

# Planning for Sustainable Livestock Farming as a Form of Urban Agriculture in Maiduguri

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**Abstract:** Livestock raising as a form of urban agriculture has been in existence for long with the practice being carried in back or front yard of residential houses and part of streets in the neighborhoods. The aim of the paper is to examine urban agriculture with the view to identifying its problems and proposing sustainable means of undertaking it. The objectives include describing livestock raising as a form of urban agriculture; examining the role of stake holders, identifying the problems and plan for its sustainability. The scope of the paper is on raising of livestock (goats, sheep, and cattle's) it is limited to Maiduri and Kasuwu fa'ai.(cattle market) and focused on the animal housing type, purpose of keeping, feeding and waste management. The paper identified three stake holders in livestock raising in urban areas these are farmers, the government and knowledge institutions. It has also identified problems related to the stake holders which include lack of sufficient land for livestock raising in urban areas, inadequate modern technique and knowledge of livestock production and raising and the non-diversification of the sector to include related fields. The paper has proposed sustainable measures for improvement of livestock raising as a form of urban agriculture. this include the inclusion of plots size to take care of livestock section in residential homes, the establishment of animal service centers at neighborhoods levels. The paper concluded that there is need to include urban agriculture into the urban planning process because it has gain recognition worldwide.

**Key words:** planning, sustainable, livestock, urban agriculture

## INTRODUCTION

Urban agriculture has existed in various forms and places for a long time. It was practiced in the Aztec and Mayan civilizations and in prehistoric Jericho. More recently, it has been banned in some modern cities, but continues to emerge in others. Lately, it even seems to be growing in importance and scope. Livestock raising has often been part and parcel of urban agriculture, presenting its own specific problems and opportunities. Until recently, it was often regarded as problematic, backward and a sign of poverty. As with all branches of urban agriculture, however, livestock keeping now seems to be recognized for the positive role that it can play in urban living conditions across the world (; Bakker, 2000; FAO, 2000, RUA Foundation, 2018). Indeed, livestock production has a variable and controversial, but often essential, role to play in and for cities. It occurs on a small scale, with both small and large animals. It is subject to change, e.g.

local breeds are replaced by foreign breeds and, while it is increasing in some cities, it is decreasing elsewhere.

The rapid growth of cities in the developing world is placing enormous demands on urban food supply systems. Hence the need to identify the various ways and means of supplying the additional need as result of the population growth. One means of supplying is urban agriculture which is the practice of cultivating, processing and distributing food in or around a village, town, or city. Urban agriculture can also involve animal husbandry, aquaculture, agro forestry, urban beekeeping, and horticulture. These activities occur in peri-urban areas as well, and peri-urban agriculture may have different characteristics. City and suburban agriculture takes the form of backyard, roof-top and balcony gardening, community gardening in vacant lots and parks, roadside urban fringe agriculture and livestock grazing in open space (USDA, 2018). The concepts in urban agriculture and the associated facilities have received significant attention and popularity in the last 8 years (FAO, 2000).

Urban agriculture is practiced by 800 million people worldwide (FAO,2000) it plays vital roles apart from the food supply to the ever growing population of the urban areas some of which include economically expands the economic base of the city through production, processing, packaging, and marketing of consumable products. This results in an increase in entrepreneurial activities and the creation of jobs, as well as reducing food costs and improving quality. Urban agriculture provides employment, income, and access to food for urban populations, which helps to relieve chronic and emergency food insecurity (Wikipedia, the free encyclopedia)

The sustainability of urban agriculture is closely related to its contributions to the development of a sustainable and resilient city that is socially inclusive, food-secure, productive and environmentally-healthy (RAUF Foundation, 2018). The impact of urban agriculture is been felt in different form by the cities this include social, economic and health benefits Socially can have a large impact on the social and emotional well-being of individuals, urban agriculture can have an overall positive impact on community health, which directly impacts individual's social and emotional well-being. Urban gardens are often places that facilitate positive social interaction, which also contributes to overall social and emotional well-being. Many gardens facilitate the improvement of social networks within the communities that they are located. For many neighborhoods, gardens provide a “symbolic focus,” which leads to increased neighborhood pride (Wikipedia, the free encyclopedia). However, it also has some negative impact especially when not properly carried out these include the contamination of the environment through the use of chemical in farm and generation of animal waste into environment.

