

A REVIEW OF URBAN AGRICULTURE AS A TOOL FOR BUILDING FOOD SECURITY IN NIGERIA: CHALLENGES AND POLICY OPTIONS

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ABSTRACT

Over the years, various governments in Nigeria had adopted series of anti-poverty reforms aimed at ameliorating food insecurity but all to no avail. It has also been noted that, there exist a wide gap between food demand and food production due to the rural-urban drift (migration) primarily in search of white collar jobs. To checkmate the ugly trend of the food shortage in the country at large throws us to a new challenge which calls for urgent attention with a view to combating urban food shortage in terms of nutrition, human welfare and standard of living. Moreso, the increasing demand for food and jobs among urban dwellers has hitherto makes urban households to embark on urban agriculture as a means of filling the food demand and supply gap and providing income for other household requirements. Owing to the above facts, Urban Agriculture (UA) has become a contemporary issue, gaining prominence in the developing economies as a viable option to ameliorate food insecurity. Despite the growing awareness among the developed nations, Nigerian agricultural scientists and government policy have not really given it much attention it deserves as a tool for building community/urban food security which is a viable index for economic growth and development. This paper therefore reviews the concept of urban agriculture, types of urban farms, urban agriculture and poverty alleviation, UA and physical planning, potentialities, challenges and policy options on how to integrate UA into the city system for sustainability of food security situation in Nigeria. The study concluded that UA has the potentials of improving the food basket of the urban dwellers. It equally has the tendency to reduce food spoilage due to hours of traveling from rural to urban areas and the breakdown of vehicles due to bad state of Nigerian roads which often hike the cost of food transportation and eventually food prices in urban areas.

Keywords: Urban agriculture, food security, migration, and policy options, Nigeria.

BACKGROUND TO THE STUDY

People are often surprised about what can be produced on the small plots and acreages found in cities. In Nigeria, agriculture was primarily a rural based activity. But, because of the increasing demand for food and jobs for many urban dwellers, it became necessary for urban households to embark on urban agriculture as a means of filling the food demand and supply gap and providing income for other households' requirements. In addition, the practice of urban agriculture has continued to increase in recent years with the structural adjustment of the Nigerian economy around 1986. The rise in food price, unemployment and inflation brought by the structural adjustment (World Bank, 1990) and the decline in the average real income of both rural and urban household have compelled many urban dwellers into farming in the urban areas.

In recent times, urban agriculture seems to have gained importance especially in developing economies basically because it has been discovered to be a viable intervention strategy for the urban poor to earn extra income by growing their own food. It is a major component of the urban foods system by providing the diversity needed to ensure dietary quality, which is an important aspect of food security options for households (World Bank, 1990).

According to Nelson (1996), about 200 million urban dwellers participate in urban farming. Similarly, it is one of the several tools for making productive use of urban open spaces, treating and/or recovering urban solid and liquid wastes, saving or generating income and employment and managing fresh water resources more effectively.

The high rate of urbanization, weakened purchasing power, high incident of poverty, retrenchments in public and private sector and high unemployment rate have curtailed the capacity of both the urban poor and middle class to purchase all the food they need. This is based on the fact that most households in Nigeria spend an average of 50 – 80 percent of their income on food (NBS, 2006).

Urban Agriculture (UA) in Nigeria like many developing countries in the world has never received much attention from scientific and development workers. UA is still a fast- evolving field, in which concept development is still occurring at a high pace and is growing out of its ability to cope with diverse development challenges (Adeogun, *et al.*, 2007).

However, despite the glaring facts on the presence and potentials of UA in Nigeria, especially in the big cities, policy makers and government have deliberately neglected a veritable sector and have not made concerted efforts to acknowledge it and channel attention to it. Given the level of poverty in Nigeria therefore, UA could be harnessed as a strategy for poverty reduction (Egbuna, 2001).

In Nigeria, not much has been done to empirically study the urban agricultural system in order to ascertain and evaluate its impact on households' food situation as well as income. But there is no gainsaying the fact that the features and effects of urban agriculture can be felt by urban dwellers all over Nigerian cities. Data on urban agriculture is very scarce and not well documents (Egbuna, 2001).

Recent literature search (Mougeot, 1994; Mwangi, 1995, and Smith et al, 1996) revealed that, in spite of the increase in agricultural activities in urban areas, empirical studies of Nigeria agriculture have concentrated on the traditional rural based farming. Therefore, the main objective of this paper is to review urban agriculture as a tool for building food security in Nigeria: Challenges and Policy Options. More importantly, government and policy makers have neglected this veritable sector (UA), thus, there is need to therefore showcase the potentialities as a veritable strategy for the urban poor to grow their own food and earn extra income.

