UN-HABITAT AND CITIES ALLIANCE JOINT WORK PROGRAMME

Equitable Economic Growth in Cities

Local Assessment Report (LAR)
Nyandarua County, Kenya

UN-HABITAT
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Cities Alliance
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REPUBLIC OF KENYA

COUNTY GOVERNMENT OF NYANDARUA

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About the Report

This report was produced by UN-Habitat as part of the Cities Campaign of the Cities Alliance Joint Work Programme (JWP) for Fostering Equitable Economic Growth in Cities.

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Table of Contents

Executive **Summary**

1. Urbanization in Kenya

Kenya's estimated urban population comprises 28% (14 million) of the total population and will reach 44 million people by 2050. This will be approximately 46% of the country's total population. The challenge of managing urban development in Kenya is divided into the following categories:

- **Inadequacy of Infrastructure and services**

- Most cities and towns are fast growing without matching investments in infrastructure, which ensures an increasing infrastructure deficit.
- Existing utility providers are overwhelmed, in terms of financial and technical capacity.
- Weak County Government and Municipal management that lack mechanisms to finance infrastructure, in addition to ordinary budgets.

- **Inadequate Affordable Housing**

- The majority of urban low-income residents rely on sub-standard rental housing produced in the informal markets.
- Inadequacy of infrastructure increases costs of delivering housing; hence, making formal housing unaffordable to many.
- Distorted land markets and absence of effective urban planning make housing development highly speculative as developers are not provided with specific development guidelines.

- **Unplanned developments and Urban Form Challenges**

- Lack of approved urban development plans.
- Lack of reliable development control system and urban design guidelines results in undesirable urban form and makes regulation of land development unpredictable.
- Street width can vary within the same stretch of street.
- Inconsistencies in building setbacks/ building lines
- Walls constructed in a non-uniform manner
- Congestion
- Poor connectivity
- High retrofitting costs for networked infrastructure such as water, electricity, etc. that is part of the transition from rural to urban settlement.

- **Environmental challenges**

The disconnect between development control and infrastructure development has resulted in a declining environmental quality.

- Flooding due to absence of a storm water management system, and natural drains obstructed by constructions.

Infrastructure is a major determinant of property values in Nyandarua.

- Land use conflict between farming/ food security and real estate is also an environmental concern.
- Nyandarua County is part of the greater Nairobi Metro region and has growing towns which, if unmanaged, threaten the environmental balance.

Municipal Management Challenges

- Most towns lack established municipal management structures.
- Without proper municipal structures, municipal finance and budgeting is inefficient.

Other urban challenges include

- Municipal management – the challenges in establishing municipal structures post-2010 (promulgation of the current constitution of Kenya).
- Poor planning procedures and enforcement which lead to development superseding planning.
- Use of septic tanks that later infiltrate water tables, thereby polluting sources of water.
- Market value of land as a force for transforming agricultural land into real estate ventures.
- Infrastructure backlogs - especially water and sanitation
- Urban housing problems - especially the scarcity of affordable, decent, low-cost housing.
- Urban planning challenges- proliferation of unplanned developments, declining environmental quality, poor living conditions in informal settlements, etc.
- Youth bulge and unemployment
- Urban poverty and widening socio-economic inequalities
- The critical role of the Informal economy

2. Challenges of Urbanization in Nyandarua – Assets and Obstacles

Nyandarua will soon experience the effects of urbanization, especially because its small towns are also experiencing tremendous growth. By 2026, the population in Nyandarua will have grown to over 1 million people, with approximately 1000 additional households every year.

It was noted that infrastructure is a major determinant of property values in Nyandarua.

In Nyandarua, the average cost of one acre in an urban centre is between Ksh. 1 – 1.5 million. However, land development has outpaced infrastructure provision, with new developments emerging every day. Due to this acceleration of urbanization, systems and structures can no longer service the county effectively.

This requires rethinking and restructuring the existing systems to mitigate the urban challenge - computerization of systems, change of laws and regulations, passing of bills that support enforcement of new laws, etc.

Ol Kalou is the largest urban centre in the county. Its projected population by 2026 is estimated at 115,000 people. Fundamentally, urban growth is driven by its role as an administrative and commercial centre.

Ol Kalou is characterized by a dense CBD/ urban core, immediate Sub-urban zone with both planned and ad-hoc sprawling development, as well as an immediate rural hinterland where most of the agricultural and quarrying activities are carried out.

The town development owes its structure to the two main tarmacked spines, the railway line, rivers and the surrounding hilly terrain. These are the main structuring elements for the town.

2.1. Challenges

- Approximately 26.3% of residents rely on rivers and wells as a source of their water. Unreliable water supply is the biggest challenge facing residents across the five Sub Counties. It also includes lack of water treatment facilities, old and decaying infrastructure, and poor dam maintenance.
- Most households use pit latrines for sewage disposal. This is leading to major health problems as increased sewage water contaminates drinking water from shallow wells.
- Urban areas are a major source of uncollected solid waste, which will increase as the urban population grows.
- Emerging issues in the transportation sector include poor road surface conditions in parts of the County and under-utilized and undeveloped potential in rail and air transport.
- Only 1% of residents in Nyandarua County use liquefied petroleum gas (LPG), while 1% use paraffin, 78% use firewood and 19% use charcoal. The most common cooking fuel, therefore, is firewood.
- Urban Development is for the most part uncontrolled and encroaching on important agricultural lands.

2.2. Assets

- The county is still in the first phase of urbanization with a manageable backlog of infrastructure needs.
- The County is finalizing its spatial plan.
- A spatial plan is being prepared for Ol Kalou with UN-Habitat support.
- The county is finalizing the establishment of a County Development Corporation.
- The new Planning Law of Kenya grants the counties new authorities for managing urban development and specifically for introducing infrastructure development fees.
- The political and professional leadership of the County Government is well aware of the issues and is dedicated to establishing Urban Management Mechanisms in advance of massive development.

The county clearly recognizes the importance of having infrastructure and planning in place before development can effectively take place. A major consideration will be the time factor and need to identify sources of revenue for financing the required infrastructure.

3. Mechanisms for Managing Urban Development

3.1. A New Strategy for Development

As described earlier, Kenya overall and the counties in the greater Nairobi Metropolitan area are undergoing rapid urbanization. Managing urbanization requires a fundamentally different strategy for managing development than previously accepted in Kenya. This is all the more critical when linked to the process of devolution. Although relatively ineffective, prior to devolution, the national government had the primary responsibility for land use planning and control. Now the counties have primary responsibility and authority. However, there are still no clear mechanisms, policies, nor organizational capacities to fulfil this function.

Until recently, development outside of Nairobi was fundamentally rural and peri-urban. This has meant that development was based upon a plot-by-plot strategy of growth. Households could gain access to a plot of land, build a home and for the most part were self-sufficient with regard to water, sewage, and waste. In a rural setting, even in concentrations of small villages, this is a sustainable form of settlement. The scope of human activity, for the most part, can be balanced with the natural processes of environmental regeneration. Similarly, there is limited infringement of one family upon the "space" of other families. Thus, the need for shared infrastructure (other than key transportation links) has been limited.

The need for managing development arises now because of the concentration of people in a small urban area. Previous policies supported mitigation of urbanization and encouraging continued settlement in rural communities. However, the reality of population growth and the desire for a higher standard of living and services promote urbanization.

The challenge now is how to channel and transform urbanization into a dynamic for enriched growth, preventing the many ills that often characterize mass movement into cities unprepared to handle this influx.

This entails going from a tacit strategy of plot-by-plot development to a strategy of municipality-wide planning and infrastructure provision. This is one of the mandates of county government, following enactment of the Kenya Constitution of 2010.

3.2. Legal Anchors and Processes - Spatial Planning and Infrastructure Development

Under the new Planning Law of Kenya, County Governments have greater authority and mechanisms to manage urban development.

a. Granting Planning Permission with Conditions (PLUPA c.62(2)(a)

There are often conditions attached to planning permission that need further details to be submitted and approved by the county government at certain stages of the development. There are three main types of condition to enhance the quality of the development based on relevance to both planning and the specific development:

- Pre-commencement conditions: These conditions need to be formally fulfilled prior to construction and or development starting on site;
- Performance conditions: These conditions are normally progressive and largely capital intensive such as infrastructure and building materials and require secondary processes to be discharged; and

- Pre-occupation conditions: These conditions need to be formally discharged prior to the development being occupied or put into use.

b. Infrastructure Development as a Performance Condition

The granting of planning permission with conditions exerts powerful leverage in favour of realistically designated necessary infrastructure. Under the provisions of the local physical and land use plan, an analysis of infrastructural needs should be based on time specifics and local market dynamics.

The availability and adequacy of infrastructure as a prerequisite for the development control process is further outlined in the Third Schedule to the Physical and Land Use Development Act.

Of the eight development control processes and procedures enumerated in this Schedule, the county government will have to pay due attention to the availability and adequacy of the infrastructure, as far as permissions for Change of User, Extension of Users, Extension of Lease, sub-division scheme and amalgamation proposals and building plans are concerned.

With particular regard to sub-division schemes and amalgamation plans, the county government will also have to consider the linkage and indication of classified roads in addition to the availability and adequacy of the infrastructure.

Finally, the adequacy of infrastructure will need to be addressed in every local physical and land use development plan in accordance with Section 5 of the Second Schedule to the Act. In particular, all such plans should include an analysis of, among other factors, Housing and Infrastructure, as well as Transportation and Communication.[1]

Conditions can cover cumulative and multiple matters which require comprehensive guidance for their application. For the purposes of efficiency and effectiveness, a model based on a tiered sieve system that categorizes the magnitude of the proposed development and the levels of assessment during the planning and development permission process is essential.

3.3. Public Engagement as Mandated in the Constitution

One of the critical factors in Managing Urban Development is promoting public understanding of the importance of planning and ensuring adequate infrastructure in urban centres.

- Need to know and understand what the county government provides (e.g. facilities available for SWM, Industrial parks, public spaces, wastewater management facilities, schools, hospitals etc.)
- Involvement of all stakeholders in the planning process.
- Need for the public to understand the planning and infrastructure regulations and their significance.
- Residents to pay for what they know is value for money. Most residents would comply with payment of a development fee if they were getting value for their money.

1. Paragraph (e) Housing and Infrastructure Analysis, and Paragraph (f) Transportation and Communication Analysis under Section 5, Second Schedule.

3.4. Municipal Management

The Constitution of Kenya mandates county governments to undertake municipal management. Except for Nairobi and Mombasa, which are 'city counties', the rest of the county government consists of urban and rural settlements of varied sizes.

A decentralized system is envisioned at the county level, where county governments are supposed to establish decentralized units, among them being administrative structures for urban centres. Part VI of the County Governments Act provides the legal backing for this.

One of the major, still unresolved challenges that face county governments is the generation of revenues needed by municipal boards and town committees. This is both a question of the revenue source and which governing body has the right to tax the residents. It also raises the question of tax duplication. There is a need for:

- A clear framework for the revenue/ money for the county government and municipalities.
- A clear process for transitioning of functions from county government departments to the municipalities.
- Clarification of the towns that are being considered to become municipalities.
- Preparation of spatial plans for urban centres.
- Establishing the municipal boards under the Department of Lands, Housing and Physical planning.

...high agricultural production, however positive, has failed to translate to a reduction in poverty levels in Nyandarua County.

Although the law delineates a number of functions, there is still a great lack of clarity regarding the overlapping, and at times conflicting, functions and authorities, especially regarding provision of sanitation, infrastructure maintenance and development. Furthermore, there is no clarification regarding the division of responsibility and allocation of revenue generation.

4. A County Wholesale Market

Despite the fact that Nyandarua County is a leading producer of potatoes in Kenya with an average production of 556,950 metric tons per year, equivalent to about 29% of the total production in the country, 46.3% of Nyandarua residents live below the poverty line, according to the County fact sheet (2011) published by the Commission for Revenue Allocation. The high agricultural production, however positive, has failed to translate to a reduction in poverty levels in Nyandarua County. This is partially attributed to post harvest losses.

The development of a wholesale Market in Nyandarua County would greatly contribute to the value chain for farmers throughout the county. There are 76 formal markets in the entire county of which 72 are open air markets and only 4 are covered, none of these markets operates fully as a wholesale market.

Therefore, a wholesale market is likely to serve the whole of Nyandarua County and the neighbouring counties of Nakuru and Kiambu. A well developed and organized wholesale market is expected to translate to high revenues from CESS, market stalls, property rentals, licenses and parking among other revenue streams.

Nevertheless, this should be complemented by proper management and enforcement of the wholesale trade from farmer to collection centres/assemblies to a county wholesale market.

The proposed location for a wholesale market is in Magumu. The site adjoins the A104 highway to Nairobi and Nakuru, and the B311 to Mai Mahiu and Narok. The area receives the highest volume of traffic compared to any other region in the county. Transporters and buyers from Nyandarua pass through the site to Nairobi, which is the main market for the agricultural crops produced in Nyandarua. The biggest limitation for the site, is that it is currently insufficiently developed to support wholesale market activity, and it would require a substantial financial investment estimated at Kenya shilling 4 billion.

Mid-term LAR review workshop in Nyandrua County

CHAPTER
01

INTRODUCTION

1.1. Purpose and Objectives of the LAR Report

This component includes a diagnostic assessment of the access to and delivery of public goods and services in the urban areas of the county and the primary municipality. The choice of public services and goods was determined with the counties and validated at the kick-off workshop, with feedback from the IEER and multi-stakeholder consultations.

This diagnostic process provides a situation analysis and mapping of the county's urban growth patterns and challenges. It also provides an analysis of the agricultural economy and the factors influencing the value chain. The LAR has resulted in a clearly documented evidence base.

The LAR maps the infrastructure necessary to support urban growth and to promote equitable access to the county's resources/ public goods.

The analysis examines in depth the geographic access (wards or zones) and conditions of urbanization. This assessment report addresses key issues and new mechanisms that can inform policy formulation.

1.2. Main Findings and Conclusions of IEER

This stage of work and preparation of the LAR are based upon the findings of the IEER. It is important to review the main insights and the decision to focus the JWP on two main issues: Managing Urbanization and Improving the value added of agriculture through a wholesale market.

This report will help to set clear standards for the level of services and functioning of the County Government necessary to manage urban development and strengthen the agricultural economy.

IEER Insights - Nyandarua County

- There is a clear vision of opportunities that the county has formulated especially in its CIDP 2 2018-2025.
- The lessons learned from the first CIDP have fostered a good alignment of the Flagship Projects with the Strategic development goals. The projects were informed by context and public participation which significantly influenced the priorities for action.
- Although revenue sources are still mostly from the National Government, the County is actively working to engage the Private Sector to achieve the goals. This includes establishing the institutional mechanisms for joint development: County PPP legislation, spatial planning, and the County Investment and Development Corporation.
- The potential for property taxes from an urban population of about 100,000 people can be a significant source of income as urbanization continues. The county is also lobbying to have a share of the CESS at the county level, charging tourists and logging.

- Estimated income from development fees – if imposed - is also an opportunity to establish the statutory regulation and mechanism in advance of massive urban growth, to ensure the provision of adequate funding for infrastructure.

- Promoting the agro-processing industry, and building a wholesale market are critical for local economic development.

- Promoting the tourist industry would leverage natural resources – but this is highly dependent upon better transportation – roads, railway, and air transport.

Workshop Highlights - Nyandarua

During the Kick-off, Workshop participants were informed about the Joint Work Programme. Five priority action areas were identified and the participants were asked to assign a value from 1 to 5, for each priority action area. The resultant action areas were scored as follows:

Preliminary priority action areas	Leverage resources	National Priority	Potential funding/ investment	Doable & Timely	Improve equity	Improve OSR	Flagship project	Sustainable
Revenue enhancement and LED	5	Yes	5	5	5	5	No	3
Urban development for 3 towns	5	Yes	5	5	5	1	Yes	3
Promotion of flagship projects	5	Yes	5	5	5	5	No	5
Youth Empowerment	5	Yes	5	5	5	5	Yes	5
Housing and slum upgrading	5	Yes	5	5	5	1	Yes	3
Solid waste management	5	Yes	3	5	?	5	yes	5

Follow up on Workshops

The workshop concluded by outlining the next action steps:

- A visit by a team from UN-Habitat for a scoping mission to collect more data that will serve to guide UN-Habitat cooperation with the county, including the JWP. This will result in the signing of an MOU based upon agreed upon Concept Notes.

- Additional data will be gathered to understand better the challenges and potential related to leveraging agriculture as a key component for economic development and to better understand the process of urban development and the opportunity of planning for the future.

- Based upon this data collection step, UN-Habitat, in consultation with the County Government, will prepare concept notes to guide Project Formulation and the Local Assessment Report.

- The finding of the analysis of the workshop will be presented to the County Government before end of year 2018.

The Joint Work Programme aims at delivering evidence-based analysis and policy review options that can help economic growth trajectories in Nyandarua County towards more inclusive and sustainable patterns.

- All the deliberations will be reviewed and integrated into one catalytic action by UN-Habitat.
- The county will provide all the necessary support to enable implementation of the projects.
- The second workshop will be held in the spring, focusing on the formulation and preliminary assessment - feasibility of the projects in the two priority areas.

Primary Focal points for action in Nyandarua County

In analysing the workshop, groups and other documents in detail, four operational project areas emerged:

1. Agriculture processing to capture the added value from local production;
2. Construction and management of a wholesale market for the region;
3. Revenue enhancement; and
4. Management and integration of the other components related to the emerging urban centres.

Market Leveraging Agriculture

The county government of Nyandarua, through its leadership, has sought UN-Habitat's support in developing the technical and institutional capacities of its different functions. The county government of Nyandarua approached the Urban Economy and Finance Branch (UEFB) of UN-Habitat for advisory and technical support in the implementation of Nyandarua County's Integrated Development Plan 2018-2022 (CIDP2).

Nyandarua County's CIDP2 is geared towards achieving the Socio-Economic transformative agenda to be realised through harnessing locally available resources to increase economic productivity, promote industrialisation, improve livelihoods of residents, and increase the competitiveness of commodities produced in the county in national and international markets.

The economy of Nyandarua County is mainly based on agriculture which has a vast untapped potential. This necessitates interventions that will promote: modernisation to enhance productivity, investment in value addition and agro-industries and strengthening of the distribution system to expand market shares, and improvement of enabling structures and frameworks to ensure equitable and sustainable economic growth.

In response to the request of Nyandarua's County Government for support in the areas mentioned above, UN-Habitat is partnering with Cities Alliance to implement a Joint Work Programme campaign in Nyandarua. The Joint Work Programme aims at delivering evidence-based analysis and policy review options that can help economic growth trajectories in Nyandarua County towards more inclusive and sustainable patterns.

A Joint Work Programme kick-off workshop was held to formulate areas of strategic work for promoting equitable economic growth in the county. From the workshop, a list of priority areas was identified by participants using criteria. Development of a wholesale Market in the Magumu area in South Kinangop emerged in first place among all the priority action areas, considering its ability to impact most livelihoods in the county, influence immediate economic growth in other sectors, enhance county revenues in the short term, and significantly contribute planned urbanization in the county.

Project Objective:

To support the County Government of Nyandarua in preparing a full project proposal including a programmatic plan (layout and functions) and a business development strategy for the Wholesale Market and Logistics Centre in the Magumu area of South Kinangop.

Justification

Based on the county's own reports and national statistics, it is noteworthy that Nyandarua County's highest potential for economic growth is its agriculture. This is because over 95% of the county's residents are farmers, the county has an ideal climate for agriculture, and it is strategically located along major transport arteries connecting the country's largest markets, and all the other sectors are less vibrant.

However, agriculture is practiced on a small scale, products are mainly sold in raw form, and frameworks for regulating and promoting agriculture-related trade are weak. This has led to a situation where a few middlemen have thrived at the expense of vulnerable farmers. Based on this, UN-Habitat intends to support the County Government of Nyandarua to develop sustainable interventions that will promote equitable economic growth for all actors, and ensure that the economic potential in agriculture is leveraged to catalyse integrated multi-sectoral growth.

UN-Habitat intends to support the County Government of Nyandarua to develop sustainable interventions that will promote equitable economic growth for all actors...

The Approach

Based on information obtained about the prevailing condition, UN-Habitat will provide one year of advisory and technical support to the county government, which will permit the development of a strategy and a mechanism for sustainably addressing the challenges. The support will be multi-scaled, i.e. advisory support on the strategy for strengthening the county's strategy on improving agriculture supply chains, and technical support for developing a full proposal for developing Magumu wholesale market and logistic centre infrastructure for immediately transforming business in the county.

Urban Development and Infrastructure Management

Currently, in Nyandarua County, towns are still relatively small. The county headquarters and other secondary towns have a combined population of just over 100,000 people. From a short-term economic perspective, this size makes urban infrastructure projects marginally feasible. However, this is, in fact, a significant advantage. There is only a small "backlog" and infrastructure deficit, which requires a relatively small investment of funds.

Thus, although the scope of urbanisation in Nyandarua County is still relatively small, a comprehensive approach will not only ensure adequate infrastructure for future growth, but can also enable the transformation of solid and liquid wastes into agricultural resources for irrigation and fertilisation.

Integrated Program of Action

In order to meet the development requirements of the growing population and ensure proper standards, County Governments need a clear, integrated, urban development programme of statutory and financial mechanisms for infrastructure development, land use regulations, and sources of revenue generation.

Such a program will include:

- Introducing a "development levy/fee" to be paid to the County Government by developers (commercial or individual) for the construction

of sewage treatment, water purification, drainage, and organic waste treatment. These payments will go towards either expansion or upgrading of central systems (when available within a reasonable cost and time frame) or integrated neighbourhood treatment systems (examples already exist in some form in Kenya).

- Payment of the development fee/ levy will be a precondition for receiving a building permit. This requires a systematic practice and set of procedures for the granting of building permits, anchored in a spatial plan with appropriate statutory regulations, as well as specific county legislation that transforms the county from a weak enforcer of environmental impact to the proactive leader of development regulation and infrastructure development.

- A land tax that accurately reflects the economic value in use of land for residential and commercial use. It would be linked (although indirectly) to an improvement in service delivery. The model of TIF (Tax Increment Financing) would, in many ways be very appropriate to Kenya. A large portion of the New Revenues from property taxes would be directly channelled to the urban areas from which new revenues were generated.

- In parallel, it is necessary to address the issue of governance - the division of responsibilities and revenue generation between county functions and authority and those of the municipal/urban area government.

The cost of providing the basic infrastructure is approximately $6,000 per apartment for a family of five-six people, (this does not include major access road development). Already the current level of expenditure is close to $3,000 for septic tanks, which are not adequate for multi-family dwellings or increased density of even small urban centres. A regulation requiring Bio-Digesters, for example, would not increase the cost, but would both improve liquid waste treatment and also provide water for irrigation and fertiliser. Similarly, a community level, waste treatment facility would significantly improve sanitation without a higher level of cost.

These types of solutions are already in practice based upon individual initiative. The proposed mechanism of management would make this a standardised practice and provide the county with the legal and organisational tools to implement this throughout the county.

IEER Force Field Analysis

In reviewing the institutional and operational strengths and weakness, the following analysis emerged:

Weaknesses and Constraints limiting the ability of the counties generally in Kenya to promote equitable local economic development and access to public goods:

- Limitations on the authority to levy taxes and fees

- Deficit financing requires approval by Parliament

- High dependence on National Government Revenue Transfers

- Population size criteria for city and municipal status

- County Legislation is still anchored in National Laws
- Weak County Enforcement Mechanisms

Strengths and resources for leveraging the ability of counties generally in Kenya to promote equitable local economic development and access to public goods:

- National Policy encouraging increasing Own Revenue Sources
- County Authority to provide a wide range of services
- County Authority to establish subsidiary companies (for development/sanitation/energy)
- County Authority to enter into partnerships with the private sector
- County Legislation can be tailored to the local context
- National Government revenue sharing
- National Government development programmes
- Citizen participation is mandated
- Planning and land use regulation rests with the County (including permits and registration)
- County Authority to require engineering (infrastructure) services fee
- County Owned Land and Public Spaces
- The County is already initiating the creation of the legal, financial, and organization mechanisms for equitable economic development
- High level of professional skills
- Political leadership works in coordination with professional staff
- Strong agricultural economic base

CHAPTER
02

URBANISATION IN KENYA

2.1. Introduction

Kenya's urban population is estimated at 28% (14 million) of the total population and will reach 44 million people by 2050. This will be approximately 46% of the total country population (UN Population Division, 2018[2]).

The Challenges and Opportunities of Urbanisation

Urbanisation means:

- More people in a concentrated space
- More economic activity
- Increased land values
- Reduced carrying capacity of nature to balance human activity
- More need for cooperative mechanisms for sustainable living

Urbanisation requires sophisticated mechanisms for governance:

- Increased planning capacity
- More services and better quality
- Construction and maintenance of infrastructure
- New legal and financial mechanisms
- New management and development platforms
- Computerised data management

Kenya National Bureau of Statistics, 2019, indicates a strong correlation between higher urbanisation levels and a county's contribution to the national Gross Domestic Product (GDP).

Nairobi and Mombasa are city counties, with Nairobi accounting for the greatest share of urban population in the country. The national distribution of urban centres is mainly dominated by secondary cities, medium-sized and small towns. Only a few counties have large urban population centres of more than 200,000 people. Such counties include Kisumu, Uasin Gishu, Kiambu and Nakuru. Nyandarua County is in the early stages of urbanisation that enables mechanisms for managing development to be established in a systematic manner.

2.2. Distribution of Urban Centres in Kenya

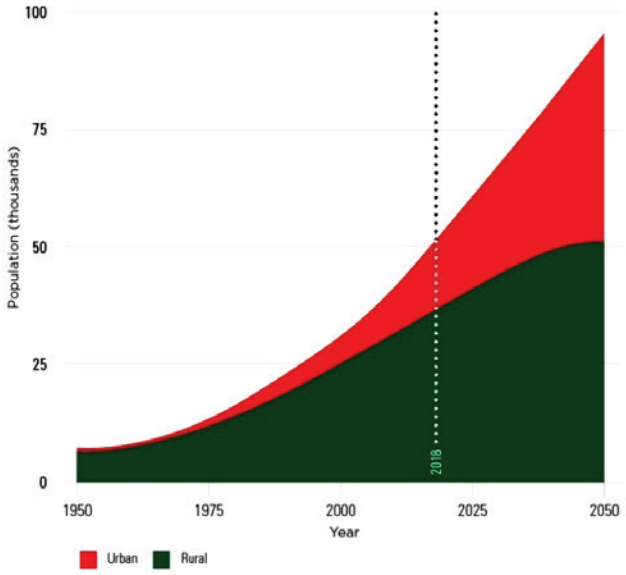
Kenya's urbanisation presents opportunities and challenges in equal measure. Urban centres have contributed to the country's socio-economic development, but not on the required scale. Interpretation of government statistics (Kenya National Bureau of Statistics, 2019)[3], indicates a strong correlation between higher urbanisation levels and a county's contribution to the national Gross Domestic Product (GDP). Nairobi leads with a contribution of 21.7%, followed by Nakuru (6.1%), Kiambu (5.5%), Mombasa (4.7%) and Machakos (3.2%). Kajiado and Nyandarua counties contribute 1.5% and 2.6 %, respectively, to the national GDP. In terms of sectors, Agriculture, in a mainly rural-based economy, is the leading contributor to the national GDP and in most of the counties.