Much more livestock is being raised in the urban areas of developing countries than most people and policymakers think (Macmillan, 2012). By 2020 the developing countries of Africa, Asia, and Latin America will be home to some 75% of all urban dwellers and to eight of the anticipated nine mega cities with populations in excess of 20 million. Most cities in developing countries have great difficulties coping with this development and are unable to create sufficient formal employment opportunities for the poor. They also have increasing problems with the disposal of urban wastes and waste water and maintaining air and river water quality. It is expected that by 2020, 85% of the poor in Latin America, and about 40-45% of the poor in Africa and Asia will be concentrated in towns.

The rapid urbanization goes together with a rapid increase in urban poverty and urban food insecurity. Poverty, hunger and food insecurity have human rights implications. Indeed, it is now widely accepted that poverty should not be seen only as a lack of income, but also as a deprivation of human rights and that hunger constitutes a violation of the human right to food. (WBpaper-Final, 2008) The need to sustainable planning for urban agriculture cannot be over emphasis because it has provided employment to 800 million people worldwide with this it has contributed to poverty reduction in urban areas of the world.

The statement of problem of the paper include lack of adequate space to undertake urban agriculture in urban areas as no formal space has allocated for that purpose, secondly the practice is carried using crude method as little or no modern method is used and thirdly lack of finance to boost urban agriculture. The aim of the paper is examining urban agriculture with the view to identifying it problems and proposing sustainable means of undertaking it. The objectives include examine livestock raising form of urban agriculture; examine the role of stake holders, identifying the problems and plan for it sustainability. The scope of the paper on raising of livestock (goats, sheep, and cattle's) it is limited to Maiduri and Kasuwu fa'ai (cattle market) and will focus on the animal housing type, purpose of keeping, feeding and waste management The material and methods: the study was carried out in Maiduguri Borno state. Maiduguri the capital of Borno is located in the north eastern part of Nigeria as shown in Figure 1; it lies on latitude 11°. 05<sup>1</sup> North and longitude 13°.05<sup>1</sup> East. It is largely surrounded by Jere local government and Konduga local government which makes part of the greater Maiduguri (see Figure 2). The town covers a total land area of 543 sqm and a population of 540,016 with a growth rate of 3.5% and a density of 1,878 people per sqm (National Population Census, 2006). This makes it the largest city in the north eastern part of the country. The present day Maiduguri came into existence in 1907 following the relocation of the capital of Kanem Borno Empire from Kukawa by the British. The Shehu who was the religious and political leader settled in Yerwa another name for Maiduguri meaning Prosperous. In 1968 Maiduguri became the capital and the central city of the new north eastern state. After the creation of states in 1976 Maiduguri maintained its status as the capital of the new Borno state. The state has twenty-seven local governments. The present Maiduguri is a fusion of Maiduguri village and Yerwa. Later wards like Gamboru, Gwange, Bulumkutu and others to mention a few came up (Max Lock Group, 1976).

The population was small for the initial settlement, the societies were almost homogeneous comprising of mainly Kanuri, Shuwa and few Hausa. The types of settlement were mainly of two types comprising of planned area like the Government Reserved Area (GRA), the federal and state low-cost housing estates. The second type is the traditional areas which comprise of the indigenous settlement and the migrant settlement. The method employed is secondary sources which entail the review of relevant literatures on the topic urban agriculture, sustainability and poverty reduction.

### **LIVESTOCK RISING AS A FORM OF URBAN AGRICULTURE PRACTICE**

Livestock are domesticated animals raised in an agricultural setting to produce commodities such as meat, eggs, milk, fur, leather, and wool. The term is sometimes used to refer solely to those that are bred for consumption, while other times it refers only to farmed ruminants, such as

cattle and goats. Urban farming is practiced in both developing and developed cities worldwide, including the Netherlands. In most cases urban farming is about local food production (Jansma, Veen and Sukkel, 2018). Netherlands one the country in the world with leading livestock production has made the industry to be its major source of income. Livestock generate £ 9.3 billion per year, the government, livestock farmers and the processing industries wants to make animal husbandry as sustainable as possible. The methods include environmental performance of Dutch livestock farmers and suppliers and the benefit resulting from environmental policies in emission (The use of manure to in place chemical fertilizers).