CONCEPT OF URBAN AGRICULTURE

The first French geographical account of urban agriculture was published on central Africa in 1960s, scattered and isolated survey by individuals like Egziabher *et. al.*, (1994) have giving way to institutional projects. Generally, several studies have been carried out on UA's in all ramification but literatures on studies in Nigeria are almost none existent.

The classifications of UA production systems are many in literature. Some studies have focused on specific categories such as production systems based at home (Chauca,1999), and at open space locations (Freeman 1991 and ENDA-ZW,1997).

Urban agriculture may be defined in simple term as the growing, processing and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities. It is integrated into the local urban economic and ecological system. Many stakeholders are involved in UA but some carry it out in bigger ways than others. However, most urban farmers are low-income men and women who grow food largely for self-consumption and cash income, on small plots that they do not own, with little if any support or protection (FAO, 1996 and 1999). Most definitions refer to production phase of agriculture; recent definitions add processing and trade to production and stress interaction between them.

Conceptually, urban agriculture is complementary to rural agriculture; it is integrated into the local urban economic and ecological system. The term was originally used only by scholars and media, but now been adopted by even international agencies like the UN agencies such as the UNDP (Smit *et al.*, 1996 and FAO, 1996 and 1999).

Smith *et al.*,(1996) claims that an estimated 800 million people are engaged in UA worldwide; of these, 200 million are market producers, employing 150 million people full time. Despite limited support and heavy losses, UA is generating produce valued in the tens of millions of US Dollars, year in year out, in major LDC's urban centres (Mougeut, 2000).

According to Mougeut, (2000), a definition which takes into account the use of resources is defined by the United Nations Development Programme (UNDP) as “an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the urban and peri-urban areas, applying intensive of crops and livestock”.

Sustainable urban agriculture is an essential tool that addresses a city's problems in innovative ways. Purchasing food that is locally grown decreases energy needs and cost associated with long distance travel and refrigeration. Economic development and community revitalization are achieved when neighborhoods takes pride in a community garden, when inner-city residents gain the ability to grow and market their own food, and when inner-city farmers' markets provide new opportunities for entrepreneurs and commercial farmers. Individual health and a sense of empowerment is enhanced when urban dwellers have access to a greater control over their own food system. The city's residents can benefit from cleaner air, lower summer temperatures and recycles waster water and trash.

As the urban population grows, so too, is the complexity of how to feed people who are so far removed from the actual production of foods. The sheer tonnage of food that must be transported daily to supply a city's residents is stunning. Fruits and vegetables shipped from distant states and countries can spend as many as seven to fourteen days in transit before arriving in the supermarkets (Mougeot, 1994).

TYPES OF URBAN FARM

Commercial farms

The USDA defined small farms as those who generate less than \$250,000 (N37.5m) in gross sales. By this broad definition, small farms make up 92 percent of New York's 32,000 farms into three categories: (1) recreational farms which sell less than \$10,000 annually, and consist of less than 100 acres; (2) adaptive farms which sell \$10,000 (N1.5m) or more annually of high-value product and are 100 to 200 acres in size; and (3) traditional farms which sell greater than \$10,000 annually of high-value product and are greater than 200 acres. Recreational farms make up 18 percent of metropolitan farms, adaptive farms, account for 14 percent, and traditional farms account for 33 percent of all metropolitan farms (CSFC, 2003).

Community gardens

Community gardens are large lots of land that have been divided into smaller plots for each household's use. These lots can be owned by a municipality, an institution, a community group, a land trust, or private ownership. Generally, each gardener keeps the production for him or herself, family and friends (CSFC, 2003).

Backyard gardens

Urban backyard gardens are plots around homes, including balconies, decks, and rooftops. High yield can be raised even in the simplest of containers. Backyard gardens grow or raise produce, honey, small animal and fish (CSFC, 2003).

As many as one quarter of the households in the United States have gardens. Most backyard gardens raise their own food to supplement their diets with seasonal harvests. Surplus foods become preserved product and gift for friends, neighbors and co-workers. Cultivating hard-to-grow crops is a frequent incentive to garden (CSFC, 2003).

Urban Agriculture and poverty reduction

One of the worst paradoxes in human history and one of the consequences of the economic structure of the current food system is hunger in the midst of plenty. The case in Nigeria is not any better as the accepted socio-economic profile shows that about 70 percent of Nigerians live below the poverty line.