"Counties with huge agricultural potential include Nakuru, Nyandarua, Kiambu, Elgeyo Marakwet, Meru, Narok, and Bomet. However, agriculture activity is low in Kajiado, Isiolo,

2 UN Population Division (2018).

3 Kenya National Bureau of Statistics (2019). Gross County Product 2019.

Kenya Urbanisation Projections



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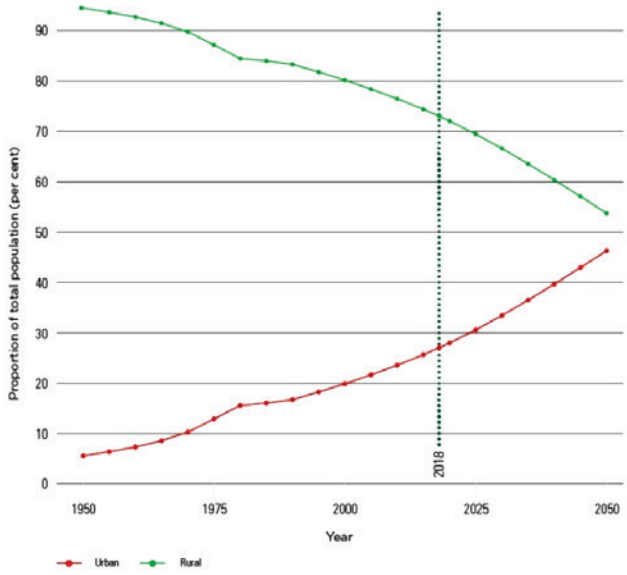

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Machakos, and Kisumu. Industrial activities (manufacturing activities in particular) are mainly concentrated in urban counties, namely: Nairobi, Kiambu, Mombasa, Machakos, Kisumu, Nakuru, and Kajiado." KNBS (2019:9)

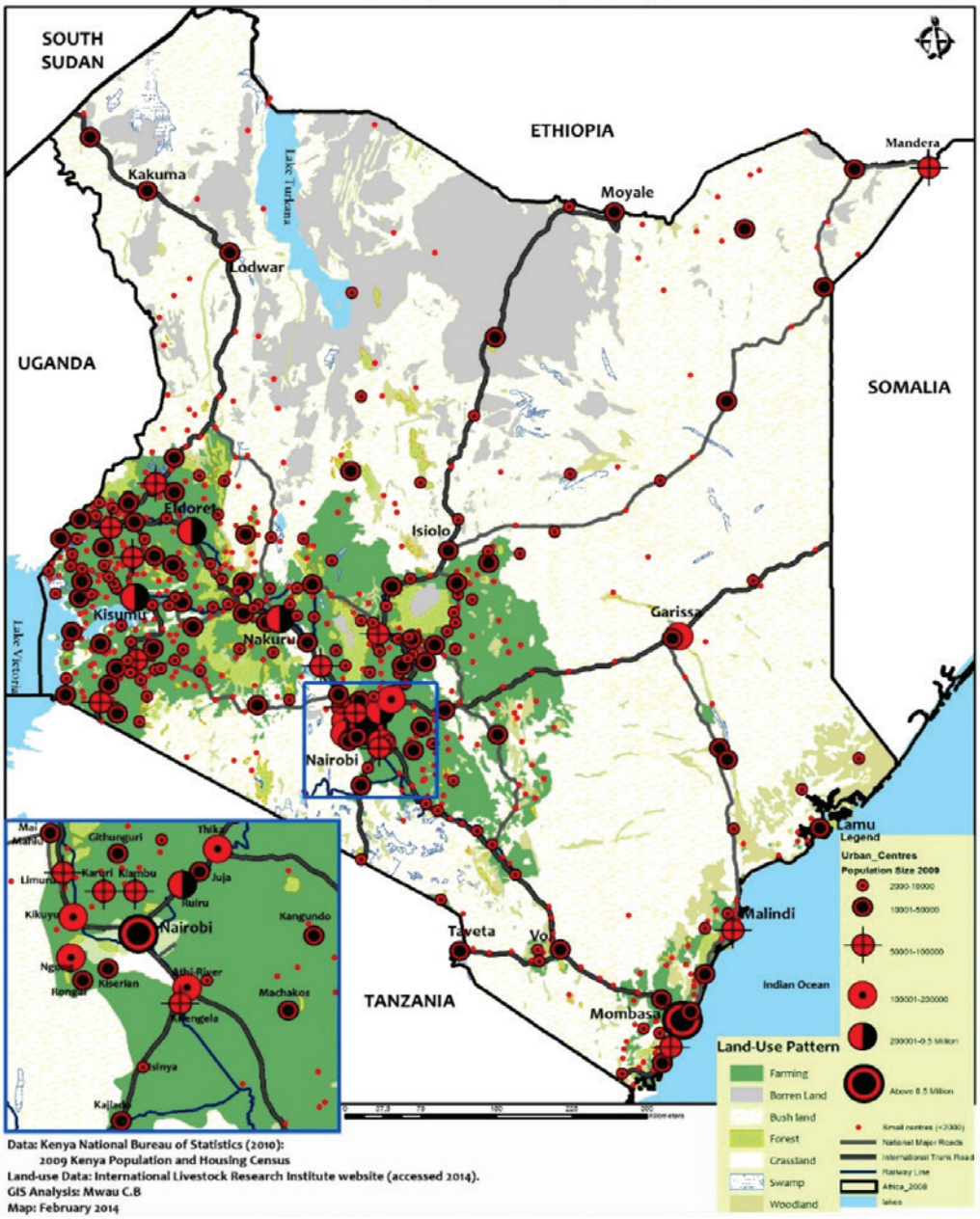
However, cities and towns cannot effectively plan and manage the needs of their increasing populations, such as provision of adequate infrastructure and services, affordable housing and sustainable livelihood opportunities. Indeed, the socio-economic benefits are unevenly distributed, creating high urban inequalities, marginalisation and social polarisation.

In the midst of the transition to devolution, Kenya is undergoing rapid urbanisation that is characterised by spontaneous growth of towns and haphazard development. Structures are being erected on land without infrastructure and are highly unlikely to be connected to sewage, water supply, local road networks and drainage; a trend that is almost accepted as the rule rather than the exception.

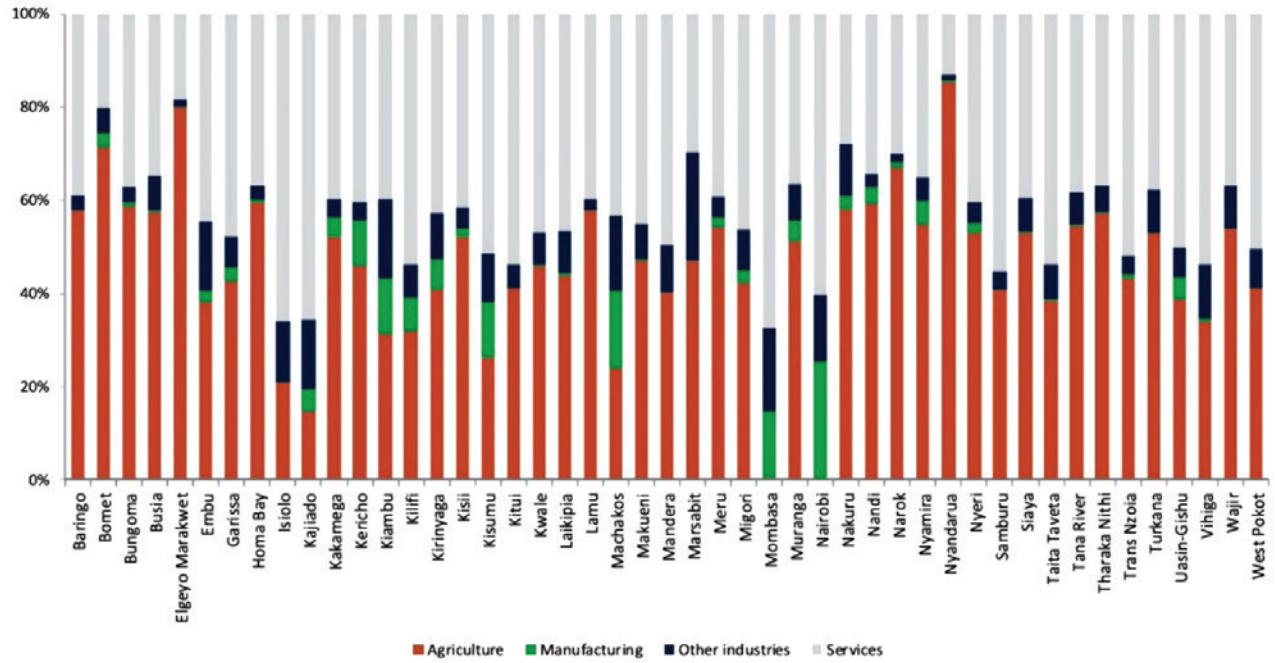
This proliferation of informal activities, environmental pollution and the huge infrastructure deficit and substandard housing is a norm across the Kenyan cities and towns. The Kenyan urban fabric is replete with:

- Un-serviced land and inappropriate or poorly located development;
- Structures/buildings that do not have the necessary facilities (car parking, sewage treatment plant) or infrastructure (access roads, drainage, water supply) to support them;
- Structures/buildings that are structurally weak and are easily damaged during construction, upon the occurrence of tremors, loading, earthquakes or other disasters; and
- Development projects which have serious negative impacts on the country's sensitive environment;

Distribution of Urban Centres in Kenya



Proportion of Economic Activities by Broad Sectors



Source: KNBS (2019)

The scale and speed of these distinctive features of urban life need urgent attention. Land use planning plays the determinant role in shaping urban growth. In the wake of good planning, enforcement of development controls wards off the risks and taps the benefits through institutional and legal interventions that transform exclusion into inclusion.

2.3. Key Urban Development Issues in Kenya

In summary the following are key urbanisation issues that need to be addressed, both at national and county levels:

- Huge infrastructure and service backlogs
- Huge backlog of affordable housing
- Informal settlements and unplanned developments
- Underemployment, low incomes and socio-economic inequalities
- Informal Economy
- Ineffective or lack of urban planning
- Land governance challenges
- Environmental degradation
- Rural-urban migrations
- Food Security and Food Safety
- Municipal financing
- Municipal management – the challenges in establishing municipal structures in post-2010 (promulgation of the current constitution of Kenya)

CHAPTER
03

URBANISATION IN NYANDARUA COUNTY

Urbanisation and Development

Development in the context of urbanisation occurs in several dimensions – local and global – that define dynamics of planning, governance and urban management; all the dimensions can be related to demographic dynamics and the quality of life of urban dwellers.

The first and most obvious dimension is capacity of urban services (physical and social infrastructure); diversity in terms of inequality, fragmentation and deprivation leading to social unrest and poverty; security as an inevitable variable in the absence of regulated social order; authority in terms of political participation and distribution of power for collective decision making; and most critical, financial resources in the form of revenues for infrastructure development and to sustain governance systems. Because land use is so closely bound up with urban change, this translates into abstract principles of sustainability and into operational policies; it is this creative exercise of balancing all the different elements that contributes to quality of life that results in the two interdependent twin functions of Plan Making and Development Control.

The achievement of the objectives of these functions requires the resilience and vitality of financing mechanisms both in the public and private sectors. Figure 1 illustrates the pathway of transformation in the delivery of urban services; each stage is required to address these crosscutting issues and funding options to create affirmative change.

Urban Services	**Planning Intervention**		**Development Control**		**Financing Mechanisms**	
	Land Use	Physical	Development Permits	Physical Implementation	Public	Private
• Roads & Transport Services • Water Supply • Sewerage Reticulation • Storm Water Drainage • Solid Waste Management	• Residential • Commerce & Trade • Social Amenities • Open Spaces & Recreation	• Bulk (Public) Engineering Services • Internal (Private) Engineering Services • Affordable Housing • Social Housing • Private Housing • Public Social Amenities	• Planning Application • Compliance with Development Plans & Policy • Compliance with Environmental Considerations	• Detailed designs • Budgeting/ Costing • Work Plans • Contracting • Quality Assurance • Delivery/ Commissioning	• National Treasury (Horizontal & Vertical Share) • Fuel Levy • Multi- & Bi-Lateral Partners • Annuity Programs • Concessions	• Development Fees (administered through Revolving Fund) • Private Sector Debt (Capital Markets, Bonds, Syndicated and Term Loans), • Private Sector Equity (PPP, Joint Ventures, Leasing, concessions) • Planning Gain

Figure 1: Logical Operational Linkages for Urban Services Delivery

The county governments apply these instruments using logical operational linkages to match the spatial, technical, financial and institutional aspects of urban infrastructure investment.

3.1. Introduction

Nyandarua County is in the final stages of preparing its county spatial plan. Much of the information in this section is based upon the materials prepared by the consultants formulating the plan. In addition, the CIDP2 (County Integrated Development Plan 2018-22) contains considerable data that has greatly contributed to this section of the LAR.

Urban Areas and Cities Act, 2011 (Revised 2015)

The Urban Areas and Cities Act provides for the classification of urban areas and cities (Part II, Section 4), the criteria of establishing urban areas, as well as the principle of governance and management (Part III, Section 11). Additionally, the Act states that every city and municipality established under this Act shall operate within the framework of integrated development planning (Part V).

This section outlines the policies that determine the confines under which the Nyandarua County Spatial Plan is prepared.

Kenya Vision 2030

Vision 2030 aims to transform Kenya into a newly industrializing, middle-income country providing a high-quality of life to its citizens by the year 2030. It is founded on three pillars, namely economic, social and political. The Economic pillar aims to increase annual GDP through six key growth drivers; tourism, increasing value addition in agriculture; improving the industrial production and service sector, inclusive wholesale and retail trade sector, manufacturing for the regional market, financial services, and Business Process Offshoring. The Social pillar seeks to build a just and cohesive society with social equity. It also promotes a clean and secure environment and facilitates the provision of social infrastructure including schools, health facilities, water as well as sanitation. The Political pillar aims to achieve a democratic political system founded on issue-based politics that respects the rule of law and transparency.

The county spatial plan will outline how the objectives of the Vision can be achieved through development strategies within the county of Nyandarua.

It is envisaged that the Urban Areas and Cities Act, 2011 (revised in 2015) and National Urban Development Policy, 2016 will provide a framework for the counties to establish their own systems of urban management. This will help the urban centres in Nyandarua to achieve sustainable urban development as articulated in the New Urban Agenda, Sustainable Development Goal 11, among other international and national agreements.

3.2. Population

County Population Size

According to the 2009 Kenya National Population and Housing Census (KNPHC), Nyandarua County has 596,268 inhabitants. It is ranked 31st nationally in county population size. The population is 49% male and 51% female. The county had a total of 143,879 households in 2009.

Population Structure

The population structure of Nyandarua is very similar to the national population structure. Over half of the Nyandarua population is between the ages of 0 and 35, and the elderly 65+ are 4.5%. The labour force in Nyandarua, i.e. those between the ages of 15 and 64, accounts for 52.5% of the total population. 93% of the household heads are between 15 and 74.

Population and Household Projections

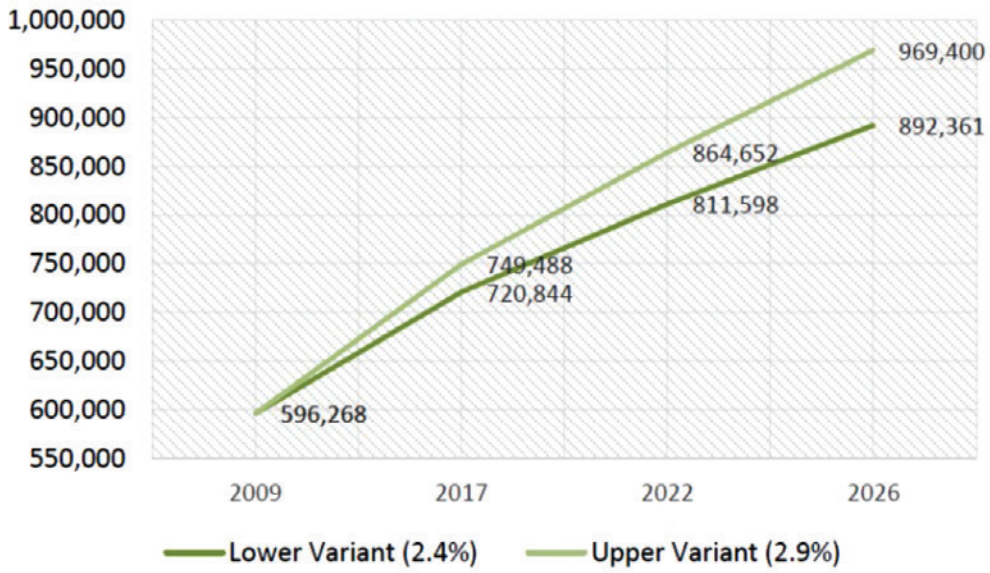
Population projections for Nyandarua County have been estimated using the county population annual growth rate of 2.4%. The population of Nyandarua, if it grows at a rate of 2.4% per year, is projected to be 892,361 by 2026 and 969,400 if it grows at the country growth rate of 2.9% per year.

The labour force in Nyandarua, i.e. those between the ages of 15 and 64, accounts for 52.5% of the total population.

The table below shows the population and number of households in Nyandarua per Sub County in 2009.

Table 0-1: Population and Household Size per Sub County Sub-county	Total Population Size (2009)	No. of Households
Kinangop	192,379	45,141
Kipipiri	95,338	22,141
Ol'kalou	130,100	30,909
Oljoro-Orok	85,825	22,071
Ndaragwa	92,626	23,617
Total	**596,268**	**143,879**

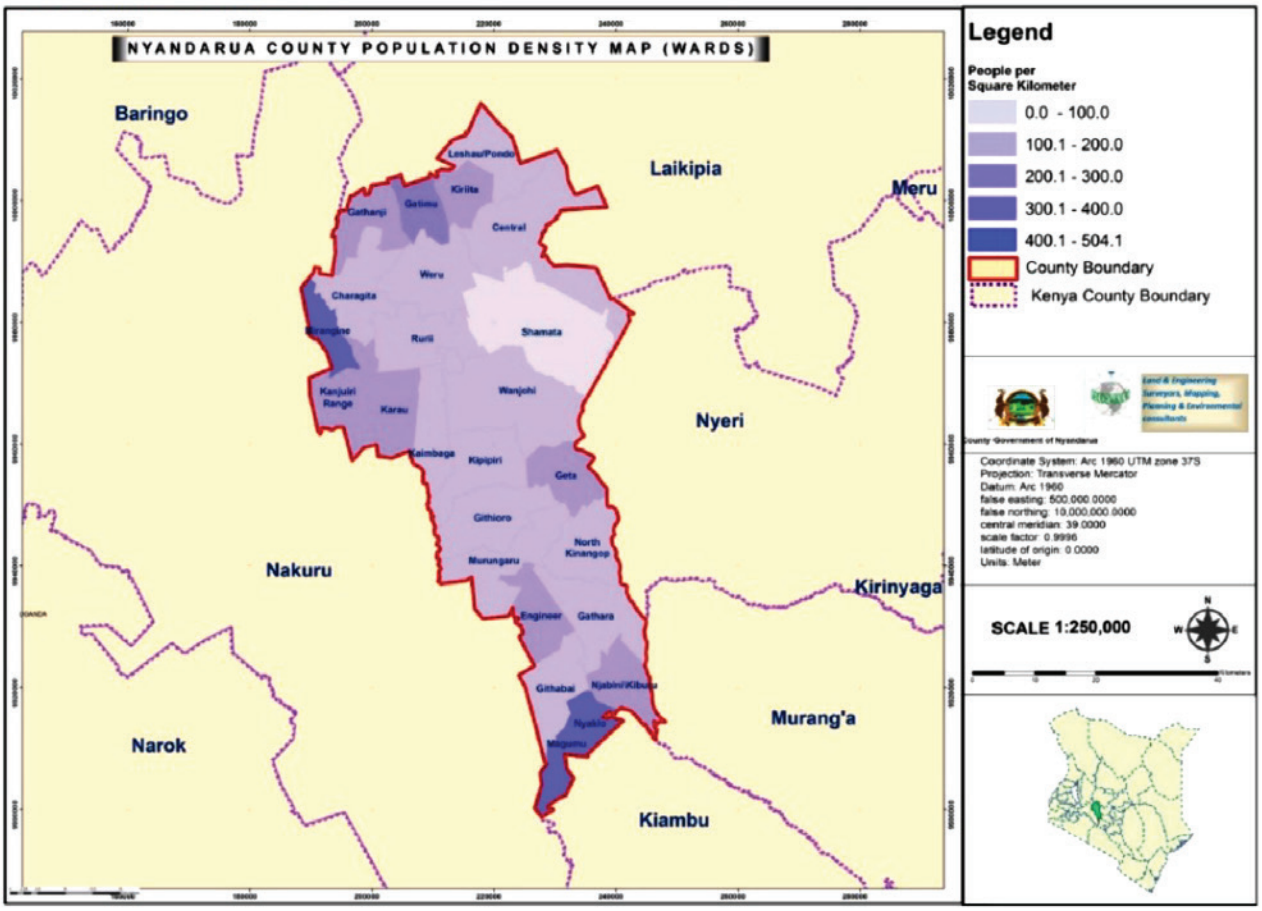
Source: KNPHC, 2009



Source: KNPHC, 2009, Consultatnts Calculations

This is a 50% growth in 15 years, which is an increase of about 100,000 people or 25,000 households every 5 years.

Population Density per Ward



Source: Nyandarua Spatial Plan

Dependency Ratio

The dependency ratio in Nyandarua is 91 dependents for every 100 of the working population. This is quite close to the national dependency ratio of 92:100. This implies an imminent need to provide more employment opportunities.

Labour Force

Nyandarua County's labour force is expected to grow to about 450,000 by the year 2026. This is an increase of about 150,000 or 50% over a period of 15 years. In Nyandarua, the current unemployment rate is 3.5%, compared to the national figure of 7.7% (Exploring Kenya's Inequality; Nyandarua County, 2013). Absorbing this increase in job seekers during this time frame requires significant and rapid economic development.

Employment was the main reason for outward migration accounting for 51.1% followed by marriage with 18.4%. Close to 14.9% cited business or school as the reason they moved out of the county while about 0.6% cited other reasons.

3.3. Urban Centres

Urbanisation is a population shift from rural to urban areas, and the gradual increase in the proportion of people living in urban areas. It is the process by which towns and cities are becoming larger as more people begin living and working in central areas.

Urbanisation brings with it a combination of possibilities and problems. The concentration of people in close proximity affords them greater opportunities to share resources, thus increasing economic growth, greater scope and quality of basic services, and diverse social and cultural interactions.

Densification, however, also carries with it the risks of more slum dwellers, unemployment, environmental degradation, inadequate basic services, overburdening of existing infrastructure and lack of necessary funds for development.

According to the population census 2009, urbanisation in Nyandarua (18.5%) was generally low compared to Kenya (32.3%). In respect to central Kenya, Nyandurua ranked third after Kiambu and Nyeri which stand at 60.8% and 24.5% respectively.

According to the World Bank, there will be an increase of approximately 50,000 people over the next 10 years in the major urban centres in Nyandarua. This is based upon an urbanisation rate of 4.31%.

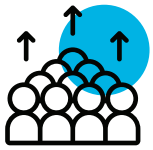
Current and Projected Population in Major Centres Major Town/Centre	Population (2009 Census)	Projected Population (2026)	Envisaged Status
Olkalou	7,025 (Core Urban)	14,394	Municipality
Olkalou Total	66,015	114,256	
Njabini	6,042	12,380	Town
Engineer	2,033	4,166	Town
Mairo-Inya	9,858	20,199	Town

The major urban centres in the county are Olkalou, Mairo-Inya, Njabini and Engineer. Olkalou is the largest urban centre. Because it serves as the county headquarters, and according to the Urban Areas and Cities Act, 2011 (Revised 2015), Olkalou Town has qualified as a special municipality.

If the current rate of growth and urban/rural ratio remains constant, there will be about 1,000 new urban homes per year.

In 2009, Nyandarua County had 143,879 households with rural households accounting for 79.5% and the remaining 20.5% being urban households. The number of households is projected to be 217,649 by 2026, assuming that the current household size of 4.1 remains constant. With this expected increase in the number of households, there is a need to provide sufficient, affordable and decent housing units for the rising population, especially in the urban areas. This will require a change in the infrastructure facilities, especially water, sewage, and solid waste management.

Population increase means that private land is now subdivided into indivisible uneconomic parcels; population density outstrips the ability of land to meet people needs. This pressure on land, in Nyandarua County where agriculture is the main source of livelihood, may contribute to food insecurity, if agricultural productivity does not keep up with the rate of population growth.



According to the World Bank, there will be an increase of approximately 50,000 people over the next 10 years in the major urban centres in Nyandarua. This is based upon an urbanisation rate of 4.31%.

The growth rate of Nyandarua's urban centres is a function of a natural increase in population and migration. This second factor is influenced by disparity in rural and urban income levels, as well as availability or scarcity of agricultural land in rural areas.

An increase in urban population also increases the demand for urban services and additional housing. Although population size is usually an important yardstick to determine the qualifiers for growth centre status, the rapid change in their population size makes it difficult to determine a static population size for qualifying centres.

This is important because regions differ in the levels of development, population characteristics, resource endowments, economic activities, political representation and proximity to hubs of power.

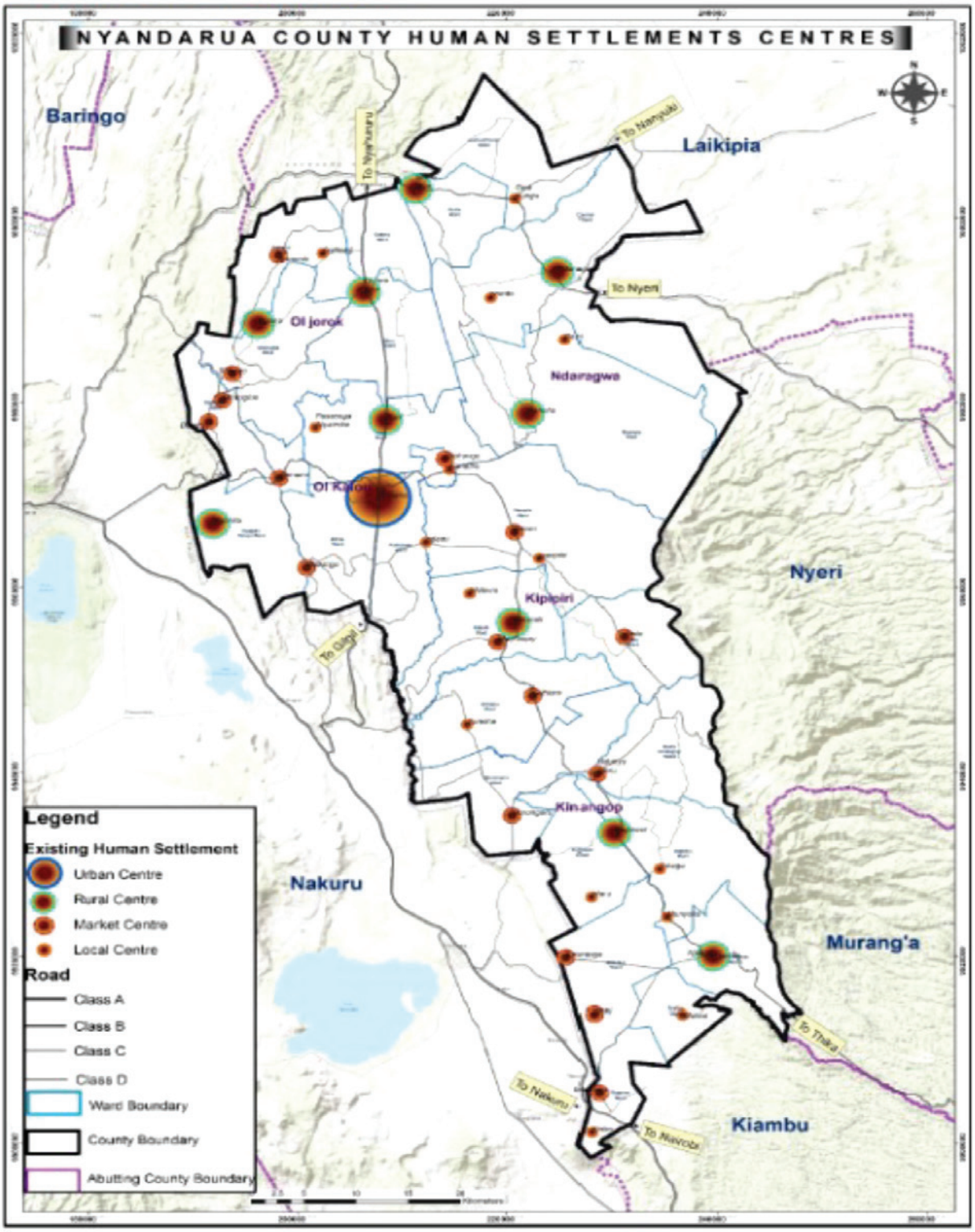
It is imperative to note that this outward migration from rural areas to urban areas frees agricultural land (depopulating rural areas). Although rural agricultural land may be freed, there will be a lack of able-bodied people to tend it.

As mentioned above under the Urban Areas and Cities Act, the county headquarters is designated as a municipality. Given its role as an administrative and commercial centre, Olkalou has become a significant urban town. Being designated as towns, involves parallel implications for all the sub county headquarters.

These centres are expected to undergo an increase in real estate developments, community and educational services, along with increased business activity. As people search for employment and other economic opportunities, these centres are likely to experience an even higher influx of people.

The Map below from the spatial plan is the suggested location of urban areas in the county. It reflects the de facto functioning and geography as well as anticipated growth. This also presents a hierarchy of status: urban centre, rural centre, market centre, and local centre.

Current Hierarchy of Service Centres



Source: Nyandarua Spatial Plan

3.4. Land use

Land use refers to the different functions that Land serves: residential, commercial, industrial, public institutions and utilities, tourism, open spaces and transportation.

Densities of development depend on the population size and availability of land.

The table below shows the actual current land uses in Nyandarua and the area they cover.

Table 4-1; Land Uses and Area Covered Land Use	Area	%
Farmland	2,147.0	65.7
Built up Areas	38.2	1.2
Water Bodies	23.2	0.7
Wetland	28.1	0.9
Protected & Hilly Areas	1,033.6	31.6
Total	**3,270.12**	**100.0**

3.5. Infrastructure Overview

Water

Wells and rivers are the leading sources of water in rural areas, demonstrated by the fact that approximately 26.3 and 23.8 % of households rely on them, respectively. Statistics indicate that only about 20.8% of Nyandarua residents have access to piped water. Unreliable water supply is the biggest challenge facing residents across the five Sub Counties. This includes lack of water treatment facilities, old and decaying infrastructure, and poor dam maintenance.

Sewage

Most of the households in Nyandarua use pit latrines for sewage disposal. They account for about 92.8% of county households. Only a small proportion of these use ventilation improved pit latrines. Close to 75% of households, pour wastewater within their compounds.

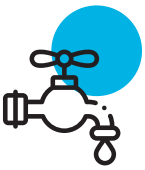
Solid Waste

Solid waste generated on a daily basis in Nyandarua is estimated to be 427 tons. Of this, 75% (320 tons) is handled in rural households, 15% (65 tons) in urban areas, while the remaining 10% is left unattended. Notably, urban areas generate close to 65 tons of waste per day, 14 of which are collected, leaving the remaining 51 uncollected. Urban areas are a major source of uncollected solid waste, which will increase as the urban population grows.