The Netherlands is a small country comprising about 35,000 square kilometers. In addition to being densely populated with people — 17 million — it is home to a great many farm animals. There are some 4 million ruminants (cattle, sheep, and goats) as well as 11 million pigs and 100 million head of poultry. Each type of livestock, as well as other domestic animals such as horses, dogs, and cats, requires a specific type of feed. (The breeding of animals is represented in other PUM sectors.) Livestock are housed in pens usually containing cattle in each cage and smaller ruminants such as sheep's and goats kept larger pens while the animals are allowed roam special feeds and technology have employed over the years in the country to improve the business of livestock raising this has made the country one the leading in terms livestock production.

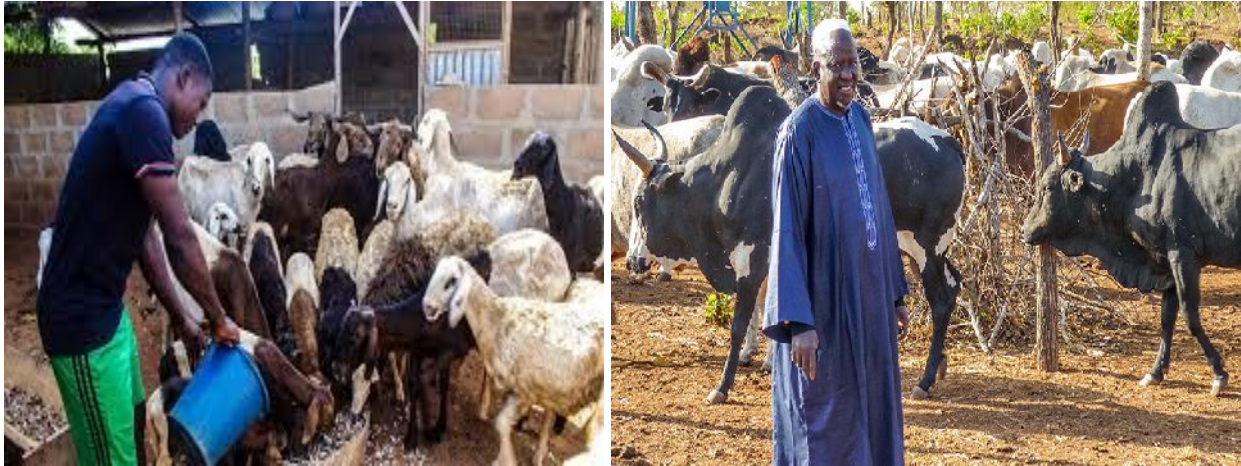
Plates 1-4 showing livestock in pens and grazing field



In Mali livestock are of key economic and social importance at both the household and national levels. Livestock production accounts for approximately 30 percent of Mali's agricultural GDP,

and around 85 percent of Mali's agricultural households own some form of ruminant. The combination of low-cost animals reared on extensive rangelands and cheap cotton seed cake contributes much towards the competitive advantage of the Malian livestock sector (USDA, 2018). Livestock are housed in the court yard of residential areas or in the vicinity of the houses during the night while in the day time there are allowed roam with in the neighborhood. The types of animals kept include cattle for milk and meat, small ruminants for meat, and poultry for eggs and meat (Amadou *etal*, 2012).

Plate 2 and 3: showing livestock housing type in Mali



Source World Bank Country Office in Mali

Livestock raising is as old as the human settlement in Maiduguri, most house in the traditional part of the city keep domestic animal especially goats and sheep's usually for domestic consumption in court yard of residential dwelling and parts of streets. But with the increase in population and raising demand, keeping of animals has gone beyond meeting domestic needs to commercial purpose. Most urban farmer breed livestock for commercial purpose to meet the increasing demand during festive seasons such as the sallah festivals when the prices of livestock appreciates and also to export them to southern part of the country. The raising of livestock has undergone some form of transformation with improvement in feeding and medication to enhance growth. Livestock raising as form of urban agriculture lead to the transformation of the cattle market and abattoir to include livestock farm and veterinary services. Livestock waste generated is transported to farms as manure using both heavy and light trucks.

