



AgEcon SEARCH

RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

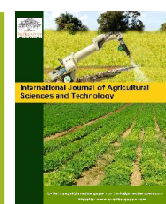
*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*



# International Journal of Agricultural Sciences and Technology

Publisher's Home Page: <https://www.svedbergopen.com/>



Short Communication

Open Access

## Urban agriculture: A timely game changer for urban residents in Nigeria

M.C. Onyema<sup>1\*</sup>, N.C. Osuagwu<sup>2</sup> and A.A. Nwogu<sup>3</sup> and C.C. Nwaigwe<sup>4</sup>

<sup>1</sup>Department of Forestry and Wildlife Technology, Federal University of Technology Owerri, Nigeria. E-mail: mac-anthony.onyema@futo.edu.ng

<sup>2</sup>Department of General Studies, Imo State Polytechnic Umuagwo, Imo State, Nigeria. E-mail: nkynath@gmail.com

<sup>3</sup>Department of General Studies, Imo State Polytechnic Umuagwo, Imo State, Nigeria. E-mail: nwadiuto4real@gmail.com

<sup>4</sup>Department of Forestry and Wildlife Technology, Federal University of Technology Owerri, Nigeria. E-mail: chuckspPhillip2018@gmail.com

### Article Info

Volume 1, Issue 2, May 2021

Received : 17 January 2021

Accepted : 12 April 2021

Published : 05 May 2021

doi: [10.51483/IJAGST.1.2.2021.27-32](https://doi.org/10.51483/IJAGST.1.2.2021.27-32)

### Abstract

This paper leverages on the yet-unanswered calls of the 1996 World Food Summit as well as the 2<sup>nd</sup> Sustainable Development Goal of the United Nations both of which support zero hunger and safe, nutritious and sufficient food. Nigeria and Africa on the whole actively engage in agriculture but this is more restricted to the rural area. This piece provides a view of the status of urban agriculture presented in both exploratory and descriptive terms thus contributing to the several academic fields in urban planning and research discourse. The farmers, government and urban managers are among key stakeholders that can step up at both local and regional scales especially in terms of governance, estate planning and urban dynamics. Although with a global outlook and dimension, case study therein presents current practices and quantitative descriptions based on surveys from metropolitan city of Lagos, Nigeria thus providing an argumentative reflection for the promotion of a wide range of urban agriculture practices. This is hoped to nourish the discussion on urban wellbeing and development.

**Keywords:** *Hunger, Agriculture, Stakeholders, Urban dynamics*

© 2021 International Journal of Agricultural Sciences and Technology. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

### 1. Introduction

In the past, urban agriculture was practiced by a good number of residents in the cities within a variety of holdings: private, leased or rented lands and backyards. It was also common to observe same on vacant public lands such as industrial parks, roadsides as well as ponds, lakes and rivers. At present, given the harshly-prowling Covid experiences with associated declining trend in dietary requirements of populations and the growing unemployment hitting urban dwellers and their rural counterparts as well, needs have arisen towards effectively utilizing and integrating available and promising spaces for a variety of productive end-uses. Comparing from historical viewpoint, modern day has seen a justifiably-accepted scenario: a deviation from previous public health/urban planning stance that perceived urban agriculture as a threat to public/urban health. It was also seen as a low-rent form of land use that is not muscular enough to compete with other urban land use forms (Hovorka et al., 2009). In the light of global urban greening championed by international bodies, the United Nations Development Programme (UNDP) for instance in 1996 estimated that 800 million people worldwide engage meaningfully in urban farming, 200 million of them being entrepreneurs and producers employing over 150 million people on full time basis (UNDP, 1996).

To further credence on the above, one-half of the vegetables consumed in Havana, Cuba are grown in the city's farms and gardens. Singapore has 10,000 urban farmers who produce 80% of the poultry and 25% of the vegetable consumed.

\* Corresponding author: M. C. Onyema, Department of Forestry and Wildlife Technology, Federal University of Technology Owerri, Nigeria. E-mail: mac-anthony.onyema@futo.edu.ng

Currently, 14% of London's and 44% of Vancouver's resident already grow some food in their gardens. Within metropolitan regions in the US there is grown therein 79% of their fruit, 68% of the vegetables and 52% of the dairy products (CFSC, 2003).

Nigeria is one of Africa's urbanized countries with over 35% of the country's population living in towns and cities where supplies of food and water are frequently inadequate (Binns and Fereday, 1996). With the growing trend in this incidence, one major global and continental efforts for nations over the next 25-year-roadmap will be to (re)activate and develop urban farming systems which can to an appreciable extent vigorously aid in meeting growing food deficits across their cities. This is especially apt given evident inadequacies in transportation and road network systems within urban/peri-urban settlements in addition to other critical infrastructure linking both divides (rural-urban areas) that ought to enhance distribution from the countryside at fairer rates (food costs).

