

***Applying the JOHANN HEINRICH VON THUNEN Model to Analyze
the Impact of Urban Agricultural Policies on Sustainable Economic
Development:***

Insights into the State of Urban Agriculture in Algeria

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Abstract:

*Sustainable development is a highly relevant issue in a global environment that demands ethical conduct in international relations within the framework of economic development, giving importance to the environment, social justice, and social solidarity. This article addresses one aspect of this concept by presenting the factors that influence the localization of urban agriculture, as well as some theories and models that explain this localization, notably the **Johann Heinrich von Thunen model**.*

Keywords: *Von Thunen model, Urban agriculture, Sustainable development*

1. Introduction

Speaking about the environment today has become a central concern for nearly all countries, whether developed or still lagging behind in terms of growth. Discussing the environment inevitably leads us to talk about human life, which is the core of existence. This, in turn, brings us to the concept of the green economy. Here arises the importance of agriculture within the framework of sustainable development. One of the foundational concepts of both the green economy and sustainable agricultural development is urban agricultural localization, which serves as a bridge between the traditional countryside and the urban city with all its challenges, hence the importance of this topic.

"Urban agriculture is the practice of cultivating, processing, and distributing food in or around a village, town, or city. It can include animal husbandry, aquaculture, agroforestry, and horticulture. These activities are also carried out in peri-urban areas. Urban agriculture is generally practiced

for income-generating or food-producing purposes, although in some communities the primary motivation may be recreation and leisure. Urban agriculture contributes to food security and safety in two ways: first, by increasing the amount of food available to urban residents; second, by providing fresh vegetables, fruits, and meat products to urban consumers." In addition, it helps reduce the spread of "food deserts." One widespread and effective form of urban agriculture is intensive organic farming. Because urban agriculture promotes local food production—thus saving energy—it is generally considered a sustainable form of farming.

Among the many benefits of urban agriculture, especially in densely populated U.S. cities, is the use of grow bags to cultivate a wide variety of crops. For the many individuals living in apartments without gardens or with very small yards, these bags can be placed on balconies or narrow strips of land. Moreover, the availability of various types of hanging grow bags increases the planting area. The bags themselves are made from various materials, including canvas, weed barrier fabric, and polyester, all of which have semi-permeable properties allowing proper drainage. The term "bagriculture" was coined in 1998 by Rudy Zappa Martinez, a Los Angeles-based recreational officer and amateur archaeologist, to describe this type of farming. The realization of urban environmental degradation and the need to redirect resources to meet the needs of urban populations has led to the implementation of various urban agriculture projects in both developing and developed countries. From historical models like Machu Picchu to modern productive urban farm designs, the idea of farming within or around cities has many distinctive features.

Based on this, we seek to address the following core research problem:

What is the relationship between sustainable economic development and the green economy, and how does urban agricultural localization contribute to establishing the foundations of sustainable economic development?

To address this main question, the following sub-questions are posed:

1. What do we mean by urban agricultural development?
2. What is the concept of sustainable agricultural development?
3. What are the models of urban agricultural localization?
4. How does urban agriculture contribute to laying the foundations of

sustainable development?

Research Hypotheses:

Based on the research problem and the aim of this **theoretically analytical paper**, the following hypotheses are proposed:

H 1: Urban agricultural development is a key factor in sustainable economic development.

H 2: Urban agricultural localization is a strategic tool to promote sustainable local economic growth.

H 3: The green economy is one of the main mechanisms for achieving environmental sustainability.

Objective and Significance of the Study:

This paper aims to explore a highly relevant topic in today's global context, where sustainable economic development is a priority. It investigates the importance of urban agriculture for sustainable environmental development and its impact on sustainable public health. The significance of this study lies in its analysis of successful global models in this field, as well as its treatment of essential theoretical concepts such as sustainable agricultural development and urban agricultural localization. Therefore, this paper holds theoretical and scientific value, which constitutes its primary objective.

Structure of the Paper:

- 1: The concept and principles of sustainable agricultural development
- 2: The concept and nature of urban agriculture
- 3: Models of urban agricultural localization

2. The Concept and Principles of Sustainable Agricultural Development

Sustainable agriculture is the practice of farming based on ecological principles, specifically, the study of relationships between living organisms and their environments. It is defined as “*an integrated system of plant and animal production practices having site-specific applications that will, over the long term:*

- Satisfy human needs for food and clothing.
- Enhance the environment and the natural resource base upon which

the agricultural economy depends.

- Make the most efficient use of non-renewable resources and on-farm resources, integrating, where appropriate, biological pest control and natural biological cycles.
- Sustain the economic viability of farm operations.
- Improve the quality of life for farmers and society.