Poverty can be defined as the inability to make adequate care of the basic needs like food, clothing and shelter. The income or expenditure level that can sustain minimum standard of living usually measures it. The causes of the poverty have been identified as lack of employment opportunities, inadequate access to social and infrastructural facilities among others. It has also been established that the incident of poverty is higher in the rural area than in the urban centers but the urban dwellers form one of the more deprived groups in Nigeria.

The overall objective of the poverty reduction efforts of government is to eradicate absolute poverty. In Nigeria, given that about 70 percent of Nigerians live below the poverty line, the eradication of poverty is mainly to ensure that all Nigerians are provided with steady source of income, high purchasing power and abundant good quality and high nutritious food amongst others.

In Nigeria, not much as been done to empirically study the urban agriculture system in order to ascertain and evaluate its impact on households' food situation as well as income. But there is no gainsaying the fact that the features and effect of urban agriculture can be felt by urban dwellers all over Nigeria cities. Data on urban agriculture is very scarce and not well documented.

Many studies from other countries have proved that urban agriculture contributed in no small measure to food security of many major cities, both as an important component of the urban food system and as means for vulnerable groups to minimize their food insecurity problems. Nelson, (1996) estimated that about 200 million urban dwellers now participate in urban farming, providing 800 million people with at least some of their food. A conservative estimate suggest that, in 1993, between 15 and 20 percent of the world's food was produced in urban areas. It is further estimated that as much as 40 percent of the population in Africa cities and up to 50 percent in Latin America are involved in urban Agriculture (Mougeot, 1994).

UA has also helped in meeting households' food need. For instance in Harare, urban agriculture is estimated to provide families engaged in the activity with staple food for up to four month in a year (Mbiba, 1993). According to Mougeot (1994), food self-reliance is not self- sufficiency, but it can go a long way towards reducing the food insecurity of vulnerable groups.

Employment: All the farmers and the people involved in the downstream UA activities are involved because of its production role, which comprises of work done for cash of other forms of payment (any activity, whether it be a part-time job or full-time, that generate income is considered to be productive work). About 80% of the farmers are in full time, while 20% are involved in formal paid low income jobs but practice UA to augment their income or for food produced.

Most of the food consumed in cities must be purchased, and poor families can spend as much as 60 - 80 % of their income on food (Tabatabai 1993 and Maxwell *et al.* 1999). The ability to earn cash income is a significant determinant of poverty reduction and perhaps the biggest challenge urban dwellers face is that majority of them work in sectors where wages are low, working conditions are so precarious and job tenure is in-secured. In urban sub-Sahara Africa, employment in sectors that pay regular wages accounts for less than 10 % of total employment.

URBAN AGRICULTURE AND PHYSICAL PLANNING IN NIGERIA

Physical-planning laws in Nigeria ignore UA. Thus, despite the potential benefits, UA is not recognized as an important activity. Goodall (1978) states that the land –use pattern of an urban area represents the cumulative effect of myriad decisions and actions by various individuals and organizations. Studies of the Nigerian cities of Lagos (Ezedinma and Chukuezi, 1999), of Ibadan (Tricaud, 1987) and Kano (Olofin and Tanko, 2003) have identified planning laws as major constraint to UA. Legal constraint stem from various sources, including Nigeria's National Agenda 21, the National Policy on the environment, the land Use Act of 1978 (FRN, 1978) and Nigerian urban and regional Planning Decree (No. 88) of 1992 (FRN, 1992).



Figure 1: Map of Nigeria

The power to control development, as defined by these acts, has not been substantially debated or revised vis- a- viz: UA is a relatively new topic. Where reference is made, UA is banned outright. For example, the cultivation of annual and perennial crops, as well as the raising of livestock in urban areas, is not permitted under Nigerian Law (Section 43, Land Use Act of 1978; FRN, 1978) except to preserve existing trees or plant new trees by the imposition of necessary conditions.

These laws have generally made land right and tenure difficult to secure, especially for the poor. Thus, urban laws and regulation require reform in order to improve access to UA (Tricaud, 1987; Ezedinma and Chukuezi, 1999; Olofin and Tanko, 2003). These concern have been brought forward more often by agricultural policy makers and geographers than by town planners. Little is known, however, about how to effectively implement such reforms and how they will affect physical planning and city development. The administrative responsibilities of federal, state and local governments, as enunciated the decree is that, the federal government formulates national policies for urban and regional planning, and prepares and implements national, physical, regional and subject plans. The national government also coordinates state and local governments on the implementation of their physical developments plans, as well as providing technical assistance to the states.