Power and Communication

A total of 65,399 households are connected, accounting for approximately 40% of the total households. The majority of the urban centre residents are within the gridline and have been connected, with the greater percentage of unconnected households being within the rural areas.

ICT infrastructure in the county remains weak. This is demonstrated by a weak Global Satellite Mobile (GSM) signal in certain areas, and lack of a 4G network. The County



About 20.8% of Nyandarua residents have access to piped water.

Government relies on the (Integrated Financial Management Information System) IFMIS for transaction management. Currently, 80% of revenue collections are automated.

Mobility and Transportation

Transportation and mobility is a major issue facing the county. Although the road connection from Nyandarua to Nairobi is relatively good (although mostly two-lane roadways). The majority of roads within the county are made of earth. This makes access to service centres and markets very difficult (especially for farmers), in general, and almost impossible for certain areas when it rains.

There is potential for rail and air transport, which are still undeveloped. The recent initiatives of extending the SGR to pass through the County, the involvement of the national Government in upgrading and revitalising the current airstrip to an international airport and the possibility of developing a regional economic bloc offer great opportunity for exploiting the trade potential of the County.

Road Type	Length (Km)	% of Total Length
Bitumen	224	7
Gravel	525	15
Earth	2,651	78
Total Length	**3400**	**100**

Educational Facilities

The county has 507 primary schools, of which 349 are public while 158 are private. The total enrolment is 151,165. There are 128,298 students in public primary schools and 22,427 in private schools. The enrolment is 92% of the county population aged 6-13. According to the spatial planning consultants, this indicates a surplus of 85 schools. In 2026, the primary school going age population is projected to be 208,270. Considering the above assumptions, 325 public schools will be required, and this indicates that the county has sufficient public schools.

The County has four technical training institutes and an Animal Health Industry Training Institute. This limited scope of higher learning resources needs to be addressed. They can be an important factor in the future development of urban centres and the County in general.

Housing

In Nyandarua County, 29% of residents have homes with cement floors, while 68% have earth floors. Less than 1% of homes have tiled floors and 2% have wooden floors.

In Nyandarua County, less than 1% of residents have homes with concrete roofs, while 95% have corrugated iron sheet roofs. Grass and makuti roofs account for 1% of homes.

In Nyandarua County, 16% of homes have either brick or stone walls. 36% of homes have mud/wood or mud/cement walls. A further 43% have wooden walls, while 3% have corrugated iron sheet walls and 2% have tin or other walls.

CHAPTER
04

CASE STUDIES

In order to understand more clearly the process of urbanisation in Nyandarua County, the professional team undertook detailed field studies in two urban areas, Ol Kalou Town, the county administrative headquarters, and Engineer Town, the second largest commercial centre. In each town, different zones were identified and analysed. Presented below are excerpts from the field studies, a residential zone in Ol Kalou town and the CBD in Engineer Town.

These case studies provide an in-depth description of the character of the town/zone, the infrastructure, housing, land use, and demography.

METHODOLOGY

The methodology used for field data generation can be categorised into 2 phases:

1. **Preparatory Phase**
2. **Investigative/data generation phase**

PHASE 1: Preparatory Phase:

The preparatory phase involved:

- Preparation of a preliminary base map which entailed using satellite images and demarcation of clusters mainly guided by structuring elements within the town.
- Data needs assessment to identify the correct information that would be required and develop a data acquisition, storage and analysis strategy.
- Identification of Key informants.
- Development of cluster profiling form and Key informant guides.
- Obtaining research consent, research permits and conducting courtesy call visits to planning and administrative authorities within the area.

PHASE 2: Investigative/Data generation Phase:

A. Cluster profiling:

Open source software/tools were used to gather/collect qualitative, quantitative spatial data and information for cluster/zone profiling. Tools and strategies used during data collection include:

Tool/Application	Description
Microsoft Excel for Android	Using a pre-loaded Excel data collection profile form, the strategy used entailed random interviews with residents within the zone, observation and real-time completion of the excel profile form using a phone/tablet.
Dropbox Application	This application was installed for real-time data back-up. Once an Excel form was filled, it was captioned using the zone name and local area sampled and stored in the Dropbox application. Mobile data was used to synchronize the file so that it could be accessed later using a PC or other device.
MAPinr Application	The primary importance of this application during this phase was to help in geo-tagging and captioning photos in every cluster.
Google Earth for Android	Pre-installed Google Earth for Android application was used to load KML/KMZ layers of the demarcated zones so as to help the data collection team in geo-positioning and avoid field overlaps and duplication of information.

B. Key informant interviews:

Interviews were conducted orally using developed interview guides. Information was recorded using voice recorders and/or provided notebooks.

C. Data cleaning and organization:

After a day's field data gathering, collected data was cleaned and photos captioned before grouping them into folders for sharing with the rest of the team.

Ol Kalao Town

Ol Kalou town is a small town in the heart of Nyandarua County. It is located west of the Aberdare range and approximately 40 kilometres east of Nakuru, 32 Km from Nyahururu and 30 km from Gilgil town.

The town, which is the headquarters of Nyandarua County, sits in an elevated position nestled between two main rivers – to the North is the Kirundu River and to the South is the Mukuyu River. Regionally, the town is located approximately 160 km from the Capital City (Nairobi), and geographically it is within the Great Rift Valley.

Ol Kalou is characterized by a dense CBD/ urban core, immediate Sub-urban zone with both planned and ad-hoc sprawling development, as well as an immediate rural hinterland where most of the agricultural and quarrying activities are carried out. Basically, that is what forms the development character of Ol Kalou Town.

Although the proposed municipality boundary extends to over 300Km2, only about 10km2 of Olkalou town is urbanized, while a large percentage of the area remains under agricultural use. Ol Kalou town development owes its structure to the two main tarmacked spines, the railway line, rivers and the surrounding hilly terrain - these are the main structuring elements for the town. The main land uses include commercial, residential, agricultural and mining. The administrative function of Ol Kalou is still vibrant. However, the town's lifeline is still dependent on the agricultural function of the hinterland as most of the farm produce sold in the market is sourced from there.

Within the urban growth limit of Ol Kalou, governments (both County and National) are big stakeholders of land – private freehold land ownership is also common, and the planning implication of both types cannot be ignored.

RESIDENTIAL ZONE 2

LOCAL AREAS SAMPLED: Kiajei, Bankers, Mackenzie, Kimali, Githaiga estate.

GENERAL OVERVIEW/CHARACTER:

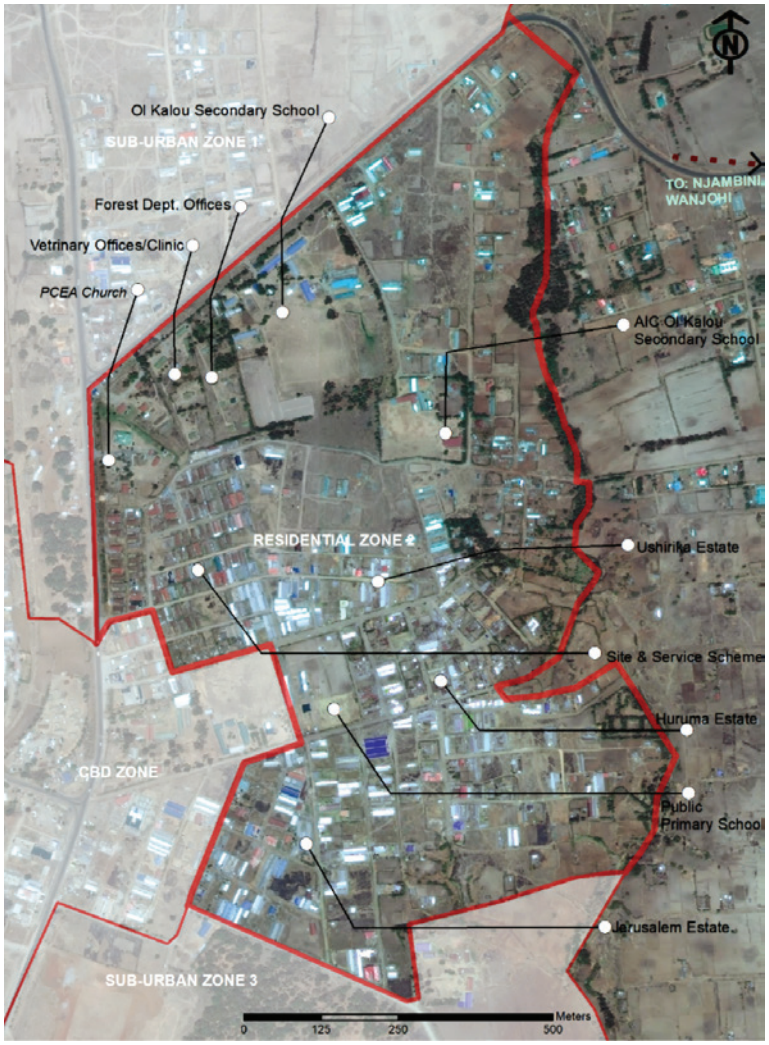
STUDY INDICATORS

- Planning attempts
- Type of settlement
- Legal status of the area
- Description of area topography
- Infrastructure

FIELD FINDINGS

This zone is predominantly residential with several estates, such as Jerusalem, Huruma, Makenzie, Kimali, Gathaiga Ushirika, and; site & service settlement scheme. The zone also hosts a sizable sample of public land and public purpose institutions such as schools (primary and secondary), religious institutions, forest department offices and veterinary office/clinic.

Residential Zone Ol Kalou town



General observation of the zone gives an impression of a well-planned area with access roads measuring between 9-12 metres. Although the access roads are not paved, they are layered with an all-weather murram surface.

The extreme East side of the zone bordering the river valley is, however, growing organically and has been mentioned (through several local interviews) as a swampy and flooding zone. Most of the housing in this zone is terraced housing where residents rent rooms they are living in.

Bankers and Kiajei locally sampled areas present a well-planned zone with a distinction between the residential area and a commercial area and a forest area in the southern region. Streets are well laid out and measure about 9-12 metres. In the extreme eastern end of the settlement most of the houses are shacks.

The area is characterized by mixed dwellings with both low-rise bungalows, terraced houses and maisonettes. There are 1 and 2 bedroom terraced houses with both single-family dwellings and multi family dwelling units all in the terraced houses.

Kiajei local area is located on the East side of the Ol Kalau CBD area. This zone is relatively on the flat, lower side of the town. In addition, the settlement is swampy and forms part of the water catchment area for the stream on the Eastern side of the settlement. However, residents here have lease certificates, since the land belongs to the county government.

The land was subdivided and issued to the current owners by the defunct county council. Although there are 9-12 metre road reserves, all the access roads and the back-street roads are impassable, since the entire zone to the East is swampy. Most of the roads in the residential area are maintained by the residents.

Furthermore, there are neither streetlights nor sewer lines in the area. The main streets are, however, undergoing graveling, but the roads lack storm drainage. The property owners in this zone have title deeds.

Bankers estate, as it is known here, occupies a 7 ha area at the highest point of the town, 1 km to the North of the CBD. The settlement scenically slopes on all sides of the crest of the hilly town, with most of its sewers draining into the river on the Western side of the settlement. The soil here is pure Marrum and the skyline is characterized by only one building which is visible from afar.

Housing in site & service scheme

Angular aerial view of settlements in residential zone 2

On the Eastern side, the settlement is flanked by the Olkalau- Nyahururu highway. There are now streetlights in the streets and the roads are gravel levelled. Although they are 9-12 metres wide, there is only one open storm drain constructed on one side of the road.

From observation, Mckenzie, Kimali and the Githaiga estates are well planned with a well-defined street network, building lines and almost uniform building heights. The land initially belonged to two individuals after whom the settlements are named. Mckenzie settlement which extends in a reverse unicorn shape, with i the CBD old railway station at the apex. The land near the CBD has not been subdivided and still remains under the families' ownership. The land is undeveloped. On the northern end Mckenzie estate borders Kimali Estate, initially owned by a private investor of the same name. Unlike the Mckenzie estate, which is partly subdivided, Kimali and Githaiga Estates have since been subdivided and sold to individual developers.

Dumping of soil excavated from a construction site on a riparian reserve

The whole of the Mckenzie, Kimali and Githaiga estates slopes from the hilly end of Olkalau in the south, to the north. The occupied part of these settlements is relatively flat, with red loam soil which is ideal for farming. The land was initially farmland but has since been engulfed by the rapidly urbanizing Olkalau town.

DEMOGRAPHY:

STUDY INDICATORS

- Multiple vs single family housing typologies
- Demographic trends and development in the area
- Main factors having an impact upon demographic changes

FIELD FINDINGS

Within the Bankers local area, over 90 % of the residents live in multifamily, terraced houses, with one percent in low rise bungalows. According to a resident who has lived here for the last 4 years, the area houses most of the middle-class residents living in the area. The terraced houses here house both the property owners and residents.

The population is growing, with most of the residents who have come to work with the county government living here. Most of these residents are migrants, with 1% of them from rural areas. Residents are attracted by the tarmacked highway which passes through the residential area. In addition, proximity to the CBD makes it convenient for most of the residents who work there.

Kiajei Area: Over 90% of the residents here live in multifamily terraced houses. However, in these terraced houses most of the owners live together with the tenants.

The terraced houses are mostly single rooms. 10% of the residents here live in single-family low-rise houses, such as mansions. However, these low-rise maisonettes are at the South end of the settlement. There are, however, 2-3 flats in the area.

According to a resident who has lived in the area since 2013, the population has been growing rapidly, with 70% being women and young people. In addition, there are more people moving from rural areas in search of jobs in the town and the county government.

Most of the residents in the shacks in this settlement work in the quarry on the West side of the town. The youths here have to commute for 3 km to the other side of the town where the quarry is located. The residents here have been attracted to the settlement by the availability of affordable houses.

Most of the residents do not pay for basic facilities such as water and solid waste management. Foodstuffs are quite affordable as the area is supplied by farmers in the nearby farms.

According to a member of the Nyumba Kumi initiative area, who has lived here since 1992 (long-term resident), the population has grown tremendously. Most of the people who have moved here are middle class residents from the rural areas

LAND AND LAND USE

STUDY INDICATORS

- Main type of land ownership
- Main land use
- Average land sizes
- Prospective land prices

FIELD FINDINGS

Property owners in the area bordering the river valley in the Far East, have title deeds with most of the plots measuring 50 by 100 metres. The area is entirely residential. Plots measuring 50x100 ft2 range between ksh 800,000 and 1.5 Million. The riparian land here has been used to dump solid waste and black cotton soil excavated from construction sites of both the roads and private properties. Shack owners are now building houses on the waste land created. The average plot size is 50x100 ft^2

The land of the residential sections with distinct estates and public facilities, belongs to the government. All the property owners here work with lease certificates. However, the shack owners in the Eastern part towards the river do not have any particular documents, since most of the shacks are constructed on riparian land.

ROADS

STUDY INDICATORS

- Condition description: (type, condition, storm drains available and their condition)
- Range of road reserve widths

FIELD FINDINGS

Large portions of this well planned zone have a road network with a grid pattern. There are notable unnecessary dead-ends that need to be opened up to enhance circulation.

The road forming the North border that connects Ol Kalou to Najmbini/Wanjohi is the only tarmacked road in this area and is about 30 metres wide (both carriage way and reserve). Most of the access roads in this area either radiate from the aforementioned road or Gilgil-Nyahururu road. In-roads/access roads measuring 9-12 metres within this area have been well gravelled by the residents' association.

There are also a few irregular width earth access roads within this zone. The county government has however, assisted the construction of concrete open drains along some roads to aid in management of storm and wastewater. Nonetheless, property owners have used the drains to discharge grey water which collects, redirecting it to a drain downstream.

Sample of a 9m access road within residential zone 2

Sample of an irregular earth access road within residential zone 2

HOUSING

STUDY INDICATORS

- Main type of housing
- Housing situation (of most residents)
- Primary housing characteristics
- Main housing materials used

FIELD FINDINGS

Approximately 80% of the houses are single room terraced houses which house both the property owner and the tenants on the other side. However, on the Eastern side of the settlement there are mud and wood shacks, while 10% are low-rise rural houses. Most residents are tenants, while only a few (no more than 5%) are rural homeowners, who have been engulfed by the sprawling informal residential structures on the Eastern side of the settlement, facing the river. Within the site & service scheme, almost all houses here are low rise terraced houses with 1 to 2 bedrooms and low-rise bungalows and maisonettes.

The houses are permanent buildings built using earth stone blocks for the walls and galvanized iron sheets for the roof and tiles for most of the house floors.

The rest of the settlement is characterized by a low-density housing pattern with terraced houses. The houses are built using both earth stone and concrete with iron sheet roofing. On the Eastern side of the settlement adjacent to the river, there are both rural houses and terraced houses built with mud and wood walls and iron sheets for the roofing.

WATER SUPPLY

STUDY INDICATORS

- Water Situation (Technical state of the water supply infrastructure of the Private Operator Network or Public Distribution Network:
- Cost of connection to public utility network

- Cost of connection to private utility network
- Protected source or outlet: Main source of water in the area; Main source of drinking water in the area?
- Unprotected source or outlet: Main source of water in the area; Main source of drinking water in the area?
- Most important problems, as far as water supply is concerned
- Most important water re-sellers in the area
- Supply situation of the Water Service Provider (include tariffs/charges)
- Supply situation of Informal service provision (include tariffs/charges)
- Water treatment methods of households and methods of water storage

Water point (borehole and elevated plastic tanks) in residential zone 2

FIELD FINDINGS

Both residential zones are supplied with piped water to each terraced house. However, most of the residents here rely on the county government water supplied by the OLWASCO (Olkalau water and Sewerage Company). In all properties the owners have invested in erecting plastic tanks on top of the VIP pit latrines at the edge of the property.

The OLWASCO charges each household Ksh. 30,000 to have the water connected to the specific household. Although the water is metered, OLWASCO charges a flat fee of Ksh. 500 for consumption of less than 7 units, but for consumption of more than 7 units of water, the rates still remain unclear.

Most of the residents in this area do not attach much importance to water treatment as they consider it safe for drinking. The main source of water for most people in this area is water stored in oil drums, with each terraced house having two or three 6,000 litre tanks on top of each pit latrine at the front or the rear. Residents here suffer from brownish teeth, a phenomenon that can be linked to salty untreated water.

The residents here have to deal with inconsistent water supply, low pressure and leaks, with most of them going for days without repair. Due to the poor water supply uncertainty, many local residents have opted to harvest rainwater using 5000 to 6000 litre plastic water tanks. Most of the residents consume the county supplied water directly from the taps. They rarely treat the water for drinking.

Most of the residents interviewed just let the water settle. Less than 5% of them use chlorination to treat drinking water. There are no informal water suppliers in the area. The few with their own wells do not sell it to other residents.

SANITATION

STUDY INDICATORS

- Technical state of the sewerage infrastructure:
- Main types of Household sanitation facilities and sanitation practices in the area? (for residential buildings).
- Usage of sanitation facility (shared, own facility or other usage).
- Materials most commonly used for the construction of pit latrines.
- Methods and cost of emptying pit latrine/ septic tank- mention what usually happens to the contents of the pit/tank after emptying.
- What do residents consider to be the main problem as far as sanitation is concerned?

Plastics, grey water mixed with fecal waste discharged into the open drains at rear of residential buildings at the East side of zone 2

FIELD FINDINGS:

The settlement lacks a sewer network just like the rest of Ol Kalou town. There, open concrete storm drains in the four streets running from the main Olkalau-Nyahururu into the river.

These drains are only on one side of the road and run for 800 metres into the settlement and the residents on this flat area have to deal with flooding grey water. Most of the grey water enters gradient-free ground on the Eastern side, stagnating and causing dampness.

Most terraced houses have improved pit latrines built behind or in front of the property, but adjacent to open storm drains. This helps their contents to flow into the drains every time it rains.

This helps them save more than Ksh 120,000 per annum on vacuum exhauster services (cost of emptying faecal waste Ksh. 8,000-10,000 per exhauster once a month). About 20% of the properties have septic tanks. The area has a high-water table, hence dependence on pit latrines over time with an increasing population will lead to contamination of ground water through percolation of pathogens and bacteria from the faecal waste.

At the moment, however, residents have to deal with the foul smell from the toilets, with the latrines filling fast as surface water percolates into the pits, causing hygiene related ailments among young children and flooding. In the informal settlement at the periphery of the town on the Eastern side, open discharge of faecal waste is common.

In addition, it was noted that residential properties have a secret gate valve that property managers use to drain the raw sewage during the rainy seasons. The house owners, on the other hand, have ensured that the grey water pumping systems direct all the water into the open storm drains.

Theoretically, the pit latrines and the septic tanks are emptied using the private and government vacuum exhauster. However, according to the private vacuum operators interviewed, the property owners dispose of the waste clandestinely, operating under cover of darkness and rainfall. Downstream, tree growers interviewed have witnessed the drying of their plants with the expansion of the town, and the water has recently turned a greenish colour with a foul smell.

Outlet discharge of grey water into open storm water drains from the residential properties

OTHER STUDY INDICATORS

STUDY INDICATORS:

- Main (public) health risks in this area
- How and where do households in this area dispose of their solid waste?
- Main sources of income of male residents
- Main sources of income of female residents

FIELD FINDINGS

The area is prone to flooding as the settlement occupies the swampy area. In addition, cases of pneumonia are reported. It was observed that most of the long-term residents of this area have brown teeth, which may be linked to drinking untreated stream and borehole water.

Due to lack of a proper sewer system, most residents have to deal with hygiene related ailments. Solid waste is dumped indiscriminately on open spaces and roads within the settlement, since there are no known designated solid waste dumping sites within the area.

Male residents living here are formally employed or are successful businessmen in the town. 50% of the residents are civil servants working either as police officers, county government staff, or in other government ministries. Others work in the quarries on the other side of the town. Many people work in the CBD, while others work in farms in the rural area.

A large sample, about 70% of the women in this zone, are housewives relying on their husbands' salaries. The rest work as small-scale business operators or rent farmlands on the periphery of the town to engage in agriculture. On a negative note, it was mentioned during interviews with local residents that there are women who engage in commercial sex within the town as a coping mechanism.

Engineer Town

The central part of the town contains the old Engineer Town. Engineer Town is the oldest town, having been formed in 1948 during colonial rule. The name came from a white settler who operated a farm-machinery repair garage for the other white people farming the land. Engineer town is the second largest, and busiest in Nyandarua County. It is also the second in county revenue collection, but its sanitation and environmental conditions have remained poor.

FIELD FINDINGS

- The town is well planned, though most of the ancient planning has since been engulfed by Dukawalas. Located in the shadow of the Aberdare ranges, the town is quite cold most of the time.
- The streets here measure between 10 and16 metres. This part of the town covers an area of about 7ha.
- However, the old town comprises only

Engineer Town

CBD

GENERAL OVERVIEW/CHARACTER:

STUDY INDICATORS

- Planning attempts
- Type of settlement
- Legal status of the area
- Description of area topography
- Infrastructure

a T-section street which acts as the commercial district, although it is not the current commercial centre. Many residents in the area agree that, due to its ancient appearance, the area has been overlooked in favour of other modern buildings and businesses along the Engineer -Thika highway.

- The property owners here operate under lease certificates.

- To the North the old town borders the Engineer police station, covering more than 10 Ha. On the other hand, to the East, it borders the District land that contains both the South Kinangop Sub County and Former District Headquarters. According to the local residents, this land occupies an area of more than 35 Ha., and it is where most of the government offices are located, including the municipal stadium.

COMMERCIAL DISTRICT

- To the south the old town borders the new business District which contains most of the financial institutions.

- Further along the highway, the southern end of the town hosts 2 commercial banks i.e. Co-operative bank and Equity Bank. In addition, there are some Microfinance institutions, i.e. Tower Sacco, Aberdare farmers Sacco, and Muki Sacco.

MARKET

- This part of the town also contains indigenous chain stores and wholesalers, making it a preferred destination for most local and external shoppers.

- Though an agricultural town, the open-air market at the centre of the town covers only 1 ha. Strangely enough, farmers find space only in the streets leading to the main market stalls.

- There are existing conflicts between the farm produce marketers and the second-hand clothes marketers who occupy 100% of the stalls.

- The town attracts more than 500 traders a day and has a very strong traders association.

- There are existing conflicts between the local and foreign traders who seasonally flock to the market from Nairobi and Naivasha. The foreign traders are forced to pitch tents on the periphery of the market. In addition, they are forced to pay ksh 1,000.00 in order to transact business. On the other hand, the local traders pay a monthly fee of ksh 1,000.00, unlike their counterparts.

- The market has one pit latrine with double doors for the traders, which is managed by the traders' union. However, the county government empties it when asked to do so.

- On the other hand, the traders manage the solid waste. There is a concrete built waste collection pit where the traders and shoppers alike dump their waste. Again, the county government manages the solid waste here.

- The town has very shallow concrete open storm drains and they barely hold the flood waters which occasionally flood the market when there is torrential rainfall. In addition, the shanty stalls leak all the time, leaving the traders with no option but to close or suspend their activities every time it rains.

- The market also lacks security lights and business ends once darkness falls.

Engineer Town Market

BUS STATION

- On the Eastern side and by the Engineer_ Olkalau highway, the market occupies an area 200 metres long and 50 metres wide, overshadowed by informal Kiosks, barely accommodating 10 Matatus at a time.
- There are over 7 saccos operating in this area. These include, Tulaga Sacco, Satima Sacco, 2NK Sacco, among others.
- The market is a mere street with levelled though uneven gravel, prompting most matatus to operate on the roadside.
- The bus station lacks all basic facilities starting from a public toilet, security lights and drains.

MODE OF TRANSPORT

- There is no formal transport as the roads are poor and impassable during the rainy season.
- Most of the residents here use conventional motor bikes to move around.

JUA KALI

- Most of the artisanal jobs including garages are concentrated along the Engineer - Olkalau road.

Topography

- The town is located at the T-junction of the Engineer Olkalau, Engineer Naivasha, and Engineer-Thika highway and extends lineally.
- The area is relatively flat and is flanked by three rivers with the closest being to the North 1 km from the CBD.
- In addition, there are satellite developments with institutions such as churches and hospitals on the periphery of the town.

DEMOGRAPHY:

STUDY INDICATORS

- Multiple vs single family housing typologies
- Demographic trends and development in the area
- Main factors having an impact upon demographic changes

FIELD FINDINGS

- 99 % of the residents here live in multifamily terraced houses with one percent of low-rise bungalows. According to a resident who has lived here for the last 4 years, the area hosts most of the middle-class residents living in the area. The terraced houses here house both the property owners and residents.
- The population is growing with most of the residents here working for the county government. Most of them are migrants with 1% of them migrating from the rural areas.
- Residents here are attracted by the tarmacked highway passing through the residential area. In addition, proximity to the CBD makes it convenient for most of the residents who work there.

LAND AND LAND USE

- Main type of Land ownership
- Main land use
- Average land sizes
- Prospective land prices

FIELD FINDINGS

- The land occupied by the CBD belongs to the government, with property owners operating lease and the government offices, including the police station to the North and the Law courts to the West, all occupy government lands.
- The other part, including the financial District along the Engineer -Thika highway, is freehold with individual property owners holding title deeds.
- The land here is occupied by commercial business premises and commercial residences.
- According to City Managing agencies, a property management firm, the plots within the town are subdivided into 50 by 100 plots and a plot in the CBD is priced at ksh 2million and between ksh 1million and 1.8 million at the periphery of the town.

ROADS

STUDY INDICATORS

- Condition description: (type, condition, storm drains available and their condition)
- Range of sizes of road reserve widths

FIELD FINDINGS

- The roads are 9-20 metres wide and, apart from the tarmacked major highways dissecting the town, all other roads are murram and characterized by perilous potholes.
- However, the roads are being levelled with gravel and murrum in the Town. However, there are only 200 metres of cabro road in

the southern part of the town which has been privately developed by a prominent local businessman at his premises extending to the Engineer - Thika highway.

- The town is iconic and one side of the road has a concrete open drainage. There are a few culverts at the affected premises, ranging from timber to concrete, constructed by individual developers.

HOUSING

STUDY INDICATORS

- Main type of housing
- Housing situation (of most residents)
- Primary housing characteristics
- Main housing materials used

FIELD FINDINGS

- The Old town hosts one of the oldest buildings, with most being Dukawalas associated with the Indians. However, the residential units at the rear have since been converted to business premises.
- In the Southern part of the CBD, a few commercial flats have been constructed, though most of them are works in progress.
- Most of the multi storey buildings are commercial, the tallest having 5 floors.
- There are terraced houses in town with some constructed using both wood and mud in the old town. However, the town is characterized by the Iconic terraced houses.
- Most of the houses are built using earth stone blocks, ballast, and concrete and iron sheets for the roofing

WATER SUPPLY

STUDY INDICATORS

- Water Situation (Technical state of the water supply infrastructure of the Private Operator Network or Public Distribution Network:
- Cost of connection to public utility network
- Cost of connection to private utility network
- Protected source or outlet: Main source of water in the area; Main source of drinking water in the area?
- Unprotected source or outlet: Main source of water in the area; Main source of drinking water in the area?
- Most important problems, as far as water supply is concerned.
- Most important water re-sellers in the area
- Supply situation of the Water Service Provider (include tariffs/charges)
- Supply situation of Informal service provision (include tariffs/charges)
- Water treatment methods of households and methods of water storage

FIELD FINDINGS

- 90% of all the premises within the CBD are connected to piped water. The water here is supplied and managed by a community-based organisation called Engineer town water project which inherited the water supply institution from the central government in 1992.
- The water comes from a water source up in the Aberdare and is shared between the NYS in Naivasha, and Gwataniro water

project which supplies water to the rural area.

