnel were not on patrol. Some people however, argued that the problems of illegal settlements are two folds, high planning and building standards and ignorance of residents that they require authorisation before any development. The physical planning officer noted that the absolute nature of freehold titles made it extremely difficult to regulate peri-urban developments because of weak institutional mechanism to implement and monitor developments conforms with the Physical Planning Act regulations.

Fifth, low rents for agricultural production that prompted farmers to sale part of their land to get capital to build mixed urban land uses in peri-urban areas. Where no sale of land prevailed, change of user from agricultural land use to residential or mixed urban use, mainly mud or semi-permanent structures occurred. The high demand for low rental houses, unproductive farms and informal sector development was observed by the municipal welfare officer and physical planning officer respectively as among the major causes of peri-urban development. Location of government institutions and growth of informal sector commerce seems among the reasons for a high percentage of people residing near places of employment as indicated by 49.2% of respondents.

Sixth, low cost of peri-urban transport in the municipality that was KShs 10-15 to the town centre. Commuting distance therefore was within manageable limits, 4 to 5 miles. Development followed transportation corridors, mainly Uganda road, Iten/Moiben, Kapsabet/Kisumu and Kaptagat roads. Accessibility and availability
of motor transport seems to have attracted development along major thoroughfares. It offered rapid transportation to place of work at affordable costs.

Seventh, sitting of government institutions on peri-urban areas, mainly Show Grounds, Chepkoilel Campus, Eldoret Polytechnic, and Moi Barracks. High demand for residential housing in adjacent farmlands, increase in land values and perceived assurance of road maintenance and other trickle down effects on service provision like water, power, telephone, health and educational services seems to be behind the development of housing adjacent to institutions.

Eighth, location of industries in Eldoret was observed as among the major causes of peri-urban development and current settlement structure in the municipality. Location of RIVATEX and subsequent industrial agglomeration near it for instance, resulted to unprecedented development of informal settlements around it mainly Langas, Race Course and part of Pioneer. Absence of institutional housing for workers (which was only 5% of the total housing stock in the municipality), low wages and nearness to place of work resulted in high demand for low rental housing. The high demand for urban residential housing, precipitated subdivision and sale of Langas block leading to sprawling dormitories of low rental housing. Cheap land led to a massive number of speculators buying land to take advantage of industrial location and high consumption market created by industrial workers who were to be provided with support services like retail and light industrial fittings such as carpentry, joinery, retail shops, and energy supply. Munyaka was also influenced by industrial location, particularly Raymond, Ken Knit, Corn Production Company, Kenya Co-operative Creameries. Other factors that also contributed to accelerate spontaneous development of Munyaka were high standards and rents in Kapsoya and Elgon View, strict enforcement of containment policy of demolishing unauthorised settlements on government/municipal lands and lack of land for occupation. The foregoing
factors therefore, caused subdivision and establishment of low rental housing in Munyaka to meet industrial workers needs at affordable rents. Industrial location also influenced other settlements such as Kamugunji, Kampi Karatasi and Somali, Huruma/Mwiyenderi and Shauri Yako estates which developed close to main industrial zone by then served with railway siding (Figure 5.3).

Ninth, inadequate or complete lack of institutional housing by industries, companies and government institutions was observed to have encouraged development of peri-urban housing which was not only cheap and affordable but also offered a choice near place of employment or status. The existed institutional housing, municipal welfare officer observes, was only 5% of municipal housing requirements and as such there was a huge housing deficit.

Tenth, rich agricultural hinterland and high disposable income of residents within Eldoret's catchment accelerated peri-urban development. Eldoret served North Rift and part of Western Kenya. Its extensive hinterland composed of rich farmers, white-collar employees and business people who were attracted to invest in Eldoret municipality that had relatively developed amenities and opportunities. They therefore, bought and developed land in the peri-urban where it was still available and accessible.

Eleventh, high and middle-income residents accounting for 38.3% (Figure 5.4) who aspired to own a house were the ones accelerating peri-urban development. They were observed to borrow loans and buy land as a groups or individually.

Twelfth, economic depression, which made majority of people unable to afford constructed housing which were being sold at millions of shillings, for instance at Kapsoya it was going at 3.5 to 6 million.
Thirteenth, lack of regional planning to regulate developments outside municipal boundaries. Planning regulations were not developed to guide settlement developments outside the municipal boundary due to inadequate regional planning in the district to that time (Konyango, 2002).

5.3.2 *Post-colonial Developmental Patterns*

The 1974 and 1988 boundaries exhibited a number of patterns, namely:

**Linear/ribbon development patterns**

This was observed along major urban thoroughfares. Petrol stations, housing and industrial development developed along the road and railway line. Power and telephone lines and water followed the ribbon developments. The major thoroughfares that influenced pattern of urban development and creation of peri-urban settlements were Uganda road- Maili Nne, Kipkenyo, Huruma, King 'ong'o; Iten/Moiben road- Kimumu, Jerusalem, Ngomongo; Kapsabet/Kisumu road- Race Course, Langas, Ya Mumbi, and Pioneer (Figure 5.3). Institutional developments such Kenya polytechnic and Chepkoilel Campus developed also along the major road transport. Most of the developments were not planned but accessible because they were adjacent to the main road. The neighbourhoods were serviced by through power and telephone lines.

Linear development patterns were spread over considerable distances making rational planning of community services difficult. Through electricity and telephone trunk lines connecting other centres was tapped and utilised in linear development patterns. Petrol stations, which aligned along the roads provided energy supply to the residents for domestic purposes. Water line attempted to follow ribbon developments along Uganda and Iten/Moiben road (Figure 7.1).
Clustered development patterns
These were observed in the well planned and serviced neighbourhoods of Kapsoya, Kipkarren, Old Uganda Road, and Part of Kipkenyo, block 11 and Elgon View. This was on site and service scheme estates and where design layout was prepared before development. It was largely on government and acquired freehold land.

Service provision was cost-effective in clustered settlement patterns due to attainment of economies of scale in the close and compact nature of clustered settlement patterns. Provision of community facilities that can be accessed by all neighbourhood residents was achieved in the clustered development patterns (Wasike, 2002). Konyango (2002) also noted that this pattern develops in well-planned and serviced settlements, mainly large-scale institutional and commercial housing developments. Services were merged with population densities in clustered settlements.

Sector development patterns
Blocks in Eldoret acted as sectors within which development occurred and density regulated. The existing settlement pattern in Eldoret municipality developed in sectors. The old colonial high-class residential area of Kapsoya Gardens was observed to have influenced Elgon view estate. It developed across River Sosiani on a forested area with numerous springs on block 13 and 14 as distinct sectors that regulated development and prevented encroachment of other residential classes and land uses. Residential development within blocks depicted sectoral patterns, for instance, blocks 15, 16, 20 and 22 developed as high density residential areas; blocks 5, 9, 12, and part of 15, 26 and Kimumu were medium density residential areas; while blocks 8, 13, 11 and 14 were the low density (Figure 5.3). Sectors can be used to regulate development density and impose planning standards to meet in each given lack of functional development plans in
the peri-urban areas. Sectoral development can accelerate sprawling of informal settlements to neighbouring sectors, as was the case in Munyaka-Jerusalem-Ngomongo zone with environmental and health implications.

**Informal settlement patterns**

Informal settlement patterns was characterised by mixed urban function, lack of functional circulation systems, inadequate services and staged developments. It comprised of Munyaka, Ngomongo, Jerusalem, Kamugunji and Sikunanga, and part of Langas and Ya Mumbi. Despite the use of blocks as sectors and residential estates, this informal peri-urban settlement structure lacked uniformity. Development was scattered. Dense settlements were observed in rows or chain along major highways and road intersections. Staged development frustrated reticulation that had to pass over considerable distances over undeveloped land. Lack of accessibility hindered service extensions to informal settlements. Land for community services and facilities was not set aside in this informal settlement patterns.

'Quasi-formal' development patterns

These were partly planned and serviced and partly unplanned and unserviced. This was observed in upgraded schemes of Langas, King’ong’o and Huruma Mwiyenderi and in Maili Nne and part of Kimumu, where advisory physical development plans had been prepared after development had occurred. In organic development patterns, the part replanned was fairly serviced while the part unplanned was poorly served with services. Staged development was characterised in organic settlement patterns. Road was poorly aligned, planning standards for services were low and spatial location of facilities poor. Replanning facilitated establishments of utility lines and drainage way leaves. Land acquired for community facilities and services, roads and way leaves was below minimum standards (Wasike, 2002).
5.3.3 **Factors that Shaped Peri-urban Patterns**

- 1981 Master Plan, which prepared physical development plans for blocks 9, 10, 12, 14, and part of 15 and 14.
- World Bank’s Third Urban Project, which led to upgrading of Huruma Mwiyenderi, Langas, Kingo’ngo (block 21) and Kamugunji.
- Sites and services scheme made possible preparation of layout plans and provision of infrastructure before development of housing.
- Quasi-legal subdivision of freehold land by surveyors and village pacers without considering its implication on circulation and service provision.
- Major through road networks responsible for ribbon and staged development.
- Blocks that performed as sectors within which development occurred and regulated.
- Incremental development planning adopted after 1981 master plan. Reactive planning in form of advisory physical plans followed developments and thus development dictated planning.
- Ineffective land use planning and control outside municipal boundary. Town Planning Act and Land Planning Act failed to control development outside municipal boundary. Regional development plans were not prepared to guide developments along the roads and within the 5 miles as required by Land Planning Act.

5.3.4 **Challenges of Peri-Urban Developmental Trends and Patterns**

The trends and patterns of peri-urban development presented a number of challenges, which include the following in peri-urban service provision planning:

- Most of the peri-urban developments proceed without preparation of physical development plans. Subdivisions and land allocation therefore, do not take cognisance of the need for adequate land for public utilities and purposes,
which impinge on planning for location and expansion of community services in peri-urban areas.

- Expansion and staged development of informal peri-urban settlements that sprawl over expansive area promotes an inefficient use of planned urban land, eats up fertile agricultural land and frustrates rational service provision planning.
- Intensification of activities in the decade 1990-2000 in the spontaneous peri-urban settlements that was unaccompanied by community facilities and services makes peri-urban areas vulnerable to negative economic, environmental and health implications.
- Since most of peri-urban growth occurs in freehold tenure, developments are not subject to strict development and control regulations. This result in uncoordinated, unplanned and undesirable developments that frustrate attainment of economies of scale for providing services in already developed settlements.

5.3.5 Prospects of Peri-urban Developmental Trends and Patterns

The extensive peri-urban development in the municipality, despite its challenges, presents the following prospects for service provision planning:

- Provide cheap and easy to acquire land for community facilities and services.
- Surrender of land upon subdivision of freehold land free of charge for public utilities and purposes.
- Presents a valuable amount of land resource, which act as reserve space for future land development expansion and intensification. The existing scattered undeveloped land provides a hope for its acquisition for peri-urban facilities and services.
- Facilitate incremental development planning and service provision in line with nature of peri-urban development.
Development and application of differentiated service provision planning standards in the peri-urban transition zones of the municipality.

Replanning and upgrading of the spontaneous peri-urban settlements to facilitate service provision and ameliorate environmental and health implications posed by urban sprawl.

Gives an opportunity for urban green belts and agriculture.

Planning for municipal extension in advance of development and preparation of regional physical development plans to regulate land use outside municipal boundary.
CHAPTER SIX: IMPEDIMENTS TO PERI-URBAN SERVICE PROVISION IN ELDORET MUNICIPALITY

6.1 Introduction

This chapter attempted to investigate impediments to peri-urban service provision in Eldoret municipality. It was based on the premise that many factors could be behind poor service provision in peri-urban areas, inter alia, ineffective planning and resource scarcities.

