

Smart and Sustainable Cities Index for Nakuru City

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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. 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 Nakuru City, a significant urban centre in Kenya.

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

Nakuru City Urbanization Journey and Characteristics

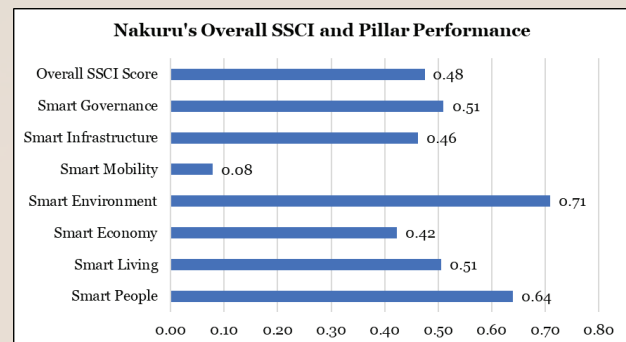
- Became a municipality in 1952
- Gained city status in 2021
- The city has a land area of 91.24 square kilometers
- The city has an urban population of 570,674 (KPHC, 2019)

SSCI overview

SSCI is based on 7 pillars namely: Smart people, Smart living, Smart Economy, Smart Environment, Smart mobility, Smart infrastructure, and Smart governance. The scores range from zero to one, zero being the lowest, while one was the highest. Nakuru city has an overall SSCI score of 0.48. Smart environment with the highest score of 0.71 and Smart mobility the lowest with SSCI score of 0.08. The index scores for the other pillars are: Smart people (0.64), Smart governance (0.51), Smart living (0.51), Smart economy (0.42), and

Smart infrastructure (0.46). Smart and Sustainable Cities Index pillars score is reported in Figure 1.

Figure 1: Nakuru's overall SSCI and pillar performance



Smart People

The pillar refers to the development of an inclusive and easily accessible urban environment, contributing to enhanced prosperity and innovation within a city. This pillar was measured using three indicators: education level, access to digital devices, and dependency ratio. Nakuru scored above average on this pillar with a score of 0.64. The specific score for each indicator is listed below:

- Access to education: 0.91
- Access to digital devices: 1.00
- Dependency rate: 0.01

Areas of Concern

- Inadequate educational facilities
- A high dependency rate (the ratio of dependent individuals, such as children and the elderly, to the working-age population)

Policy Recommendations

- County government in collaboration with the National Government to invest in building and maintaining schools, classrooms, and other educational facilities to ensure a conducive learning environment.

- ii) National Government to promote economic diversification to reduce dependency on a single industry or sector. This can include supporting the development of new industries and businesses.
- iii) County government to collaborate with Non-Governmental Organizations (NGOs) and Community-Based organizations (CBOs) that focus on education, technology, and community development to leverage additional resources and expertise.

Smart Living

The pillar encompasses efforts geared towards original and innovative solutions that make life more efficient, economical, productive, integrated, controlled, and sustainable. This pillar was measured using three indicators: life expectancy, health insurance coverage, births attended by skilled health personnel, housing quality, and crime rate. Nakuru scored slightly above average on this pillar with a score of 0.51. The specific score for each indicator is listed below:

- Life expectancy: 0.67
- Health insurance coverage: 0.33
- Births attended by skilled personnel: 0.93
- Housing quality: 0.94
- Crime rate: 0.15

Areas of Concern

- Limited access to healthcare facilities and medical care influence life expectancy
- Lack of awareness or understanding about the importance of health insurance
- High crime rates

Policy Recommendations

- i) Strengthening law enforcement, community policing, and crime prevention programmes could make a significant impact on reducing crime rate. Additionally, addressing socio-economic factors that contribute to crime could help create a safer environment.
- ii) Enhancing maternal healthcare services and education by the County Government could lead to more births being attended by skilled personnel. Community outreach, training programmes, and improving healthcare infrastructure contribute to safer childbirth.
- iii) Promoting awareness on the importance of health insurance and making information easily accessible could help increase coverage. Collaborations between the county government, private sector, and NGOs and CBOs could also improve accessibility and affordability.