- There are 1005 legally connected households within the town. However, the system serves only the ground floor units with each property owner having to pump his water to the elevated tanks.
- The premises pay ksh 30,000.00 as connection fee and they are required to pay ksh 250.00 per month for consumption as the WSP charges a flat rate.
- Due to the rust affected iron sheet roofing, most of the residents here do not harvest rainwater within the CBD.
- However, the water supplier faces a lot of challenges in dealing with illegal connections. Connected households making illegal connections are fined ksh 10,000.00, while non-members are prosecuted.
- In addition, the water situation has been politicized with politicians inciting the residents not to pay for the precious commodity.
- The residents do not treat their drinking water and only allow the water to settle or even consume it straight from the tap.

SANITATION

STUDY INDICATORS

- Technical state of the sewerage infrastructure
- Main types of Household sanitation facilities and sanitation practices in the area? (for residential buildings in the area)
- Usage of sanitation facility (shared, own facility or other usage)
- Most common materials used for the construction of pit latrines
- Methods and cost of emptying pit latrine/ septic tank- mention what usually happens to the contents of the pit/tank after emptying.
- What do residents consider to be the main problem as far as sanitation is concerned?

FIELD FINDINGS:

- The entire area lacks a formal sewerage network and has open concrete storm drains on one side of the road connected to the business and residential premises.
- 99% of the premises within the CBD use pit latrines which are emptied manually, with some premises where the latrines are emptied manually and dumped in the nearby farms. The rest of the pit latrines have a secret gate valve which is punctured, emptying the raw sewerage into the open drains whenever it rains. Residents here are surprised at the amount of surface run off water which is usually disproportionate to the amount of rainfall.
- The raw sewerage loses gradient in the residential settlement at the eastern most end of the town, leaving the residents to deal with a foul smell, houseflies and sometimes the raw sewerage floods into their houses. In this case the area is prone to hygiene related ailments.
- Only one percent of the premises here have septic tanks which are emptied by private vacuum exhausters and sometimes county government exhausters.
- The exhausters charge ksh 8,000.00.

OTHER STUDY INDICATORS

STUDY INDICATORS:

- Main (public) health risks in this area
- How and where do households in this area dispose of their solid waste?
- Main sources of income of male residents
- Main sources of income of female residents

FIELD FINDINGS

- Most of the long-term residents have brown teeth which can be linked to drinking untreated stream and borehole water.
- Due to lack of a proper sewerage system, most residents have to deal with hygiene related ailments.
- Male residents living here are formally employed or successful businessmen in the town. 50% of the residents are civil servants, working either as police officers, county government staff, or in other government ministries. 50% of the residents are farmers in the region.
- 70% of the women here are housewives relying on their husbands' salaries. According to a resident who sought anonymity, 30% of the women here work as commercial sex workers in the town as a coping mechanism.

County offices inder costruction

County recreational groud within the county

Row housing setup

CHAPTER
05

EMERGING ISSUES - THE CHALLENGES OF URBANISATION IN NYANDARUA COUNTY

Urbanisation and evolution of human settlements in Nyandarua County are influenced by the initial government policy of settling people from the year 1963.

Currently, in Nyandarua County, towns are still relatively small. The urban population is 110,518, constituting 18.5% of the total county population, while the rural population was 485,750, accounting for 81.5% (KNBS, 2009). Urbanisation and evolution of human settlements in Nyandarua County are influenced by the initial government policy of settling people from the year 1963. Other factors that have influenced the human settlement patterns in the county include physiographic characteristics, which are mainly the Aberdare Ranges and Lake Olbolosat at the foot of the range, which is highly unsettled.

Based on population criteria established by the law, Nyandarua County has only one municipality, Olkalou, which qualified by virtue of being the county's headquarters. Mairo Inya, Magumu, and Engineer qualify to be categorised as towns based on population, while twenty-eight urban areas meet the population criteria for market centres. A large number (93 urban areas) of urban areas do not meet the established threshold for categorisation and therefore remain unclassified.

Because the scope of urbanisation in Nyandarua County is still relatively small, the county has a unique opportunity to formulate and implement urban areas and municipal management governance mechanisms that can precede and guide the county's development process as it undergoes urbanisation similar to other counties closer to the metropolitan centre of Nairobi. This will require a comprehensive approach that will enable not only ensuring adequate infrastructure for future growth, but can also enable solid and liquid wastes to be transformed into agricultural resources for irrigation and fertilisation.

From a short-term economic perspective, the small size of the urban centres makes infrastructure projects marginally feasible. However, since there is only a small "backlog" (deficit) of missing infrastructure, which requires a relatively small investment of funds, this size, in fact, becomes a significant advantage.

Nyandarua County is currently in the process of defining the borders for urban centres, establishing the municipal/town boards, and formulating the operational division of responsibilities between the County Government and the Municipalities.

This will focus on three primary areas:

- Preparation of urban area development plans
- Responsibilities for the provision of services
- Generation of revenues

This is a particularly complex issue, especially given that income generation, which in the end will need to be based primarily on land taxes, will increasingly come from urban areas. Therefore, if municipalities are given the authority to collect land taxes in their current form, they will significantly reduce the future income to the county government from urban centres. Similarly, the issue of responsibility

for service provision will need to be addressed, both as a function of revenue collection and as a function of geographic and quantitative scope.

5.1 Unplanned Urbanisation

Although the rate of Urbanisation is still relatively low in Nyandarua, the county is experiencing higher rates of unplanned urbanisation resulting in urban sprawl. Along with the increased population in urban centres, land speculation has further contributed to the unplanned transformation of agricultural lands to residential and commercial uses. This in turn has led to a reduction in the land available for agriculture. There is an absence of clear development guidelines and enforcement, which could regulate this type of unstructured growth.

5.2. Insufficient Infrastructure Development

In most of the urban centres, infrastructure, community services and facilities, and utilities are inadequate to meet the needs of the existing and growing population. Neither the organizational nor the financial institutional capacities are in place to manage the transition from rural household living to shared urban development needs. Notably, all lack sewerage networks, thus posing huge health risks to residents in these urban centres. Lack of appropriate infrastructure is more serious in the hinterlands of urban centres and in some cases, the hinterlands are inaccessible to the designated service centres. The following issues recur in varying degrees of severity throughout the urban centres of the County:

Water Supply

- Untreated water. The county government supplies untreated water to the residents. There has been an insufficient effort of sensitisation to educate residents regarding water treatment.
- Low pressure in the pipes.
- Vandalism and theft. The metal pipes are highly sought after by scrap dealers and most of them have been vandalised. Due to insufficient gradient, most of the households at the periphery of the town experience very low pressure and due to leaks, most of the households do not have enough water.
- Leaks and poor response by the WSP.
- Water contamination at the point where the pipes break as most of it goes through sewerage saturated soil.
- Illegal connections. There are illegal connections in the settlements. This is encouraged by the fact that the residents are the same people who repair the water pipes.
- Unaffordable water rates.

Sewerage/Sanitation

- Lack of town-wide sewer network.
- Shallow water base.
- Raw sewerage flows along the roads from the premises to the streams or even floods into other terraced houses along its path.

- The cost of emptying septic tanks is very high.
- Insufficient gradient.
- Open drains.
- Lack of disposal points.
- Open defecation.

Refuse disposal/solid waste

- Lack of a well-managed waste collection system in the area.
- Most of the waste is dumped indiscriminately in the back streets.

Surface water disposal/storm water

- Lack of drainage system in the area.
- Building in water ways.
- Farming/ building houses in riparian lands.

Access roads

- Dirt/murram roads characterized by potholes.
- Roads are poor and impassable during the rainy season.

Energy

Under County Energy Regulation Function, the County Government shall be involved in the regulation and licensing of:

- Retail petroleum service stations;
- County gas reticulation systems;
- Supply of retail coal products for domestic use;
- Designated parking for petroleum tankers;
- Biomass production, transport and distribution;
- Biogas systems; and
- Charcoal production, transportation and distribution.

The County Government shall also be responsible for the customisation of the national codes for energy efficiency and conservation in buildings to local conditions.

There is a need to extend the electricity power lines to the areas not covered, while at the same time making connection charges more affordable.

Health Facilities

As of 2017, Nyandarua County had a deficit of at least one level 5 hospital, four Level 4 hospitals and 20 dispensaries. This deficit is set to rise by 2026.

Education

Although the number of primary schools is adequate to meet the needs of the current population and even the projected increase in population, the facilities are inadequate to meet the standards of modern education. The physical buildings require renovation and improvement of equipment.

Furthermore only 3% of children travel less than 1 km to school, while 93% travel between 1.1 and 4.9 km. 4% of the children travel more than 5 km.

Most of the existing secondary schools lack adequate support infrastructure, such as laboratories. In 2026, the secondary school going age population is projected to be 83,003. Considering the above assumptions, 259 secondary schools will be required. Taking into

consideration both public and private schools, there will be a deficit of 45 new facilities.

There is also a need to attract qualified teachers, especially for secondary schools and Polytechnic institutions.

Informal Settlements

Rural-urban migration, especially by the low-income population, has resulted in the development of informal settlements such as Huruma in Olkalou. High population densities combine with rapid, uncontrolled growth in informal settlements. This exemplifies the problem of financing and providing adequate infrastructure and public services to the increasing urban population.

Housing

By 2026, the number of urban households in Nyandarua is expected to be 40-50,000. Not only does the demand for housing outstrip the supply, the sewage system, water supply, solid waste management, and energy provision are also inadequate.

5.3. Town Committees and Municipal Boards

The Urban Areas and Cities Act 2011 (Revised 2015) formulates an additional layer of government – Municipal Boards and Town Committees. However, there remains a great deal of ambiguity regarding the delineation of functions, responsibilities, and sources of revenue to fulfil their tasks.

Similar to other counties, the establishment of these bodies is still in process. Thus, the ability to perform functions, which include among others, overseeing the affairs of the municipality/town, formulating and implementing an integrated development plan, controlling land use, land subdivision, and zoning is still not operational. **The lack of these fundamental institutions and the division of responsibilities between municipal boards/committees hampers revenue streams in these towns and in turn hinders effective service provision.**

> ***Section L2 of No. 13 of. 2011, which it is proposed to amend by rephrasing the marginal note-***
>
> ***Management of cities and municipalities***
>
> (2) The board of an area granted the status of a city or municipality under this Act shall be a body corporate with perpetual succession and a common seal and shall, in its corporate name, be capable of:
>
> (a) Suing and being sued;
>
> (b) Taking, purchasing or otherwise acquiring, holding, charging or disposing of movable and immovable property;
>
> (c) Borrowing money or making investments;
>
> (d) Entering into contracts; and
>
> (e) Doing or performing all other acts or things for the proper performance of its functions in accordance with this Act or any other written law which may lawfully be done or performed by a body corporate.
>
> (3) The governance and management of a city county shall be in accordance with the law relating to county governments.

Section 20 of No. 13 of 2011, which it is proposed to amend-

Functions of a board

(1) Subject to the provisions of this Act, a board of a city or municipality shall:

(a) Oversee the affairs of the city or municipality;

(b) Develop and adopt policies, plans, strategies and programmes, and may set targets for delivery of services;

(c) Formulate and implement an integrated development plan;

(d) Control land use, land sub-division, land development and zoning by public and private sectors for any purpose, including industry, commerce, markets, shopping and other employment centres, residential areas, recreational areas, parks, entertainment, passenger transport, agriculture, and freight and transit stations within the framework of the spatial and master plans for the city or municipality, as may be delegated by the county government;

(e) As may be delegated by the county government, promote and undertake infrastructural development and services within the city or municipality;

(f) Develop and manage schemes, including site development in collaboration with the relevant national and county agencies;

(g) Maintain a comprehensive database and information system of the administration and provide public access thereto upon payment of a nominal fee to be determined by the board;

(h) Administer and regulate its internal affairs;

(i) Implement applicable national and county legislation;

(j) Enter into such contracts, partnerships or joint ventures as it may consider necessary for the discharge of its functions under this Act or other written law;

(k) Monitor and, where appropriate, regulate city and municipal services where those services are provided by service providers other than the board of the city or municipality;

(l) Prepare and submit its annual budget estimates to the relevant County Treasury for consideration and submission to the County Assembly for approval as part of the annual County Appropriation Bill;

(m) As may be delegated by the county government, collect rates, taxes, levies, duties, fees and surcharges on fees;

(n) Settle and implement tariff, rates and tax and debt collection policies as delegated by the county government;

(o) Monitor the impact and effectiveness of any services, policies, programmes or plans;

(p) Establish, implement and monitor performance management systems;

(q) Promote a safe and healthy environment;

(r) Facilitate and regulate public transport; and

(s) Perform such other functions as may be delegated to it by the county government or as may be provided for by any written law.

Section 31 of No. 13 of 2011, which it is proposed to repeal and replace-

Governance and management of towns

(1) An area granted the status of a town under this Act shall not be a body corporate.

(2) There shall be an administrator for every town established under this Act.

(3) The administrator of a town shall perform such functions as the committee appointed under section 20 (2) may determine.

(4) Section 29 and 30 of this Act shall apply to the appointment of an administrator.

One of the key challenges facing county governments is not only the changing relations between the National Government and County Government, but also the establishment of Municipal Boards in urban centres.

The County Governments are still in the process of change and only recently went through their second elections (the first that actually reflects a period of functioning county governments). Nonetheless, in keeping with the URBAN AREAS AND CITIES ACT, the counties are faced with the challenge of establishing Municipal Boards in their urban centres.

CHAPTER
06

MANAGING URBAN DEVELOPMENT

Development control must be efficient and flexible to make it market friendly and favourable to economic growth. If these two are not appropriately addressed, they may further reduce the delivery of urban services and public investments and reduce the long-term growth potential of the County.

Development by a property owner must pursue the process of development or planning application and obtain a permit in accordance with planning policies. Planning decisions are often made subject to performance conditions. The most complex conditions may require detailed processes to achieve compliance. These include provision of:

- Physical infrastructure (roads and storm water drains, water supply and sanitation, power supply, etc.)
- Social infrastructure (contribution to community needs)

More often, the pattern of local land uses comes in the form of specific standards that are defined through planning, architectural and engineering requirements. These are also known as zoning regulations, ordinances or codes. These legally define three key parameters of development: permissible uses, extent of site development, and site layout and design.

The scope of control is confined to the approved policy, such as a process of 'predict and provide' in the relationship between demand and supply. Planning decisions are made 'subject to conditions' with attendant measures for enforcement.

6.1. Spatial Planning

6.1.1. The functions and structures of planning

Plan making as an activity is widely recognised as a legitimate and valued aspect of public policy, which covers a wide range of issues including adequate supply of land for housing, industrialisation, efficient transport infrastructure, best practice in building designs and urban space designs; all these are done to achieve economic growth, social cohesion, energy efficiency, in the interest of sustainability.

This is the process, which provides a visioning through public consultations to make policies and strategies, which provide planning guidelines to regulate and manage what is developed where, and when.

In practice, the planning process frequently lags behind Urban Growth and extensive changes in land use. As with many aspects of devolution, planning at the county level rests upon national planning regulations.

The enactment of the Physical and Land Use Planning Act in August 2019 with its renewed emphasis on implementation provides expanded authority to effective local planning consistent with national policy.

It is in the preparation and design of physical and land use instruments that socio-economic pressures have their greatest impact; planning proactively to help through enhancing physical

and social capital. Three economic functions in planning include:

- Design physical and land use regulations and legal conditions that permit economically attractive development by the private sector;
- Identify resources of a region/city and create the physical-land and legal conditions that enable county government to provide the essential infrastructures and services necessary for development on an economically sustainable basis; and
- Ensure equitable access to public resources/goods that promote a good quality of life through spatial planning.

Purpose and Performance of Planning

In legislation the stated purpose of planning is *'to regulate the development and use of land in the public interest'*. Among other things, this process seeks to identify, articulate and satisfy the basic social needs of the population within the context of available natural, economic/ financial resources and technical knowledge.

As a public policymaking process, physical and land use plans must translate public demands into time-bound governance action through a series of stages: (a) agenda setting, (b) policy formulation, (c) legitimisation (legislation), (d) implementation, (e) evaluation and (f) maintenance/review/ succession/termination.

The County Government Act (17 of 2012) has a dedicated section of County Planning (Part XI) and for urban planning and management, the Urban Areas and Cities Act (13 of 2011). In August 2019, the long-overdue Physical and Land Use Planning Act (PLUPA) was enacted to further align the administration and management of physical and land use planning in Kenya.

In this legislative framework, there is increasing propensity on the part of government to reform Planning. Counties have been assigned the statutory duty with considerable widening of the scope and thread running through both plan-making and implementation of program/projects and service delivery by establishing structures and networks that influence strategies and investment.

Three interconnected Acts provide the principles, procedures and standards for the preparation and implementation of physical and land use development plans at the national, county, urban and city level. On Development Control, the Physical and Land Use Act provides the procedures and standards and the regulation of physical planning and land use as a framework for the co-ordination of physical and land use planning by county governments through elaborate 'plan-led systems'

In accordance with the wider concepts of planning under Physical and Land Use Act, the shape and nature of this institutional hierarchy is a matter, not only of setting policy guidance, but also of defining roles and responsibilities arising from the duty of securing consistency and continuity in the process of framing policies at all levels.

The County Planning Framework

The essence of devolution in the context of urbanisation is anchored on building strong institutions and systems to exercise the total planning doctrine of the integration of development plans and development control. The county planning functions are optimally integrated by the County Planning Unit (CPU) in both vertical and horizontal coordination of plan/policy making, plan/policy

The enactment of the Physical and Land Use Planning Act in August 2019 with its renewed emphasis on implementation provides expanded authority to effective local planning consistent with national policy.

implementation, coupled with sound financial and performance management.

The structure of the CPU links interrelated plans that break down distinct sectoral problems (how, why, and who roles) and developing criteria of balancing all the different elements of county development.

County Sectoral Plans

Under this public policy making process, each county department (Sector) is mandated by law to develop a ten-year County Sectoral Plan that aligns the financial and institutional resources to agreed sector policy objectives and programmes. They provide a basis for sector budgeting and performance management. In their administrative structures, county governments have an average of 10 departments.

County Spatial Plan (County Physical and Land Use Plan)

Subsequent to the series of County Sectoral Plans is the ten-year **County Spatial Plan (County Physical and Land Use Plan)** that seeks to accommodate these sectoral needs within a technical and spatial framework. The spatial plan determines the desired patterns of land use within the county and identifies areas where strategic intervention is required with clear statements of its linkages to the regional, national and the other county plans.

The plan regulates where public and private land development and infrastructure investment should take place by taking into account any guidelines, regulations or laws as provided for under Article 67(2) (h) of the Constitution.

County Integrated Development Plan (CIDP)

County Integrated Development Plan (CIDP) identifies the institutional frameworks for the implementation and integration of plans with provisions for evaluation and monitoring. The plan addresses the county's internal transformation needs as informed by the strategies and programmes for any investment and development initiatives in the county, including infrastructure, physical, social, economic and institutional development. A CIDP should inform the county's budget, based on the annual development priorities and provide a basis to prepare identified action plans for the implementation of strategies with clear input, output and outcome performance indicators.

City or Municipal Plans (Local Physical and Land Use Plans)

Towns in Kenya remain the dominant focal point of both public and private sector activities. The rise in population and the sheer numbers of urban residents give perhaps the clearest indication of the challenges facing Kenya's urbanisation processes. Both the Physical and Land Use Planning Act and Urban Areas and Cities Act provide for the framework of the preparation of city or municipal (local) plans that are aligned to county plans. The city or municipal plan is the instrument for urban management, development facilitation and development control within the respective city or municipality operating within the framework of integrated development planning.

According to the PLUPA guidelines in the preparation of the Local Physical and Land Use plans, a detailed analysis of infrastructure, housing, transportation and communication must be specified to ensure adequate coverage, operational performance, and the methods of determining development fees.

The challenge here is neither creating new models for local economic development nor for county/municipal finance, but crafting county government institutions in a way that will enhance their ability to utilize and adapt successful models. This requires a comprehensive strategy of action and organizational gearing up; a) upgrading planning capacities, b) engaging financial institutions, c) creating a dedicated development platform, d) establishing the county level legal anchors, and e) expanding the public mandate.

In its urban management function a local plan seeks to ensure that the municipalities have a sound economic base which provides revenue to finance municipal board operations and pays for the provision of services to the public, while also ensuring that jobs are available to the county's labour force.

Under the development facilitation and development control the city or municipal plan provides for basic needs such as housing, transport/mobility, employment or livelihood jobs, education, and opportunities for recreation, and basic services like water, electricity, clean air and health care. These needs are to be articulated under the principles of land use, zoning and building plans, development control and the location of various types of infrastructure.

6.1.2. Proposed Land use regulation in Nyandarua (From the proposed Nyandarua Spatial Plan)

The structure plan is a long-term framework which will guide the development or redevelopment of land in Nyandarua County. It indicates the layout of the main land uses; agricultural/crop lands, conservation and protected areas, major transportation routes and roads proposed for upgrading, built-up areas and other key features for managing the direction of development.

The land use proposals included in the structure plan are arrived at through the process of land optimisation.

Goals of the Proposed County Spatial Plan

i. To promote balanced and equitable development of the county.

ii. To optimize the use of land and natural resources.

iii. To spur economic development.

iv. To facilitate the development of a well-balanced system of human settlements and enhance their liveability.

v. To protect and conserve the environment.

vi. To provide appropriate and adequate infrastructure.

vii. To provide an integrated transport system and improve connectivity.

Recommendations of the Proposed County Spatial Plan

On the basis of the presentations, findings, analysis and evaluation of data and information on the various centres in the County, the county government should:

Urban Areas:

- Constitute and institutionalise a municipal board for Olkalou.
- Constitute and institutionalise town committees for Engineer, Magumu, Njabini, Oljoro Orok, Mairo-Inya, Miharati and Ndaragwa.

Under the development facilitation and development control the city or municipal plan provides for basic needs such as housing, transport/mobility, employment or livelihood jobs, education, and opportunities for recreation, and basic services like water, electricity, clean air and health care.

- Research and document the comparative advantage of major centres as the basis for their development in collaboration with other institutions.
- Develop centres on the basis of their comparative advantage.
- Undertake the assessment and classification of all centres within the county.
- Provide and maintain sufficient urban infrastructure facilities such as pedestrian walkways, designated parking lots, sewerage networks etc. in collaboration with other development partners.
- Develop and implement county land use policy to check on unplanned urbanisation and uncontrolled development.
- Prepare, approve and enforce integrated urban development plans for all sub county headquarters and other towns.
- Formulate county housing policy.

Proposed Service Centres

Proposed Service Centre	Name of the Centre
Urban Centres	Olkalou, Engineer, Oljoro-Orok, Ndaragwa, Miharati, Njabini, Mairo Inya
Rural Centres	Rurii, Wanjohi, Mawingu, Magumu, Ndunyu Njeru, Gwa Kung'u, Kasuku, Kwa Haraka
Market Centres	Gwa Kiongo, Capten, Ngorika, Pondo, Shamata, Geta, Karangatha, Githabai, Murungaru, Boiman, Charagita, Rironi, Ngano, Tumaini
Local Centres	Heni, Gichungo, Igwamiti, Machinery, Kimathi, Kiriko, Gathundia, Mukeu, Munyaka, Ndemi, Kariamu, Passenga (Nyairoko), Pesi (Kambaa), Tulaga, Malewa, Turasha, Tumaini, Mirangine

Source: Nyandarua Spatial Plan

Human Settlements

In order to facilitate the development of a well-balanced system of rural and urban settlements in Nyandarua, selection of service centres has been carried out. Each level of service centre has a particular catchment population and recommended level of services.

The management of human settlements shall be integrated with the sectoral policies in agriculture, environmental conservation and other sectors that have an impact on land use.

Land Management Policies:

- All settlements shall be planned and provided with requisite services according to their proposed functions.
- Urban limits shall be defined to avoid encroachment with other zones, particularly the agricultural promotion areas and the environmentally sensitive areas.
- Border towns shall be planned taking into consideration the existing situation and cross-border development proposals.
- All human settlements shall be integrated with the county transportation system.
- Land conversion and development applications shall be assessed with the objective of minimizing speculation.
- Public land within urban limits shall be reserved for public use such as open spaces and community facilities where appropriate.

- Local Plans shall identify areas for public housing ensuring proximity to places of work, good accessibility and taking into consideration the needs of the disabled and aged.

This category of emerging centres needs to be guided through proper and sustainable urban planning and setting of growth limits. Their role, linkages and specialization must therefore be defined.

Land Management Policies

- The zones shall be demarcated and mapped.
- Urban limits shall be defined to avoid encroachment with agricultural land. Major towns in the zones are Olkalou, Oljoro-Orok, Rurii, Ngano, Gwa Kiongo Engineer, Njabini, Miharati, Wanjohi, Mawingo, Rironi, Ndaragwa, Ndunyu Njeru, Oljoro-Orok, Kasuku, Gichungo, Kariamu. Miharati, Ndemi, Malewa, Turasha Magumu, Kiriko, Mukeu Mairo-Inya, Ndaragwa and Gwa Kung'u.
- ESIA is to be carried out for all roads proposed for upgrading.
- Water catchment areas in each zone shall be identified and conserved to ensure clean and adequate water.
- Roads and social infrastructure shall be developed, upgraded and maintained.
- Developments in hilly areas (exceeding 120 slope) shall be accompanied by slope control measures.
- The Oljoro-Orok Airstrip is to be demarcated, mapped and gazetted.
- Incompatible land uses such as quarrying, dumping sites shall not be allowed within the vicinity of the airstrip.
- Developments in the vicinity of the airstrip shall not exceed 15 metres for purposes of visibility.
- 30 metre riparian reserve shall be observed to protect the rivers in this zone; bamboo growing is encouraged in all riparian areas.
- A 60 metre easement shall be observed for the railway.
- Formulate an inter-county relations committee to fast-track linkage of the railway to SGR.

6.1.3. Guidelines for Using County Spatial Plans to manage development

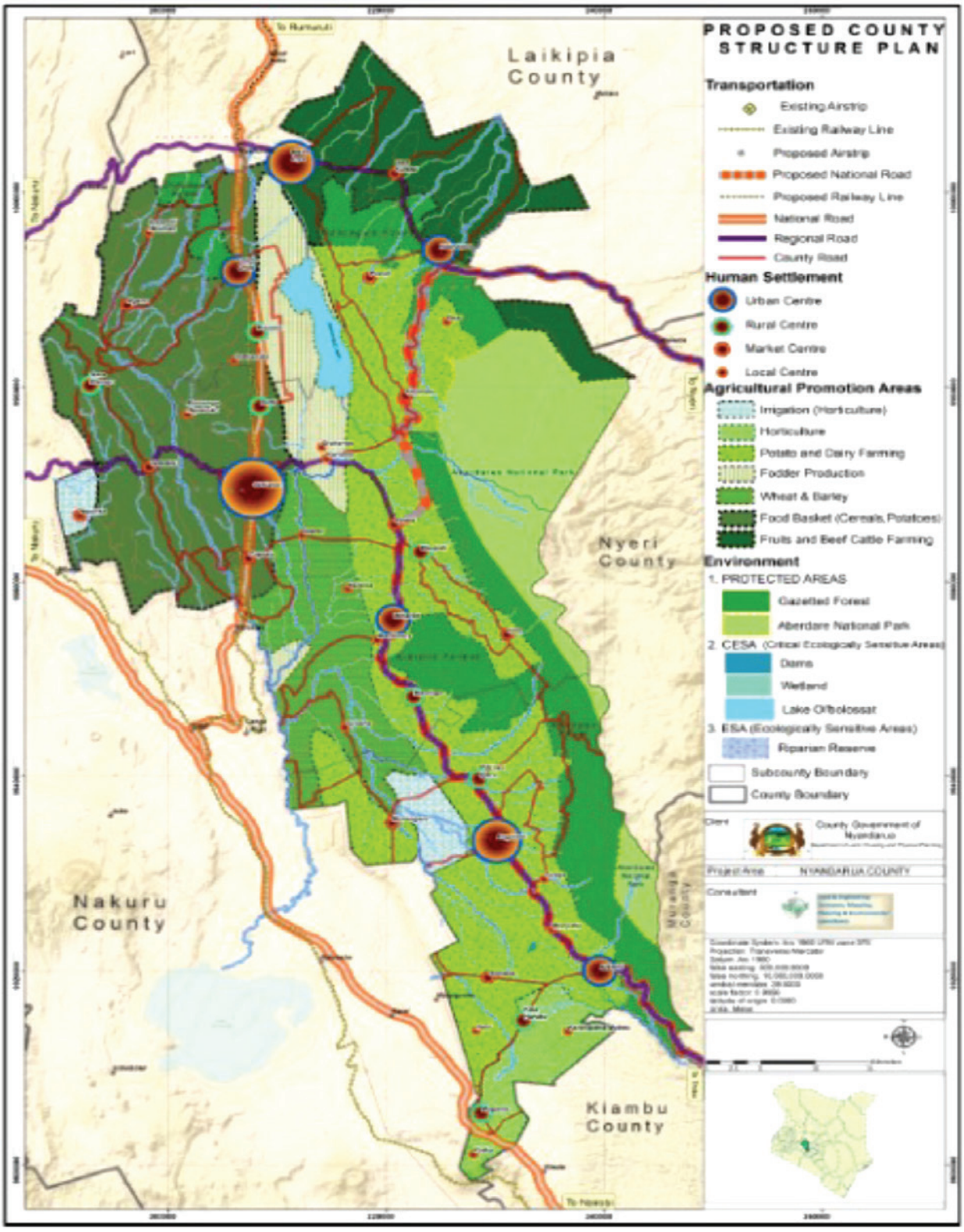
Planning Culture and Development Performance

The County Government Act provides for civic education to empower and enlighten the community. Planning should be genuinely planning-led by empowering local people to shape their surroundings and setting a positive vision for the future.

