Thinking Policy Together

Smart and Sustainable Cities Index for Kisumu City

By Martha Naikumi, Humphrey Njogu and Betty Kaibung'a

Introduction

The Smart and Sustainable Cities Index (SSCI) in Kenya is a comprehensive framework to measure the status of smartness and sustainability across the Kenyan cities. The pursuit of smart and sustainable urban development has become an imperative for cities globally. The concept of smart and sustainable cities underscores the need to leverage on technology for innovative urban environments that enhance the quality of life for residents (Giffinger et al., 2007). The overarching goal of smart and sustainable cities is to strike a harmonious and efficient balance between economic development, social well-being, and ecological preservation. In this policy brief, we present the score card of Kisumu City, a significant urban centre in Kenya.

This policy brief explores the specific indicators and performance measures relevant to Kisumu City, allowing stakeholders to pinpoint areas for improvement, prioritize policy actions, and collectively work towards a smarter and more sustainable urban future.
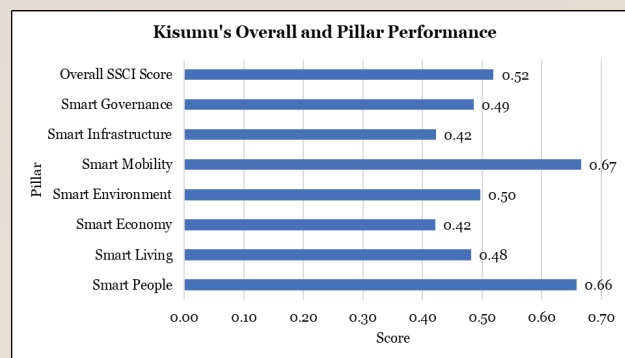
Kisumu City Urbanization Journey and Characteristics

- Founded as a trading post in 1901
- Gained City status in 2001 (city has only a municipality charter and yet to acquire a city charter)
- The city has a population of 397,957 (KPHC, 2019)

SSCI Overview

SSCI is a comprehensive tool based on seven key pillars: smart people, smart living, smart economy, smart mobility, smart environment, smart infrastructure, and smart governance. The scores range from zero to one where zero indicates poor performance while one represents best performance. SSCI overall score for Kisumu City is 0.52, which is slightly above average. The City performed well in Smart Mobility pillar (0.67) and smart people pillar (0.66) as shown in Figure 1.

Figure 1: Kisumu City's performance per Ppllar

Kisumu's Overall and Pillar Performance

Pillar	Score
Overall SSCI Score	0.52
Smart Governance	0.49
Smart Infrastructure	0.42
Smart Mobility	0.67
Smart Environment	0.50
Smart Economy	0.42
Smart Living	0.48
Smart People	0.66

Smart People

Smart people pillar entails development of an inclusive and easily accessible urban environment, contributing to enhanced prosperity and innovation within a city. The pillar was measured using three indicators: namely, education level, access to digital devices, and demographics (dependency ratio). Kisumu City performed slightly above average on this pillar with a score of 0.66. The indicator scores are provided below:

- Education level: 0.90
- Access to digital devices in schools: 1.00
- Demographics (Dependency ratio): 0.08

Areas of Concern

- High dependency ratio straining the working population.

Policy Recommendation

i) Resource allocation and infrastructure development for long-term future demographic changes in the total population.

Smart Living

The pillar encompasses the advancement of the standards of living and well-being of a city's residents. It is the efforts geared towards original and innovative

solutions that make life more efficient, economical, productive, integrated, controlled, and sustainable. The pillar was measured using five indicators: life expectancy, health insurance coverage, births attended by skilled health personnel, housing quality, and crime rate. Kisumu City performed fairly on this pillar with a score of 0.58. The scores per indicator are:

- Life expectancy: 0.59
- Health insurance coverage: 0.21
- Births attended by skilled personnel: 0.98
- Housing quality: 0.96
- Crime rate: 0.15

Areas of Concern

- Low health insurance coverage
- High insecurity
- Low expectancy rate

Policy Recommendations

i) The County Government in collaboration with the Ministry of Health to enforce policies to enhance affordability and accessible health insurance services especially for low-income residents.