On the other hand, states are responsible for the development of urban and regional plans within their boundaries as well as for producing the state’s development plans. States also control development of the land within their jurisdiction and conduct research in urban and regional planning. In contrast, municipal (local) governments are responsible for preparing and implementing town plans and for controlling development within their jurisdiction.

Section 1 of the Land Use Act of 1978 (FRN, 1978) notes that all land in each state is ultimately controlled by the Governor of that State, who hold lands in trust and administer it for the use and common benefit of all Nigerians. The State Governor is empowered to grant statutory rights of land occupancy to any person above the age of 21, for all purposes, regardless of whether or not the land is situated in an urban area (Section 5(4) of the 1978 Land Use Act).

Under Section 6.1 of this Act, the Local Government is given the power to grant customary right of occupancy for the use of non-urban land for agricultural, residential and other purposes for a specific period of time. The Act does not define urban land; however, governors are required to publish in the State Gazette which areas in the state are designed as Urban or as other land. Section 43.3.4. of the Act notes that any person who contravenes any of it's provisions' would be guilty of an offence and liable on conviction to imprisonment for One year or to a fine of N5000.00.

The Nigerian Urban and Regional Planning Decree of 1992 complement this 1978 Act. UA is not recognized except in Section 72, which relates to the preservation or planting of trees. In fact, because no state In Nigeria has officially recognized UA, and it is therefore, considered as a contravening activity (Olofin and Tanko, 2003).

THE POTENTIAL FOR GROWING FOOD IN CITIES AND METROPOLITAN AREAS: EXPERIENCE FROM OTHER COUNTRIES

According to CFSC (2003), urban agriculture is a significant economic activity, central to the lives of hundreds of millions of people throughout the world. There is ample evidence, that the potential of urban agriculture for food security is real. Only now is the full potential being tapped. The United Nations Development Programme estimates that while 15 percent of foods worldwide are grown in cities, the opportunity exists to significantly increase this percentage.

One example of a powerful shift towards urban agriculture worldwide, especially in response to economic crises is found in Russia. The use of this land produces 30 percent of the total food grown in the country and 80 percent of the vegetables. Between 1970 and 1990, the number of Moscow families engaged in food production increase from 20 to 65 percent.

Other examples support the premise that, it is possible for urban dwellers to produce significant amounts of food. One-half of the vegetables consumed in Havana, Cuba are grown in the city's farms and gardens. Singapore has 10, 00 urban farmers who produce 80% of the poultry and 25% of the vegetable consumed. Currently, 14% of London's and 44% of Vancouver's resident already grow some food in there gardens. It is estimated that Londoners could produce up to 232,000 tonnes of fruits and vegetables or 18 percent of the population's nutritional needs. However, many U.S. urban areas are producing food far below their potentials. Massachusetts, currently produces 15 percent of its food needs, but has the potential to produce 35 percent, and this percentage does not take into consideration vacant plots or rooftops in urban areas.

U.S. countries defined as urban influenced (within metropolitan countries) grow 79% of the fruit, 68% of the vegetables, and 52% of the dairy product in the U.S. This takes into account all large commercial, industrial farm operation and does not distinguish between food that are consumed in the U.S. and food that is exported out of the country. Few dollars generated by this is consumed in the U.S. and food is exported out of the country. Few dollars generated by this system remain in the town and region where the food was produced (CFSC, 2003),

CHALLENGES/CONSTRAINTS TO THE DEVELOPMENT OF URBAN AGRICULTURE IN NIGERIA

Land tenure

Challenges: Many who wish to involve in urban agriculture do not own land. Thus, without title, or three to five years leases, they risk losing their investment when the land is taken over from them for other purposes.

Start-up-costs

Challenge: Agriculture enterprises have start-up-costs that can be an obstacle to people with limited income. Costs include: labor, site management, water, tools and equipment, rent and insurance, processing, packaging, and marketing materials.

Access to markets

Challenge: Growers often find it difficult to market their locally-grown foods to groceries, restaurants, and institutions because of wholesale distributors' monopolies.

Knowledge and skills

Challenge: Urban growers may lack the knowledge and skills in production, processing and marketing that would bring about successful yields and food security.