This approach will promote a planning culture in Kenya's devolution trajectory in a market-friendly environment. This will ultimately respond to market signals such as land prices, housing affordability and set out a clear strategy for allocating sufficient land in a balance with community facilities and services to meet local needs.

Premised on the public interest theme, these time-bound plan-making processes must be activated, always kept current and relevant to the county's development needs. As they progress, the envisioned outcomes must be regularly audited and reviewed to eliminate uncertainties and performance risks in delivering outcomes.

Proposed Nyandarua County Structure Plan



Source: Nyandarua Spatial Plan

Principles for Implementing Development Plans

Development or planning control (and now a recent emergence of the term 'development management') is a function of planning through which county governments strive to control the market dynamics by regulating private investment decisions on land to achieve varied socio-economic objectives. There must be an integration of both plan-making processes and development management mechanisms to avert demand side land use and physical development pressure.

As part of county planning, development management is aimed at promoting and safeguarding public interests, eliminating negative externalities, improving information base for decision-making and place shaping by redistributing public costs and benefits.

In order to strengthen development management, changes have to be made within the county governance systems through full-cycle county planning compliance, capacity building in result based management, deployment and enhancement of technology, entrenchment of professional values and ethics and successful development management (full cycle development control), observing the following principles:

Substance and Procedure

In the practice of development control, substance and procedure are inseparable. From political and governance systems, devolution places development control at the doorstep of county governments. The knotty questions about the extent to which Municipal Boards can exercise development control functions will continue to generate debate as long as the safeguards of substance, procedure and conformity between the county plans and strategic management of development are not fully addressed.

From the guidelines provided by the National Land Commission, the establishment of the County Planning Units (CPU) in the plan making process should also translate to development control procedures where all concerned sectors evaluate all development applications and consider all likely significant factors and the effects on the environment and economic performance.

Ideally, the head of the CPU is the County Director of Physical/Land Use Planning; the idea here being that all sectoral strategies would operate within a spatial framework, and in turn, this would reflect the socio-economic analysis across the entire county.

Material Considerations

Material considerations must constitute genuine planning considerations; all the fundamental factors involved in land-use planning constitute material considerations. This includes such things as the number, size, layout, siting, design and external appearance of buildings and the proposed means of access, together with landscaping, impact on the neighbourhood and the availability of infrastructure. However, considerations will vary from circumstance to circumstance and from application to application, as is the nature of the building industry.

On material considerations and quality control procedures, it is in the nature of the building industry that many professionals are involved; although each has his perspective, their convergence must be related to the purpose of county planning, which is to regulate the development and use of land in the public interest.

Community Aspirations as Public Interest

It can be difficult to distinguish between public and private interests. As people – owners, occupiers and users - the main objective of development control is to resolve or minimise

The Development Application Process

DEVELOPMENT CONTROL PROCESS

Planning

1. Subdivision/ Amalgamation of land
2. Change/Extension of Use of land
3. Extension/Renewal of Lease of land
4. Outdoor Advertising & Signage
5. Regularisation of Existing Developments

Engineering

1. Structural Engineering Designs & Supervision
2. Civil Engineering Designs, works & clearing

Architectural

1. New Buildings
2. Alterations and additions to existing buildings
3. Demolitions of Dwellings
4. Regularisation of Existing Developments

Process Stage		Activities	Tools/Reference Documents	Responsible	Statute	Output
PRE-APPLICATION	1 CLIENT/CONSULTANT ENGAGEMENT	1 (a) Client/Consultant Briefing 1 (b) Physical Site/Property Verification 1 (c) Broad enquiries on technical & policy, 1 (d) submission fees, procedural matters 1 (e) Compilation of Submission Bundle	1. County Spatial Plan 2. Municipal Urban Integrated Plan (Municipal Land Use Plans) (Municipal Builing & Zoning Plans) * All Applicable Reference Documents Available at 1. Sub County Offices 2. Municipal Office 3. County Website 4. NLIMS	Consultant 1) Planner 2) Architect 3) Engineer	PLUPA 58(5) 58(7&8) 59(1) 68 CGA Part IX Part X Part XI UACA 21 36	Compliant Quality submission
Pre-Approval Phase	2 INVOICING & REGISTRATION OF APPLICATION	2 (a) Receiving 2 (b) Registration 2 (c) Invoicing	a) Prescribed Application Forms b) Planners/Architects Engineers Annual Practice Cert c) Applications Booking Register d) County Finance Act (Development Levies)	Sub County Team 1. Sub County Admin 2. Sub County Planner 3. Town/Municipal Manager	PLUPA 58(1)	Revenue Efficient Workflow and Tracking
	3 SIEVING CIRCULATIO & EVALUATION	3 (a) Sieving & sorting by development magnitude 3 (b) Local vetting for Zoning Compliance 3 (c) Fastracking of simple developments 3 (d) Circulation for Detailed Sectorla Evalutaion 3 (e) Determination of Development Fees for major developments - Infrastructure planning & design	a) Spatial Plan b) Municipal Plan c) Planning Handbook d) Building Code c) County Finance Act e) WaRMa Guidelines f) Engineering Codes (g) Public Health ByLaws (i) Valuation Roll	County Technical Officers a) Planners b) Public Health Officers c) Engineers d) Revenue Officers e) Environment offocers f) Land Registrars g) Land Valuers	PLUPA 60(1) Third Schedule Sections 2-17	a) Comments b) Clearance c) Performance Conditions
	4 AGENDA COMPILATION & DETERMINATION OF DEVELOPMENT APPLICATIONS	4 (a) Agenda Itemisation 4 (b) Convening of Development Determination Commitee 4 (c) Items Deliberations & Resolutions	a) Agenda Listing Template b) Meeting Proceedings Guidelines b) Minutes of Resolution Meeting	Development Determination Committee (Line Directors/ Commenting Authorities, Professional Associations, Co-Opted Invitations)	PLUPA Part VII 90(b)(e)	Minutes of Proceedings & Resolutions
	5 COMMUNUCATION OF DETERMINATION & APPEALS	5 (a) Reporting to CECM 5 (b) Reporting to Municipal Managers 5 (c) Signing & Stamping drawinga & Permits 5 (d) Dispatching Applications to consultants 5 (e) Receiving & Processing Appeals	(a) Minutes of proceedings Resolutions (b) All Refrence Documents used for evaluation	County Director Of Phyiscal & Land Use Planning	PLUPA 61(1) 6192) CGA 95 96	Development Permits
Post-Approval Phase	6 IMPLEMENTATION PLANNING	6 (a) Consultant/Client interpretation of Approval Conditions 6 (b) Securing Secondary Permits (EIA, NCA, Hoarding etc) 6 (c) Costing of the approved development 6 (d) Sourcing of Funding 6 (e) Bidding/Tendering Process 6 (f) Conract Awarding	(a) Funding Options References (b) Fund/Investment Sourcing References	(a) Developer (b) Relevant Built environment Professionals (County & Consultants) (c) Lending Institutions (d) Contractor (e) Insurance Underwriters (f) Legal/Judicial Officers (g) Enforcement Officers		(a) Secondary Permits (b) BQs (c) Development Funds (d) Implimentation Contracts (e) Inspection Reports/Certificates
	7 PROJECT EXECUTION	7 (a) Project Phasing 7 (b) Progressive Inspections & Reports 7 (c) Amendments or/and redisign 7 (d) Enforcement Notices for non-compliance 7 (e) Prosecution for non-comliance	(a) Approved Working Drawings (b) Quality Control References (c) Safety Procedures (d) Judicial Processes Reference Documents			
	8 PROJECT COMPLETION	8 (a) Final Testing/Inspection 8 (b) Handing Over/Commissioning	All Refrence Documents used for evaluation	Relevant Built environment Professionals (County & Consultants)		Completion/ Compliance/ Occupation/ Certificate

conflict in the public interest. The basic question is not whether owners and occupiers of neighbouring properties would experience financial or other loss from a particular development, but whether the proposal would unacceptably affect amenities and the existing use of land and buildings that ought to be protected in the public interest.

The importance of development management extends to promoting investment, conservation of heritage and safeguarding planning standards in the land market by ensuring compliance with the set standards. Examples abound of developers putting up buildings without due consideration of the safety and wellbeing of the occupants.

Environmental Assessment and Statements

At the most general level, the overriding issue is that of striking an acceptable balance between the needs of economic growth and the protection of the environment. This is the balance that needs to be treated with caution, considering the likely or significant environmental effects by virtue of the nature, size or location of the proposed development. The purpose of environmental statements is to assess proposed development in relation to national and local planning policies and other relevant factors, such as the impacts of the proposed development on the environment, and give the appearance of justice and fairness.

Socio-economic sustainability

There is a direct link between planning and local economic development; the role of local plans in providing for economic development has always been and remains significant.

The approaches of managing physical growth at the local level are directly interrelated to problems and impediments to local economic development. Some doubts have been expressed as to how a positive strategy can be expressed as a range and quantity of sites that meet the future needs of present and future employers. An example to dispel this line of thought, is that the spatial relationship between the location of employment and the location of housing determines the productivity, wages and future levels of local prosperity.

The current devolution framework should be part of the vision and strategy to support existing business sectors and identify and plan for the new and emerging economic sectors and networks of knowledge and technology that have produced a rapid rise in the number of people working from or at home; plan positively for property market segments and the classification priority areas (ranging from high-end business parks to SME/incubator cluster sites) for the responsive location and flexible integration of land uses.

Linking Development Controls with Legislation and Regulations

The Role of Physical and Land Use Plans in Development Control

Without development control, in a laissez-faire market, the sheer complexity of urban growth would be chaotic. Societal values and norms shift progressively, and, in the process, land uses and building facets change considerably over time. Logically this requires a vast amount of intrinsic control or ordering.

The objectives of development control as outlined in section 55 of the Physical and Land Use Planning Act include, among others, the promotion of public participation in physical and land use planning development decision-making and ensuring the proper execution and implementation of approved physical and development plans.

At the core of demonstrating key dimensions of plan-making processes in the county is

the County Planning Unit (CPU) established under Section 105 of the County Governments Act. The CPU has the strategic role and duty of integrating and coordinating all county sectors and providing a degree of certainty and consistency across the entire planning and implementation cycles.

Proper planning paves the way for zoning that facilitates the conversion of land for different purposes and the coordinated implementation of housing, bulk and connective infrastructure like transport, water and sanitation and social and other basic services that reach all residents. On the other hand, the negative impacts of poor planning and development control are evidenced in traffic congestion, pollution, slumification and crime, all of which harm economic growth.

By applying the principles stated earlier, development control therefore minimizes these gaps to:

a) Ensure optimal land use;

b) Protect and conserve the environment; and

c) Promote public safety and health.

The fact that urban spaces have high concentrations of people, business enterprises, industrial processes and motor vehicles can make them hazardous. However, compatible and optimal land uses coupled with efficient transportation provide opportunities for lowering the costs per household and per enterprise of the provision of infrastructure and services. In the absence of adequate development controls, the level of informality breeds types of susceptibility to different adverse events. The same development control principles attempt to moderate the vulnerability to:

a) Ensure orderly physical and land use development;

b) Ensure orderly and planned building development, planning, design, construction, operation and maintenance; and

c) Promote and safeguard national security.

Within these all-embracing objectives are other ideas of controlling the urban sphere in its widest sense. One prevalent and critical idea is to ensure that essential infrastructure is provided at the right stage of development, but the free market in the Kenyan land sector has not been adequately safeguarded, resulting in a combination of supply- and demand-side approaches that are imbalanced resulting in a patchwork of non-compliant and sometimes, life-threatening developments.

Applications for Development Permission

Spatial development decision-making is a function exercised by county governments in accordance with approved physical and land use plans within their territorial jurisdiction to avert planning chaos and resolve conflicts. Decisions relating to a specific parcel of land must be made with reference to the whole spatial system. However, many people view the process of applying for and obtaining development permission as an unnecessarily slow, restrictive and costly process, further complicated by bureaucratic red-tape and pervasive enforcement.

While criticism of the former local authorities over past practices abound, the processing of development applications remains a critical arena for discussion and innovation. Under devolution governance, the shift from 'development control' to 'development management' should herald the appreciation of the multiple perspectives and competing ways that land is understood.

The Physical and Land Use Planning Act prohibits any person from carrying out development within a county without development permission granted by the relevant county government. Any such unauthorised development is categorised as an offence that is punishable in accordance with the provisions of the Act. Furthermore, a person who undertakes a development without the requisite permission would be required to restore the land on which the development is taking place to its original condition or as near as possible to its original condition within ninety days of being directed to do so by the county government.[4]

The Act also empowers the Cabinet Secretary to make regulations to address a wide variety of issues including:

a) **The forms to be used and fees to be charged. While these are yet to be promulgated, the repealed Physical Planning Act (CAP286) incorporated seven Forms as follows:**

- Form PPA1: Application for Development Permission
- Form PPA 2: Notification of Approval/Refusal/Deferment of Development Permission
- Form PPA 3: Notice of Completion of Development Plan
- Form PPA 4: Submission for Approval of Modification/Revocation of National and Regional Plan
- Form PPA 5: Certificate of Compliance
- Form PPA 6: Notification of Intent to Subdivide
- Form PPA 7: Enforcement Notice

These forms will remain applicable until replaced by new forms issued by the Cabinet Secretary through regulations promulgated in accordance with section 90 of the Act.

There is a strict relationship between government institutions and the professionals in the built environment whose roles and protocols need to be well understood in the plan preparation and development management processes. This is a critical aspect that the repealed act failed to detail.

The understanding of how different land use controls work and the reason for their creation is important in the urban space that is becoming increasingly complex. Other encompassing forms need to be created with clear protocols at all process levels. For example, in the repealed act, Forms PPA 1 and PPA 2 confined their content to planning parameters, land tenure, site conditions, total disregarding the fact that architectural and engineering applications also undergo a similar assessment process.

b) **The norms, guidelines and standards for delivery of physical and land use planning services:**

Good plans and policies cannot translate into positive results in an incorrectly formulated regulatory framework. In this approach, part of the reforms is simplifying the planning process and the planning systems through tailored guidelines that reach out to the community for specific purposes. This includes guidelines on how to get planning permission and how much it costs and should be clear and concise and easy to understand.

Similarly, all aspects of land development require technical standards for quality assurance in public health and safety of people. The standards set out the minimum requirements and basic performance standards.

4 Section 57, Physical and Land Use Planning Act

c) Procedure and process of handling applications for development permission:

This refers to the assessment of applications for development permission and the staged procedures that lead to a formal decision. As the application process would necessarily include various county government departments (such as planning, infrastructure, water and sanitation), there has to be, at each county, an efficient and transparent process that keeps up with the influx of applications.

The basic indicator of effectiveness in measuring the impact of development policies is the number of development applications that are compliant.

The effectiveness of scrutiny and determination of development applications remains important so long as greater emphasis is placed on the professionals on both sides (development consultants and government officers), the existence of clear end-to-end guidelines on pre-application discussions as well as transparent and efficient systematic approval procedures that do not burden the development process. The existence of a stable, predictable, transparent and consistent environment serves to encourage external investment into the relevant county.

Material Considerations

The granting or refusing of planning permission is one of the most critical functions of county governments; in all stages of application scrutiny, the government must consider all relevant material considerations and observe rules of natural justice, reasonably and without bias. Most fundamentally, decisions must be made with regard to approved policies, plans and guidelines.

6.2. Financing Infrastructure and Development Levies

The physical and land use plans which include public infrastructure investment proposals are based on a 10-year time frame. The alignment of the 10 year sectoral plans with the physical and land use plans allows for prioritisation with milestone proposals for public (bulk) infrastructure investment which would influence and promote private sector development initiative and further guide the imposition of development fees to support funding (internal and link to bulk).

The operating efficiency of land development systems as an actual tool of control is the link between the infrastructure needs analysis in the physical and land use plans and the supply side development economy. Private sector investment in intensification of land use has to compete in the marketplace by providing key infrastructure as an enhancement of both site and buildings; the infrastructure must be completed and brought into service before occupation. An investor must therefore deploy a financing model against the prospect of financial return.

6.2.1 Urban Infrastructure Needs in Nyandarua

(Based upon Proposed Spatial Plan and Field Study)

Once a settlement has been granted town status, the facilities it requires include health facilities, refuse collection and solid waste management, pre-primary education, polytechnic, airstrip, cemetery, and recreational park among others. The installation of such facilities in a settlement will, in the long run, boost its development potential.

Urban Water Needs

Residents of Nyandarua County have access to piped water, boreholes, shallow wells, rivers, dams and rainwater. However, access to clean and safe drinking water is a persistent problem. The problem cuts across the county in varying degrees. The adversely affected areas include: Ndaragwa Sub County, Turasha, Githabori, Magumu, and North of Olkalou.

Wells and rivers are the leading sources of water in rural areas, demonstrated by the fact that approximately 26.3% and 23.8%, respectively, of households rely on them. Statistics indicate that only about 20.8% of Nyandarua residents have access to piped water.

The accessibility of water in the county was also established based on the average distance to the nearest water source/point. It was established that the average distance to the nearest water source in Nyandarua is approximately 646.6 metres which compares poorly with the recommended 500 metres.

Estimated urban water demand is established by taking into consideration the urban population, and both the commercial and institutional uses that are a key component of the urban function. The urban population has been projected to grow at a rate of 4.31% per annum.

Urban Water Demand	% of Total Population	Consumption (L/Head/Day)	Demand M³/Day	
			2017	2026
High Income	5	250	1,936.2	2,830.6
Medium Income	25	150	5,808.6	8,491.9
Low Income	70	75	8,132.0	11,888.7
Total Domestic			15,876.8	23,211.2
Commercial & Institutional	30% of the total domestic water demand		4,763.1	6,963.4
Allowance for leakage	20% of the total domestic water demand		3,175.4	4,642.2
Internal Usage	5% of the total domestic water demand		793.8	1,160.6
Total Water Demand			24,609.1	35,977.4

Source: Nyandarua Spatial Plan

Currently, with a projected population of 154,896, urban water demand in Nyandarua County is estimated to be 24,609.1 cubic metres per day. The table below shows the current and projected urban water demand in the County.

The two major urban water service providers which are county owned companies, i.e. NYANDAWASCO and OLWASCO, supply a total of 2,170 cubic metres per day. This implies that the urban areas within the county have a current daily deficit of 22,439.1 cubic metres. The urban water demand is expected to rise to about 35,977.4 cubic metres per day by the year 2026. The table below shows water demand in major urban centres in Nyandarua.

Town	Total Demand 2017 (M³/day)	Projected Demand 2026 (M³/day)
Mairo Inya	1,566.2	3,209.1
Njabini	959.9	1,966.9
Engineer	323.0	661.9
Olkalou-Core	1,116.1	2,286.8
Olkalou total	14,699.6	21,490.1

Source: Nyandarua Spatial Plan

Water Accessibility Issues

- Lack of an integrated water supply plan for the entire county.
- Dilapidated and decaying infrastructure.
- Lack of water treatment facilities in water supply systems.
- Inadequate funding for upgrading, rehabilitation and expansion of water services.
- Siltation in the dams.
- The CBOs/SGHs have insufficient funds and capacity to ensure an efficient supply of water and hence serve reduced levels of population in limited areas.

Residents outlined other challenges in accessing water ranging from low quality to high cost/charges. Unreliable water supply is the biggest challenge facing residents across the five Sub Counties.

Wastewater Management

Sewage Disposal in County Households

Most of the households in Nyandarua use pit latrines for sewage disposal. They account for about 92.8% of county households. Only a small proportion of them use ventilation improved pit latrines, comprising approximately 8.7% of county households. Only about 5.6% of households use flush toilets, whereas the remaining 1.5% uses other unidentified means of sewage disposal.

With regard to grey water (sullage) disposal, a majority of the households, close to 74.2%, reported that they pour wastewater in their compounds. Others either pour the water by the road, in their toilets or use other means of disposal. The lack of adequate drainage in rural areas may result in stagnation of water which provides a breeding ground for insects such as mosquitoes. This consequently increases the risk of disease transmission e.g. malaria.

Table 8-9: Projected Wastewater Generation in Major Towns Town	Wastewater Generated 2017 (M3/day)	Wastewater Generated 2026 (M3/day)
Mairo Inya	1,252.96	2,567.28
Njabini	767.92	1,573.52
Engineer	258.40	529.52
Olkalou	892.88	1,829.44

Source: Nyandarua Spatial Plan

In Olkalou, the county headquarters, sewage is transported from the source by exhausters for treatment at the Decentralized Treatment Facility in Olkalou. However, there is a proposed sewerage system in Olkalou Township of which the catchment will be about 30,000 households.

All urban areas lack sewage systems necessary for effectively managing wastewater.

Solid Waste Management

Solid waste management remains a major challenge in all counties in Kenya, including Nyandarua. Formerly, most local authorities did not establish proper waste management systems, and county governments have inherited this state of affairs (National Solid Waste Management Strategy, 2015). The situation has been aggravated by rising population and urbanization levels. Currently, the population of Nyandarua is estimated to be 720,844 and is expected to rise to about 892,361 by 2026.

Currently, solid waste generated on a daily basis in Nyandarua is estimated to be 427 tons. Of this, 75% (320 tons) is handled in rural households, 15% (65 tons) in urban areas, while the remaining 10% is left unattended. Notably, urban areas generate close to 65 tons of waste per day, 14 of which are collected leaving the remaining 51 tons uncollected.

The main solid waste generators comprise the main markets, which are Magumu Complex; Soko Mjinga, Fly-Over Magumu and Wakiba Junction and urban nodes such as Olkalou, Mairo-Inya, Njabini, Ndaragwa and Engineer. Other solid waste generators include the following urban centres: Wanjohi, Miharati, Oljoro-Orok, Kasuku, Kaptain, Mirangine, Ndunyu Njeru, Geta, Gwa-Kungu, Murungaru, Rurii, Mukue, Ngano, Shamata and Siribwet (County Director of Public Health, 2017).

Most of the households, approximately 65.3%, dispose of their solid waste by burning it. Municipal waste receptacles and private waste collectors collectively handle 11.8% of the total disposed household waste in the county. These are mainly households located within urban areas. About 20.7% of households compost their waste while the remaining 2.2% use other methods of waste disposal.

Solid Waste Disposal Sites

There are five (5) solid waste disposal sites in Nyandarua, though only one is operational. They are: Mahinga (Olkalou), Mahinga (Malewa), Kaharu (Kinangop), Tulaga (Kinangop) and Mbuyu (Ndaragwa). Only the Mahinga disposal site in Olkalou is operational. All waste is disposed of at the site without segregation i.e. both biodegradable and non-biodegradable. This hinders reuse and recycling of solid waste.

Emerging Issues on Solid Waste Management

- High amount of unattended solid waste (10%)
- Low solid waste sorting at source level
- Low technical competency and adoption of new technologies
- Lack of funding and inadequate budgetary allocation
- Low compliance with environmental legislation

Energy

Hydropower is the biggest source of electricity in Nyandarua County. However, the county has no hydro generating plant, but is connected to the National grid. There are four power substations in the county.

- Olkalou
- Matundura
- Magumu
- Wanjohi

There is an energy centre in Mirangine area, which will serve as a key learning centre and enhance energy transmission throughout the county. Moreover, it will promote research and uptake of new technologies and devices in the county.

Electricity Access

The Kenya Power & Lighting Plc is the main electricity supplier. A total of 65,399 households are connected, accounting for approximately 40% of the total households. The majority of the residents within the urban centres are within the gridline and have been connected with the greatest percentage of the unconnected households being within the rural areas.

On March 12th, 2019, the Energy Act No. 1 of 2019 was enacted and came into effect on March 28th 2019 ("the Act"). The main objective of the Act is to consolidate the laws relating to energy; provide for National and County Government functions in relation to energy and provide for the establishment, powers and functions of the energy sector entities.

The Act also seeks to promote renewable energy and provide for the exploration, recovery and commercial utilization of geothermal energy. Finally, the Act regulates midstream and downstream petroleum and coal activities as well as the production, supply and use of electricity and other energy forms. The Act repeals the Energy Act, No. 12 of 2006, the Kenya Nuclear Electricity Board Order No. 131 of 2012 and the Geothermal Resources Act, No. 12 of 1982.

An Opportunity for Nyandarua County

In addition to hydropower resources, the County of Nyandarua, is also strategically located for the generation of wind power and the Ministry of Energy's Power Sector Medium Term Plan 2015-2020 identified Kinangop wind as a suitable site for the development of a 60MW wind farm.

Other sites identified by the county government include Kipipiri (Mt. Miharati) areas. With Kenya targeting over 70% of its energy generation from renewable energy resources, the Energy Act 2019 provides opportunities for the County Government to leverage its renewable energy resources and grants county governments increased scope in participating in the power sector in the future.

The County Government of Nyandarua should explore opportunities available in the reticulation of electricity within the county and thereby serve as a power distributor.

A distribution licence authorizes the licensee to plan, build, operate and maintain the distribution system necessary for the conveyance of electrical energy from generating stations or plants either directly or through the transmission system for supply to consumers as stated in the licence.[5]

A distribution system may consist of the electric supply lines planned and built by the national or county government, in addition to those planned and built by the distribution licensee.[6] The Energy Act has mandated the National or County Government, upon determination that a supply of energy in any area is necessary and upon establishing that it is commercially inexpedient to provide for the necessary reticulation by any licensee, the Cabinet Secretary or County Executive Committee member as the case may be, may undertake the provision of any such works or provide the funds necessary for the development thereof.[7]

As energy reticulation is a function of County Governments under Part 2 of the Fourth Schedule to the Constitution, and has now been reiterated in the Fifth Schedule of the Energy Act, 2019, we recommend that the County Government of Nyandarua should consider the establishment of a county energy utility / corporation that would be responsible

5 Section 139 (1) of the Energy Act, 2019

6 Section 139 (1) of the Energy Act, 2019

7 Section 7(2) of the Energy Act,2019

for the distribution of power among its residents and/or the development of minigrids that enable the county energy utility to distribute power to clusters of residents. This would be in line with best practices across the globe where municipalities and/or cities are mandated to provide electricity and gas to their residents. This would be a significant revenue earner for the County Government and would ensure that it remained in control of the attainment of universal electrification within its geographical boundaries.

Information Communication Technology

Nyandarua County has embraced ICT in public service delivery, and in learning institutions. However, ICT infrastructure in the county remains weak. This is demonstrated by a weak Global Satellite Mobile (GSM) signal in certain areas, and lack of 4G network. The main mobile phone and telephone service providers are Safaricom, Airtel and Telkom.

The county relies on the IFMIS (Integrated Financial Management Information System) for transaction management, while 80% of revenue collection is already automated. The number of specialized IT experts is small, and much can be achieved through training and employment of more experts.

To facilitate uptake of ICT in learning institutions, it is obligatory for the county to establish adequate infrastructure such as labs, and adequate qualified staff.

Summary of ICT uptake in Government offices

- 85% of the offices have access to internet.
- 80% of revenue collection is automated.
- The county has recently acquired a server to provide digital data back-up.
- All offices have LAN.
- All offices have a unified communication system and Bulk SMS platform.
- Have a fully functional website.

Optical Fibre

Olkalou, the county headquarters has benefited from the National Optical Fibre Backbone (NOFBI) project aimed at ensuring connectivity in all the 47 counties of Kenya. Olkalou is connected through the Gilgil - Olkalou - Nyahururu route. This will ease communication between Nyandarua and other counties as well as improve the delivery of government services, such as applications for national identity cards, passports and registration of birth and death certificates, to Nyandarua residents.

Major Infrastructure Installations

The structure plan also indicates major infrastructure installations in the county in respect of water supply, sewage disposal and solid waste management. Infrastructure installations proposed in the power supply and ICT sectors are, however, not included in the structure plan, but are instead indicated in detail under sectoral strategies. The table below shows the main infrastructure project proposals pertaining to water supply, sewage disposal and solid waste management.

Proposed Infrastructure Projects

Sector	Water Supply	Sewage Disposal	Solid Waste Management
Proposed Projects	New water supply schemes in Engineer, Njabini, Ndaragwa and Miharati.	New sewerage systems in Olkalou, Mairo Inya, Njabini and Engineer Decentralized treatment plants in Oljoro-Orok, Miharati and Ndaragwa.	Sanitary landfills in Olkalou, Malewa, Kaharu, Tulaga and Mbuyu.

Social Infrastructure

Basic Education Demand and Projection

83.8% of the county's population aged 15 and above, can read and write(Nyandarua CIDP, 2013). This implies that about 16.2% of said population is illiterate. The County is, however, faring better than the national average, which was 78% in 2015.

About 16.2 % of Nyandarua County residents have received tertiary education, approximately 38.7% have secondary school education and approximately 38.8 % have primary education. Only about 0.7% of the county residents have no formal education, as shown in the graph below. It should be noted that these statistics include people continuing with their education.