6.2 Constraints to Peri-urban Service Provisions

6.2.1 Uncoordinated Service Provision

Several independent service providers exist in the municipality. These are Telkom Kenya, ELDOWAS, Kenya power and Lighting Company Limited, Eldoret municipal council, Government Departments such as health, survey and physical planning. These institutions operated independently and their decisions are not co-ordinated. As such, they did not work jointly to extend services to peri-urban areas. Each institution had its own priority areas and strategic plans for extension of services. Each service provider report to different authorities and their actions often affected other service providers. Surveyors for instance, prior to enforcement of Physical Planning Act, subdivided and allocated land without considering where people and service lines will pass or land for schools and other social amenities. The fragmented nature of service provision militated against attainment of economies of scale, comprehensive planning and service extension to peri-urban areas. Joint framework therefore for service provision and/or extensions was lacking (Konyango, 2002).
6.2.2 *Haphazard Settlement Structure*

Incorrect nature of development coupled with lack of uniformity in settlement structure of peri-urban areas frustrated attainment of economies of scale. The scattered and staged nature of peri-urban development made it expensive to extend service line through undeveloped land to serve a few plots while along the line there was no development. It was uneconomical to service providers and very expensive to individual consumers in extending service lines to individual plots. House power connection in Maili Nne for instance, a family incurred KShs. 50,000 to get electricity connection from the main road to the house while in Munyaka household water connection was over KShs.10,000. In situation where development exists along the line, individual connections would be cheaper, perhaps slightly above the meter deposit KShs. 1950 and 8,000 for water and electricity respectively.

Haphazard development contributed to lack of road reserves and way leaves for utility lines. Extension of water, electricity, and telephone lines to individual houses was impeded by lack of accessibility (Sewe, 2002). Attempts to provide way leaves, the municipal engineer observes, was frustrated by conflicts, long and tiresome negotiations, bends and zigzag nature of way leaves which follow individual plot borders. Poor accessibility also constrained public health efforts especially emptying of filled pit latrines and septic tanks. This was observed during inspection of schools in the year 2001 pursuant to circular Ref. No. A/Z/2 of May 27th on inspection of schools’ health in the municipality by municipal public health officers.
6.2.3 **Quasi-legal Subdivision of Freehold Land**

The absolute nature of freehold titles, despite enactment of Physical Planning Act in 1996, still frustrates control of peri-urban development that is largely on freehold tenure. Preparation of development plans, undertaking of replanning exercises and acquisition of public open spaces and way leaves was difficult to implement in peri-urban areas. Physical planning officer said “to cut peoples’ farms in an attempt to plan by then resulted in individual owners picking up a case on it in court”. This shows the magnitude of the problem in controlling freehold land tenure before the Act. The officer further noted that quasi-legal subdivision of land prevailed in peri-urban areas without any meaningful control, consideration of utility line access and land for community services. Most lands, the officer observes, came into the municipality in 1988 boundary extensions when already subdivided without leasehold tenure. Extension of infrastructural services therefore, became difficult while community donated land insufficient to gather for community service needs.

Inadequate land allocation for primary schools in peri-urban areas, which on average was 1-2 acres, constrained expansion of schools to double stream or to include a nursery and/or secondary school. Physical Planning Act implementation to control peri-urban land use developments seemed to be weak. Quasi-legal subdivision continues without approval from the physical planning office. Peri-urban areas so far, do not come with leasehold tenures. Strategic structure plans for peri-urban development lacks. Incremental planning persists without a framework for service provision and future structure of the settlement.

Congestion in schools was common in all peri-urban primary schools visited. Medical officer of health (M.O.H) Eldoret municipality attributed inadequate services in peri-urban areas to lack of sites for putting up facilities such as public dispensaries and health centres. Compulsory surrender of land for public purpose
was inadequate because of quasi-legal subdivision of land in peri-urban areas, which proceeded without approval or advisory development plan being prepared.

6.2.4 Rapid Population Growth

Eldoret over the years has experienced rapid population growth that doubles every ten years (Table 3.1). The high population growth rates resulted in high demand for service provision and extreme difficulties in keeping pace with ever-rising demand. Increased municipal expenditure on service extensions did not keep pace with increased population increases. Extensive physical area existed where infrastructure network was not laid. It was therefore, expansive and expensive to install new service lines on which it did not existed before (Figure 7.1). The other urban services were mostly within the water distribution areas.

Rapid growth of population and development made planned services became inadequate within a short period of time. Over development in Langas and Kimumu for instance, made water pipes inadequate to cater for ever-rising population and needs. Perpetual development and urban expansion has outgrown service provision, especially water, sewerage, and solid waste management. Rapid population increase utilised excess capacity created even before the loan repayment was completed. The capacity and life span of services, for instance water and sewerage, was exceeded faster than expected (Figure 6.1).
The water demand was 27,000 m³/d in the year 2000 due to industrial depression. Therefore, water demands were lower than the estimated figures by the consultant group.

6.2.5 Obsolete Facilities and Systems

The conventional sewage systems had past its life span such that most of its parts were not functioning and was no longer compatible to the surrounding land uses. It was in close proximity to West Indies, Pioneer, and Kipkarren residential neighbourhoods. Quarry sewage treatment works commissioned in 1979/80 with a capacity of 4,800 m³/d was receiving 12,000 m³/d. It was therefore, overloaded with flow and organic load such that natural aeration was not possible (E.M.C., 2000). Obsolescence of the sewage treatment works due to overloading and ageing impeded extension of service boundary to new areas. The sewer line was about 92 km in length, an increase of 45 kilometres since 1986. Individual
connections lacked in peri-urban areas of the municipality due to lack of trunk sewers within the required 200 metres for household and yard connection (Sewe, 2002).

Solid waste collection in Eldoret municipality was operated at 50% because of old and obsolete Iveco minimatic refuse collection vehicles that formed majority of the stock. The Iveco minimatic had outlived their usefulness and were no longer economically viable. For example, the parts and spares for Iveco minimatic were no longer available locally. Worse still, they operated mechanically such that it utilised three machinery components for one complete operation. For instance, 1.2 m$^3$ container was picked by the minimatic; minimatic transfer it to 115 tonne pactainer transfer station and the pactainer removed by 20 tonne multilift which deposited the same to the refuse tip. Its operation was costly to maintain and required skilled personnel, which does not augur well with deteriorating council’s revenue base. During the study period, 6 vehicles namely 1 multilift, 3 mimimatics, and two side loaders were broken down. Bins that were in various estates were about 15 years old corroded and could not hold waste securely without scattering them.

Water leakage was high in the municipality (Figure 6.2). The existing water system has about 64 kilometre pipeline laid between 1928 and 1960 which contributed to high unaccounted for water and low production at the water treatment works, especially at Kapsoya. The high inefficiency denied the council and ELDOWAS not only revenue but also high amount of water lost which could be used to meet high demands in the municipality’s peri-urban areas (Figure 6.2; 6.3 and 6.4).
6.2.6 Institutional and Systems Inefficiencies

Eldoret municipality was estimated to have around 2000 faulty meters out of 11,629 meters (ELDOWAS, 2000). This high inefficiency denied revenue collection and extension of water services to peri-urban areas, which was financed through water bills. Leakage was very high in the municipality caused by the pipes laid down between 1928 and 1960. The pipes were corroded and had suffered for a long time from low pressure, which after completion of phase II water project, most of it busted. Lack of leakage detection devices and paved surfaces made amelioration of the problem difficult.
Figure 6.3: Water Produced and Billed (cubic metres)

Source: Eldoret Municipal Council, 2000

Figure 6.4: Revenue Collection Efficiency on Sanitation Services

Source: Eldoret Municipal Council, 2000
6.2.7 Dishonest on Part of Service Providers Staff

There were complaints by ELDOWAS and Kenya Power that their staff colludes with service consumers to defraud the company revenue accruing from service provision. The contributed to the high inefficiencies in collection of billed services as showed by the case of water and sanitation services (Figure 6.5). Financing of services through revenue accruing from service charges targets were therefore hampered especially where loan repayment is balanced with asset investments.

6.2.8 Low Culture of Respecting Services

There was low culture of respecting services in high-density residential areas of Langas, Huruma Mwiyenderi, Jerusalem, Ngomongo, and King’ong’o. Public telephone booths were often vandalised and blockage of drainage lines was common. Illegal connection to water and power was rampant in Langas, Huruma
Mwiyenderi and king’ong’o. Development control, effective supervision and inspection was difficult in high-density neighbourhoods compared to medium and low-density settlements in the municipality. Illegal service connections contribute to bursting of sewer lines, systems overloads and interruption of power and water supply services (Konyango, 2002).

6.2.9 Lack of Funds

Lack of funds was observed by the municipal council and ELDOWAS as a major impediment to provision of services in Eldoret municipality. Several projects had not taken off due to lack of funds. These were:

- Building of a sewerage treatment works at municipal boundary at Kipkenyo scheduled to commence in the year 2001;
- Constructions of a large dam below Rivers Dam with a capacity to supply 45,000 m$^3$/d; and
- Extension of Phase II water reticulation network to part of Langas, Kimumu, Ya Mumbi and Huruma Mwiyenderi which needed about Kshs 188,000,000 in the year 2000.

High operation and maintenance costs of services left little amount of funds for capital projects (Figure 6.6) that required colossal amount of money. For instance, KShs 87 million was used to buy land for sewage treatment works at Kipkenyo while KShs 150 million was used for part payment of Moiben Dam project. High debt servicing in the municipality, particularly for water and sanitation made a little amount of funds left out of operation and maintenance for servicing debts. By the year 2000, loan arrears and balance for sanitation services amounted to KShs 134,090,577.40 and 99,146,388.45 respectively (E.M.C., 2000). The high amount committed for loan repayment, low revenue collection and high operation and maintenance (Figure 6.4, 6.5 and 6.6) costs constrained extension of services
to areas not served of Kimumu, Langas, Maili Nne, King'ong’o, Ya Mumbi and Race Course among others.

Figure 6.6: Actual Revenue and Expenditure on Water and Sewage

Source: Eldoret Municipal Council, 2000

6.2.10 Lack of Innovative Leadership

Lack of initiative on the part of local leaders impeded development of community services, particularly schools, dispensaries, digging and maintenance of storm-water drains, electricity, and water extensions. Residents of peri-urban areas lacked leaders to mobilise resources for the development of community facilities and services. In Ya Mumbi, elected leaders interfered with proper land subdivision resulting in inadequate design layouts, poor accessibility and lack of functionality. Elected leaders failed to pressurise the council and other service providers to extend services to peri-urban areas given the bias in resource allocation for the extension of services.
6.2.11 Inefficiencies in Development Authorisation

Any development in the municipality in theory was subject to municipal zoning regulations and building standards. Type plans for the peri-urban areas were KShs 1,890, 2,500, and 5,000 for low, medium, and high cost housing respectively. It was the responsibility of plot owner, however, to hire a vehicle to facilitate municipal engineer to the site, which was about 5 times when construction was on for one to get certification. Recommended materials for construction was noted to be of very high standards such that majority of people could not afford in peri-urban areas. Most people who could not meet the standards in the peri-urban areas had to build their houses during the night, public holidays or weekends when the inspectorate personnel were not on patrol. Municipal engineer attributed this situation to intermittent nature of low and middle-income groups in accessing funds.