ii) The County Government in conjunction with non-governmental organizations (NGOs) and community-based organizations (CBOs) to conduct outreach initiatives to create awareness on the importance of health insurance and the existing options.

iii) The County Government with the National Police Service to strengthen community policing efforts to enhance safety at the neighbourhood level.

iv) The National Police Service to invest in the training and equipping of law enforcement agencies to improve their capacity to respond to and prevent crime.

v) The National government and the County government to implement community engagement programmes to build trust between the police and residents.

vi) The County Government in collaboration with the National Government to invest in public health programmes that focus on disease prevention, nutrition, and overall well-being.

vii) The County Government of Kisumu in conjunction with the National Government and NGOs and CBOs to promote healthy lifestyle initiatives, such as exercise programmes and access to nutritious food, to address lifestyle-related health issues.

Smart Economy

The pillar describes an economy characterized by resource efficiency, technological innovation, and sustainability. The pillar aims to increase productivity, adopt new entrepreneurial activities, and enhance competitiveness to improve the quality of life of the city's population. The pillar was measured using six key indicators: GCP per capita, employment rate, ease of doing business, tech hubs, own source revenue, and e-commerce. Kisumu City performed slightly below average on this pillar with 0.42, indicating the need for focused initiatives to boost entrepreneurship and innovations in the city. The following are scores for the indicators:

- GCP per capita: 0.14
- Employment rate: 1.00
- Ease of doing business: 0.32
- Tech hubs: 0.03
- Own source revenue gap: 1.00
- E-commerce: 0.05

Areas of Concern

- Low GCP per capita
- Limited presence of tech hubs – insufficient innovation and technology-driven entrepreneurship
- Low adoption of e-commerce
- Weak environment for ease of doing business

Policy Recommendations

i) The County Government with the Ministry of Industrialization, Trade, and Enterprise Development to diversify economic activities to increase the GCP per capita.

ii) The County Government in conjunction with the City Board to invest in promoting tech hub infrastructure to promote innovative and technology-based entrepreneurship.

iii) The County Government to simplify and digitize business registration, licensing, and permits to enhance the ease of doing business in the city.

iv) The County Government with the Ministry of Information, Communication and Digital Economy and key agencies including Communication Authority, ICT Authority and Konza Technopolis to implement policies that promote adoption of e-commerce among local businesses by providing training and resources for businesses to go online, improve digital infrastructure, and creating awareness about the benefits of e-commerce.

Smart Environment

In the quest to create and maintain a balance in the ecosystem, the smart environment concept becomes critical as a measure of a city's smartness and sustainability. Further, the pillar ensures continuous protection of natural resources and landscape values. The pillar was measured using six indicators: forest cover, waste management, access to improved water, access to improved sanitation, access to clean energy for cooking, and access to clean energy for lighting. Kisumu City scored relatively low with a score of 0.50. The scores for each indicator are:

- Forest cover: 0.04

- Waste management: 0.48
- Access to improved water: 0.72
- Access to improved sanitation: 0.69
- Access to clean energy for cooking: 0.15
- Access to clean energy for lighting: 0.91

Areas of Concern

- Insufficient forest density
- Insufficient waste disposal systems
- Low penetration of clean cooking solutions

Policy Recommendations

i) The Boards of Kisumu City with County Government (Department of Water, Environment, Natural Resources, and Climate Change) to prioritize and implement waste reduction and recycling programmes, alongside green building practices, to minimize environmental impact and promote a healthier urban environment.

ii) Kisumu City Board in collaboration with Kenya Forest Service and development partners to fast-track the County governments' commitment to plant 10 million tree seedlings by 2025 to increase its forest cover.

iii) The County Government in collaboration with private sector entities and NGOs and CBOs to develop and implement effective clean cooking solutions.

