

SDG 2, Zero Hunger:

Green Nairobi – Urban Farming as a Potentially Viable Solution for Sustainable Agriculture in Africa

Urban farming is a new approach to achieving more sustainable agriculture in Africa. It is the practice of growing plants using available urban space. The aim of the Green Nairobi initiative is to provide greater access to food for residents and to increase the diversity of meals consumed. The project also promotes maintaining food security at a higher level while adhering to the principles of sustainable urban development. The case of Kenya illustrates how agricultural problems affect the entire continent of Africa and its inhabitants. The rapid urbanisation in this country is straining the entire system, not only in terms of food production but also distribution. As a result, the urban farming trend has become a crucial element of Kenya's development strategy, with the Green Nairobi project being implemented in its capital.

When looking at the issues of malnutrition and hunger in Africa as a whole, it is immediately evident that these problems are among the most serious challenges for the vast continent. According to reports from the European Court of Auditors, as many as 20% of Kenya's population suffers from malnutrition (European Court of Auditors, 2020, p. 7). The situation has significantly improved over the last quarter-century compared to historical data, where over one-third of Kenya's population experienced hunger. Unfortunately, due to droughts such as the one in the Horn of Africa in 2022, the situation deteriorated drastically, with an estimated 280 million people in Africa suffering from chronic hunger (UN, n.d.). Today, the situation is improving thanks to initiatives like urban farming, of which Kenya serves as a prime example.

The concept of urban farming includes urban farms, community gardens, rooftop gardening, vertical farming, and hydroponics. The fundamental idea is that residents can cultivate plants individually or collectively within urban spaces. The primary goal is the effective use of space and the utilisation of materials that would otherwise end up in landfills. This not only improves food accessibility but also enhances recycling efforts for plastic and metal materials. Community gardening plays a vital role in engaging local communities in joint activities. Rooftops of buildings are used for cultivation, maximising space efficiency and enabling agriculture in densely urbanised areas where traditional farming would not be possible. A key aspect of urban farming is vertical agriculture, utilising vertical structures to maximise



yield within limited space. Large-scale urban farms also exist, employing advanced techniques like hydroponics and aquaponics to maximise production while minimising costs and space requirements.

The urban farming project in Nairobi is being implemented by the Nairobi City County Government in collaboration with the United Nations Environment Programme (UNEP) and the Food and Agriculture Organization of the United Nations (FAO). The initiative began in 2022 as a response to the growing challenges of urbanisation, climate change, and urban food insecurity. Its main goal is to promote sustainable urban agriculture by establishing community and school gardens, implementing ecological cultivation methods, and developing climate awareness among Nairobi's residents. The project focuses particularly on working with children and youth, integrating educational activities into school curricula and encouraging students to actively participate in growing vegetables, herbs, and fruit trees. Local communities are also involved in the activities, which fosters their integration and strengthens a sense of responsibility for shared space. In this context, urban farming is not only a tool to improve access to fresh food but also a way to rebuild social bonds, create green spaces, and build cities' resilience to the effects of climate change.

This initiative has its roots in the long-standing tradition of urban agriculture in Kenya. As early as the 1990s, in response to economic crises, high unemployment, and limited access to food in rapidly developing cities, residents began to use available spaces – backyards, roadsides, and vacant lots – to grow vegetables and raise small animals. Urban farming gained support from non-governmental organisations and some local authorities as a way to improve food security and increase household self-sufficiency. Current activities continue this tradition, expanding it with new technologies, institutional support, and an educational component, making them more comprehensive and sustainable.

Advantages of Urban Farming

The benefits of urban farming include increased food security for residents. The availability of locally produced food improves both accessibility and diversity. Urban farming also creates new job opportunities in the agricultural sector and related industries, reducing unemployment and improving residents' quality of life. These projects foster local community engagement, strengthen social bonds, and promote environmental education. They also contribute to environmental protection by reducing the need for long-distance food transportation. The visual improvement of city landscapes also enhances residents' well-being.



Challenges and Disadvantages

Like any concept, urban farming has its drawbacks and challenges. The limited space in rapidly urbanising cities like Nairobi poses a constant challenge for expanding cultivation. Pollution and potential soil contamination in urban areas can also pose health risks for consumers. Additionally, a lack of financial support and regulations tailored to urban agriculture hinders the broader implementation of such initiatives.

Foundations of the Green Nairobi Urban Farming Project

The Green Nairobi project promotes sustainable agriculture through five key actions:

1. Identifying and repurposing urban spaces for agriculture

Nairobi utilises not only rooftops and unused green spaces but also abandoned lots, transforming them into mini food farms. Vertical farms are also established in highly space-constrained areas.

2. Educating the community through workshops and training

Residents learn about hydroponic and aquaponic farming techniques and sustainable soil management. The training also covers business aspects, such as selling food in local markets and securing funding for urban farming expansion.

3. Implementing modern agricultural solutions

Maximising agricultural production with minimal space is at the core of the Green Nairobi project. Techniques like soil-free cultivation and integrated fish farming with plant cultivation enable efficient water resource management, reducing water scarcity issues.

4. Developing a local food distribution network

Urban agricultural products are sold in local markets and grocery stores and used in restaurants. Surplus food production enhances food security and affordability. Local communities also form agricultural cooperatives to improve food distribution and secure financial support.

5. Social engagement and community support

Schools, including universities in Nairobi, implement educational gardens and agricultural training for children, youth, and young adults. Social initiatives provide surplus food to the most vulnerable families free of charge.



Achievements of the Green Nairobi Project

The project has delivered significant results within its first three years in just one African city of Nairobi. Key figures include:

- An additional 50 tonnes of food produced in the first year of the program.
- A 25% annual increase in food production, mainly due to hydroponic closed-loop farming systems.
- Over 200 jobs created and benefiting more than 500 families with additional income from food sales.
- More than 1,000 city residents trained in agricultural entrepreneurship.
- 10 schools established educational gardens, benefiting over 500 students annually.
- 30,000 people gained access to fresh and diverse food, improving nutrition and reducing hunger-related illnesses.

Future Potential and Challenges

The Green Nairobi project has immense potential for growth and serves as a model for other cities in Kenya and East Africa. Plans are underway to expand urban farming initiatives to cities like Mombasa, Nakuru, and Kisumu. Technology companies are also interested in integrating automation and advanced monitoring systems to enhance agricultural productivity. Increased community involvement and financial support through microfinancing and government grants are crucial for scaling up the project. Large-scale urban farms are also being planned as part of Nairobi's new urban development policy.

Urban farming is rapidly growing in regions struggling with hunger and chronic malnutrition. The Green Nairobi project represents an innovative approach to addressing global hunger issues. It not only improves food accessibility but also creates jobs and enhances public awareness of food production. With urbanisation increasing food distribution challenges, projects like Green Nairobi offer crucial solutions for local communities and should be expanded to other highly populated areas in Africa – and potentially beyond – as a global strategy to combat hunger.



Questions

1. What are the main differences between urban farming and traditional agriculture? List the advantages and disadvantages of both approaches and conduct a comparative analysis.
2. What long-term benefits can urban farms bring to the economies of countries like Kenya?
3. What are the potential environmental impacts of urban farming, particularly in terms of air quality improvement, temperature reduction in cities, and material reuse?
4. How can urban farming be integrated with other urban initiatives such as maximising recycling, increasing the use of renewable energy, or implementing green roofs?
5. Which social groups benefit the most from urban farming and projects like Green Nairobi?

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