Most low-income earners get lump sum amount of money once in a while through co-operative loans, merry-go-round, or group contributions. They combined together to buy land and build semi-permanent structures for rental and housing themselves and later build permanent structures or improve existing one incrementally as their savings increase (Rotich, 2002B). They were therefore, unable to afford service extension costs or maintain service consumption costs in the early stages of housing development. Incremental service installation was thus constrained by high service extension costs to individual housing premises caused by long distances to trunk service lines.

6.2.12 Poor Siting of Water Kiosks

During the implementation of Phase II water project, it was expected that most of the residents in the low-income areas provided with water from water kiosks were
to abandon the shallow wells and get their water from the kiosks. However, this was not the case. Shallow wells remained in use in areas with piped water of Langas, Huruma Mwiyenderi and Jerusalem. This situation is attributed to long distances to water kiosks due to poor location of water kiosks, inadequate provision per estate and high costs of the water which was going at KShs 2 per 20 litres. Peri-urban residents complained that the cost was too high. Cost of using shallow wells was none except in Kimumu where residents pumped well water to raised water tanks to flush toilets to exhaustible pit latrines. The high percentage of people that used borehole water, which was estimated at 51.7% and 60% by the survey results and ELDOWAS Company respectively was attributed to high water kiosks tariffs and long distance to water kiosks.

ELDOWAS had noted that the number of households using water kiosks increased if the minimum income exceeded KShs 1,000. The study found that family monthly income and education level was generally high in all the estates (Table 5.1). The statistical abstract 2000 indicated also that the income levels in formal employment was high, majority earning KShs 20,000-24,999. There was already adequate demand for water because the incomes and education levels were already high. Kimumu was poorly supplied with water yet it used a lot of money to pump borehole water at higher costs than average house connection water bills of KShs 150 per month. Munyaka also, which had no shallow wells due to its location in very low water table, was poorly provided with water kiosks. Munyaka residents therefore, fetched borehole water or piped water from peri-urban Kapsoya. Abolition of block rate water levies previously approved by the Water Authority resulted to lack of cross-subsidy could be attributed to the high use of borehole water in poor settlements. There was no survey/study done before abolition of block rating tariffs. Borehole water has therefore continued sustaining water supply in the municipality given the poor water supply to peri-urban areas.
Where portable water supply is provided, underground water was used for sanitary purposes such as washing clothes and latrines and for watering gardens.

6.2.13 Poor Service Provision Forecast

Most service providers lacked demand estimates per estates and strategic plan for service extension to peri-urban areas. What most service providers do was to wait for people to apply for services then they demand that residents of a particular estate/section apply and pay service extension charges as a group. This approach however, has some advantage of being cost-effective for service providers because they cannot commit funds for market research to get demand estimates. Kenya Power and Telkom Kenya often employed this approach. The Telkom’s estimate of demand for telephone services was based on Growth and Estimate Department assessments. The assessment was based on building structure or people in a particular estate/section write letters to the company with a long list of everyone wanting telephone services within that area. Kenya power demanded full service extension payment costs and meter deposit whether as a group or individually. ELDOWAS depended on ability to pay, which was based on outdated income level figures.

6.2.14 Overwhelming Service Provision Demands

There was extensive backlog of service provision in the peri-urban areas. Over 120,000 and 191,000 people were not served with portable water and water borne sewer system respectively (ELDOWAS, 2000B). The survey indicates that 53.3% and 74.6% of the respondents were not provided with electricity and telephone services respectively. Extending services to the high number of people not served was noted by ELDOWAS technical manager to be impossible at ago given the extensive physical coverage.
Given the poor resource base of ELDOWAS and municipal council (funds as a major constrain) coupled with lack of framework for co-ordinating other service providers, it is unlikely that the overwhelming demands can be met soon. The extensive physical coverage, colossal amount of money needed and lack of skilled personnel continue frustrating attempts to meet the high service demands. The situation is made worse by low capacity of facilities (i.e. sewerage, telephone, water, power) and lack of strategic plans for expanding services and infilling of spaces.

6.3 Synthesis of Constraints to Peri-urban Service Provision

- Inadequate cross-sectoral/horizontal planning and co-ordination that resulted to uncoordinated service provision.
- Ineffective land use planning and regulation as depicted by haphazard settlement structure, quasi-legal subdivision of peri-urban land, inefficiencies in development authorisations and development preceding planning and service provision.
- Poor spatial location and distribution of water kiosks and health facilities. Hierarchy of health facilities and distribution and siting of water kiosks in peri-urban areas was found to be poor.
- Inadequate service provision forecasting/strategic planning to meet demands and needs over time. Environmental, physical and social infrastructural capacities have not kept up with population growth and urban expansion, resulting in under capacities, backlogs and overwhelming demands both in urban core and peri-urban areas.
6.4 Prospect for Ameliorating Problems of Ineffective Planning

Arising from the above constraints to service provision, ineffective planning has emerged as the major impediment to peri-urban service provision. Prospects for ameliorating the problem namely:

- Cross-sectoral and horizontal planning and co-ordination of all service provision stakeholders in the municipality. This is to achieve comprehensive service coverage of peri-urban areas cost effectively. Development committees (Physical Planning Act) and Land Control Boards and peri-urban neighbourhood associations are the existing avenues for cross-sectoral forums. Stakeholders’ participation in service provision planning offers an opportunity in bringing the interested and affected parties on board.

- Preparation of advisory physical development plans well in advance to guide developments both within the municipality and outside, as required by Physical Planning Act and Land Planning Act. The physical planning office need to prepare both regional and local development plans a head of development. This will ameliorate the problem of haphazard development structure, quasi-legal subdivision and inefficiencies in development authorisation. Strengthening of municipal planning and implementation capacity offers an opportunity given the work district physical planning officer faces.

- Land acquisitions ahead of need through Land Acquisition Act and surrender of land for free for public utilities and purpose upon subdivision of land. Follow up of land to be surrendered need to be stepped up and compliance enforced through area development committees, land buying or subdivision committees and neighbourhood leaders/associations.

- Service provision forecasts planning in development of urban facilities and service capacities and extension of reticulation systems to cater for rapid population growth and urban expansion.
• Locational planning of services needs to be left to regional planners to avoid poor sitting of facilities in relation to population distribution.
• Replanning and community upgrading be independent of external funding and instead adopt in-house incremental informal settlement upgrading programmes in line with nature of peri-urban development.
CHAPTER SEVEN: PERI-URBAN SERVICE PROVISION ATTEMPTS

7.1 Introduction

The third objective of the study was to assess attempts made to provide for services in per-urban areas. It is based on the premise that new approaches to complement traditional municipal service provision are inevitable given rapid population growth and deterioration of urban services. This chapter deals with inventory of facilities in the municipality and its implication on service provision, examines service provision levels per estate and strategies adopted in provision of services.

7.2 Service Provision Capacities and Distribution

7.2.1 Water

To keep pace with rapid population increase and municipal expansion, Eldoret municipality (transfer of the same to ELDOWAS) had undertaken heavy investment on water supplies. During the study period there were four main water sources for Eldoret municipality. These were Ellegerini intake supply to Kapsoya, Sosiani, Two Rivers Dam and Chebara. The growth and development of water supply capacities is as shown in table 7.2.

The distribution network has also been expanded with time to cope with growing demand over the years (column 6 of table 7.1). By the time of study, the distribution network was 188 kilometres. The provision of metered connections in Eldoret increased over time (Figure 7.2).
Figure 7.1: Water and Sanitation Coverage

LEGEND
- Water borne sewerage
- Water supply areas
- Self-help connection
- Areas not served
The demand for water by year 2000 was $27,000 \text{ m}^3/\text{d}$, lower than $41,263 \text{ m}^3/\text{d}$ projected demand by consultant report of 1986. This was attributed to industrial depression, culminating to closure of heavy water user textile industries in the municipality. These attempts to enhance water capacities and distribution network was made up to 1974 boundary. Scanty extension of services to 1988 boundary was evident (Figure 7.1).

Most of peri-urban areas were not adequately served with water supply, such that 39% of respondents were served with piped water. Minimal extension was undertaken through water kiosks. The people covered by water kiosks were very low, a merely 4,200 people. Many people therefore, were not served with portable water supply (Table 7.3).
### Table 7.1: Development and Status of Water Project in Eldoret

<table>
<thead>
<tr>
<th>Water project</th>
<th>Sosiani Cum/d</th>
<th>Kapsoya Cum/d</th>
<th>Chebara Cum/d</th>
<th>Total Cum/d</th>
<th>Length km</th>
<th>Storage capacity Cum/d</th>
<th>Costs of project</th>
<th>Year commissioned</th>
<th>Life span</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellegerini Weir intake</td>
<td>2300</td>
<td>2300</td>
<td>-</td>
<td>2300</td>
<td>2300</td>
<td>£30895</td>
<td>1928</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two rivers dam</td>
<td>2300</td>
<td>2300</td>
<td>4600</td>
<td>64.5</td>
<td>5040</td>
<td>£300,000</td>
<td>1960</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I A</td>
<td>5750</td>
<td>2300</td>
<td>8050</td>
<td>69.6</td>
<td>9640</td>
<td>KShs 7,587,030</td>
<td>1977</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I B</td>
<td>8050</td>
<td>3450</td>
<td>11500</td>
<td>93.3</td>
<td>9640</td>
<td>KShs 31,129,445</td>
<td>1981</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase I C</td>
<td>14950</td>
<td>3450</td>
<td>18400</td>
<td>107.3</td>
<td>18840</td>
<td>KShs 65,000,000</td>
<td>1985</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase II</td>
<td>1495</td>
<td>3450</td>
<td>18000</td>
<td>188</td>
<td>31200</td>
<td>KShs 1.5 billion</td>
<td>1997</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Eldoret Municipal Council, 2000
Eldoret Municipal Council (2000) puts the figure of population served with water at 45.5% by the year 2000. This concurs with ELDOWAS, which puts it at 45.57% (Table 7.3). This had not changed much by the time of study.

Table 7.3: Population Connected to Water

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Population metered</td>
<td>64,440</td>
<td>75,590</td>
<td>82,880</td>
<td>96,670</td>
<td>94,390</td>
</tr>
<tr>
<td>Water Kiosks</td>
<td>4,000</td>
<td>4,000</td>
<td>4,200</td>
<td>4,200</td>
<td>4,200</td>
</tr>
<tr>
<td>Total population served (%)</td>
<td>42.34</td>
<td>43.85</td>
<td>45.23</td>
<td>46.98</td>
<td>45.57</td>
</tr>
</tbody>
</table>

Source: ELDOWAS, 2000

The area within the 1974 boundary comprising of blocks 1 to 13 was adequately served with water. New blocks comprising of number 14 to 23 were poorly served with water. Areas of the municipality not served with water were mostly those of 1988 boundary extension. These include part of King'ong’o, Kimumu, Ngomomgo, Jerusalem, Langas, Munyaka, Maili Nne, Kapyemit, Ya Mumbi, Race Course, Sikunanga, Kipkenyo, and Kamugunji. Upper Elgon View was the exception, which was served with piped water supply. ANOVA tests showed there were significant differences on piped water provision in the five estates (F(4,58) =10.97; p > .000). Further Tukey-HSD test performed showed that Elgon View differed significantly with Kimumu, Langas, Maili Nne and Munyaka. This was because Elgon View was well supplied with piped water unlike the other estates.