Although not significantly captured in real sub-sectoral considerations, at the moment, well over 50% of the urban population in Africa are in one form or another already involved in urban agriculture (Obudho and Foeken, 1999). In Zimbabwe, the figure has doubled between 1990 and 1994 (Addison, 2000). Nonetheless, in Kenya, farming is a very common activity among urban households. Almost two-third of their population grows part of their food in cities and half of the urban area is cultivated. Evidences presented from the city of Kano in northern Nigeria suggest that urban agriculture is providing farmers with food and employment (Lynch et al., 2002). Urban agriculture has a high potential for improving the urban environment by using organic waste (solid wastes and waste water) as inputs by improving the micro-climate and by preventing erosion and flooding through consolidation of urban lands and soils which frequently are impacted from various fronts (human, vehicular, ecological, etc).

## 2. Urban agriculture and characterization

Research data from across the globe seem to indicate that intra-urban agriculture tends to be relatively small-scale and more subsistence-oriented than peri-urban agriculture, although exceptions can regularly be found (e.g., vegetable production and production of mushroom or ornamental plants). Intra-urban agriculture takes place within inner cities. The truth remains that no matter how advanced a location is, most cities and towns have vacant and under-utilized land areas that are or can be used for urban agriculture including areas not suited for building (along streams, close to airports, etc.), public or private lands not being optimally used (lands waiting for construction) that are on interim use among others.



**Plate 1: Medium-scale vegetable garden in Abuja city, Nigeria**

It is a fact that peri-urban areas tend to undergo dramatic changes over a given period of time. In Nigeria, we observe an influx of people from both rural and semi-urban areas to urban and mega-urban cities thereby increases population density. Given that the incidence of such influx and demographic shifts tend to impinge some urban production systems and capacity, there only creates a shift generally from staple crops production towards more perishable crops and animal production (meat, eggs, and milk). Experiences in various parts of the world including Cuba, Argentina, Lebanon and

Vietnam seem to indicate that farm enterprises located in the fringe of the city are on average larger than those in the city centers and more strongly market-oriented. Urban agriculture is being developed as a means of reducing seasonal gaps perennially experienced in fresh food budget for urban dwellers. There are surmountable challenges in practicing urban agriculture.



**Plate 2: Urban dwellers carrying agricultural operations on their small farm land in Lagos Nigeria**

### 3. The hidden powers of urban agriculture

Urban agriculture has brought about substantial benefit to many cities and towns. It has contributed to food security, urban livelihood, and environmental sustainability and strengthened cities resilience to climate change. Urban Agriculture also addresses many other social, economic and environmental concerns.

### 4. Empowerment

Urban farming is today a sure self-empowerment project of employment both for privileged and especially for underprivileged urban dwellers. To-date, it has readily afforded thousands of people the opportunity to increase control over their nutritional intake. This can be particularly significant for women whose demographics far dominate in agricultural production, processing and marketing especially in cities. A study undertaken by Mbiba (2005) in Harare Zimbabwe shows that women produce 60% of urban food in the area; a feat and possibility yet to be tapped by Nigerian women many of whom are able-bodied.

### 5. Biodiversity and energy conversion

Through urban farming, new ranges of species have become adaptable in previously non-cultivated regions. Gene pools and biodiversity conservation remain central to biotechnological growth and development for developing and developed nations. Farming in the cities can help contribute to reducing the net discharge of carbon dioxide, one of the gases contributing to global warming from human activities in cities. Urban agriculture also helps to reduce food miles (distance food must be transported from production to consumption) lowering fossil fuel use and transport costs.

### 6. Urban greening

Urban agriculture can add greenery to cities thus improving the quality of the urban environment, tourism and reducing heat island effect. Ornamental plants provide aesthetics and help beautify urban landscape. Treed streets in urban areas tend to increase tenancy period and extend the duration of economic operations (buying and selling) because of its attractiveness.

### 7. Municipal waste

Organic waste from cities can be composted and used as fertility resource and biogas production. Energy needs of communities can be offset by the huge (often wasted biogas) in our urban centers. The huge population of residents in cities in this sense is a potential strength factor that has potential to change the perennial energy dilemma and change

the fortune (Chikezie et al., 2020). The application of waste to urban crops can make a significant impact in easing the challenges to the development of urban agriculture in Nigeria existing burden on waste disposal system.