A primary school is an establishment providing basic education covering a period of eight years for children aged between 6-13 years, inclusive. Considering an ideal pupil enrolment of 40 per class for a two-streamed school from class 1 – 8, an ideal public primary school should have a maximum of 640 pupils.

Assuming 100% demand for public primary school facilities and taking the current projection of population of the school going age (6-13 yrs.), i.e. 168,239, it is deduced that the county currently requires 263 public primary schools. The county has 347 public primary schools indicating a surplus of 85 schools. In 2026, the primary school going age population is projected to be 208,270.

Considering the above assumptions, 325 public schools will be required, and this indicates that the county has sufficient public schools. However, most of this school infrastructure is dilapidated and therefore requires renovation.

Secondary schools provide education for a period of four years to children who have completed standard eight in Primary School. Secondary school age is taken to be from 14-17 years. This age group accounts for approximately 9.3% of the total population in Nyandarua.

Considering an ideal pupil enrolment of 40 per class for a two-streamed school from form 1 – 4, then an ideal secondary school should have a maximum of 320 pupils. Assuming 100% demand for secondary school facilities and taking the current projection of population of the school going age (14-17 yrs.), i.e. 67,049, it is deduced that the county currently requires 210 public secondary schools. The county has 166 public secondary schools and 48 private schools, totalling 214 schools.

Assuming 100% demand for public secondary schools, the county has a current gap of 44 public facilities. Most of the existing schools lack adequate support infrastructure such as laboratories. In 2026, the secondary school going age population is projected to be 83,003. Considering the above assumptions, 259 secondary schools will be required. Taking into consideration both public and private schools, there will be a gap of 45 new facilities.

Challenges in Education

The main challenge facing education within the County as portrayed by the household survey is inadequate teaching staff within the county's educational facilities. Inadequate facilities, long distance and high cost of education are also major contributors to county residents' difficulty in accessing education services.

Other challenges facing the education sector in Nyandarua are:

- Inadequate infrastructure and equipment in educational facilities.
- Long distance travelled from home to ECDE centres.
- Acute shortage of qualified instructors in polytechnics.
- Lack of modern teaching machines, tools and equipment in polytechnics.
- High dropout rate in Youth Polytechnics caused by high examination fees.
- Inadequate institutions of higher learning.
- Lack of an institution offering agro-based courses, which would be more relevant to the economy of the county.

Health Care Facilities in Nyandarua

Nyandarua County currently has 276 health care facilities. 142 of these facilities are managed by the County Government, ranging from Level 1 to 4. The county has three county hospitals (Level 4); J.M Memorial Hospital, Engineer Hospital and North Kinangop Mission Hospital. In addition, there are 27 Health centres, 45 public dispensaries, 7 Faith-based dispensaries, 125 privately-owned clinics and 69 community health units.

Based on the norms and standards for health service delivery in Kenya, as at 2017, Nyandarua County has a deficit of at least one level 5 hospital, four Level 4 hospitals and 20 dispensaries. This deficit is set to rise by 2026 as indicated in the table below.

Challenges related to the health sector in Nyandarua County are as follows:

- Inadequate health facilities.
- Workforce is strained owing to big staff shortage.
- Supply of essential drugs is insufficient.
- Modern equipment is inadequate.
- Poor road network to health facilities.
- Lack of water supply in health facilities.

Level	Catchment	Current population (2017)	Facilities required (2017)	Existing Facilities	Gap	Projected population (2026)	Facilities Required	Future gap
6	4,000,000	720,844	-	-	-	892,361	-	-
5	1,000,000		1	0	1		1	1
4	100,000		7	3	4		9	6
3	30,000		24	27	-3		30	3
2(Dispensaries)	10,000		72	52	20		89	37
1	5,000		144	69	75		178	109

Source: Nyandarua Spatial Plan

Challenges: Recreation, Community Facilities, Law and Order

The following issues emerged from the analysis and the stakeholder discussions:

- Insufficient public parks in urban areas.
- Inadequate community facilities such as social halls, libraries and rehabilitation centres.
- The County lacks homes and hospices for the elderly.
- Inadequate staff housing for police officers, i.e. number and condition. However, there is a proposal to put up 50 housing units for Kenya Police in Ndaragwa.
- Several crime hotspots: Mairo Inya, Leshau Pondo, Gwa Kung'u and Chemichemi; notably this has ceased since 2016.
- Insufficient police officers and prisons wardens within the county.
- Other urban centres such as Engineer, Miharati, Njabini, Mairo-Inya, Oljoro Orok, etc. also lack the required facilities and infrastructure such as non-motorized transport system, and cemeteries.

Potential Solutions from the Case Study Interviews

Water Solutions

- Provide a water emergency call number.
- Install a water treatment plant.
- Install water dispensing ATMs.

Sewage Solutions

- The county government should construct a sewer treatment plant to treat the sewerage before discharging it into the river.
- Involve the informal sector in solid waste management.

Waste Management Solutions

- Involve the informal sector in solid waste management and sourcing of the appropriate technologies.
- Establish waste recycling plants.
- Engage the informal sector in solid waste management.
- Integrate water and sewer bills in one payment portal.

Drainage Solutions

- The county government should invest in constructing and managing the drainage system.
- Harvesting rainwater.

Roadway Solutions

- Upgrade the roads to bitumen standards.
- Level the roads.
- Construct storm drains on both sides of the roads.

6.2.2 The Growing Infrastructure Deficit

Given the current population growth predictions of reaching about 900,000 people by 2026, there will be an increase of about 5,000 homes every year. Even if only 20% are in Urban areas which require shared infrastructure, there will be an increasing need for financing basic infrastructure services.

The cost of providing basic infrastructure is approximately USD 6,000 per apartment for a family of five people (this does not include major access road development). Already the current level of expenditure is close to USD3,000 for septic tanks. Construction costs per sqm are approximately USD450 for a multi storey building.

The construction of an 80 sqm apartment, including development fee, would cost USD 42,000. (USD 36,000 for construction + a 6,000 development fee) This would only be USD3000 more than the current costs and this is before land acquisition costs.

Until development levies become a routine part of the granting of building permits, the deficit for the needed payment of infrastructure (based upon a generic cost of Kes 600,000 for infrastructure per apartment and 1,000 new urban apartments per year) is 600,000,000 Kes/yr = 1.6 million KSH/ day. This is almost double the current total collections of fees and taxes for the county. This does not include the cost for Health, Education, and other critical services.

Furthermore, there is a backlog of approximately 40,000 existing urban households with inadequate infrastructure. Upgrading would require 24 Billion KSH.

Development Costs- examples

- Pit latrines vary in cost from 150 USD to 1,200 USD
- Septic Tank costs approximately 3,000 USD
- Well/bore hole costs 500 to 1,500 USD
- An earth or tarmacked access road to property is a function of distance

Nyandarua Housing costs and generic infrastructure burden of costs.

Cost of a 500 sqm plot for housing in Nyandarua is USD 5,000 to 10,000.

The cost of an 80sqm house including land and construction would be USD 45,000. The additional cost of 6,000 for an infrastructure development levy (USD 3,000 sewage + USD 3,000 others) would then be about 15%. **Total cost USD 51,000.**

Infrastructure Development Challenges – Field Interview Responses

Under what conditions would you see the county taking full or partial responsibility for providing infrastructure?

- It might take longer or might never happen since most of the infrastructure here has stalled due to existing conflicts between the county government and the host communities. The establishment of a waste disposal centre stalled as the residents near the targeted area resisted because the water supply is managed by a community based organization, which inherited the function from the national government of 1992, long before the creation of county governments.
- In addition, most of the land here is privately owned and not all the owners are willing to sell.

6.2.3. Filling the Infrastructure Gap

Guiding Principles for Operationalising Management of Development Fees

The Legal Bases for Introducing Development Fees into Planning Procedures

County governments have the responsibility to undertake planning that links spatial plans with the overall urban design (or designated target area), including key infrastructure development ventures and with a financing structure (scope of funds, risk management, costs of financing/ return on investment, time frames). All of this must be anchored in National Legislation and County Government legislation, including the various regulations promulgated thereunder.

Now in Kenya, the new Physical and Land Use Planning Act, No. 2019 (PLUPA) legally mandates County Government authorities to introduce development fees as part of the process of application for development permission. In keeping with section 63 of the PLUPA, County Governments have the authority to incorporate a development fee that is to be paid (or some portion thereof) to the County Government by developers (commercial or individual) as an integral part of the planning process and granting of building permits.[8]

The development fee can, however, only be imposed by the County Government once it has published regulations determining the circumstances under which such levies shall be applied, the rates payable and the circumstances under which the development fees may be waived by the County Government.

Based on comparative practices in other jurisdictions, it is envisaged that these development fees will go towards the expansion and upgrading of central systems (when available at reasonable cost and timeframe) or towards integrated neighbourhood treatment systems, (examples already exist in some form in Kenya). Payment of the levy will be a precondition for receiving a building permit.

In appropriate situations, the developer may receive a waiver for payment of the development fee. In lieu of payment, the developer would be required to construct the necessary infrastructure, as determined by the county government, in accordance with section 63(3) which provides that:

> *"(3) Where a development fee has been waived in relation to an application for development permission, a county executive committee member may require that applicant to develop infrastructure in relation to the property in question for general use by the residents of the area where said property is located."*

8 Section 63(1) PLUPA provides that "A county executive committee member may levy a development fee against an applicant for development permission".

The availability and adequacy of infrastructure is a prerequisite in the development control process and the authority to impose development fees is further outlined in the Third Schedule to the Act which addresses development control. Of the eight development control processes and procedures enumerated in this Schedule, the County Government will have to have due regard for the availability and adequacy of the infrastructure, as far as permissions for Change of User, Extension of Users, Extension of Lease, sub-division scheme and amalgamation proposals and building plans are concerned.

With particular regard to sub-division schemes and amalgamation plans, the County Government will also have to consider the linkage and indication of classified roads in addition to the availability and adequacy of the infrastructure.

Finally, the adequacy of infrastructure will need to be addressed in every local physical and land use development plan in accordance with Section 5 of the Second Schedule to the Act. In particular, each of these plans should include an analysis of, among other issues, Housing and Infrastructure as well as Transportation and Communication.[9]

The following key issues should therefore be covered under a Housing and infrastructure analysis:

(i) Housing occupancy rates, accommodation density, housing requirements, type of residential areas and industrial locations.

(ii) Education.

(iii) Recreation areas and other public purpose land uses.

(iv) Power lines and easements.

(v) Water and sewerage networks.

(vi) Housing and infrastructure programmes.

In the Transportation and communication analysis, the following key issues will need to be addressed in the local physical and land use development plan:

(i) Road networks, footpaths, cycle ways, railway lines, depots, water ways, docks, etc.

(ii) Telephone lines.

Although this new national legislation provides the county governments with the authority to levy development fees, as mentioned above, each county must pass its own regulations and incorporate them into the planning and building permit granting process.

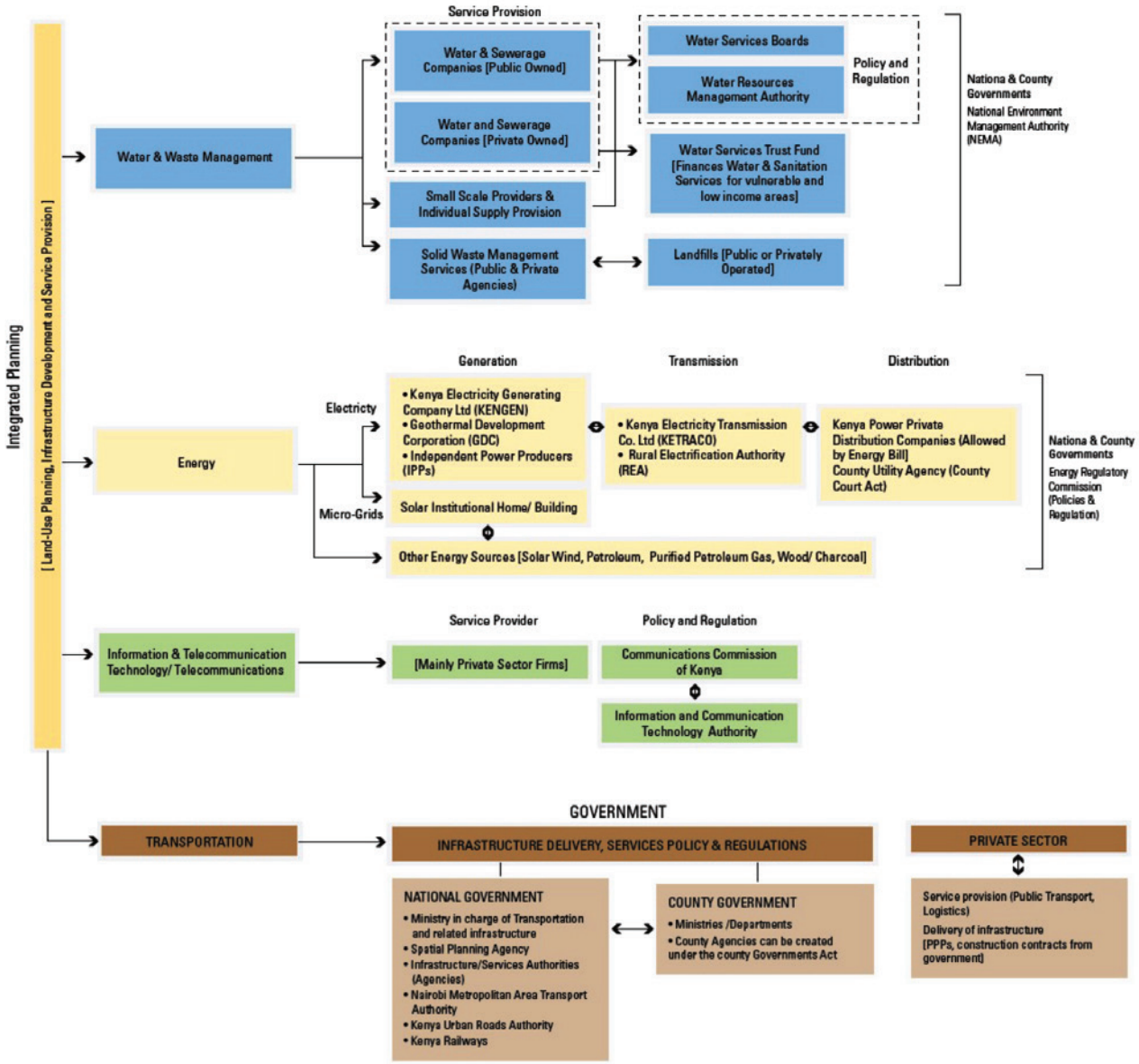
6.2.4 Emerging Issues: Towards Improved Infrastructure and Service Delivery

- Potential for Greater Participation of the Private Sector.
- Ascertaining Infrastructure Investments for bridging the gap.
- A framework that considers investments required for:
  - Neighbourhood Improvements.

9 Paragraph (e) Housing and Infrastructure Analysis, and Paragraph (f) Transportation and Communication Analysis under Section 5, Second Schedule.

- Institutional Strengthening- enhancing capacities of mandated agencies/utilities.
- Planning Instruments- linking development fees in planning approvals-will require installing an e-system.
- Bulk Infrastructure.

Institutional Arrangements for Provision of Infrastructure



Source © Baraka Mwau/UN-Habitat

6.2.5. Infrastructure Funding Burden

Although largely premised on the notion that necessary infrastructure is the responsibility of the government, there should be a clear separation between bulk infrastructure responsibility and private sector ventures infrastructure responsibility to intensify land use. The bottom line is that this is an obligation by both public and private sectors. The absence of instruments to coordinate and regulate this obligation in Kenya has had a negative (overload) effect on existing infrastructure and resulted in an infrastructure deficit on upcoming large-scale projects.

As stated above, under the PLUPA, county governments have the powers to impose planning conditions and infrastructure obligations and to determine the circumstances under which a development fee is applicable to private sector initiated developments. Development fees are a one-off capital charge to accommodate the impact of the new land use.

Granting Planning Permission with Conditions (PLUPA c.62(2)(a)

Conditions are often attached to planning permission that need further details to be submitted and approved by the county government at certain stages of the development. There are three main types of condition to enhance the quality of the development based on relevance to both planning and to the specific development:

a) **Pre-commencement conditions:** These conditions need to be formally fulfilled prior to construction and/or development starting on site;

b) **Performance conditions:** These conditions are normally progressive and largely capital intensive and require secondary processes to be discharged; and

c) **Pre-occupation conditions:** These conditions need to be formally discharged prior to the development being occupied or put into use.

Infrastructure Development as a Performance Condition

The planning obligations condition is a powerful approach to hinge on the realistically designated necessary infrastructure. Under the provisions of the local physical and land use plan, an analysis of infrastructural needs should be based on time specifics and local market dynamics.

The availability and adequacy of infrastructure as a prerequisite in the development control process is further delineated in the Third Schedule to the Physical and Land Use Development Act. Of the eight development control processes and procedures enumerated in this Schedule, the county government will need to have due regard for the availability and adequacy of the infrastructure as far as permissions for Change of User, Extension of Users, Extension of Lease, sub-division scheme and amalgamation proposals and building plans are concerned. With particular regard to sub-division schemes and amalgamation plans, the county government will also have to consider the linkage and indication of classified roads in addition to the availability and adequacy of the infrastructure.

Finally, the adequacy of infrastructure will need to be addressed in every local physical and land use development plan in accordance with Section 5 of the Second Schedule to the Act. In particular, each such plan should include an analysis of, among other issues, Housing and Infrastructure as well as Transportation and Communication.[10]

10 Paragraph (e) Housing and Infrastructure Analysis, and Paragraph (f) Transportation and Communication Analysis under Section 5, Second Schedule.

Conditions can cover cumulative and multiple matters which call for comprehensive guidance regarding their application. For purposes of efficiency and effectiveness, a model based on sieving tiers that categorises the magnitude of the proposed development and the levels of assessment during the planning and development permitting process is essential. The table below provides a guideline as to how these categories of development applications can be sieved through in a systematic manner.

Tier 1	**All development Applications namely:** • Change of use, extension of use, sub-divisions and amalgamations, processing of easements and rights of way; • Extension of lease term; • Siting of education institutions, base transmission stations, petrol stations, eco lodges, camp sites, power generation plants and factories; • Construction/building permits; • High impact advertisement and signage applications; • Low impact advertisements and signage, landscaping schemes.
Tier 2 •	**Development Applications that give rise to:** • Development charges components contribution (Structural, civil, electrical, mechanical and ICT engineering services); • Performance conditions fulfilment through Interim, partial and incremental certification; • Environmental and social impact; (environmental reports, traffic management reports, urban design drawing schemes); • Final fulfilment of land development completion or building pre-occupation certification; • Planning gain in lieu of infrastructural services contribution; Categorisation as national strategic or inter-county projects.
Tier 3	**Development Applications in fulfilment of pre-commencement and performance condition(s) granted in Tier 1 and Tier 2. These include, but are not limited to;** • Construction site board; • Hoarding of construction sites; and • Site safety and utility services.

However, these categories need to be applied with caution: each condition attached to a planning permission needs to be precise and justified.

Calculation of Development Fees, Appraisal Criteria and Performance Measurement

The intention of development management is, above all, to promote public good; managing local development helps secure long-term benefits of sustainable communities. The charging of development fees reflects the possible private benefit implicit in the planning permission process. The calculation formula is derived from development parameters that reflect the overall cost with respect to the estimated impact of the development on external services.

The county planning appraisals criteria and performance measurement require regular reviews (5-year mid-term reviews for sectoral and spatial plans and annual reviews for the CIDP) of the local infrastructure itself and the projected needs.

This approach serves the purpose of striking a balance between public and private interests and a fair administrative discretion in determining the development fees, standards and timelines for implementation. As indicated elsewhere in this report, it is imperative that the implementation of the development fees be guided by the benefits principle and treatment of all county residents in an equitable manner.

It is important to highlight that development permission is not granted in perpetuity and applicants are obliged to commence with the implementation of their development project within three years of obtaining such development permission. The development permission may, however, be extended by a further year, subject to the applicant demonstrating good cause for such extension.

Further, developers are also liable to such fines or conditions as may be imposed by the county government where they fail to complete the building works within a period of five years.

6.2.6. New Scope of County Regulation of Infrastructure Provision

The last eight years have been a truly regulatory era with emerging consensus about the pivotal role of counties in the planning processes.

The surge in pressure for infrastructure development – both public and private – requires wider planning considerations with the application of innovative and more expansive mechanisms for infrastructure financing.

Some of these mechanisms are already in place, such as county government own source revenues, county securities, public private partnerships; others, such as land-value capture or royalties, will necessarily call for new laws, policies and regulations that will need to be developed, streamlined and operationalised to give effect to these new financing mechanisms.

While there could be some room for argument or potentially overlapping roles at national and county government agencies in the planning process, the critical details – such as the implementation of development fees – are in favour of an integration of spatial planning with economic planning using flexible interventions. The many key innovations in the Physical and Land Use Planning Act herald a new wave of interventions to be incorporated into the development planning system.

In reality, as important as the introduction of development fees is, the first impetus in stimulating reforms lies in progressive capacity enhancement through planning policy guidance notes that accommodate current development undercurrents in the devolved units.

Furthermore, a careful rolling out of processes, norms, standards and procedures that provide a clear roadmap to carry out the desired policy reforms, as well as future reforms will be crucial.

The classification of infrastructure by sector and spatial disposition:

The physical and land use planning linkage with infrastructure can be promoted by specific county infrastructure development policy that integrates land use planning with the environment and the different types of infrastructure within and between different sectors to make a fairer and more inclusive society.

Other matters dealt with include traffic management and accessibility profiles for vehicles and pedestrians, including the minimum standards introduced for new developments under the classification listed in the table below.

Sector Classification	Spatial Disposition
Roads Storm water Drainage Street Lighting Water Supply Sewerage Reticulation Solid Waste Communications (Fibre Optics & BTS)	Internal (within confines of private land) External (trunk services serving multiple properties and land uses on public land) Link (interface linking internal services to external bulk services)

6.2.7. A County Mechanism for financing Infrastructure Development

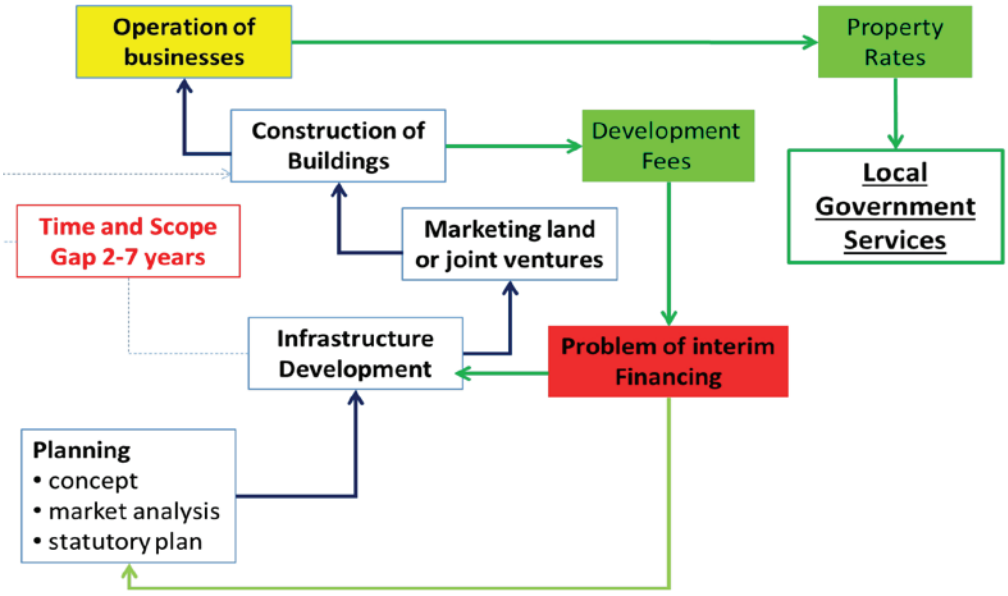
Incorporating infrastructure development into the planning and urban management procedures requires long-term interim financing mechanisms with appropriate county level legislation, procedures, and enforcement.

- The issue of interim finance is most acute at the planning stage. A primary task for the county is to undertake a full infrastructure and planning and feasibility analysis. Such a full infrastructure plan needs to be based upon a county spatial plan and on a city/municipal development plan. The investment in the feasibility study is estimated at between USD 500-900,000.

- The second stage is project implementation/construction. Based upon the infrastructure plan and a full feasibility analysis, the costs of putting in appropriate and sustainable infrastructure can be used to establish the development levies for the different projects by location, scope and technology over time. Funds for implementation are in the millions of USD.

A critical challenge, above and beyond spatial planning and legal authority for instituting development fees, is the big time gap between the outlay of expenditures for planning and constructing infrastructure, that need to be in place in advance of residential and business projects, and the return of payment from development fees. (Fees are levied as a condition for receiving a building permit and paid in part or in full at that time). There can be a 2-7-year time gap, especially in the case of central water and sewage facilities. Thus, the county is faced with the need for significant interim financing.

The Problem of Interim Financing



Source: Yoel Siegel/UN-Habitat

The first wave of residents will enter homes before there are sufficient funds from development fees to cover the full cost of major facilities. Therefore, there needs to be public investment in infrastructure, often over a period of 20 years before costs can be recovered, as additional housing or business units are constructed. This can be partially mitigated by a policy of interconnected decentralized units. This is best suited for water, energy, sewage, and organic waste treatment.

The second challenge is the relationship between the developers and the County Government. Using public financing (loans, bonds, or development budgets) is a well-accepted practice in developed nations around the world. It is predicated upon the understanding, acceptance, and de-facto payment of development fees by the private sector as an integral part of projects.

The political culture of payment of these fees is strong, as are the sanctions for non-payment. By comparison, in Kenya, the collection of land-based taxes in general is very low and development fees are not even considered legitimate by many. As a result, county governments are reluctant to risk such development expenditures.

Furthermore, private sector developers are reluctant to pay the county governments development fees for infrastructure construction. They are fearful that the fees will be paid, but the funds will be "absorbed" into the regular budgets and the necessary infrastructure will not be constructed. Even assuming that the monies are utilised exclusively in targeted infrastructure, the concern is that the time frame of the developers (construction and occupancy), will not be adequately synchronized with the pace of infrastructure construction by the county government.

Overcoming the vicious cycle of public payment and non-repayment by the private sector or private sector payment and non-

delivery of infrastructure services by the county government, is possible through the institutionalization of a two-part organisational structure.

- Creating a dedicated Infrastructure Development Fund that ensures the use of development levy/fee payments only for the specific projects designated by the fee payment. This is to be outside the regular County Budget and is aimed at preventing the "absorption" of capital development revenues into the ongoing expenditures of the county government.

- The option of providing bank guarantees in lieu of full payment of development fees as a condition for a building permit. They would ensure full payment of development fees once the infrastructure is completed. This procedure can provide county governments with a secure source of funding which is a prerequisite for undertaking deficit financing of infrastructure projects.

This can provide the private sector with a mechanism to ensure that infrastructure fees are used exclusively for that purpose. With this mechanism, the county has no incentive to delay use of the funds. Although this does not completely guarantee synchronization of public and private initiatives, it creates a financing mechanism that, on the one hand, enables county government to initiate infrastructure development proactively and, on the other hand, serves to control unmanaged urban sprawl. (Permits will not be given until adequate infrastructure is in place).

Secondary road

CHAPTER
07

AGRO-ECONOMIC DEVELOPMENT

Agriculture is the backbone of Nyandarua County's economy, with approximately 50% of the population engaged in the sector thanks to the county's fertile soils and favourable climate conditions.

In the year 2013-2017 Nyandarua County was among the top ten leading economies in the Country, with a contribution of 2.6% of GDP, followed closely by Kakamega county with 2.4% (source KNBS 2017).

The county is considered the breadbasket of Kenya, because of its high production of potatoes, cabbages, maize and beans that are sold in Nairobi and most other towns in the country. Livestock rearing is also a major economic activity in Nyandarua. Farmers in the county engage in dairy farming, sheep rearing, beef production as well as poultry. These products are sold to traders from Nairobi and other neighbouring towns. Other crops that flourish in Nyandarua include carrots, kale, tomatoes and peas.

According to the 2018 CIDP, the County has 96,062 hectares under crop production out of the total arable land area of 184,900 ha. This shows that slightly more than half of the arable land is cultivated. The region enjoys adequate rainfall between approximately 700mm and 1500mm per annum, with two rainy seasons between March -May (long rains) and October to November (short rains), making it suitable for farming apart from some periods of dry spells.

Over 70% of the residents in Nyandarua County depend on agriculture as their source of livelihood and wellbeing, most of them are small scale farmers with farm sizes ranging from 0.75 acres to 5acres, who do not have the capacity to access major markets on their own and instead opt to sell their farm produces to brokers and middle men from Nairobi, Nyeri, Embu and Thika. Most of the residents of Nyandarua County are vegetable farmers who mainly produce potatoes, cabbages, carrots, kale, snow peas and garden peas.