Water kiosks were provided in various estates (Figure 7.3). This was to serve low-income neighbourhoods and estate residents who could not afford house/yard connection.
Population served by water kiosks was very low, about 4,200, which was approximately 1.96 of the total population (Table 7.3). The distribution of water kiosks was (figure 7.3). ANOVA test performed in the five estates showed there were significant differences on the number of people using water kiosks ($F_{(4,56)} = 42.84; p<0.05$). Further Tukey-HSD tests performed at significance level .050 revealed that Munyaka and Langas differed significantly with Maili Nne, Kimumu, and Elgon View. Munyaka depended entirely on water kiosks than the other estates in the peri-urban areas. Langas differed from the other because there were a high number of water kiosks and thus more people were accessible to portable water supply. Most people in Langas used piped water from kiosks for cooking and borehole water for sanitation. This was attributed to high incidences of borehole water contamination from pit latrines. Water kiosks affordability differed between estates ($F_{(2,26)} = 4.41; P>.023$). Tukey-HSD test indicated that Munyaka differed from all the other estates. This can be attributed to estate’s low-income nature and withdrawal of cross-subsidy by new water undertaker, ELDOWAS.
There was a significant percentage (51.7%) number of respondents in peri-urban areas used borehole water. They further indicated that indicated that borehole water was very cheap (84.4%), unreliable (62.5%), and poor of quality (100%). ANOVA test performed on borehole water use showed there was a significant difference between various estates ($F_{(4,59)} = 18.36; p > .000$). Further Tukey-HSD tests performed at .050 significance level revealed that Munyaka alone differed from all the other estates. This was because Munyaka had very low water table and as such, there were no well/borehole in the estate. Differences also occurred in terms of borehole cost ($F_{(3,31)} = 4.36; p > .0122$). Further Tukey-HSD test showed that Kimumu differed with the rest of the estates except Munyaka. This was due to cost incurred by majority of residents in pumping of water to raised water tanks to flush toilets to exhaustible improved pit latrines outside the house.

Water related diseases in the municipality were prevalent as indicated by diarrhoea cases in figure 7.4. This was attributed to the poor water distribution and use of wells that were in close proximity to pit latrines. The high incidences of diarrhoea cases prior to 1994 were attributed to water scarcity that was common before phase II water project. The continued prevalence of water related diseases after commissioning of phase II is attributed to poor distribution and coverage of portable water supply in the municipality. Phase II water project that was to supply water to the remaining estates had not yet been undertaken by the time of this study. ELDOWAS Company attributes this to resource scarcity and low ability to pay by most estates' residents. However, their assessment of ability to pay was questionable. Their survey indicated that 61.4% of residents in the municipality had income below KShs 1,499. This contradicted with research findings and 2000 Statistical Abstract Report, which indicate that majority of people earned between 5,000-10,000 and/or 15,000-2,000 and 20,000-24999 respectively. People supplied with water considered House connection affordable. The cost was approximately KShs 150 per month. Majority of people in various estates was in a position to pay
for house and yard connection. In particular Kimumu residents used a lot of money in pumping borehole water to storage tanks was expensive than the conventional piped water supply.

Figure 7.4: Water Related Disease Prevalence

Source: M.O.H. Eldoret Municipal Health Department, 2002
Note: Only data for diarrhoea cases was available

The water tariff before devolution of water and sewerage services to ELDOWAS Company was based on block rate structure. The initial consumption of 10 m$^3$/d was charged at a lower rate to provide for basic water needs at household level, taking into consideration the low-income groups affordability. This was achieved through subsidy. To reduce the rate paid by low-income estates, the rate for other blocks for high consumers was multiplied by a factor to achieve a level affordable by low-income and meet financial requirements. The existing computerised billing system by ELDOWAS at the time of study however, was not tailored to block consumption rates. This was attributed to abolition of block levy system by ELDOWAS management and inefficient settlement patterns, which did not argue well with block rating system. The abolition of block rates attributes to Munyaka's
response to water kiosk charges as being too high. This is the contributing factor to the low use of water kiosks and the continued use of borehole in peri-urban Eldoret. House and yard connection demand was noted by ELDOWAS to be very high. This is attributed to low piped water levies that on average households were paying KShs 150 per month. Piped water supply was reliable and well maintained by ELDOWAS in areas supplied with.

Eldoret municipality attempted financial management on water and sewerage services with no avail. Revenue for water and sewerage was geared towards operation and maintenance (Figure 7.5) and for capital projects, for example KShs 150 and 87 million was used for part payment of Moiben Dam and land for the proposed sewerage treatment works at Kipkenyo respectively.

![Figure 7.5: Revenue and Expenditure on Water and Sewerage Services](image)

Source: Eldoret Municipal Council, 2000

Funds for assets renewal and loan repayment was put in a separate account with manager of water department as a mandatory signatory. This was to enhance debt servicing, accountability and transparency in sanitation development and to secure
donor confidence and support for future projects. Despite this attempt, water and sewerage sector performed unsatisfactorily prompting its water and sewerage department being privatised.

**Figure 7.6: Percentage Water Satisfaction Level**

Source: Field Data, 2002

KEY: -3 very dissatisfied, -2 dissatisfied, -1 somehow dissatisfied, 0 neither satisfied or dissatisfied, 1 somehow satisfied, satisfied, and 3 very satisfied.

ELDOWAS was noted to be fast in responding to reported water pipe burst cases. It failed however, to extend water services to new areas beyond the earlier municipal council coverage. It has contravened its function of setting tariffs distinguishing consumer categories and service standards, failed to implement Phase II water project even to middle income areas of Kimumu, King‘ong’o, parts of Maili Nne and Ya Mumbi with high demand and ability to pay and full cost recovery potential.

Residents on their own have come together to meet the high cost of water extensions in various peri-urban estates of Eldoret. Two groups in Kimumu and
one in Maili Nne had supplied piped water to its member’s houses at low cost. They organised themselves into groups, contributed money for meter deposits, bought water distribution pipes and contracted an engineer to install and distribute water to various houses from initial nine-inch pipe. Later connection to the supply line was subject to payment of some amount of money to the original people who installed the water supply line. ELDOWAS failure to control charges impaired new connection because of high charges imposed by group committees.

7.2.2 Sewerage

Two sewage treatment works served Eldoret. A conventional treatment works situated in Eldoret West and stabilisation ponds 3 kilometres downstream from Eldoret West. Sewage capacities have been increasing in the municipality (Table 7.3) over the years in an attempt to meet ever rising demands.

Table 7.3: Sewerage Development in Eldoret

<table>
<thead>
<tr>
<th>Project</th>
<th>Year of construction</th>
<th>Costs (KShs)</th>
<th>Life span Years</th>
<th>Remaining Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewers</td>
<td>1977</td>
<td>8,800,000</td>
<td>40</td>
<td>15</td>
</tr>
<tr>
<td>Sewers</td>
<td>1982</td>
<td>10,500,000</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Sewers</td>
<td>1987</td>
<td>1,000,000</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Quarry T. works</td>
<td>1979</td>
<td>16,000,000</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Waste stabilisation Rehabilitation</td>
<td>1985</td>
<td>5,300,000</td>
<td>15</td>
<td>-2</td>
</tr>
</tbody>
</table>

Source: Eldoret Municipal Council, 2000

The existing sewer line serving the municipality was about 92 km. The diameter of the pipes ranged from 675 to 150mm. Majority of the sewer lines consisted of concrete pipes.

The conventional treatment works with a capacity of 1575 m³/d was inefficient, breaking down most of the time. It had outlived its life span and thus it was being
operated at high costs. The quarry treatment works with a capacity of 4800 m$^3$/d was receiving 12000 m$^3$/d. It was therefore, overloaded with flow and organic load such that natural aeration was not possible. Existing sewerage capacity was already inadequate, despite the high demand for sewerage services. The sewerage capacity had already been surpassed by 1990 (Figure 6.1). The treatment works were already incompatible with the surrounding land uses. The conventional treatment plan was in close proximity to Kipkarren, West Indies and Pioneer neighbourhoods, while the quarry treatment works was incompatible with Eldoret West, Shauri Yako, part of King'ong’o and Kipkenyo.

The population connected to sanitation supplied by urban water scheme was very low, 35.5% while non-water borne was 88.58% by the year 2000 (Table 7.4).

<table>
<thead>
<tr>
<th>Type of sewer</th>
<th>Number</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer</td>
<td>6,254</td>
<td>62540</td>
</tr>
<tr>
<td>Septic tanks</td>
<td>1,654</td>
<td>16540</td>
</tr>
<tr>
<td>Pit latrines</td>
<td>122,775</td>
<td>125,000</td>
</tr>
</tbody>
</table>

Source: ELDOWAS, 2000

The population per sanitation category had been growing over time in the municipality (Table 7.5).

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% on sewer</td>
<td>25.66</td>
<td>26.84</td>
<td>27.54</td>
<td>28.8</td>
<td>29.51</td>
<td>18.91</td>
</tr>
<tr>
<td>% on septic</td>
<td>7.67</td>
<td>7.58</td>
<td>7.51</td>
<td>7.15</td>
<td>7.15</td>
<td>7.64</td>
</tr>
<tr>
<td>% on pit latrine</td>
<td>68.99</td>
<td>69.46</td>
<td>69.66</td>
<td>70.39</td>
<td>79.39</td>
<td>88.58</td>
</tr>
</tbody>
</table>

Source: Eldoret Municipal Council, 2000
Water borne sewerage had covered up to part of 1974 boundary (Figure 7.1). The survey found out that peri-urban areas were highly served with pit latrines (93.3%), with septic tanks only accounting for the remaining 6.7%. Upper Elgon View was the only estate served by water borne septic tanks system. Most estates had ventilated improved pit latrines. Kimumu estate was observed to have ventured into exhaustible pit latrines in which residents pumped well water to raised plastic storage tanks to flush toilets. ANOVA test on sanitation provision showed there were significant defences between various estates ($F_{(4,58)} = 7.186; p>0.001$). Further Tukey-HSD test at .050 significance level showed that Elgon View differed with all the other estates. This is attributed to septic tank use in Elgon View unlike other estates. Further Tukey-HSD test showed that Kimumu differed significantly with Munyaka while Elgon View differed significantly with Munyaka, Langas and Maili Nne. The differences are attributed to the use of septic tanks and the innovative way adopted in Kimumu to have water borne sewerage system in the house. Chi-square test showed there were significant differences on peri-urban residents satisfaction level towards sanitation services ($\chi^2 = 59.0; p>0.0000$). Percentage satisfaction level in each response category in all the estates is indicated in table 7.6.

### Table 7.6: Percentage Sewage Satisfaction Level Category

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 very dissatisfied</td>
<td>19</td>
<td>31.7</td>
</tr>
<tr>
<td>-2 dissatisfied</td>
<td>24</td>
<td>40.0</td>
</tr>
<tr>
<td>-1 somehow satisfied</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>0 neither satisfied or dissatisfied</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>1 somehow satisfied</td>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>2 satisfied</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>3 very satisfied</td>
<td>20</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002
7.2.3 Drainage

Drainage was poor in all the peri-urban estates. The residents of these estates had dug anti-malarial drains on their own to enhance sanitation, for instance at Maili Nne and Munyaka. Drainage way leaves was established through donation of space by residents bordering each other where each contributed 2m by 2m or less for both drainage and anti-malarial way leaves, which was below recommended standards of 3-4.5m and 4m respectively. The municipal engineer and health departments were involved in the establishment of anti-malarial way leaves. The municipality however, had constructed way leaves in site and services schemes and redeveloped Kapsuswa. Lack of funds and haphazard developments seemed to be the major problem in establishment of drainage way leaves.