Smart Mobility

Smart mobility is integral to creating resilient, eco-friendly, and efficient cities. It is a holistic and tech-driven approach to transportation that makes use of data, technological tools, and inventive approaches to build transport systems that are more effective, sustainable, and user-centric. It is essential for addressing issues with urban mobility and raising the standard of living across cities and regions. The pillar was assessed using three indicators: miles to bike per path, cars per capita, and Electric Vehicle (EV) charging stations. Kisumu had the highest score for this pillar with an average score of 0.67. The score for each indicator is listed below:

- Miles to bike per path: 1.00
- Cars per capita: 1.00
- EV charging stations: 0.00

Areas of Concern

- Absence of supporting infrastructure for electric vehicles.

Policy Recommendations

i) The County Government to collaborate with private sector in establishing essentials for electric mobility including charging infrastructure especially in public areas, commercial centres, workplaces, and residential communities to promote electric mobility across the city.

Smart Infrastructure

Smart infrastructure empowers cities with connectivity, data-driven decision-making, and improved service delivery. Kisumu City scored relatively lower in this pillar, with a score of 0.42. The smart infrastructure pillar was measured using six indicators: computer or laptop ownership, access to electricity, households with mobile broadband, mobile money subscriptions, use of the Internet, and smartphone ownership. The scores for each indicator are as follows:

- Computer or laptop ownership: 0.04
- Access to electricity: 0.53
- Households with mobile broadband: 0.45
- Mobile money subscription: 0.87
- Use of internet: 0.24
- Smartphone ownership: 0.42

Areas of Concern

- Limited computer or laptop ownership
- Low access to electricity
- Inadequate access to mobile broadband
- Low Internet connectivity by households
- Low ownership of smartphones by households

Policy Recommendations

i) The County Government together with the City Board and the Ministry of Information, Communication and Digital Economy need to fast-track the implementation of the National Digital Masterplan and Bottom-up Economic Transformation Agenda (BETA) that outlines the optic fibre plan to facilitate the development of Internet infrastructure for affordable and accessible Internet services.

ii) The County Government of Kisumu in conjunction with the Ministry of Information, Communication and Digital Economy, and the Communications Authority need to streamline regulations and permit processes to encourage private sector investments in expanding and upgrading mobile broadband (4G and 5G deployment) infrastructure in the city.

iii) The County Government to assist in acquiring low-cost smart phones being assembled at the Konza Technopolis for low-income households.

iv) The County Government to consider introducing incentives to attract ICT investments in the City.

v) The County Government in collaboration with the Ministry of Energy to invest in energy-efficient technologies, appliances, and lighting to reduce overall electricity demand. In addition, there

is need to promote energy conservation and awareness among consumers.

vi) The Ministry of Energy together with KPLC and KETRACO to upgrade and modernize the electrical grid to improve its efficiency, reliability, and resilience. This may include the integration of smart grid technologies.

Smart Governance

Smart governance enhances overall quality of life by improving the responsiveness and efficiency of government services. It helps in addressing complex challenges such as urbanization, resource management, and public health by leveraging technology and data for informed decision-making. This pillar was measured using three indicators: voters' turnout, women representation in the County Assembly, and budget transparency. Kisumu City scored slightly below average in this pillar with a mean score of 0.49. The specific score for each indicator is listed below:

- Voters' turnout: 0.71
- Women representation in the County Assembly: 0.51
- Budget transparency: 0.23

Areas of Concern

- Limited women representation in the County Assembly
- Deficient budget transparency

Policy Recommendations

i) Kisumu County Government together with the City Board and citizen fora to establish data-sharing platforms that promote transparency, engage citizens, and support policy formulation and monitoring.

ii) Kisumu County Government together with the City Board to implement and enforce gender-inclusive policies that ensure equitable participation and representation of women at all levels of city management.

iii) The County Government to fully implement the Urban and Cities Act to enhance the management of the city.

About KIPPRA Policy Briefs

KIPPRA Policy Briefs are aimed at a wide dissemination of the Institute's policy research findings. The findings are expected to stimulate discussion and also build capacity in the public policy making process in Kenya.

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For More Information Contact:

Kenya Institute for Public Policy Research and Analysis
Bishops Road, Bishops Garden Towers
P.O. Box 56445-00200, Nairobi
Tel: 2719933/4, Cell: 0736712724, 0724256078
Email:admin@kippra.or.ke
Website: http://www.kippra.or.ke
 @KIPPRAKenya