## 8. The changeable game for Nigeria

In Nigeria, poor urban households spend between 60-80% of their income on food. Fortunately, there is generally no household in Nigeria that does not have a space (land) minimal enough for household gardening and farming (Onyema, 2014). In this light, most Nigerian families as in other locations appear to have been ignorantly robbed of their fortunes as a result of lack of knowledge and awareness. This would have expectedly offered opportunities for leveraging static family economic condition, stimulating better diet and increased income (Rabinovitch and Schmeter, 1997). Traditionally, most Nigerian cities grew from farming communities before the discovery of oil in the 1970s. again, in the Nigerian case, the agricultural sector contributed significantly to GDP and employed more than 75% of the working population even before the 70s. With the right legal and institutional framework as well as better coordination between farmers and the elites, the prospects in Nigeria and for Nigerians especially Nigerian farmers are great. Nigeria can also take advantage of a new trend many cities are adopting around the world where re-using of plastic containers, feed sacks and other rubber materials are used to temporarily grow crops around the houses, offices and open spaces where scarcity and tenancy conditions seem difficult to maneuver. Also in communities that have been devastated by oil spill, farming can be done by making raised beds, constructing hydroponics and aquaponics so that food production can be expectedly sustained to provide a means of livelihood (Onyema et al., 2008). Agriculture in the cities should be regarded as an integral part of the urban economy and architecture which should be dedicated and accorded its pride of place as income/revenue generator. Therefore the under-mentioned are recommended for policy options and actions.

- Participatory policy approach. This is imperative as it will involve a spectrum of stakeholders with farmers, urban planners, environmentalist and health officials to deliberate and propose policies that will meet the needs of all stakeholders.
- Provision of temporary occupancy permit (TOP) for prospective urban farmers using private or public open spaces. This will solve the problem of access to land for the urban poor and transiting residents.
- Support for the organization of urban food producers. This could be through training, supply of extension workers, research and educating them on improved methods in crop cultivation.
- Increased public awareness on the benefits of urban farming and educating associated professionals so that urban farming can fittingly be integrated into urban and regional planning.

## 9. A case study of urban agriculture in Lagos state, Nigeria

Most parts of Lagos State have an elevation of less than 15 m above sea level making these areas susceptible to flooding (about 12% of the total landmass). In fact, over 40% of the total area is covered by water and wetlands. Lagos consists

**Table 1: Descriptions of some locations where urban agriculture is practiced in Lagos state**

LGA	Population	Size (km <sup>2</sup> )	Percentage (%)	Population density
Agege	651,322	20.00	0.70	32,566
Alimosho	430,890	140.00	4.36	3077
Apapa	98,167	28.50	1.00	3444
Badagry	119,267	366.00	12.79	326
Epe	101,464	644.00	22.50	158
Eti-Osa	175,900	187.00	5.48	941
Ikorodu	184,674	203.00	7.09	909
Ibeju-lekki	24,937	646.00	22.57	38.6
Mushin	538,783	17.05	0.60	31,600
Ojo	1,035,221	166.00	5.80	6236

Source: Field survey, 2006.

**Table 2: Operating scale and market for produce from urban farming in selected parts of Lagos Nigeria**

L.G.A	Production system/Scale	Destination/Markets
Agege	Individual/Micro scale	Agege/Ikeja market
Alimosho	Individual/Small scale	Oshodi market
Apapa	Individual/Micro scale	Obalende/Ikoyi market
Badagry	Individual/Small scale	Mile 2 market
Epe	Individual/Micro/Small scale	Obalende/Ikoyi market
Eti-Osa	Individual/Micro scale	Obalende/Ikoyi market
Ikorodu	Individual/Micro/Medium scale	Ikorodu/Mile12 market
Ibeju-lekki	Individual/Micro scale	Lekki/Obalende market
Mushin	Individual/Small scale	Surulere market
Ojo	Individual/Micro/Small scale	Festac market

*Source: Field survey, 2006*

**Table 3: Rates of operation in different agricultural practices in Lagos metropolis (N = 150)**

Activities	Percentage
Cattle, sheep and goat rearing	5
Poultry keeping	9
Dog keeping and piggery	2
Vegetable, herbal and spice farming	50
Fishing	14
Mushroom	1
Bee keeping	2
Snail keeping	2
Maize, plantain, fruits and others	3
Processors and marketers	7
Floriculture	2

*Source: Field Survey, 2012*

of two main regions, namely; Lagos Island and Mainland. The original city (Isale Eko) and Ikoyi, Victoria Island and Lekki corridor areas are referred to as Lagos Island while Mainland encompasses the other parts of the state. The rapid growth of the urban population and urban expansion in all directions have led to the merger of the Mainland with distant areas such as Ikorodu, Epe and Badagry. The more developed Mainland and Lagos Island make up what is referred to as Metropolitan Lagos, which is inhabited by over 80% of the population of Lagos state.