7.2.4 Solid Waste Management

Eldoret municipality had a department of environment with an acting director. Solid waste management was within the department under cleansing and conservancy section. Refuse collection in Eldoret municipality served about 90,000, which were approximately 42.4% of the municipal residents. Waste collection was mainly up to 1974 boundary and a leap service to peri-urban areas. The frequency of collection were daily in the central business district, 2 to 3 times per week in residential quarters and 1 to 2 times per month in some parts of peri-urban areas depending on accessibility at a particular time of the year.

Daily refuse collection was 60 tonnes on average (Rotich, 2002A). 50% of the vehicles were operational. These were 1 minimatic, 2-side loaders and 1 multilift. Six vehicles were in the garage namely 1 multilift, 3 mimimatics and 2 side loaders.
Attempts were made to supply the residents of Eldoret with bins/dins (Table 7.7). However, these were 10-15 years old. No recent purchases were made and people in various estates were being encouraged to use refuse baskets/bags or empty containers to store own refuse to facilitate expedient transfer to the refuse collection vehicles. This however, was in estates designated for refuse collection.

Table 7.7: Distribution of Bins per Estate

<table>
<thead>
<tr>
<th>Estate</th>
<th>Number</th>
<th>Estate</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langas</td>
<td>31</td>
<td>Pioneer</td>
<td>22</td>
</tr>
<tr>
<td>Elgon view</td>
<td>2</td>
<td>Khaoya</td>
<td>13</td>
</tr>
<tr>
<td>Munyaka</td>
<td>1</td>
<td>Kamugunji</td>
<td>10</td>
</tr>
<tr>
<td>Maili Nne</td>
<td>-</td>
<td>Bacon</td>
<td>16</td>
</tr>
<tr>
<td>Kimumu</td>
<td>-</td>
<td>West Indies</td>
<td>10</td>
</tr>
<tr>
<td>Ya Mumbi</td>
<td>-</td>
<td>Kapsoya</td>
<td>5</td>
</tr>
<tr>
<td>Huruma</td>
<td>55</td>
<td>Shauri Yako</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Municipal Environment Department, 2002

Refuse collection was absent in Munyaka, Maili Nne, Kimumu and part of Langas and Upper Elgon View. The supply of bins was up to 1974 boundary extension and a few in the 1988 boundary extension. The distribution of refuse bins was skewed towards urban renewal, municipal housing and site and services scheme estates. ANOVA tests on five surveyed estates showed there were significant differences on solid waste collection \( (F_{(4,59)} = 8.7; p > .0000) \). Further Tukey-HSD test indicated that Elgon View differed significantly with Maili Nne, Munyaka and Kimumu, while Langas differed significantly with Munyaka and Kimumu. The differences occurred because out of the surveyed estates, Elgon View and Langas were the only ones served by refuse collection. Residents interviewed, 16.7% were served by municipal waste collection services, while 11.7% and 71.7% disposed of their waste by dumping it in open spaces and rubbish pit respectively (table 7.8).
Table 7.8: Household Waste Disposal Methods

<table>
<thead>
<tr>
<th>Disposal Mode</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipal Collection</td>
<td>10</td>
<td>16.7</td>
</tr>
<tr>
<td>Open Space</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>Rubbish Pit</td>
<td>43</td>
<td>71.6</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002

Great attempts therefore, had been made to contain littering and indiscriminate dumping of waste. However, during wet seasons when burning was not possible and rubbish pit filled, residents dumped their waste on open spaces mainly roadsides and undeveloped land. The residents attributed this behaviour to lack of designated waste storage, collection and transfer sites in peri-urban estates.

The residents of Eldoret were not satisfied with solid waste management. Chi-square test performed on urban report card on level of satisfaction to solid waste management showed there were significant differences on the way people responded ($\chi^2 12.78; p > .0124$). The percentage distribution in each level category is shown in table 7.9.

Table 7.9: Solid Waste Management Satisfaction Level

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 very dissatisfied</td>
<td>12</td>
<td>20.3</td>
</tr>
<tr>
<td>-2 dissatisfied</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>-1 somehow dissatisfied</td>
<td>18</td>
<td>30.5</td>
</tr>
<tr>
<td>0 neither dissatisfied/satisfied</td>
<td>9</td>
<td>15.3</td>
</tr>
<tr>
<td>1 somehow satisfied</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>2 satisfied</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3 very satisfied</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002
7.2.5 *Telephone Services*

Telecommunication services are very important for urban economy and for expedient relay of information. Its provision is thus vital for effective functioning of an urban environment. Telkom Kenya had made great attempts to service peri-urban areas (Table 7.10).

**Table 7.10: Distribution and Capacity of Telephone Services per Estate**

<table>
<thead>
<tr>
<th>Estate</th>
<th>Cabinets</th>
<th>Distribution point</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langas</td>
<td>4</td>
<td>-</td>
<td>1600-2400</td>
</tr>
<tr>
<td>Kimumu</td>
<td>-</td>
<td>23</td>
<td>345</td>
</tr>
<tr>
<td>Maili Nne</td>
<td>-</td>
<td>16</td>
<td>240</td>
</tr>
<tr>
<td>Elgon View</td>
<td>2</td>
<td>-</td>
<td>800-1200</td>
</tr>
<tr>
<td>Munyaka</td>
<td>-</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Jerusalem</td>
<td>-</td>
<td>4</td>
<td>60</td>
</tr>
<tr>
<td>Ya Mumbi</td>
<td>-</td>
<td>5</td>
<td>75</td>
</tr>
</tbody>
</table>

Source: Telkom Kenya Construction Office, 2002

Note: Distribution point serves maximum 15 connections and Cabinet serves maximum 800-1200 connections

It was apparent that resource allocation was biased towards high and middle income as depicted from the telephone capacity of 800-1200 in Elgon View while it was a low density neighbourhood and its residents could afford cellular mobile phones. The exception, however, was with Langas, which can be attributed to urban renewal programme and the age of the estate which people had improved their living condition over time.

Telkom Company had provided public telephone services (boots) in Langas, Maili Nne, Kimumu and Ya Mumbi, but none in Munyaka. Most telephone boots were not operational. Telkom planning and construction personnel attributed this to vandalism in low-income estates and collapse of poles during rainy season. Peri-urban residents attributed falling of telephone poles to shallow sinking, which
collapses with little pressure from animals or people leaning on them. Narrow roads was observed by the physical planning officer to contribute to falling of power and telephone poles in peri-urban areas because vehicles knock them down when skidding.

The survey indicated that 25.4 of respondents were served with telephone land lines while 75% said telephone costs were affordable. ANOVA tests showed there were no significant defences on provision of telephone services in the five studied estates. Further Tukey-HSD tests showed there was a significant difference between Elgon View and Munyaka. This could be attributed to the scanty extension of telephone lines to Munyaka compared to all the other estates. ANOVA tests on satisfaction level showed there were significant differences on the five estates ($F_{(4,59)} =12.4; p>.0000$). Further Tukey-HSD tests showed also Munyaka differed significantly with all the other four estates while Elgon View differed with Maili Nne only. Chi-square test performed to assess satisfaction level showed significant differences on the way people felt ($\chi^2 =14.25; p>.002$). The percentage distribution in each satisfaction category is shown in table 7.11.

**Table 7.11: Telephone Satisfaction Level**

<table>
<thead>
<tr>
<th>Satisfaction Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 very dissatisfied</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>-2 dissatisfied</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>-1 somehow dissatisfied</td>
<td>6</td>
<td>10.0</td>
</tr>
<tr>
<td>0 neither dissatisfied/satisfied</td>
<td>22</td>
<td>36.7</td>
</tr>
<tr>
<td>1 somehow satisfied</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>2 satisfied</td>
<td>15</td>
<td>25.0</td>
</tr>
<tr>
<td>3 very satisfied</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002
7.2.6 Energy

Electricity supply in Eldoret was by Kenya Power and Lighting Company (K.P.L.C.) Limited. Electricity supply to peri-urban areas was high as indicated by number of sheet/block coverage (Table 7.12).

Table 7.12: Electricity Distribution Sheets/Blocks.

<table>
<thead>
<tr>
<th>Estate</th>
<th>Number</th>
<th>Estate</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langas</td>
<td>7</td>
<td>Kamugunji</td>
<td>2</td>
</tr>
<tr>
<td>Kimumu</td>
<td>2</td>
<td>Race Course</td>
<td>1</td>
</tr>
<tr>
<td>Maili Nne</td>
<td>2</td>
<td>Kapyemit</td>
<td>1</td>
</tr>
<tr>
<td>Elgon View</td>
<td>1</td>
<td>Kipkarren</td>
<td>1</td>
</tr>
<tr>
<td>Munyaka</td>
<td>-</td>
<td>Huruma</td>
<td>2</td>
</tr>
<tr>
<td>Ya Mumbi</td>
<td>-</td>
<td>Bacon</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Kenya Power and Lighting Company Distribution Engineer, 2002

The distribution of electricity was dependent on physical plans in the municipality except those under rural electrification programme. In peri-urban areas, physical plans were achieved through replanning of estates. Power supply was observed to follow major road network, ribbon development and income levels. The survey found out that electricity supply served 46.7% of peri-urban residents. Elgon View was highly served with power supply network followed by Kimumu, which were high and middle-income estates respectively. There were exceptions however, in estates that were replanned and those under site and service schemes, which were also well supplied with electricity. The principal reason for the disparities can be attributed to nature of settlement structure where planned estates like part of Kimumu and Maili Nne, well planned estates in site and service schemes and Replanning in upgraded settlements are well served compared to unplanned estates. Respondents said electricity tariffs were very high (67.9%), as such, was mostly used for lighting and ironing of clothes. Electricity supply was viewed adequate and reliable by 92.9% of the respondents. This was attributed to lack of
power rationing in the municipality. 49.9% of respondents were satisfied (Table 7.13) Electricity satisfaction level in Eldoret was, as indicated by in table 7.13.

Table 7.13: Electricity Supply Satisfaction Level

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3 very dissatisfied</td>
<td>5</td>
<td>8.3</td>
</tr>
<tr>
<td>-2 dissatisfied</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>-1 somehow dissatisfied</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>0 neither dissatisfied/satisfied</td>
<td>9</td>
<td>15.0</td>
</tr>
<tr>
<td>1 somehow satisfied</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>2 satisfied</td>
<td>14</td>
<td>23.3</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>8</td>
<td>13.3</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002

99.3%, 61.4% and 11.4% of the respondents used paraffin, charcoal and fuelwood respectively. Charcoal was pointed out to be most unreliable and expensive as a source of energy. Chi-square tests showed there were significant differences to paraffin adequacy ($\chi^2 = 24.0667; p > .0000$) and reliability ($\chi^2 = 45.0667; p > .0000$). The differences are attributed to paraffin kiosks, which buy paraffin in 20-50 litres making them not only unreliable but its capacity to sustain the residents inadequate.