7.1. Agricultural Promotion Areas – Spatial Plan Recommendations

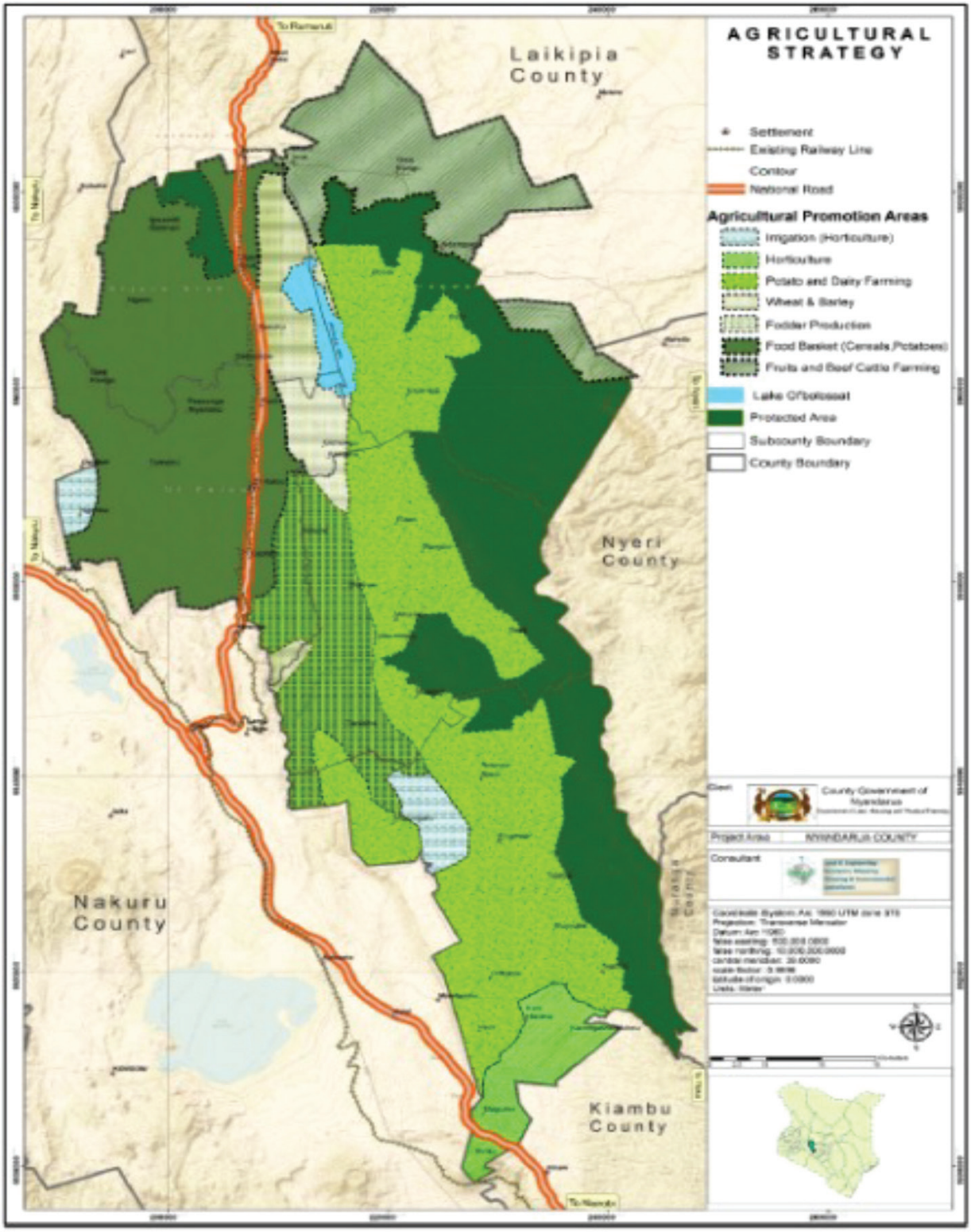
The land available for agriculture in Nyandarua measures 2,409.73 square kilometres and has been categorized into seven agricultural zones/promotion areas. In each of the promotion areas, there are primary enterprises which are to be promoted. Nevertheless, there are secondary enterprises which may be allowed in each of the agricultural zones, depending on the agro-ecological potential specific to a particular area.

The proposed agricultural promotion areas are as follows:

i. Food Basket Promotion Area
ii. Potatoes and Dairy Farming Promotion Area
iii. Fodder Promotion Area
iv. Wheat and Barley Promotion Area
v. Fruits and Beef Cattle Promotion Area
vi Horticulture Promotion Area
vii. Irrigation Promotion Area

Despite the fact that Nyandarua County is a leading producer of potatoes in Kenya with an average production of 556,950 metric tons, per year, about 29% of the country's total

Nyandarua County Agricultural Potential



Source: Nyandarua Spatial Plan

production, 46.3% of Nyandarua residents live below the poverty line, according to a County fact sheet (2011) published by the Commission for Revenue Allocation. The high agricultural production, however positive, has failed to translate into reduction in poverty levels in Nyandarua County. This is partially attributed to post harvest losses.

Agricultural land is gradually being consumed by the expansion of towns; most farmers in Nyandarua County are small scale farmers with farm sizes ranging from 0.75 acres to 5 acres and few large-scale farmers with farm sizes averaging 20 acres. In addition, these farmers do not have access to the wider markets, they sell their produce to the middlemen who directly collect it from the farms. In most cases the farmers are forced to sell to these middlemen due to the perishable nature of the produce coupled with a lack of proper storage facilities.

The poor state of the access roads also favours the sale to middlemen. Most farmers noted that the roads within the sub counties leading to the markets are either earth or gravel and mostly in a poor state. This poses a major challenge to them while transporting their produce to the markets as transporters cannot easily access their farm during the rainy season and if they do, the cost of transportation increases, eventually affecting the commodity prices.

The County has several cooperatives that should ideally facilitate aggregation of members' input requirements and then purchase them centrally to create economies of scale and save on costs to individual members. However, the agricultural cooperatives have not been very efficient in operations in terms of bulking, processing and transporting produce on behalf of their members, which has resulted in members abandoning the cooperatives and opting to produce and sell as independent farmers.

Changes in climatic conditions have continued to pose a major challenge to the agricultural sector development in Nyandarua. In 2015, flooding destroyed the road network of the County, cutting off access to markets and putting farmers' livelihoods at risk, such as the potato and pea farmers who experienced huge losses. Farmers continue to suffer low farm incomes because of the extra costs incurred when dealing with the consequences of unpredictable and extreme weather events, such as increased livestock and crop diseases and frostbite.

Inadequate certified seeds were also identified as a major challenge facing farmers leading to diminished harvest or output.

7.2. Current agricultural practices in Nyandarua

Land in Nyandarua is categorized into arable (201,100 ha, equivalent to 62% of the total land area in the County, and 3% of Kenya's total arable land), non-arable (123,430 ha, equivalent to 38% of the County's total area), and forest land (49,916 ha, equivalent to 15% and 12% of the County's and country's area respectively).

Farming is mainly rain fed and farmers mostly practice mixed farming, combining crops and livestock.

Most farmers depend on rain fed agriculture, out of 195 farmers interviewed only 27 farmers were practicing irrigation, most of them from Kipipiri Sub County. This portends a risk of reliability of farm produce to the wholesale market in the event of extreme weather conditions.

7.2.1. Average Farm sizes

Farm sizes are expected to decrease rapidly

owing to population increase and urbanization. In Oljoro- Orok for instance, in the settlement schemes established in 1964, average land size measured 20 acres in most productive areas, now the average land size is 1.7 acres in the same area, 8 times smaller than 54 years ago.

According to the County physical planning director, in the past 3 years, land in Nyandarua County has undergone massive subdivision as opposed to amalgamation due to urbanization. Statistics from the physical planning department revealed that over 1300 parcels were subdivided between January and September 2019.

The population transfer to urban centres is driving a steady fall in average farm sizes in Nyandarua County.

7.2.2. Agricultural production

In 2012, the total value of crops produced in the County was KES 17 billion and KES 7 billion for the livestock sectors.

The table below illustrates the volume of the main crops produced in Nyandarua County

Type of crops	Annual vol. production in the county (in metric tons)
Irish potatoes	447,825
Cabbage	113,618
Garden peas	48,200
Maize	21,870
Wheat	8550
Snow and garden peas	7500

Source: County Department of Land

Irish potato and cabbage had the highest contributions to crop income, about 72% (KES 12,205.9 million) and 17% (KES 2,981.1 million) respectively, whereas cow milk and beef contributed the most to livestock income, about 88% (KES 6,260 million) and 6% (KES 422.6 million) respectively (GoK, 2015).

Livestock production in Kilograms

Type of livestock product	Quantity in (Kgs) (annual prod. in 2017)
Milk	295,740,200
Wool	169,373
Eggs	10,629,895
Beef	3,900,000

Source: County Department of Agriculture – Joseph Waithiya

From the above table, milk production seems to be a flourishing enterprise in Nyandarua County followed by beef production.

The bulk products likely to be traded in the proposed wholesale market are livestock, potatoes and cabbages based on the production potential of the county.

7.2.3. Cost of agricultural production

Although the value chain for most of these crops is the same, the production or transaction cost varied per individual crop, this explained why farmers preferred production of certain crops to others. An evaluation of each crop was done to establish the cost of production and output per acre.

Cost of production and output per acre

Type of produce	Cost of prod/ acre in (Kshs)	Average yield / acre in (tons)	Sales/acre in (Kshs)
Irish potatoes	91,665	8.8	144, 000
Cabbages	84,950	55.5	277,000
Snow peas	128,500	10	240,000
Garden peas	63,250	1.8	150,000
Maize	24,410	6.0	50,000
Wheat	30,975	1.8	50,000

Source: County Department of Agriculture

Most farmers preferred potato farming owing to its high returns and demand, even though potatoes were grown as part of the broader mix of cabbages, maize and dairy. The cost of production for garden peas and snow peas, on the other hand, was high for an average small-scale farmer and they are mostly produced by contracted farmers who supply exporters.

7.2.4. Supply, demand and consumption for produce

As analysed above, the main crop being traded in Nyandarua is potatoes, followed by cabbages with an annual volume of 447,825 and 113,618 metric tons, respectively. Milk production, on the other hand, stands at 295,740,200 kilograms per annum, produced in all the five sub-counties, with Kinangop County leading with an average production of 89,413,800kg per annum.

Milk enterprise is more organized compared to potatoes and cabbages. This can be illustrated by the fact that milk is collected from farmers and graded at milk collection centres, it is then transported in bulk to cooling facilities where it is later transported to milk processing plants. The markets in the neighbouring counties link with Nyandarua County through milk processors, e.g. Kenya Cooperative Creameries and Brookside, who buy milk from Nyandarua farmers.

Nyandarua has two harvesting seasons: August and November to February. However, during the interviews, some farmers from Kinangop, Olkalou, and Oljoro-Orok, most of whom hailed from Kinangop and Oljoro-Orok sub Counties, stated that they sometimes have 3 harvesting seasons for potatoes. This was attributed to good weather, good soil and quick maturing seeds (mainly Shangi).

Potatoes have grown in importance, both as a staple food and as a source of farmers' incomes, over the past 30 years. Measured by quantity harvested, they now rank as the country's second food crop, after maize. Demand for potatoes has seen an increase with urbanisation and growth of urban fast foods. It is estimated that 60% of fresh produce is consumed by fast food outlets such as restaurants.

Most of the farmers interviewed indicated that demand for potatoes is constant throughout the year, however, supply is not stable and it depends on the harvesting season, in August and February when supply is quite high.

Most farmers interviewed preferred potato farming to other vegetables due to its high demand and profit margins throughout the year, except for a few months when there is an abundant harvest and a significant fall in price.

Potato Supply per month

LOCATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Nyandarua		High		Low	Low			High		Low	Low	Low
Nakuru		Low		High		Low	High/Low	High		Low		
Meru		Low						High		Low		

High Supply/ Low price *Low Supply/High price*

The changes in climatic conditions are gradually affecting the above supply calendar with high supply in Nyandarua tending towards June, October and January, as opposed to the earlier calendar of February and August.

7.2.5. Current marketing practices

Agricultural products in Nyandarua are marketed differently. Milk, for instance, has a stronger organization as far as market linkages is concerned. Cooperatives, dairy societies and milk processors buy the milk from farmers or farmers' organizations and transport it to cooling centres before it is transported to the factories. Milk per litre is sold at a range of Kenya shillings 27-40 to cooperatives and hotels respectively.

Those selling to cooperatives or the milk processors receive an average of 3 shillings per litre of milk for transportation from the farm.

Snow and garden peas are mainly produced for export, and exporting firms engage farmers on a contract basis to produce these vegetables.

The cabbage and potatoes farmers, however, do not have an organized way of marketing or selling their produce. The informality and the number of intermediaries for potatoes and cabbages makes the value chain for these products very complex. The assessment focused on potato value chain as most of the farmers interviewed cultivated potatoes.

Marketing value chain

Harvest potatoes and paid directly

Can be multiple layers
Provide bags, pack, thread, load and transport

Aggregate at market level
Sell directly to hotels, restaurants, processors, etc

Sell directly to customers

Most farmers interviewed worked independently and depend on brokers to pack and take potatoes to the market, this however has exposed small scale traders to exploitation by middlemen who have devised their own packaging bags to circumvent the 50kilogram packaging regulation as per Irish potato regulation part III section 19(2). The bags used by brokers are labelled 50kilograms, but the real capacity is 80kilograms.

7.2.6. Existing organization/ cooperatives

Agricultural cooperatives have been instrumental in bulking, processing and transporting produce on behalf of their members, and in providing credit and supplying farm inputs. Nyandarua County has several cooperatives that facilitate aggregation of members' produce and market them in bulk, however, farmer groups/co-operatives for potatoes have been under-developed, particularly compared to dairy, where more success has been achieved with aggregation. The success of dairy groups has been in part driven by daily routine, milk collected each day provides an incentive for ongoing co-operation, and consistent cash flow.

Currently, potato marketing lacks formalization and aggregation, the farmers in Nyandarua, most of whom are small scale traders, still work independently and depend on brokers to pack and market the potatoes and cabbages. This has resulted in exploitation of farmers in the region. Most potato co-operatives are very local – under 100 farmers on small tracts of land. They generally focus on buying seed as a group to reduce transport costs and sometimes provide rough storage for seed and ware to their members. However, on this scale it is difficult to drive down costs for seed and inputs.

The strongest cooperatives are those of dairy farmers attributed to the daily routines associated with collection of milk. The scope of these cooperatives could be expanded to include potato growers, who in turn can benefit from a clearly defined path to access finance / cheap inputs, markets, cold storage and extension services

Most potato farmers interviewed were not members of cooperatives, and the few who were, mainly benefited more from the input value chain than the consumption/marketing value chain. This was contrary to the dairy cooperatives that provided benefits to their members both through input and marketing of produce.

Some of the general benefits derived by members of different cooperatives were:

- Training in commercial agriculture, access to certified seeds and extension officers
- Introduction of farmers to better farming methods, awareness of the variety of seeds and ways of planting and storing, access to agricultural officers and green seeds.
- Enabled ease of access to loans and farm machinery.
- Provision of fertilizers and animal feeds at subsidized rates.
- Purchase and Marketing of the produce.
- Soil testing and advice on best produce.
- Offering storage for their produce during harvest seasons.

It was also noted that a few farmers whose produce was priced comparatively higher, were members of a cooperative. Independent farmers had increased production costs, due to lack of access to subsidized inputs, which in turn reduced the small farmers' competitiveness.

7.2.7. Increasing Productivity

Land under production is increasingly fragmented. This year, statistics from the physical planning department showed that between January and September 2019, the department has processed 1,452 land subdivision applications from all over the county.

The high rate of subdivision is likely to reduce the average farm sizes, which may in turn reduce yields and increase cost of production for small-scale farmers. Small farm sizes are also an impediment to mechanisation. The county government should therefore regulate subdivision of farmlands to not less than 0.75 acres, since further subdivision may reduce the suitability of the farm for mechanisation.

The county can promote a supply of produce from the farm that is maintained throughout the year, by reducing over reliance on rain fed agriculture. Irrigation can be increased through extending financing to small-scale farmers. The average initial investment for an irrigation kit with a one-acre capacity is retailed at Kenya shillings 150,000 to 200,000.

Additionally, most farmers interviewed were small-scale farmers who produce to sell immediately for sustenance. This is because storage was a challenge to small-scale farmers who preferred to sell their produce quickly to avoid wastage.

Most of them also expressed the need for a cold storage to relieve the pressure of quick sales to avoid post-harvest wastage.

According to the survey published by the Commission for Revenue Allocation (CRA), 30% of Nyandarua farm produce is lost due to its perishable nature. A cold and dry storage would enable farmers to store excess produce as and when needed. This could assure retailers of steady supply of the produce, avoid panic buying and help stabilize prices during lean and glut times.

7.3 A County Wholesale Market

The development of a wholesale Market in Nyandarua County would greatly contribute to the value chain for farmers throughout the county. There are 76 formal markets owned by the county in the entire county of which 72 are open air markets and only 4 are covered, none of these markets operates fully as a wholesale market.

Therefore, a wholesale market is likely to serve the whole of Nyandarua County and neighbouring counties of Nakuru and Kiambu. A well developed and organized wholesale market is expected to translate to high revenues from CESS, market stalls, rentals from property, licenses and parking among other revenue streams. Nevertheless, this should be complemented by proper management and enforcement of the wholesale trade from farmer to collection centres/ assemblies to a county wholesale market.

The proposed location for a wholesale market is in Magumu. The site adjoins the A104 highway that connects to Nairobi and Nakuru, the B311 that connects to Mai Mahiu and Narok. The area receives the highest volume of traffic compared to any other region in the county. Transporters and buyers from Nyandarua pass through the site to Nairobi, which is the main market for the agricultural crops produced in Nyandarua. The biggest

limitation for the site, is that it is currently undeveloped to support wholesale market activity, and it would require a substantial financial investment estimated at Kenya shilling 4 billion.

7.3.1. Scope and Functions of the proposed Wholesale Market

The proposed market would have a combination of functions:

Open park for trade fairs and meetings centred on the landscape adjacent to a shopping centre will host agricultural trade fairs, annual county agricultural shows and exhibitions. Easily accessible from different directions opening up other uses of the market and creating a converging point for users for a cooling and calming experience

The shopping centre will provide travellers with a reason to stop-over for refreshments, affordable meals from locally grown produce and a variety of animal and plant products.

The livestock market will benefit farmers in providing a platform for the sale of livestock, access to agrovets and consultants in veterinary medicine. Further, a modern slaughter facility and butchery for small and bulky consumers.

A wetland landscape will function to accommodate surface runoff generation from the hardscape areas, treat further wastewater and provide a reserve for irrigation and other secondary water uses. A park within the wetlands and along the south-east border will activate one of the region's greatest natural assets by providing unparalleled waterfront access to Matches dam, year-round recreation and shopping opportunities for visitors and residents alike.

The wholesale market is facilitated by both an open covered market where traders can sell produce to large- and small-scale customers and warehousing with refrigeration facilities and value addition services to purchase from farmers, store, package and sell farm produce to huge consumers. A weighing area would be incorporated in these facilities. In many aspects this will serve as a **Logistical Centre.**

The water and sewer treatment plants serve to ensure sustainability within the market and ensure groundwater recharge in an environmentally sensitive way. With the understanding of the very different wastewater discharge ranging from grey to blue water, there is a need for primary treatments within the facilities before the main treatment plant. The plant will take advantage of processing manure from solid waste to sell to farmers.

Water from the dam will be treated to subsidise rainwater harvesting that is installed in all buildings with conveniently placed underground tanks

Administration, information centre and government services centre will be hosted at the convenience of residents, easily accessible from the main road.

Agro-processing area

The site will include a reserve of land to be developed as an agro-processing industrial park.

7.3.2. Other Agro- Industrial Sites (from Proposed Spatial Plan)

Several industries have been proposed as drivers of economic growth in Nyandarua. They are mostly agro-industries inasmuch as there are also cottage and Jua Kali (SMEs) proposed in some of the trading centres. The main industries in Nyandarua (existing and proposed) include:

Existing

- Midlands Ltd potato processing in Njabini
- Kinangop Dairy processing plant in Ndunyu-Njeru
- Countryside Dairy Limited in Ndaragwa
- Kenya Cooperative Creameries (KCC) in Murungaru
- Honey Processing by Aberdare Farmers' Cooperative in Geta

Proposed

- Special Economic Zones/Industrial Parks- Olkalou, Mirangine, Ndunyu Njeru, Njabini and Ndaragwa
- Fruit processing- Wanjohi
- Wool processing and textile manufacturing- Engineer
- Leather tanning- Ndaragwa
- Animal feeds processing- Miharati
- Dairy processing plant- Mirangine
- Dairy meal processing in Mirangine and Miharati (small scale)
- Livestock feeds manufacturing plant- Ndunyu Njeru
- Poultry feeds manufacturing plant- Olkalou
- Cottage industries; thread milling (Njabini) and basket weaving (Oljoro-Orok)
- Cold storage facilities in Murungaru, Shamata, Geta, Tumaini and Oljoro-Orok

Land Management Policies

- Wherever possible, industries of the same category will be centralised in order to economise on the provision of infrastructure.
- Industries with special waste disposal requirements, e.g. tannery, an adequate buffer will be provided to minimise potential odour nuisance.
- Potentially air-polluting industries will be located in areas where the dispersion of pollutants is not inhibited in order to minimise the health hazard to the surrounding residential areas.
- High rise buildings and low air pollutant emitters will not be permitted.
- Noise emitting industries will be located an adequate distance from incompatible uses such as residential, educational, etc.

7.3.3. Critical success factors

Continuous Agricultural Production

The development of a wholesale Market in Nyandarua County, Magumu ward is technically feasible, but involves a great deal of risk. The success of a fully viable wholesale market will heavily depend on volumes of

agricultural produce throughout the year, good infrastructure and enforcement of crop regulations, among other factors.

Market Management Issues (From Interviews and workshop)

- The market always floods, and the roofs always leak.
- The process of allocating the stalls is marred by corruption. The negative aspect is that most of the stalls are owned by foreigners, while the indigenous businesspeople here have to pitch tents along the streets.
- The trade rates are high as we are forced to cut daily rates of 50 Ksh which is not receipted
- The stall owners pay 1,000 Ksh.
- The vegetable vendors do not have stalls and are forced to operate from the roadside and in front of other shops, creating unending conflicts between the two groups.
- The businesses operating from the stalls have to pay a very high business levy of 2,240 Ksh per month.
- There are delays in waste removal by the county truck. As a result, there is always a foul smell emanating from the rotting garbage heap. Most of the time the garbage spills back into the market.
- The importance of ensuring space for Agro-processing plants.
- Need for pre & post weighing machines.
- Need for adequate public toilets to be built throughout the market.
- Need for a police station in the facility to enhance security.
- Need for proper wide roads.
- Proper separation of loading and offloading zones.
- Proper disaster management areas, Ambulances, pharmacies, fire stations.
- Determine where the residents living in the area marked for the construction of the market will be moved to.
- Ensure a source of clean drinking water in the market.
- Good access roads for people from Mutonyora area
- Need to have an underpass for people with disabilities and those using animals as a means of transportation (Donkeys).
- Consider the local people (People from Mutonyora) for spaces in the market.
- Clarification that Magumu market is not just a local market, but also an international market, as it will also cater for people from other parts of the country including Nairobi, Mombasa, Narok among others and neighbouring countries like Uganda.
- Need to clarify how the market will benefit all residents/citizens of Nyandarua as opposed to people living around the market.

7.3.4. Projection of demand and size

As mentioned above, the site has an area of about 73 acres. The size of each function is based upon the projection of space needed.

There is no other facility for wholesaling in the region. As such, it would be the primary facility for the entire county and perhaps adjoining counties.

Spatial consideration for produce in market and warehousing

Facility/activities		space allocation (sqr m²)	percentage area allocation
Buildings			
warehouse 1	22,693.84	22,694.00	8.0%
warehouse 2	16,430.77	16,431.00	5.8%
Open market	14,998.05	14,999.00	5.3%
meat and produce retail market	6,678.53	6,679.00	2.4%
offices, information centre and govt one stop shop	2,997.34	2,998.00	1.1%
Shops, commercial services	7,985.03	7,986.00	2.8%
Livestock market	9,319.63	9,320.00	3.3%
		-	**29%**
Ancilliary spaces		-	
Driveways, roads and streets	28,323.00	28,323.00	10%
Fuel station and truck parking	5,664.60	5,665.00	2%
gardens and landscaping	28,323.00	28,323.00	10%
loading and offloading bays, parking (customer and delivery trucks	84,969.00	84,969.00	30%
Waste treatment	-	-	
wetlands and waste treatment	55,243.53	55,244.00	20%
Totals		**283,631.00**	**100%**

Current and projected Annual spatial requirements

Farm produce	Annual produce in tonnes	space needed (m²)	future space needs (m²)		Notes
potatoes	451,290.00	45,129.00	63,180.60	1.4	40 % increase in yeild in 10 years
maize	27,594.00	2,759.40	3,863.16	10	tons per m2
peas	43,415.00	4,341.50	6,078.10		
cabbages	280,600.00	28,060.00	39,284.00		
livestock	70,000.00	7,000.00	24,500.00	4	tons per m2
Totals	**872,899.00**	**87,289.90**	**136,905.86**		

Estimated trading spaces for a basic rural market

	space needs (m^2)	space per user (m^2)	Number of users	
At present;				
Primary market				
1. traders (60% of the usable market space)	6,299.58	10	630.00	consistent traders
2. Farmers (40% of usable market space)	4,199.72	15	280.00	visiting farmers
			910.00	
3. Livestock market section	7,456.00	6	1,243.00	users/livestock
	17,955.30			

These estimates will serve as the basis for formulating a development venture and financing strategy to be part of the final recommendations.

Cost Estimates (based upon standard construction costs - IQSK Cost Handbook 2018-2019 issue)

Buildings					
A	Wholesale market and shopping centre	SM	6679	40000	267,160,000
B	Covered Open retail and Wholesale Market	SM	14999	43100	646,456,900
	Warehousing				
C	Warehouse 1 for Farm Produce	SM	22694	35719	810,606,986
D	Warehouse 2 for refrigeration of farm produce	SM	16431	36800	604,660,800
E	Livestock Market and meat preparation Facility	SM	9320	40000	372,800,000
F	Government office, information Centre and Administration offices	SM	2998	42500	127,415,000
G	Retail shops, Commercial entities and General entities	SM	7986	43100	344,196,600
ANCILLARIES- related construction project					
H	Loading and offloading bays, Parking (garden park)	SM	84969	5194	441,328,986
I	Wetlands Including play spaces and wastewater treatment plant	SM	55244	6200	342,512,800
J	Gardens and landscaping including open public parks and gathering grounds	SM	28323	4000	113,292,000
K	Driveways, Roads, streets and storm water drainage	SM	28323	4200	118,956,600
L	Fuel station and Truck Parking bay	SM	5665	5194	29,424,010
M	Provide for Underground Water Tanks	NO	5	78000	390,000
	Total Projected Cost				**4,219,200,682**
	Total Projected Cost Incl. VAT.				**4,894,272,791**

CHAPTER
08

GOVERNANCE, FINANCE AND LEGAL FRAMEWORKS

8.1 County Budgets and Financing

(Based primarily on the NYANDARUA COUNTY ANNUAL DEVELOPMENT PLAN (ADP) 2018-2019)

External Sources of Revenue

The County is projected to receive an equitable share of Kshs. 4,882,665,467 in the FY 2018/19. In addition, the County Government will receive a conditional allocation of Kshs. 142,523,156 for funding the Health Services which include; reimbursement for User Fees Foregone; and Leasing of Medical Equipment. Additionally, the County will also get Kshs. 129,797,341 in a conditional grant from the Road Maintenance Levy Fund, Kshs 38,848,936 in grants for rehabilitation of Village Polytechnics and a Kshs 121,000.000 supplement for construction of County Headquarters.

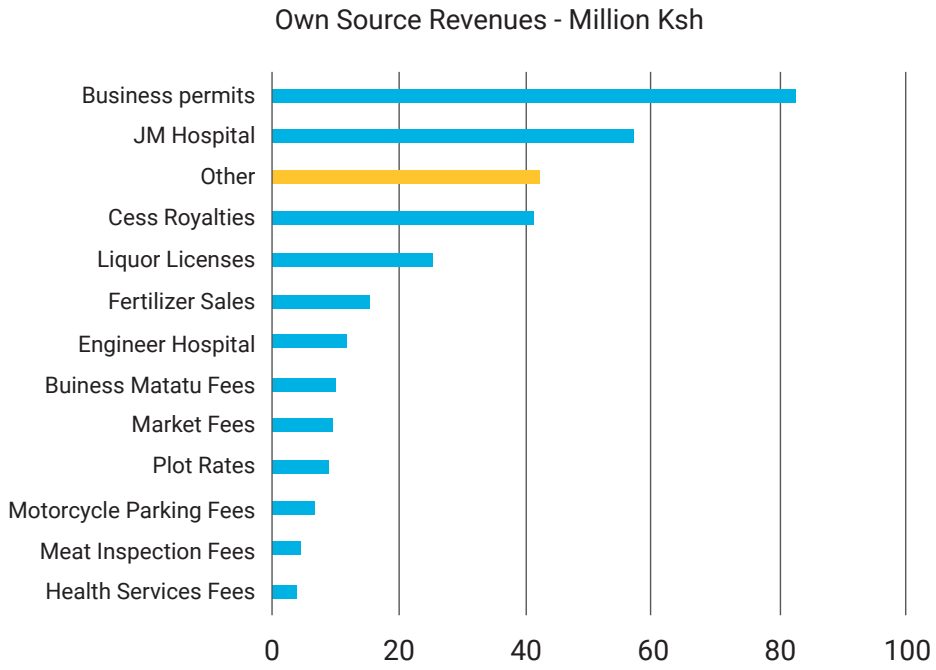
Own Source Revenues

In addition to the transfer from the National Government, the County will generate its own revenues of 390,000,000 from its internal sources as authorized by County laws.