### **ROLES OF STAKE HOLDERS IN LIVESTOCK FARMING**

(i) The private sector (farmers) livestock farmer raises animals for profit; to be successful he should have a good understanding of livestock production, business practice and management techniques. Livestock farmer always wish to increase or add more animals to his operation hence the need for space to accommodate them. He improves the quality of his livestock for increase profit. He should be having enough funds to sustain his business. Livestock farmer performs physically strenuous work; most livestock farmer is involved in crop production in other to provide feed for the animals. Farmers most comply with state health and grazing regulation for

their animals he takes pride in being their own bosses and they enjoy outdoor life. (<http://careers.stateuniversity.com/pages/59/Farmer-Livestock.html>)

(ii) The government as "a system of social control under which the right to make laws, and the right to enforce them, is vested in a particular group in society" the role of government is to promote the general welfare. It fulfills this function in many different ways including monitoring the economy business and maintaining public infrastructure as well as regulating safety of food and medicine. The role played by government in urban agriculture is seen in three ways which concerns public health associated with keeping animals in urban areas, zoning enforcement of land uses for specific purpose in urban areas and then ensuring sufficient food production to all citizens of the country.

(iii) The knowledge institutions: land-use planner seeks to order and regulate land use in an efficient and ethical way, thus preventing land-use conflicts. Governments *use* land-use planning to manage the development of land within their jurisdictions. It is an essential tool for pollution prevention and control. Land uses are categories that refer to the different socioeconomic activities occurring in a particular area, the human behavior patterns they create, and their effects on the environment. These professional have not included urban agriculture in their classification of land uses in urban areas. Therefore, a community seeking to protect agricultural lands, the focus must be twofold: limiting development in predominantly agricultural areas and providing for development away from prime agricultural lands. The degree of success in protecting agricultural land is largely dependent on creating the appropriate planning options that will result in a balanced development pattern.

## **PROBLEMS ASSOCIATED WITH THE STAKE HOLDERS**

(i) The private sector (farmers) land which is one of the important component in agriculture is limited as raising of livestock requires enough space for both keeping of animals and their food. This is done in residential house, parts of the streets and undeveloped plots in the study area. Second problem of livestock farming is that very little modern techniques are applied such as the improvement in breed of animals to use for specific purpose either for beef, milk etc. and other latest technology in animal production. Thirdly the non-diversification of the business to include related fields such as milk production, hide and skin production etc. and finally.

(ii) The government has set up veterinary institutes, clinic, and research with the aim of development livestock production however special attention has given to urban agriculture which has been in existence for long and fast growing, no specific data on the sector available and it not included in both physical and economic plans.

(iii) The knowledge institutions: land-use planners have failed to include urban agriculture in the city master plan rather taking over the peri -urban land used mainly for agriculture purposes to other development such residential and industrial uses.

## **PLANNING FOR SUSTAINABILITY**

The government and land use planner should include urban agriculture in the planning of settlement. This can be done in such way as including the space for specific occupation in the plots sizes for examples urban agriculture are largely associated with low income earners in the urban center the plot size of 15×30 for residential dwelling should have additional land of the same size for the purpose of urban agriculture in the settlement designated as livestock raising settlement. The training and modern livestock agriculture practice should be brought down to the neighborhood level for easy accessibility by the farmer (Aland and Banhazi, 2013). This will build the capacity of farmer to increase their productivity and also easy the activities of livestock raising in Maiduguri. The diversification of urban agriculture in Maiduguri should the introduction of related occupation to livestock raising such as milk, hide and skin production and simple livestock feed mills that produce feed using available raw materials in standard proportion that will enhance the growth of the animals.

## **CONCLUSION**

Livestock raising has been part of the settlement the need include it formally cannot be over emphasizes this because its acceptance as an occupation and source of income. The planning urban agriculture should be included in the overall planning process such that it will be part and parcel of the city's development plan, not as informal activity as practiced presently in Maiduguri.

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