7.2.7 Health Facilities

Private hospitals and clinics dominated peri-urban areas in Eldoret. The distribution of private clinics per zone was as indicated in table 7.14. Private hospitals were Pacifica and Elgon View in Elgon View estate and the only government dispensary was in Kapyemit.
Table 7.14: Distribution of Private Health Clinics per Zone

<table>
<thead>
<tr>
<th>Zone</th>
<th>Estates</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>-</td>
<td>24</td>
</tr>
<tr>
<td>Western</td>
<td>Huruma, Maili Nne, Bacon, Railway, Kiunda,</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>and Kidiwa</td>
<td></td>
</tr>
<tr>
<td>Eastern</td>
<td>Kimumu, Munyaka, Border farm, Kapsoya,</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Jerusalem</td>
<td></td>
</tr>
<tr>
<td>Northern</td>
<td>Mosop and Kamugunji</td>
<td>16</td>
</tr>
<tr>
<td>Southern</td>
<td>Langas, Racecourse, and Kipkarren</td>
<td>8</td>
</tr>
</tbody>
</table>

ANOVA tests performed on health facilities provision and quality in various estates showed there were significant differences ($F_{(4,58)} = 71.88; p > .0000$ and $F_{(4,57)} = 132.54; p > .0000$) respectively. Further Tukey-HSD tests showed that Elgon View differed significantly from all the other four estates in health service provision and quality. This significant difference occurred because Elgon View was served well with 2 private hospitals which offered high quality health care services and they could afford it due to their high-income nature. 77.6%, 48.3%, and 79.3% of the respondents said that health services were of poor quality, unaffordable, and inadequate respectively. Chi-square tests performed showed there were significant differences on health facilities accessibility by residents ($\chi^2 = 32.7797; p > .0000$). Chi-square tests on the way people responded to health facilities satisfaction showed there were significant differences ($\chi^2 = 36.20; p > .0000$). The percentage response on satisfaction between private and public is indicated in table 7.15.

26.6% and 36.7% of respondents indicated were relatively satisfied with private and public health services respectively. Therefore, majority of the residents was relatively dissatisfied with the adequacy, quality and distribution of health facilities. The high dissatisfaction level was attributed to poor spatial distribution and hierarchies of public facilities in peri-urban. Nurses who examined and
prescribed medication to patients manned majority of the clinics in peri-urban areas. This situation was attributed to government decree that allowed enrolled community nurses who have practised for 10-15 years to open private clinics. Nurses also were manning registered clinics under doctors.

Table 7.15: Satisfaction Levels between Private and Public Health Facilities

<table>
<thead>
<tr>
<th>Private Health Facilities</th>
<th>Public Health Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Satisfaction Level</strong></td>
<td><strong>Frequency</strong></td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>1</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>13</td>
</tr>
<tr>
<td>Somehow dissatisfied</td>
<td>21</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>9</td>
</tr>
<tr>
<td>Somehow satisfied</td>
<td>7</td>
</tr>
<tr>
<td>Satisfied</td>
<td>9</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Field Data, 2002

Mishandling of patients and poor referral system was noted by medical officer of health, Eldoret municipality to be common cases in private clinics. Long queues and shortage of drugs were noted to be a common occurrence in public health facilities. Residents of Elgon View indicated that the private hospital offered quality services but the cost of treatment was high.
7.3 Privatisation of Municipal Services

Poor performance of water and sewerage sector prompted Eldoret municipal council to privatise water and sewerage services department. There were high collection inefficiencies (Figure 6.4), over 2000 meters were faulty, high reported cases of burst pipes going unrepaired, high operation and maintenance costs (Figure 7.5), and high unaccounted for water losses (Figure 6.2 and 6.3).

The agreement was reached in 5th June, 2000 between the municipal council of Eldoret and Eldoret Water and Sanitation (ELDOWAS) Company Limited. The council appointed ELDOWAS to act as its agent in the exercise of the functions relating to water and sanitation services within its jurisdiction or designated areas for 20 years subject to earlier determination. The council covenanted that it shall undertake the responsibilities and exercise powers to secure and facilitate the full and effective execution of functions and responsibilities vested in the company. ELDOWAS on the other hand covenanted that it will carry out its functions and responsibilities with due diligence. Development finance and borrowing powers was ensured under the covenant. The company was given provision to obtain loans from internal and external sources for infrastructure improvements, staff development, or capital deemed necessary for the provision of its functions. Where existing rules and regulations inhibit access to credit, the council was to enter into loan lending agreements with the government without imposing extra loan lending conditions on the company.

The functions of the company were:

I. Provide water and sanitation services to consumers in the designated areas;

II. Prepare long and short term plans designated to ensue the provision of affordable and sustainable water and sanitation services;
III. Consulting with the council in respect of any new or extended developments regarding the technical feasibility and costs of such developments;

IV. Developing and submitting for approval by the annual general meeting, five-year business plans. Such plans shall among others address the issues of unserved low-income consumers;

V. Implementing and updating plans periodically to reflect changing conditions and progress

VI. Operation and maintenance of water and sanitation facilities in the most cost-effective manner through contractual arrangements with public, private sector or community organisations;

VII. Providing technical supervision and support to organisations contracted to perform specific functions;

VIII. Generating revenues for investments and debt service and to meet operating costs through full cost-recovery tariffs;

IX. Setting tariffs distinguishing consumer categories and service delivery standards;

X. Managing financial resources to minimise costs and maximise returns in line with the company’s strategic objectives; and

XI. Co-ordinating water and supply and sanitation services with urban environmental services of the council.

Transfer of services to ELDOWAS was preceded by appraisal of water and sanitation services, loan arrears and debt servicing, operational efficiencies and institutional weaknesses of water and sanitation department by external agency appointed by local government ministry on behalf of the council. The council did not transfer debt servicing loan arrears to the company. Inheriting the former water and sewerage department of the council strengthened the company further. The transfer of services to ELDOWAS occurred at the time when there was indication
of high revenue and constant operational costs (Figure 6.6) and lowest revenue collection efficiency (Figure 6.4).

ELDOWAS had prepared a five-year business plan (2000/1-2005), developed a computerised billing system and adopted water extension plans from phase II feasibility studies. ELDOWAS however, have failed to develop water tariffs distinguishing consumer categories and extend water to new areas beyond municipal council coverage. It has further abolished block tariff, which was geared towards making low-income earners afford the service. Capital projects like sewerage treatment works at Kipkenyo, which had been bought by Eldoret municipality had not been constructed despite being scheduled to have began by year 2001. Extensions of Phase II water reticulation network to part of Langas, Kimumu, Ya Mumbi and Huruma Mwiyenderi were yet to begin. Collaboration with donor agencies or private sector for financing service through contractual arrangements permitted in the covenant had not been undertaken to meet the high water and sewerage demand and backlog in the municipality. ELDOWAS was noted by sampled peri-urban residents to be fast in responding to reported cases of burst pipes, water disconnection and bills dispatch.

Privatisation/commercialisation of water and sewerage services by Eldoret municipal council was viewed by majority of people interviewed as a rational decision. The council said that privatisation was in an attempt to enhance water and sewerage provisions and achieves efficiency and effectiveness to Eldoret residents. Chi-square test performed on urban report card questionnaire survey indicated that there were significant differences on residents’ response on water satisfaction level ($\chi^2$ 29.83; $p>0.000$). The differences can be attributed to the nature of settlement condition and service provision levels per estate. Linear and clustered settlement patterns were well supplied with water. There was a general
indication that water provision by ELDOWAS followed income levels in addition to settlement type.

7.4 Urban Renewal and Redevelopment

Spontaneous development in peri-urban areas had resulted in settlements inadequate of circulation layouts, way leaves, deterioration of sanitation and land reservation for community facilities and services in various estates. Upgrading of Langas, Huruma, Kamugunji and Kampi Karatasi and Somali was done under Third Urban Project to improve settlement conditions. Replanning of these informal settlements resulted to street alignment, acquisition of right-of-ways and securing of land for community services. The advisory physical development plans were prepared for various unplanned settlements namely Langas (7), Kamugunji (2), Huruma (2), Bacon- formally Kampi Karatasi (3) and King’ong’o (2). The advisory physical development plans was observed to co-ordinate service provision extension to these estates, for instance Kenya Power adopted power extensions in terms of sheets which corresponds to advisory physical development plan maps (Table 7.12). Renewal of these estates made possible installation of water, electricity, and refuse collection. This explains why there was large number of power supply, water kiosks and refuse collection bins in the renewed estates. Kampi Karatasi, which was poorly constructed mud houses, was upgraded into one roomed permanent structure. Upgrading process was co-ordinated and all the major urban service provision stakeholders were involved in extension of service coverage.

The council redeveloped Kapsuswa, which were horses structures, into 50 self-contained housing units. The physical planning officer pointed out that Raymond housing estates needed redevelopment urgently. The officer pointed out that redevelopment prospects were mainly in the old town area, namely commercial,
industrial and council housing land uses. Redevelopment in peri-urban housing is still many years a head because most housing were developed in the 1980s and 1990s.

7.5 Self-help Groups

Groups of residents in various estates had organised themselves together to pull services, enhance security, and maintain services. About 1,000 residents of Munyaka were on the process of depositing each KShs. 10,000 on Kenya Power and Lighting company finance account for extension of electricity supply to Munyaka estate which was not served with electricity. Two groups in Kimumu and one in Maili Nne had already financed water supply to individual members. They hired engineer and bought distribution pipes. ELDOWAS acknowledged self-help efforts by accepting their proposal to charge subsequent individual connections good will payment. Drains in Munyaka, Kimumu and Maili Nne were dug and maintained by residents’ groups. Where there were no way-leaves people bordering each other were contributing each 2 metres or 3 metres depending whether it was a road or just drainage passage. The residents of Kimumu had come together to gravel (murrum) their roads. Their efforts to fuel municipal grader was in vain. They had to hire lorries and tractors instead. Elgon View estate had own hired security from private companies. Imposition of standards in Elgon View was monitored and implemented by the residents. Maintenance of minimum plot sizes and construction of septic tanks was observed in the estate. This fact did not only maintain their status quo but also ensured the estate was well served by services.
7.6 Site and Services Schemes

Site and service schemes were attempted in Eldoret municipality. The estates under site and services schemes were Kipkarren (512 plots), Kapsoya (1100 plots), and Old Uganda Road A and B (570 plots). Kipkarren, Kapsoya and Old Uganda road B were outside the urban core. Services in site and service schemes were high. Site and services schemes were largely financed through external funding and private developers. Municipal housing officer pointed out to be no longer attainable under current resource scarcity experienced in municipality. The officer said further that Eldoret municipal council had devolved housing provision to private sector such as housing institutions, groups, and individuals. Site and services schemes, the physical planning officer notes, were tenable in government/municipal land where direct control is possible. The officer further observed that it was only possible under freehold tenure in large-scale institutional housing developments where a developer has the development right over expansive land and adequate capital for installation of reticulation network over considerable distances.

7.7 Partnership

Partnership ventures in service provision in the municipality was noted in housing development between the municipal council of Eldoret and Kenya Re for the latter to provide mortgage finance while the council provide land as security. 200 units were developed under this partnership venture. Partnerships in municipal waste management was lacking despite the under capacity of refuse collection equipment. Partnerships can be focussed on such other issues as water, electricity and security in peri-urban areas.
CHAPTER EIGHT: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

8.1 Summary of Findings

8.1.1 Trends and Patterns of Peri-urban Development

- Boundary extension was not preceded by land use and service provision planning. There was no policy framework therefore, to guide boundary extensions or integration of peri-urban areas in urban service delivery.
- Attempts to regulate development through boundary extensions had dismal performance. Absolute nature of freehold title deeds registered under Land Registration Act (L.R. No.) were difficult to control
- Developments in peri-urban areas proceeded in total disregard of planning regulation, service provision and infrastructural facilities and are wrought with boundary disputes.
- Peri-urban settlements have largely inefficient land use patterns (informal, linear and quasi-formal) characterised by scattered and staged developments in and between sector blocks. These ineffective patterns militated against service provision. Utility line, drainage way leaves and accessibility for sanitary vehicles was either inadequate or lacking.
- Rapid population migration to peri-urban areas of Eldoret was not guided by regional nor local physical development.
- Proponents of growth centre policy and promotion of industrial development failed to take into consideration service distribution and channelling of rapid population immigration in and around municipal boundary.
- Cheap and accessible land in peri-urban areas was not utilised to acquire land for public utilities a head of development.
• Surrendering of land for public utilities in peri-urban areas was very low, exacerbated by inadequate follow up.