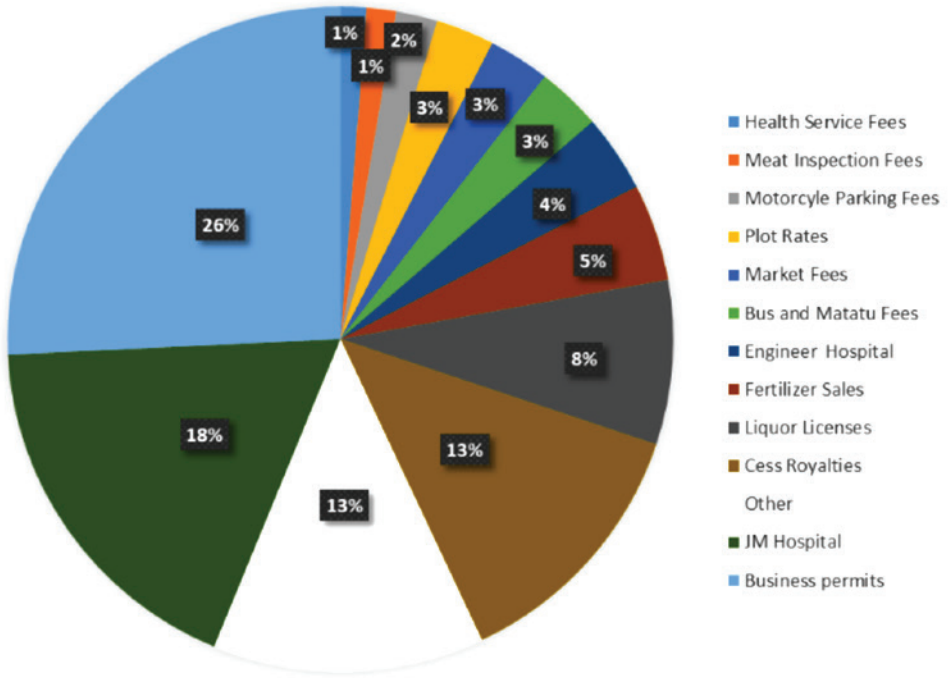
Over 60% of the Own Source Revenues are generated from just five sources: Business permits, JM Hospital, Cess Royalties, Liquor Licenses and Fertilizer Sales.

Expenditure Projections

The County Government's expenditure for the FY 2018/19 will be guided by the Annual Development Plan (2017) which outlines the priority areas to be addressed in the FY 2018/2019 in the realisation of the CIDP2.



Own Source Revenue% - FY 2017/2018



The County Government will promote budget transparency, accountability and effective financial management of resources based on clearly set priorities to ensure that budgets are directly linked to plans. The total Government expenditure is projected to be Kshs. 5,734,834,900.

The 2018/19 FY Budget will institute reforms targeted at achieving efficiency and productivity of Government spending. Prioritisation of Resource Allocation will be based on the County Integrated Development Plan (CIDP2), Departmental priorities, programmes and development policies of the County Government. The CIDP2 takes into account the Development Agenda of the Country by including programmes for the Big Four Agenda.

The criteria considered in determining the allocations among the departments are:

1. Ongoing projects: emphasis will be given to completion of on-going and unfinished projects and in particular infrastructure projects and other projects with a high impact on poverty reduction, equity, and job and wealth creation.

2. Strategic policy interventions: strategic policy interventions will cover the entire County, social equity and environmental conservation. Priority will also be given to key sectors like Agriculture, Industrialisation, Infrastructure and Youth, which are the drivers of the economy and have the potential to unlock it.

3. Job creation: Specific consideration will be given to job creation based on sound initiatives identified in the CIDP2. There is an urgent need to provide avenues for job creation, particularly for the Youth, Women and People Living with Disability.

4. Flagship Projects: Priority will be given to landmark projects in the 2018/2019 financial year that have a high impact on the County's economic and social development.

Fiscal Policy will continue to support the County's economic development activities

COUNTY FUNDS	FY 2017/18 ACTUAL APPROVED ESTIMATES	FY 2018/19 PROJECTED ESTIMATES	PROJECTED ESTIMATES 2019/20	PROJECTED ESTIMATES 2020/21
Bursary fund	103,250,000	105,000,000	106,000,000	108,160,000
Emergency fund	23,000,000	23,000,000	23,920,000	24,876,800
Mortgage fund	65,813,340	85,000,000	84,240,000	87,609,600
Nyandarua County Biashara Fund	20,090,000	30,090,000	31,293,600	32,545,344
County Pension Fund	34,050,100	34,050,100	37,492,104	38,991,788
County Gratuity Fund	39,724,059	41,000,000	42,640,000	44,345,600
Medical insurance	49,000,000	50,000,000	52,000,000	54,080,000
General insurance	30,000,000	31,500,000	32,760,000	34,070,400
Salaries (Executive)	1,892,500,000	1,950,000,000	2,053,800,000	2,131,608,000
County Public Service Board	10,468,000	10,468,000	15,000,000	20,000,000
GOVERNOR'S OFFICE (including service delivery)	158,511,744	158,543,707	174,885,455	181,480,873
COUNTY SECRETARY	18,937,765	30,524,735	31,695,276	33,483,087
FINANCE & ECONOMIC DEVELOPMENT	200,312,118	174,705,058	195,093,260	199,776,991
PUBLIC ADMINISTRATION & ICT	45,424,363	70,424,363	78,441,338	81,578,991
COUNTY ATTORNEY	19,090,000	21,140,423	23,786,040	25,457,482
LANDS, PHYSICAL PLANNING & HOUSING	182,699,464	149,311,118	165,283,563	171,494,905
TRANSPORT ENERGY & PUBLIC WORKS	813,454,230	678,795,387	705,947,202	734,185,091
EDUCATION, CULTURE & SOCIAL SERVICES	220,523,918	188,223,150	190,352,076	192,766,159
HEALTH SERVICES	614,562,615	564,419,529	580,756,310	603,986,563
AGRICULTURE, LIVESTOCK & FISHERIES	237,457,665	237,062,253	256,544,743	266,406,533
INDUSTRIALISATION, TRADE & COOPERATIVES	90,211,034	120,423,651	135,240,597	140,250,221
YOUTH, SPORTS & ARTS	103,046,216	103,046,216	122,368,065	126,862,787
WATER, ENVIRONMENT, TOURISM & NATURAL RESOURCES	279,115,617	228,107,210	247,255,199	250,315,137
COUNTY ASSEMBLY	837,301,000	650,000,000	660,000,000	672,000,000
Totals	**6,088,543,248**	**5,734,834,900**	**6,046,794,828**	**6,256,332,352**

Policy Guidelines: Recurrent / Development Spending

The County Government actual expenditure on development will be at least thirty percent

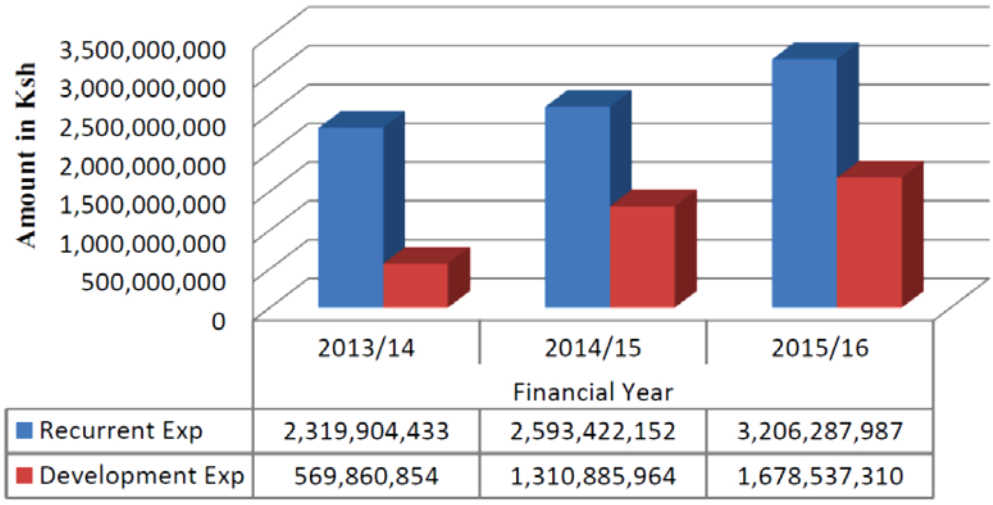
It is projected that the County Government will spend 35% of its budget on development in 2018/19 FY. This will be mostly on expenditure towards the completion of on-going projects, flagship projects and other service delivery initiatives. This allocation will also be continued over the Medium Term.

Budget Classification	2017/18 Actual	2018/19 Projected	2019/20 Projected	2020/21 Projected
Personal emoluments (salaries, gratuity, pension, medical insurance)	2,015,274,159	2,077,050,100	2,165,132,104	2,247,393,388
Operations and maintenance	1,835,192,647	1,412,502,585	1,517,670,934	1,561,704,497
Other recurrent expenditures (bursary, emergency, mortgage, trade funds)	212,153,340	238,090,000	247,613,600	257,518,144
Sub total	**4,062,620,146**	**3,727,642,685**	**3,930,416,638**	**4,066,616,029**
Development budget			0	0
Development expenditure	2,025,923,102	2,007,192,215	2,116,378,190	2,189,716,323
Total budget	**6,088,543,248**	**5,734,834,900**	**6,046,794,828**	**6,256,332,352**

Source: COUNTY GOVERNMENT OF NYANDARUA
COUNTY FISCAL STRATEGY PAPER (CFSP) FOR 2018/2019 AND THE MEDIUM TERM

Previous division of funds – Recurrent / Development

Country Expenditure



Budgetary and Financial Risks (From the County)

There are potential risks associated with implementation of County Fiscal Policies. These include:

1. **Global warming, which is associated with changes in weather conditions.** The potential consequence of weather changes includes productivity changes in Agriculture, stress of Health Systems and changes in trade pattern. Revenue from Agricultural products CESS continues to be among the top local revenue sources. As such, reduction in Agriculture production will greatly affect this revenue stream, hence the fiscal framework.

   Natural disasters will have a significant impact on social welfare. For example, flood or drought impact on Agriculture and infrastructure affect households both directly and indirectly. As a result, the Government may feel obligated to cushion social welfare by incurring costs of returning to normal after the occurrence. The County Government privy to some past occurrences has been providing for an Emergency Fund. However, the impact of unforeseen events could be of greater magnitude than the provision and hence pose a Fiscal Risk to the County Government.

2. **Low National Economic Performance** due to uncertainties associated with Global and National influences, such as the crude oil price, that affects costs of production and exchange rate fluctuations, which have an impact on the performance of the County's economy.

3. **Uncertainties of revenue flows.** This may be due to changes in policy by Governments leading to unrealized projected revenue.

4. **Infrastructure issues,** which are associated with the predicted long rains, making roads impassable and affecting market linkages of agricultural products from farms to markets.

Challenges facing Revenue Collection

The following constraints were identified with regard to revenue collection in Nyandarua.

- Lack of political good will.
- Weak internet services.
- Structured services not fully implemented (Automated).
- Potential revenue sources that are not exploited e.g. non-food business premises, health inspection fee and tourism related activities.

Initiatives in place to Improve Revenue Levels

- Automation of revenue collection.
- Continuous enforcement of revenue collection laws and regulations.

8.2. County Geographic Administrative Units

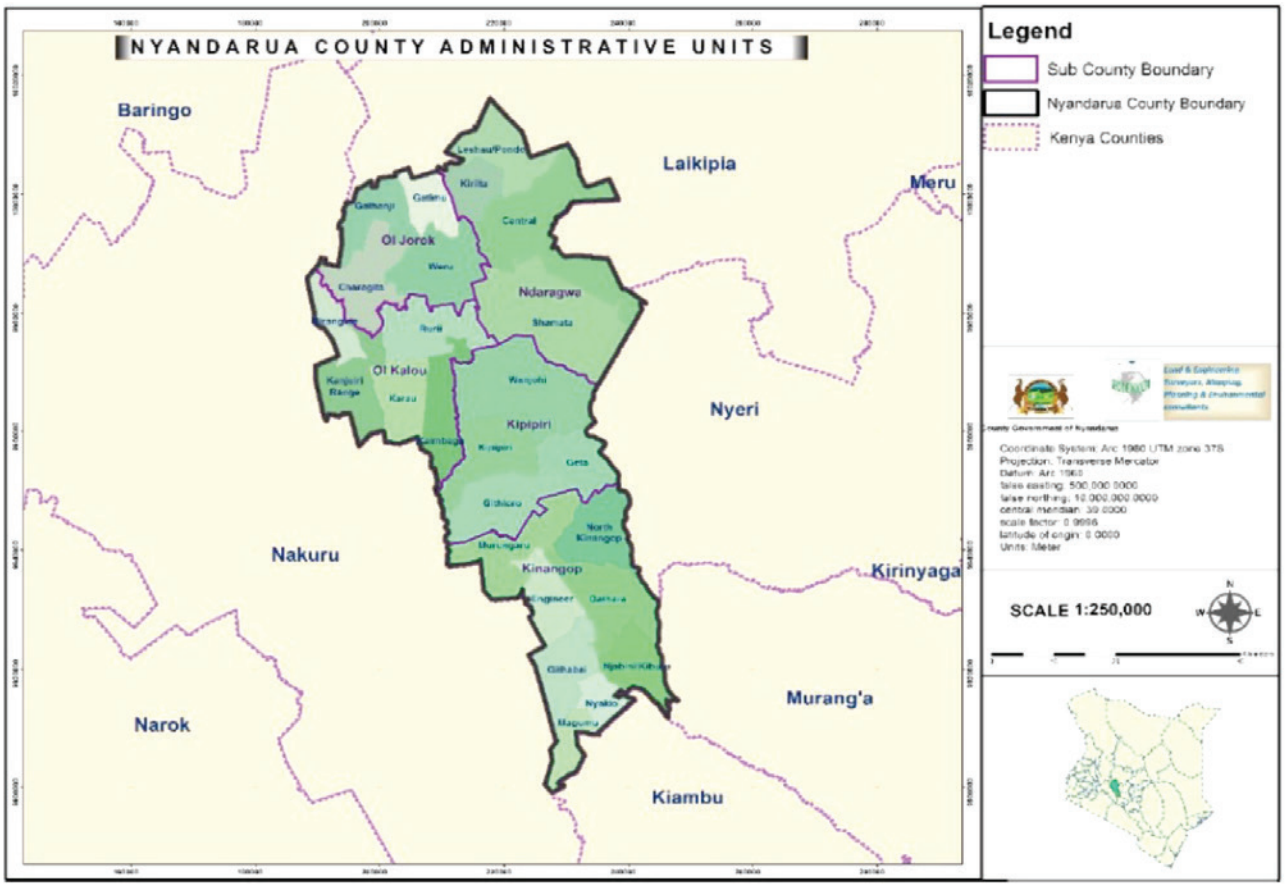
Devolved Units in Nyandarua County

Nyandarua County is subdivided into five (5) Sub Counties namely Olkalou, Kipipiri, Kinangop, Oljoro-Orok and Ndaragwa. The Sub-Counties are further subdivided into twenty-five (25) wards, with Kinangop Sub-County having the highest number of wards at eight (8), as shown in the table below.

Nyandarua County Devolved Units

Sub-County	Kinangop	Kipipiri	Ol'Kalou	Ol'Joro Orok	Ndaragwa
Electoral Wards	1. Engineer 2. Gathara 3. North Kinangop 4. Murungaru 5. Njabini/Kibiru 6. Nyakio 7. Magumu 8. Githabai	1. Wanjohi 2. Kipipiri 3. Geta 4. Githioro	1.Karau 2.Kanjuire Ridge 3.Mirangine 4.Kaimbaga 5.Rurii	1.Gathanji 2.Gatimu 3.Weru 4.Charagita	1.Leshau/ Pondo 2.Kiriita 3.Central 4.Shamata

Administrative Units: Sub-Counties and Wards



Source: Nyandarua County Spatial Plan

8.3. Municipal Administration

The Constitution of Kenya mandates county governments to undertake municipal management. Except for Nairobi and Mombasa, which are 'city counties', the rest of the county government comprises urban and rural settlements of varying sizes.

A decentralised system is envisioned at the county level, where county governments are supposed to establish decentralised units, among them administrative structures for urban centres. Part VI of the County Governments Act provides the legal backing for this.

The functions and provision of services of each county government shall be decentralised to—

a) the urban areas and cities within the county established in accordance with the Urban Areas and Cities Act (No. 13 of 2011);

b) the sub-counties equivalent to the constituencies within the county established under Article 89 of the Constitution;

c) the Wards within the county established under Article 89 of the Constitution and section 26;

d) such number of village units in each county as may be determined by the county assembly of the respective county; and

e) such other or further units as a county government may determine." (Republic of Kenya, 2012 p c43-31)

Subsequently, the Urban Areas and Cities Act (UACA) was enacted to facilitate the creation of municipal structures.

8.3.1. Structure and Formation of Municipalities

Based on size of population and other criteria, UACA classify urban centres as shown by

Classification of Urban Centres in Kenya by Size of Population

Category	Minimum Population
City	At least 250,000
Municipality	At least 50,000
Town	At least 10,000
Market Centre	At least 2,000

Source: Republic of Kenya (2019)[11]

Functions of Municipal Boards

UACA [Article 20-1] stipulates the functions of a municipal Board as follows:

"Subject to the provisions of this Act a board of a city or municipality shall—

(a) oversee the affairs of the city or municipality;

(b) develop and adopt policies, plans, strategies and programmes, and may set targets for delivery of services;

(c) formulate and implement an integrated development plan;

(d) control land use, land sub-division, land development and zoning by public and private sectors for any purpose, including industry, commerce, markets, shopping and other employment centres, residential areas, recreational areas, parks, entertainment, passenger transport, agriculture, and freight and transit stations within the framework of the spatial and master plans for the city or municipality as may be delegated by the county government;

11 Republic of Kenya (2019). The Urban Areas and Cities (Amendment) Act, 2019

(e) as may be delegated by the county government, promote and undertake infrastructural development and services within the city or municipality;

(f) develop and manage schemes, including site development in collaboration with the relevant national and county agencies;

(g) maintain a comprehensive database and information system of the administration and provide public access thereto upon payment of a nominal fee to be determined by the board;

(h) administer and regulate its internal affairs;

(i) implement applicable national and county legislation; enter into such contracts, partnerships or joint ventures as it may consider necessary for the discharge of its functions under this Act or other written law;

(k) monitor and, where appropriate, regulate city and municipal services where those services are provided by service providers other than the board of the city or municipality;

(l) prepare and submit its annual budget estimates to the relevant County Treasury for consideration and submission to the County Assembly for approval as part of the annual County Appropriation Bill;

(m) as may be delegated by the county government, collect rates, taxes, levies, duties, fees and surcharges on fees;

(n) settle and implement tariff, rates and tax and debt collection policies as delegated by the county government;

(o) monitor the impact and effectiveness of any services, policies, programmes or plans;

(p) establish, implement and monitor performance management systems;

(q) promote a safe and healthy environment;

(r) facilitate and regulate public transport; and

(s) perform such other functions as may be delegated to it by the county government or as may be provided for by any written law."

8.3.2. Revenue Management in Urban Areas

One of the still unresolved challenges that face county governments is the generation of revenues needed by municipal boards and town committees. This is both a question of the revenue source and which governing body has the right to tax the residents. It also raises the question of tax duplication. The proposal here should be viewed as one example of how the division of jurisdiction can be linked to revenue generation and the provision of services in specific geographic urban centres.

Restructured land and Property Tax

Given that land/property based taxes are almost universally the primary source of local government revenues around the world and given that the revenues generated in general in Kenya are currently about the equivalent of parking fees, this needs to be the primary focus for increased revenues.

Although not well designed for this task, the existing Ratings Act and Valuation Act do provide an opportunity for more "creative" land/property taxes, especially those which are needed to ensure the provision of county services. It is therefore recommended that a program of land tax restructuring be based upon the following principles:

- Land/property tax is to be based both i) upon the value of the land and ii) upon property attached to (constructed on) the plot.
- The tax assessment will be based on two tiers i) the land valuation itself and ii) separately the value (added) of the improved property constructed upon it.
- The tax will be progressive – increasing rate with increasing size and economic uses.
- There will be a discount rate based upon the location of the land and constructed property in relation to the proximity to CBD's/urban areas.
- Payments will be bi-monthly with a discount for full payment in advance.
- The charge will be made to the owner of the property but payable by the tenants.
- Each improved (constructed) property (even on the same "plot") will be assessed and billed separately.
- The categories of valuation of land and economic category of improved properties should be based on tax valuation zones. This would greatly simplify the procedure for keeping the valuation rolls up to date without the lengthy and expensive process of individual valuation of each property. (Such a change is in keeping with the existing ratings and valuation acts – see highlighted addendum).
- Implementation of this combination of taxes would optimally be based upon a digital mapping of all plots of land and constructed properties. (The cost would be recuperated almost immediately from the increased revenues).

Tax/Service Linkage – Tax Increment Financing (TIF)

In principle, taxes (distinct from fees) are not directly linked to specific services. However, the ability to increase significantly revenues in the County Governments in Kenya must be explicitly connected to an improvement in services. This is particularly challenging given that the current level of services being provided is still not covered sufficiently by local revenues.

Nonetheless, some portion of increased revenues coming from an improved property tax needs to be channelled directly to improved services in the geographic or especially urban areas from which increased revenues are generated.

This form of taxation by itself, though a good source of revenues in a progressive manner, would undoubtedly be met with a strong public outcry. Therefore, despite the principle of taxes not being related to the provision of a specific service (in contrast to fees, which are a function of service provision), in this case there needs to be a clear transparent connection (though not a direction function as a fee) to improved services by location and population group.

Therefore, the most appropriate mechanism for introducing this type of taxation is Tax Increment Financing, TIF. In various cities around the world TIF programmes have been successful in improving services and upgrading infrastructures. Tax increment financing was first developed as a tool in the 1970s (USA).

Once a district is created, property taxes towards the general fund are frozen at a base year for a designated period of time. As directed efforts from the public and private sector to redevelop the district increase the property values (or the newly instituted tax on improved properties), this incremental increase in tax revenue from the base level flows to a TIF designated fund to repay any initial revenue bonds and to finance any continuing projects within the district.

This system of land/property taxation could be adapted to the County/Urban Municipalities revenue division. The county would continue to enjoy the revenues from the undeveloped land tax (which over time would increase as the urban centres develop) for the general budget and the municipalities could channel the revenues from the developed property tax into specific infrastructure improvements and service upgrades in the urban centres.

Operational Format

a) Undeveloped land values would be set by geographic zones or blocks based upon land values prorated at the market value per sq. meter for similar lands and their uses in a given location at a fixed rate of taxation (e.g. 1%). The mechanism being proposed here is fundamentally an outgrowth of the existing national valuation/ratings acts but is aimed at greatly simplifying the tax base valuation of the properties and the process of updating. The proposal is to create tax valuation zones or clusters of properties with similar value per square metre of land. This is based on part (a) of sec 4 of the Rating Act cap 267, zone/area rating is acceptable, it is an easier form in terms of administration, collection, updating payer's database, future valuation and harmonisation of the existing discrepancies that foster under collection.

   The tax levied on land would be the assessed value per sqm in that zone/block (using the updated valuation roles as the base) multiplied by the fixed percent (1%-3%), multiplied by the size of the land (sqm). The landowner would pay undeveloped land tax (land value multiplied by e.g. 1%) (assessed value for example at 60,000,000 KSH/acre = 15,000 KSH/sqm). Thus, the tax rate would be 150 KSH/sqm.

b) The tax levied on the constructed property would be the rate per sqm (as a function of its economic use) multiplied by the size of the building (occupied by that business) multiplied by the discount rate (100%, 90% 85% 80%) by geographic zone. For example, a 500 sqm supermarket in the CBD would pay 500sqm X 600KSH/sqm X 100% = 300,000 improved land/property tax per year = 25,000 KSH/month.

8.3.3. Challenges Facing Revenue Automation in the Counties

"Adoption by Counties of ICT systems is below par, and manual revenue collection is prevalent with its inherent risks of abuse and rent seeking.

(a) The fees payable for costs relating to system acquisition and licenses are exorbitant.

(b) Owing to capacity constraints, there is no systematic and consistent use of the system -- often, the system is abandoned immediately after roll out.

(c) Counties that have developed (or are developing) customised revenue management systems through private developers are not aligned to a Standard Chart of Accounts (SCoA) resulting in conformity challenges.

(d) Some County Governments have developed segmented and silo-like revenue administration systems, which creates a problem of integration.

(e) Most Counties do not have Wide Area Network (WAN) which is necessary to connect all revenue collection points, including in sub-Counties. LAIFOMS, which some Counties are currently using, can only operate as a standalone system. The system is therefore not effective in a WAN setting."

In order to significantly increase Own Source Revenues by county governments in Kenya there needs to be a restructuring of the tax base, one that is founded not only upon land values, but also upon the attached properties by function (residential, commercial, public, industrial, agricultural and other). This is an important change that is needed both to capture the increased value of properties in the growing urban areas and as a component in regulating the revenue sources for the two levels of county government and the newly formed municipalities.

CHAPTER
09

SUMMARY ANALYSIS

9.1. Managing Urban Development

Nyandarua is part of the rapid urbanisation process of Kenya. The county is located on the periphery of Nairobi – Kisumu development corridor. Because the urban centres in Nyandarua are still in the early stages of development, the county is in an excellent position to institute the management mechanism that can guide and leverage this dynamic into an equitable process of growth.

Although the backlog of inadequate infrastructure especially for adequate safe drinking water, sewage treatment, and solid waste removal already poses serious threats to health, the scope of the problem is still manageable.

There are currently just over 25,000 urban households in the Nyandarua County. A rough estimate of the cost for providing adequate sanitation infrastructure would be about 3,000 USD per home (not including roads and energy) = 7.5 billion Ksh, which is the equivalent of 5 years of the total development budget of the county. Despite the relatively high expenditure, it is not beyond management.

However, each year 1,000 additional urban households are being added. Unless spatial planning, building permit processes, and development fees are instituted, urban conditions will deteriorate. Furthermore, the county will incur an additional annual infrastructure deficit of over half a billion Ksh.

Managing urbanisation requires a fundamentally different strategy of managing development than previously accepted in Kenya. This is all the more critical when linked to the process of devolution.

Until recently, development outside of Nairobi was fundamentally rural. This has meant that development was based upon a plot-by-plot strategy of growth. Each household gained access to a plot of land, built a home and for the most part was self-sufficient with regard to water, sewage, and waste.

In a rural setting, even in concentrations of small villages, this is a sustainable form of settlement. The scope of human activity, for the most part, can be balanced with the natural processes of environment regeneration. Similarly, there is limited infringement of one family upon the "space" of other families. Thus, the need for shared infrastructure (other than key transportation links) has been limited.

The need for managing development arises now only because of the concentration of people in a small urban area. This previously supported policies mitigating against urbanisation and encouraging continued settlement in rural communities.

However, the reality of population growth and the desire for a higher standard of living and services promote a dynamic of urbanisation. The challenge now is how to channel and transform urbanisation into a dynamic for enriched growth, preventing the many ills that often characterise mass movement into cities unprepared to handle this influx.

This requires going from a tacit strategy of plot-by-plot development to a strategy of collective planning and infrastructure provision. Now, as of August 2019, in Kenya this is the new mandate for county government. This entails:

- Strategic planning, spatial planning, and building permit processes.

- Ensuring adequate provision and scope of infrastructure.
- Enforcement of standards.
- More cost-effective solutions for drinking water, sewage disposal, roads, drainage, and solid waste management.
- Protection of agricultural land.
- Ensuring the provision of ongoing services.

This change needs to be instituted in order to ensure proper management of the "carrying capacity" of land that cannot absorb sewage and solid waste in urban centres without proper treatment – otherwise serious health and environmental deterioration occur.

9.2. Developing the Magumu Wholesale Market

In the year 2013-2017, Nyandarua County was among the Country's top ten economies, with a contribution to GDP of 2.6% (source KNBS 2017).

The county is considered the breadbasket of Kenya because of its high production of potatoes, cabbages, maize and beans that are sold in Nairobi and most other towns in the country. Livestock rearing is also a major economic activity.

As such, Nyandarua is recognized as one of the most important sources of food security in Kenya. The County is a leading producer of potatoes in Kenya with an average production of 556,950 metric tons, per year, translating to about 29% of the total production in the country.

Despite the significance of the county's agro-economy, 46.3% of Nyandarua residents live below the poverty line. One of the major factors contributing to this situation is the low return that farmers receive within the value chain of agricultural production.

Poor marketing capacity and very limited agro-processing leave the population of Nyandarua with only a small portion of the economic benefits. The dependence upon "middlemen" for transportation and marketing, together with the absence of storage capacity, leaves the farmers with little opportunity to receive full compensation for their produce.

The one exception to this is dairy farming, which is better organised including proper storage.

The development of a County Wholesale Market and Agro-processing Centre has the potential to enhance the economic wellbeing of the farming community in Nyandarua. The county is in the final stages of acquiring land on the planned site, which is located at the crossroads of the three counties leading to Nairobi.

This Marketing and Agro-processing Centre will perform a strategic function for upgrading the local economy. It has the potential to raise both public and private financing.

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