Ojo LGA in Lagos state for instance has a landmass of about 166 km<sup>2</sup>. Ibeju-Lekki LGA on the other hand has the lowest population but is the largest in terms of the size. Most of the lands in the area are made of wetlands which at the moment have not been fully utilized. Urban agriculture in Lagos State is yet on the small scale.

The urban farmers in Lagos State take advantage of the overwhelming urban population of the metropolis and the demand for fresh vegetables by residents (including foreigners in the country), medium-scale industrial outfits

(e.g., various fast food joints, local food processors) in the city. Generally, most of the urban farms are owned by individuals while some are run on joint small scale basis in major parts of the metropolitan Lagos. In Ikorodu area, for instance, efforts are being made by individuals to come together as cooperatives to produce agro-products on a medium scale level. Micro scale urban agriculture can also be found in areas like Ibeju/Lekki, Eti-Osa and Apapa where micro-credit facilities are provided by some banks and government agencies to the farmers (as is the case across other locations in Nigeria).

## 10. Conclusion

Urban agriculture has potentials of improving national food basket particularly in the meeting of food and fiber demands for the citizenry. There is a dire need to urgently reduce losses (from food spoilage) often experienced from hours of food transportation from the hinterlands and avoid breakdown of vehicles on our poor roads in the process of transportation. This will enhance stability in regional as well as national food prices. There is need to act swiftly by government at different levels and more by prospective individuals so that farmers' income, welfare and general livelihood of urban community can be improved. This will have positive multiplier effects on the society and the nation. Given the level of poverty in Nigeria, urban farming could be harnessed as a strategy for poverty reduction, food security as well as income generation. It is suggested as it is in other developing nations, governments at all levels in Nigeria should vigorously step up campaigns to encourage small and medium holders including large scale practitioners to take up this ready cash spinner which would stem hunger, restiveness, unemployment and migration incidences.

## References

- Addison, K. K. (2000). *City farms*. <http://journey.to.Forever.org>. Retrieved 23/6/2010
- Binns, T. and Fereday, N. (1996). *Feeding Africa's urban poor. Urban and peri-urban horticulture in Kano, Nigeria. Geography*, 81(4), 380-384.
- Chikezie, C., Ehirim, N.C., Ibekwe, C.C., Onyema, M.C., Nwachukwu, E.U. and Anthony, O.T. (2020). *Analysis of domestic energy demand from fuel wood among farming households in Imo state, Nigeria. A paper accepted for publication in the 2020 Annual Conference of the Nigerian Association of Agricultural Economics. To be held at University of Uyo, Nigeria, October 2020, 11pp.*
- Community Food Security Coalition [CFSC] (2003). *Urban agriculture and community food security in the United States: Farming from the city center to the Urban Fringe*. p. 32.
- Hovorka, A., Zeeuw, H. and Njenga, M. (2009). *Women feeding cities: Mainstreaming gender in urban agriculture and food security*. Practical Action Publishing Ltd. U.K. 5-20.
- Lynch, K., Binns, T. and Olofin, E. (2002). *Urban agriculture under threat: The land security question in Kano, Nigeria*.
- Mbiba B. (2005). *Urban and peri-urban agriculture in Eastern and Southern Africa: economic, planning and social dimensions.. In A. Viljoen (ed). Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities*. Oxford: Elsevier.
- Obudho, R.A. and Feoken, D. (1999). *Urban agriculture in Africa. A bibliography survey. Africa study center for urban research; Asc Research Report, 58.*
- Onyema, M.C. (2014). *Evaluation of land tenure and land use for forestry in Southeastern Nigeria. Ph.D. Thesis. University of Ibadan. 151pp.*
- Onyema, M.C., Aju, P.C., Eboh, N.N. and Igbokwe, B.I.B. (2008). *Use of tree cover in land rehabilitation and management. Forest and Forest Products. Proceedings of the 1<sup>st</sup> National Conference of the Forest and Forest Products Society of Nigeria, pp. 79-82.*
- Rabinovitch, J. and Schmetzer, H. (1997). *Urban agriculture: food, jobs and sustainable cities. Agriculture and Rural Development*. 4(2), 44-45.
- UNDP (1996). *Food for all. World food summit held on 13-17<sup>th</sup> November, Rome, Italy.*

**Cite this article as:** M.C. Onyema, N.C. Osuagwu and A.A. Nwogu and C.C. Nwaigwe (2021). *Urban agriculture: A timely game changer for urban residents in Nigeria. International Journal of Agricultural Sciences and Technology*. 1(2), 27-32. doi: 10.51483/IJAGST.1.2.2021.27-32.