• Town Planning Act worked well under colonial urban administration.

• Colonial boundary extension was planned ahead of development.

• Peri-urban land subdivision and transfer that is largely freehold, occurs without leasehold. Peri-urban settlements therefore, are not subject to strict development and control regulations.

• The council lacks planning unit/department within its establishments to guide developmental trends and patterns for sustainable development of the municipality.

• Disjointed/incremental planning approach adopted after 1981 failed to shape trends and patterns in peri-urban areas which was largely geared towards it.

• Public participation in preparation of advisory plans was inadequate.

8.1.2 Causes of Peri-urban Development

• Rapid population increase in the municipality coupled with lack of comprehensive policy to regulate human settlements let to spill over of urban functions into peri-urban areas. This trend was largely aided by uncontrolled quasi-legal subdivision of freehold land.

• Industrial and commercial development created employment opportunities. The resultant high and middle income that wanted to own urban housing accessed cheap and easily acquired land in peri-urban areas.

• Siting of government institutions forced land values up in the bordering farms, due to need for housing near place of employment.

• Low rents of agricultural land use in peri-urban areas prompting farmers in urban peripheries to change land use to mixed urban functions or residential developments.
• Intermittent income nature of capital acquisition for buying land and housing development by the low and middle income earners, meant that they can invest in peri-urban areas where land acquisition was quasi-legal, cheap and can pay in instalments.

8.1.3 Impediments to Peri-urban Service Provision

• Inefficient land use patterns exhibited in informal and quasi-formal settlement, caused by haphazard development, frustrate extension of reticulation systems at low costs in peri-urban areas.
• Inadequate environmental capacities due to obsolescence of existing facilities and systems prevented further service extension to peri-urban areas.
• Ineffective service provision planning has led to poor sitting of facilities, coordination of service providers and service provision forecasting planning. Population growth and distribution has not been merged with services in peri-urban areas.
• Lack of funds to finance capital projects constrained Phase II water extension that cover largely peri-urban areas and sewerage treatment work at Kipkenyo. The continued under capacity of sewerage impeded extension of sewerage lines to new sites.
• Service capacities and coverage have not kept pace with rapid population that doubles every ten years. This resulted in overwhelming demands and extensive service backlogs in peri-urban areas. Provision of services in these new sites that infrastructure had not been laid before over considerable area was not economical. It militated against incremental reticulation connection in line with incremental settlement improvement practised in peri-urban development.
• Inefficiencies were noted in revenue collection of services rendered. This was largely attributed to dishonest on part of revenue collection staff who colluded with the consumers to defraud the providers.
There was low culture of respecting services in high-density peri-urban areas provided with services. Public telephone boots were vandalised and blockage of drainage lines was common. Illegal connection to water and power was rampant. This raised operation and maintenance costs to service providers.

Land for community facilities and amenities was inadequate. Expansion of schools, establishment of health facilities and open spaces was therefore impeded.

8.1.4 Existing Service Provision Attempts

Water

Piped water connection to individual house/yard in peri-urban areas was too prohibitive due to low pressure and/or absence of trunk pipes to facilitate reticulation at reasonable distances. Peri-urban areas were therefore inadequately served with services.

Abolition of block tariff rates affected low-income peri-urban neighbourhoods, forcing majority of them to continue using borehole water.

High water related disease prevailed in the municipality.

High borehole/well use in peri-urban areas even where water kiosks were available, despite being pointed out by residents as of poor quality by residents.

Sewerage

Sewer capacities was over-utilised and over-loaded with flow and inorganic load such that natural aeration was not possible.

Peri-urban areas were not served with water borne sewerage.

Emptying of filled exhaustible pit latrines in peri-urban areas was hampered by inaccessibility. Inadequate circulation systems and impassable roads during rainy seasons caused this.
Drainage way leaves in peri-urban areas was inadequate or lacking completely in some estates. The existing ones were below the required standards for antimalarial and storm water drainage.

**Solid Waste Management**

- Waste collection in peri-urban areas were largely lacking in peri-urban areas. Where it exists, it was once in a month.
- Half of the refuse collection vehicles were unopreational
- Dins were 10-15 years old, corroded and could contain waste securely.
- Waste collection was skewed towards high incomes, upgraded and site and services schemes neighbourhoods.

**Telephone**

- Telephone services was biased towards high and middle income neighbourhoods
- Planned, replanned and upgraded neighbourhoods had a high percentage of residents connected to telephone line.
- Most public telephone boots in peri-urban areas were not operational

**Electricity**

- Power lines followed major road net works and ribbon developments in peri-urban area.
- There was high installation costs in peri-urban areas due to long distances to overhead power transmission lines along the roads.
- Planned, replanned and upgraded neighbourhoods had high electricity connections that unplanned informal settlements in peri-urban areas.
- Service providers extend service connections using advisory physical development in peri-urban areas.
Health

- Poor spatial distribution and hierarchy of public health facilities was observed in the municipality. Peri-urban areas was poor served with public health facilities.
- Long queues and congestion in public health facilities that were meant to serve the region referral cases persisted in the municipality.
- Unqualified personnel in peri-urban areas largely operated private clinics, raising concerns for mishandling of patients and poor referral system.
- Private hospital provided quality health services but the cost was too prohibitive for peri-urban residents.
- There was lack of land for putting up health facilities in peri-urban areas.

8.1.5 Urban Renewal and Redevelopment

- Acquisition of right-of-way and land for community services during replanning exercises was marred by tiresome negotiations, poor road alignment and boundary disputes.
- Upgrading programmes relied largely on external funding, which is no longer
- Cross-sectoral and vertical planning and co-ordination prevailed during World Bank funded upgrading programmes.
- It was difficult in replanning exercises to achieve good design, rational locational planning and maintain standards.

8.1.6 Self-help Groups

Lack of functional neighbourhood associations prevailed in peri-urban areas.
Residents’ mobilisation in peri-urban was largely based on women groups, tribal associations or when a problem arises people binded together residents affected.
Lack of good will and partnership arrangements by ELDOWAS and the municipal council to cost share in reticulation extensions frustrated sel-help efforts. Distinct high and middle income neighbourhoods like Elgon View and Kimumu had strong neighbourhood associations and mobolisation potency. Community constructed schools, which dominated peri-urban areas, was inadequate and largely constrained by high standards imposed by the council for it to be registerd.

8.1.7 Privatisation

- ELDOWAS has developed block mapping, computerised billing system, prompt meter reading, billing and disconnection of defaulting consumers.
- It failed to develop tariffs based on consumer categories.
- ELDOWAS failed to develop overdue capital projects that it inherited from the council.
- Implementation of Phase II water reticulation network to peri-urban areas had not yet been began.
- Failed to utilise contractual arrangements permitted in the covenant for capital projects developments.

8.1.8 Partnerships

- Partnership prevailed in housing development between Eldoret municipal council and Kenya Re in development of high-income earners housing in late 1980s. Partnerships in housing since then have been lacking.
- Partnerships were not adapted enhance in peri-urban service provision.
8.2 Conclusion

Development in Eldoret peri-urban areas proceeds in total disregard of planning regulation, infrastructural facilities and services. These unsustainable trends create inefficient patterns and acute deficiencies in service provision. Incremental planning adopted after 1981 led to neglect of comprehensive planning for a viable and efficient provision of environmental and social services in the municipality to keep up with population and urban expansion to peri-urban areas.

8.3 Recommendations

The fourth objective was to suggest recommendations for enhancing service provision in peri-urban areas. To enhance service coverage, cost reduction measures in extending services, and facilitates incremental nature of peri-urban development; the study proposes the following measures:

8.3.1 Trends and Patterns

- Develop a comprehensive municipal urban land policy to regulate the supply of land for urban development to curtail quasi-legal subdivisions and inefficient land use patterns.
- Channel peri-urban development in strip pattern along the major thoroughfares to prevent staged development, protect interior agricultural spaces and facilitate cost effective extension of reticulation lines.
- Utilise sectoral development to contain urban sprawl, encourage clustered patterns, differentiation of settlement types and rational distribution of community facilities, services and amenities.
Replanning and upgrading of informal settlement to enhance circulation systems, establish way leaves and sites for community amenities/facilities.

Land acquisitions well ahead of development for community facilities and amenities. Follow up of surrendered land upon land subdivision for public purposes should be strengthened.

Establishment of urban green belts along the escarpment to prevent settlement establishments in the fragile escarpment ecosystem.

8.4.2 Community Facilities and Services

Community facilities are critical components for improving quality of life in urban centres. The provision of these therefore, is crucial in peri-urban areas and could be achieved through the following:

Health

Decentralisation of health facilities and services in the municipality to peri-urban settlements, particularly the outpatients should be undertaken.

Partnerships in health sector should be encouraged in which peri-urban residents donate land and built the dispensaries or health centres structures while the government Carter's for medical facilities, drugs and practitioners.

The dispensaries and health centres should be geared for day-to-day medical and welfare needs of peri-urban and neighbouring rural communities.

Clinical officers should be the least personnel in charge of private clinics and those who cannot meet the requirements be closed.

The distribution of the dispensaries or health centres should be in Langas, Kimumu, Kapsoya and Huruma Mwiyenderi. The location of the health facilities should be near or on transport terminal, schools or neighbourhood shopping centres to ensure accessibility.

Rehabilitation of Kapyemit dispensary should be undertaken and be equipped.
Education

- Strengthen follow up and acquisition of land surrendered or set aside for public schools.
- Give incentive to land owners who set aside land for educational facilities in peri-urban areas.
- Encourage community development of primary and nursery schools in peri-urban areas by varying standards to facilitate incremental improvement of structures over time in line with nature of peri-urban development.
- Encourage private sector participation such as religious institutions and private individual developers.

8.3.3 Infrastructural Facilities and Services

Urban expansion and intensification of peri-urban areas calls for adequate provision of requisite infrastructure and services through capacity enhancement and area coverage expansion. This can be achieved through the following:

Water

- Expansion of water reticulation system to peri-urban areas without discriminating densely populated low income zones.
- Rehabilitate the old water reticulation system established between 1928 and 1960 and Kapsoya water intake/treatment works and improve routine maintenance in order to minimise water losses.
- Encourage partnerships between Eldoret Municipal Council, ELDOWAS, private sector and community in extension, operation and maintenance of water extensions.
- ELDOWAS should subtract water reticulation to peri-urban areas under built-operate-transfer arrangements to enhance resource mobilisation.
Funds for future development of a dam below Rivers Dam should be set aside every month out of water revenue.

Water tariffs distinguishing consumer categories should be established and approved by the water authority as required under the privatisation covenant.

High pressure pipes need to be established along major trunk lines (service corridors) to facilitate incremental water connection in line with peri-urban development.

Sewerage and Waste Water Disposal

- Close down conventional sewer at Eldoret West which is incompatible with close by neighbourhoods.
- Develop sewerage treatment work on the acquired land at Kipkenyo.
- Expand the sewer reticulation to all areas of the municipality giving priority to high densely populated areas new peri-urban settlements to utilise to be established capacity at Kipkenyo.
- Rehabilitate Quarry treatment works at Eldoret West.
- Support private and stakeholder initiatives in storm water drain development by offering technical and design advice.
- Rejuvenate environmental action teams in peri-urban areas to undertake storm water and anti-malarial drainage establishment and maintenance.