Smart Economy

The pillar describes an economy characterized by resource efficiency, technological innovation, and sustainability aimed at increasing productivity, espousing new entrepreneurial activities, and boosting competitiveness to improve the quality of life of the city's

population. The pillar has the following indicators: GCP per capita, employment rate, ease of doing business, tech hubs, own source revenue gap and e-commerce. Nakuru City had an average score of 0.42. The score for each indicator is as shown below:

- GCP per capita: 0.15
- Employment rate: 1.00
- Ease of doing business: 0.29
- Tech hubs: 0.05
- Own source revenue gap: 1.00
- E-commerce: 0.04

Areas of Concern

- Low number of tech hubs
- Low levels of financial inclusion
- Low E-commerce uptake
- Weak environment for ease of business

Policy Recommendations

- County government could support local businesses to contribute to economic growth.
- County government in collaboration with National government to attract and support E-commerce industries that have the potential to generate employment.
- County and National Government to streamline business registration processes and reduce bureaucratic hurdles.
- County and National Government to support establishment of technology hubs or innovation centres to foster a culture of entrepreneurship and innovation.

Smart Environment

The smart environment pillar involved measures taken technologically to facilitate the preservation of the ecosystem to improve on the quality of life. The indicators used to measure this pillar are forest cover, waste management, access to improved water, access to improved sanitation, access to clean cooking energy and access to clean energy for lighting. Nakuru City county did fairly well in this pillar with a mean of 0.71. The indicator specific score is as follows:

- Forest cover: 0.93
- Waste management: 0.59
- Access to improved water: 0.73
- Access to improved sanitation: 0.75
- Access to clean energy for cooking: 0.28
- Access to clean energy for lighting: 0.97

Area of concern

- Poor sanitation
- Inadequate access to clean energy for cooking

Policy Recommendations

- i) County Government to take advantage of the geothermal hot springs in the region to enhance production of clean energy.

- ii) County Government to establish a real-time monitoring system for waste management to optimize collection routes and improve efficiency.
- iii) County Government in collaboration with National Government to invest in renewable energy sources such as solar and wind to power public infrastructure.

Smart Mobility

Smart mobility pillar refers to 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. The pillar has the following indicators: miles to bike path, cars per capita and electric vehicles charging stations. Nakuru's average score is 0.08. The score for each indicator is listed below:

- Miles of bike path: 0.24
- Cars per capita: 0.00
- EV charging stations: 0.00

Areas of concern

- Inadequate or outdated road infrastructure
- Traffic congestion
- Low uptake of E-mobility

Policy Recommendations

- i) County government to implement intelligent traffic signal systems that can adapt to real-time traffic conditions.
- ii) County government to develop dedicated cycling lanes and bike-sharing programmes to encourage non-motorized transportation.
- iii) National and County governments invest in a modern and efficient public transportation system, such as a Bus Rapid Transit (BRT) system or improved matatu services.
- iv) County government to set up at least one Charging Station in a grid of 3 Km X 3 Km. Additionally, one Charging Station can be set up at every 25 Km on both sides of highways/roads.

Smart Infrastructure

Smart infrastructure pillar provides cities with connectivity, data-driven decision-making, and improved service delivery. The pillar has the following indicators: Computer and laptop ownership, Access to electricity, Households with mobile broadband, Mobile money subscription, Use of Internet, and Smartphone ownership. The average score for this pillar is 0.46. The specific score for each indicator is:

- Computer or laptop ownership: 0.00
- Access to electricity: 0.64
- Households with mobile broadband: 0.48
- Mobile money subscriptions: 0.86
- Use of internet: 0.27
- Smartphone ownership: 0.52

Areas of concern

- Low ownership of computer/Laptop by households
- Low smart phone ownership by households.
- Low usage of internet by households

Policy Recommendations

- i) The National and Country Governments to assist in acquiring low-cost smart phones being assembled at the Konza Technopolis for low-income households.
- ii) The Country Government consider introducing incentives to attract ICT investments in the City.
- iii) The County Government together with the Ministry of Information, Communication and Digital Economy 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.
- iv) The County Government in conjunction with the Ministry of Information, Communication and Digital Economy, and the Communications Authority 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.

Smart Governance

Smart governance augments overall quality of life by improving the responsiveness and efficiency of government services. Nakuru scored slightly above average in this pillar with a mean score of 0.51. This pillar was measured using the following indicators: Voter turnout, Women representation in the County Assembly and Budget transparency. The score for each indicator as listed:

- Voter turnout: 0.66
- Women's representation: 0.44
- Budget transparency: 0.44

Areas of concern

- Inefficient budget transparency
- Limited women representation in the county assembly

Policy Recommendations

- i) Both National and County governments develop and promote mobile apps or online platforms for citizens to access government services, report issues, and participate in decision-making processes.
- ii) Implement open data policies by county government to make government data accessible to the public. This can foster innovation, transparency, and accountability.

- iii) Nakuru Board in collaboration with the County government to implement and enforce gender-inclusive policies that ensure equitable participation and representation of women at all levels of city management.

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About KIPPRA Policy Briefs

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