Seasonal limits

Challenge: In many climates, food production is seasonal and thus, not as dependable as a year-round source of food security. Many urban residents have limited knowledge and access to facilities for preserving foods that they grow.

Health

Health challenges connected to farming in the city. For example, urban soils can be contaminated with heavy metal such as lead. Certified organic farms must have 50 ft of land between a production area and a site of possible contamination.

Urban Planning

Challenge: Prohibitive urban policies and regulations.

Vandalism and Crime

Challenge: Although the risk has not proved great, there continues to be concerned with vandalism and crime in urban gardens.

Others include:

- Limited access to productive resource and agriculture input;
- Lack of support services;
- Harassment by local/state government tax and environmental authorities;
- Theft of crops grown far from the farmer's households and high cost of providing security on the farms;
- High production costs coupled with lack of credit facilities;

- Lack of organization among urban farmers. Inability of the members to organize themselves in such a way to attract official recognition in order to benefit from government and corporate incentives such as credit and other financial assistance as well as input subsidies.

Policy changes to support urban Agriculture

Policymaking takes place at many levels of the local government councils, state legislature, and the federal government. However, agriculture is a low priority between many planners and politicians. Citizens who work on urban agriculture are often volunteers who may not have access to officials. Conflict between agriculture and other uses is difficult to resolve and policies often lack enforcement. Urban farmers have few tenure rights over land and water and can easily be pushed out by other land development. The urban agriculture should be regarded as an integral component in urban income, employment and food systems. Therefore, the under-mentioned are recommended for policy changes/options:

Integration of urban agriculture into land use planning

There is need to integrate urban agriculture into urban planning by establishing a greenbelt zone to halt urban development activities especially in cities like Abuja and Lagos. Urban agriculture is not in most planning design because of the false idea that 'real' agriculture takes place in the rural areas.

Urban agricultural land management

Technical advice and training for farmers by agricultural extension workers on a sustainable basis. Aspect of training should include soil erosion control techniques and bio-intensive farming practices to enhance soil fertility and check soil degradation.

Water resource management

The Environment protection Agencies in collaboration with the Local/Municipal and water resources should ensure that there are measures to minimize the pollution of water source to farming. This could be achieved through the provision of guidelines and standards for the benefits of water conservation and source protection.

Control of wastewater discharges into surface/ground water

It should be made known to the farmers that it is an offence to water crops with effluent from drain, but most of the urban farmers are guilty of using polluted water from canal and wastewater from factories to water crops. Alternative approaches to these problems such as the use of boreholes to provide safe water for irrigation is advocated. Intense public education on both acceptable environmental and food hygiene practices should be encouraged to use groundwater source instead of surface water.

Promoting the use of organic manure

The Federal Ministry of Agriculture in collaboration with environmental experts should sensitize more urban farmers on the advantages of using organic manure. A policy to maximize re-use and recycling of city organic waste should be vigorously pursued with the Waste Management Department in order to make organic manure available, safe and cheap.

- Support infrastructures for increased urban food production, processing, and marketing:

- Extend to urban growers appropriate farm-related services and opportunities so that urban and small acreage farmers have access to such benefits as start-up capital or credit.
 - Preserve farms and support initiatives that convert idle and under-used urban lands into production areas.
 - Promote and develop training in production
 - Sponsor and publicize research which integrates health, nutrition, food production, access and economics together to solve whole city issues.
- Educate professionals so that urban agriculture is automatically considered a part of urban and regional planning.

CONCLUSION

At the moment, there is no explicit policy for Urban Agriculture in Nigeria. A first step towards promoting this veritable source of diet and income in order to harness its potentials for poverty reduction would be for the Federal Ministry of agriculture to create an office for Directorate of Urban Food and Agriculture (DUFA). This will give urban agriculture the official recognition it deserves and would also co-ordinate a strong and viable farmers association.

The study concluded that UA has the potentials of improving the food basket of the urban dwellers, reduces food spoilage due to hours of traveling and the breakdown of vehicles owing to bad state of Nigerian roads as well as the cost of food transportation from the rural to urban areas.

There is need to act immediately so that communities and cities will capitalize on their collective experiences and integrate UA into the city system in a more viable and sustainable way. Given the level of poverty in Nigeria, UA could be harnessed as a strategy for poverty reduction. To achieve this, there is need to conduct a comprehensive study of urban agriculture systems in order to gather data for planning and research.

The policies and actions outlined above and the dedication of hundreds of people will help to promote urban agriculture as a powerful instrument for building community food security and increasing sustainable economic development in Nigeria.

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