Solid Waste Management

- Conduct public cleaning campaigns in peri-urban areas.
- Privatise some refuse collection in parts of the municipality to enable existing refuse collection capacities to manage remaining parts under management contract agreements.
- Promote waste minimization techniques such as recycling, sorting and composting.
- Establish waste collection and transfer stations in the peri-urban areas.
Extend service coverage to informal peri-urban settlements and poor neighbourhoods.

**Electricity Supply**

- Strict enforcement of regulation relating to the preservation of power way leaves.
- Reduce electricity tariff to make it affordable by the majority of urban residents.
- Establish trunk power lines (service corridors) to facilitate incremental power connection/reticulation in peri-urban areas at reasonable distances.
- Establish peri-urban electrification programme.

**Telecommunication Services**

- Provision of additional public telephone booths in peri-urban areas, particularly high density.
- Installation of high capacity telephone lines in peri-urban areas upon extension to requested residents to facilitate incremental connections by the rest of residents in those neighbourhoods.
- Improve maintainance of existing facilities and provide security at public booths to prevent vandalism in collaboration with the neighbourhood residents.

### 8.4 Mechanisms for the Proposal Implementation

The achievement of the above policies and proposals hinges on the strengthening institutional arrangements, to ameliorate constraints exhibited in chapter six. The following proposals could help achieve sustainable service provision in peri-urban areas:
8.4.1 Public-Private-Partnerships

- Public-private-partnerships between major service providers-ELDOWAS, Kenya Power, Telkom Kenya and Eldoret Municipal Council need to be established and be co-ordinated in urban service delivery.
- Strategic planning office, co-ordinated by Eldoret Municipal Council needs to be established in order to come up with common action area strategic plans and extension programmes for urban services and peri-urban areas in particular.
- Public-private-partnerships also between the service providers and neighbourhood residents in co-financing service provision to neighbourhoods and unserved parts needs to be ventured on.

8.4.2 Neighbourhood Associations

Neighbourhood groups should be identified, mobilised and encouraged to come together as a neighbourhood association in peri-urban areas. Such associations should take the form of self-help and security vigilante groups to take care of security, clean-ups, exert development control, establishment and maintenance of roads, drainage, utility lines, schools and health facilities and pressure service providers to extent services.

8.4.3 Service Provision Corridors

There is need to establish corridors within which residents could pull services at lower costs. High water pressure lines, high-tension power supply and excess telephone capacity and trunk sewerage corridors should be established. Service providers should be all involved in establishing the service provision corridors to lower the cost of installation.
8.4.4 Peri-urban Neighbourhood Service Provision Programmes

- Special programme of peri-urban community facilities and services need to be formulated to meet social and environmental services in the municipality.
- Local Authority Service Delivery Action Plan should be reoriented to focus on extension of services to peri-urban areas.
- The municipality needs to allocate more funds to finance peri-urban service extensions and capital projects to enhance capacities of facilities.

Institutional Capacity Building

- There is need to establish Town Planning Unit/Department in the municipal council to regulate urban developmental trends and patterns.
- Strengthening the Inspectorate Department of the council to be able to police and control urban development.
- Upgrading of Eldoret Municipality to city status as proposed by 'Omamo' Report.

8.5 Varying of Building Standards in Peri-urban Areas

Varying of standards is necessary in line with incremental nature of peri-urban settlement improvements. The building standards should be raised over time within a particular plot or neighbourhood so that residents upgrade their structure incrementally as their savings or earnings improves. Percentage build area coverage should be enforced to prevent urban sprawl.
8.6 Areas for Further Research

- There is need to transportation planning municipality to enhance circulation system and thus facilitate collection of refuse, emptying of filled pit latrines by exhauster vehicles and establishment of utility lines and way leaves.

- Informal settlement planning is need to be undertaken to improve settlement conditions, which will go along way in enhancing service provision and rational settlement patterns.
BIBLIOGRAPHY


-------- 1991A. The Management of Secondary Cities in Sub-Saharan Africa:
Traditional and Modern Institutional Arrangements. Habitat, Nairobi.


Kenya, Republic of, 2000A. Local Authority Development Programme.

Government printer, Nairobi.


Rotich, 2002A. Personal Communication. Director Environment, E.M.C.

Rotich, 2002B. Personal Communication. Welfare Officer, E.M.C.


APPENDICES

APPENDIX A: HOUSEHOLD QUESTIONNAIRE

(Please note that the information given here will be used strictly for academic purposes and will be treated as confidential)

Questionnaire No. ............... Date ............... 

Name of Estate ..........................................

General Information

Q1. When did you come to Eldoret municipality? .................. (Year)

Q2. Where were you living before you shifted to this estate?

Q3. What motivated you to come to this estate?.................................

1 Low rents
2 Cheap land
3 Near place of employment
4 Status

Q4. What is the family monthly income? Tick where appropriate below

1 Less than 5000
2 6001-10000
3 10001-15000
4 15001-20000
5 Above 20000

Q5. Please fill in the table below

<table>
<thead>
<tr>
<th>Household Member (HM)</th>
<th>Age (years)</th>
<th>Sex (M/F)</th>
<th>Education</th>
<th>Occupation</th>
</tr>
</thead>
<tbody>
<tr>
<td>HM1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>HM2</td>
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<td>HM3</td>
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<td>HM4</td>
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<td>HM5</td>
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<td>HM6</td>
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<td>HM7</td>
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<td>HM8</td>
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</tbody>
</table>
Peri-Urban Land Uses  
(Q 6-13 to be filled by owner occupier/developer)

Q6. Your land is under which tenure below?
1 Freehold  
2 Leasehold  
3 Government  
4 Inheritance  

Q7. What is the size of your plot?
1 1/8  
2 1/4  
3 1/2  
4 above 1/2  

Q8. How did you acquire your present plot?
1 Subdivision of land buying company  
2 Leasehold from the municipality  
3 Buying from freehold subdivision  
4 Inheritance  

Q9 What made you develop in this area and not planned part of the municipality?  
1. Cheap land in peri-urban area  
2. None observance of municipal regulation  

Q10. Did you acquire part development plan and building permit before developing the plot? 1. Yes 2. No  

Q11. If yes in Q10 above what were the conditions to be observed when developing the plot? 1.  
2.  
3.  
4.  

Q12. Have you fulfilled all the conditions in the permit?
Q13. What constraints did you encounter in providing services to your plot?
1.
2.
3.

Q14. How is land regulated in this estate?
1.
2.
3.

Q15. Is this estate well planned? 1. Yes □ 2. No □

Access to Urban Services

Q16. Are the following services provided in your house?

<table>
<thead>
<tr>
<th>Service</th>
<th>Provided (yes/no)</th>
<th>Adequacy (Adequate/inadequate)</th>
<th>Affordability Affordable/unaffordable</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piped water</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td></td>
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<tr>
<td>Sewerage</td>
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<tr>
<td>Telephone lines</td>
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<tr>
<td>Primary School</td>
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<td></td>
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<tr>
<td>Waste collection</td>
<td></td>
<td></td>
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<tr>
<td>Health facilities</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

(If the answer is NO in Q16 above, answer question 17 and 18)

Q17. What are the source and problems of your water supply?

<table>
<thead>
<tr>
<th>Water source</th>
<th>Reliability</th>
<th>Cost</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standpipe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borehole/Well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>River</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Any other (specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q18. What are the source(s) and problems of energy supply in your household?

<table>
<thead>
<tr>
<th>Energy sources</th>
<th>Reliability</th>
<th>Cost</th>
<th>Adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraffin</td>
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<tr>
<td>Charcoal</td>
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<tr>
<td>Firewood</td>
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<td></td>
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<tr>
<td>Solar</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Biogas</td>
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<td></td>
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</tbody>
</table>

Q19. How do you dispose of your human waste?
1. Family pit latrine
2. Community pit latrines
3. Septic tank
4. Nearby bush
5. Sewerage line

Q20. How do you dispose of your household solid waste?
1. Municipal bins
2. Waste transfer stations
3. Open space/Road side
4. Rubbish pit

Q21. Who collect your waste from where you dispose of?
1. Municipal council
2. Private firms
3. None

Q22. How much do you pay for solid waste collection every month? KC

Q23. Which health facilities exist in the estate?
1. Private hospital
2. Public hospital
3. Private clinic
4. Government dispensary
4. Health cares centre
Q 24. Is police protection adequate in the estate? 1. Yes □ 2. No □

Q25. If NO in 24, why so?
1. Absence of police line/post
2. Inaccessibility of parts of the estate
3. Lack of streetlights
4. Absence of community vigilante groups

Q26. What is the level of satisfaction with the following services in this estate?
(Use the key below to tick where appropriate)

<table>
<thead>
<tr>
<th>Access to basic services</th>
<th>Water supply</th>
<th>Electricity supply</th>
<th>Sewerage</th>
<th>Telephone lines</th>
</tr>
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<tbody>
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<th>Security and crime</th>
<th>Waste management</th>
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<table>
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<th>Garbage collection</th>
<th>Public participation</th>
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<td></td>
</tr>
</tbody>
</table>

KEY
-3 Very dissatisfied -2 Dissatisfied -1 somehow dissatisfied
0 neither satisfied nor dissatisfied 1 somehow satisfied 2 Satisfied 3 Very satisfied

Q27. How can services provision be improved in this estate?
Q 24. Is police protection adequate in the estate? 1. Yes 2. No

Q25. If NO in 24, why so?
1. Absence of police line/post
2. Inaccessibility of parts of the estate
3. Lack of streetlights
4. Absence of community vigilante groups

Q26. What is the level of satisfaction with the following services in this estate?
(Use the key below to tick where appropriate)

Access to basic services
- Water supply
- Electricity supply
- Sewerage
- Telephone lines

Health and safety
- Private health facilities
- Public health facilities
- Security and crime
- Waste management

Garbage collection
- Public participation

Public Involvement

KEY
-3 Very dissatisfied  -2 Dissatisfied  -1 somehow dissatisfied
0 neither satisfied nor dissatisfied 1 somehow satisfied 2 Satisfied 3 Very satisfied

Q27. How can services provision be improved in this estate?
APPENDIX B: INTERVIEW SCHEDULE

(The information acquired from this interview will be used strictly for academic purposes and will be treated as confidential)

(A) Town Planning And Municipal
1. What is the nature of peri-urban development in the municipality?
2. What are the causes of peri-urban development in the municipality?
3. How is land use regulated in peri-urban area?
4. What constraints planning of peri-urban areas in the municipality?
5. What is the impact of existing peri-urban development structure/pattern on service provision?
6. What is the state of service provision in peri-urban settlements in the municipality? (Planned; serviced; accessibility)
7. What constrains service provision in the municipal peri-urban settlements?
8. What are the main stakeholders in peri-urban service provision?
9. What can be done to enhance service provision in peri-urban areas?
10. What are the main problems encountered in providing services in the municipality?

(B) Other Service Provision Institutions
1. Under what conditions do your institution provide services in the municipality?
2. What are the requirements for service provision extension to a new area?
3. Has the institution extended services to peri-urban area in the municipality?
4. If yes, how?
5. What are the constraints encountered in extension of services to peri-urban areas of the municipality?
6. How can such constraints be overcome?
APPENDIX C: MUNICIPAL WARDS
APPENDIX D: LAND REGISTRATION NUMBER
(ABSOLUTE OWNERSHIP)