Sustainability can be understood as an ecosystem-based approach to agriculture. Certain farming practices can cause long-term harm to soil, such as excessive tillage (which leads to erosion) and irrigation without proper drainage (which leads to soil salinization). Long-term experiments have provided some of the best data on how various practices affect soil characteristics essential to sustainability.

In the United States, a federal agency known as the Natural Resources Conservation Service (NRCS), part of the USDA, specializes in providing technical and financial assistance to those interested in conserving natural resources and promoting productive agriculture as compatible goals.

The essential factors required at any site are sunlight, air, soil, and water. Among these four, water and soil quality and quantity are the most vulnerable to human intervention over time through labor and farming activities.

Although air and sunlight are generally available everywhere on Earth, crops also depend on soil nutrients and water availability. When farmers grow and harvest crops, they remove essential nutrients from the soil. If the soil is not replenished, it becomes depleted, leading to reduced productivity or even land abandonment.

Sustainable agriculture therefore relies on soil regeneration while reducing the use of non-renewable energy resources, such as natural gas (used to convert atmospheric nitrogen into synthetic fertilizers) or mineral ores (e.g., phosphates).

Potential sources of nitrogen that are, in principle, indefinitely renewable include:

- Recycling crop residues, livestock manure, or human waste.
- Planting legume or forage crops such as peanuts or alfalfa, which form symbiotic relationships with nitrogen-fixing bacteria called rhizobia.

- Industrial nitrogen production through the Haber process, which uses hydrogen currently derived from natural gas (but could alternatively be obtained by water electrolysis using electricity from solar panels or wind turbines)
- Genetically engineering non-leguminous crops to form symbiotic relationships with nitrogen-fixing bacteria, or to fix nitrogen independently without microbial symbiosis.

2.1. Agricultural Development Literature:

2.1.1. The Concept of Agricultural Development:

Agricultural development is considered one of the dimensions of economic development. Its objectives and methods are almost identical to those of economic development in general. It has been defined as: *“All measures that contribute to increasing agricultural production in support of economic development.”* It is also defined as *“the process through which the maximum possible agricultural output is achieved, or the reallocation of economic resources to attain this maximum output.”*

Agricultural development refers to increasing agricultural output either by expanding arable land through land reclamation, improving land productivity, or both. Increasing productivity involves enhancing cultivation conditions by selecting crops suited to the soil, using quality seeds, combating pests, and using farming machinery appropriate for the socio-economic context. Agricultural development also encompasses the improvement of animal and fish production.

Agricultural output forms a vital part of national income development, especially in agricultural countries where farming is still based on traditional methods and outdated perceptions that view agriculture merely as field cropping, neglecting horticulture, food processing, and livestock products.

Like economic development, agricultural development is a management process of growth rates aimed at increasing the real average per capita income in rural areas, either through expanding cultivated land (horizontal development) or through capital intensification and technological advancement (vertical development). This concept aligns with the general definition of economic development, as it emphasizes material aspects by

adopting all measures that increase agricultural production and generate capital for economic growth, often at the expense of social aspects.

Two main approaches to agricultural development can be distinguished:

- Reorganizing agricultural relations
- Increasing the agricultural resources in use

2.1.2. Foundations of Agricultural Development:

Agricultural development relies on several foundational elements necessary to ensure the appropriate development model. However, most developing countries exhibit a set of economic and social characteristics typically associated with underdevelopment, particularly in agriculture. These include:

- Population pressure
- Insufficient capital accumulation
- Structural and disguised unemployment
- Imbalanced external trade structures
- Underdeveloped social and cultural infrastructure.

These are major obstacles to agricultural economic development, which also suffers from:

- Limited savings mechanisms
- Narrow markets and weak investment incentives
- Inadequate infrastructure and production systems
- The vicious cycle of poverty
- The impact of foreign trade and international economic relations

In general, agricultural sectors in both developing and developed countries face economic constraints that hinder their development goals. In developing countries specifically, some common issues can be overcome if sufficient resources and support are provided, such as:

- The population-to-land imbalance, where land pressure is high due to dense rural populations relative to cultivated land.
- The relative scarcity of capital in agriculture due to limited investment capacity at both national and household levels.
- Constraints on cultivated capacity, which is influenced by the combined value of production inputs, the level of technology used, and managerial efficiency.

These challenges may hinder the implementation of appropriate agricultural development policies in developing countries. Overcoming them

requires an objective economic vision and a comprehensive agricultural policy that aligns with the overall economic strategy, available resources, and local potential.

However, these factors alone are not enough to launch a successful agricultural development process. Additional conditions must also be met, favorable circumstances that support efficient agricultural production. The most important conditions for effective implementation of agricultural development programs include:

- Internal stability and political security
- Full market integration or efficient resource allocation
- Availability of complementary agricultural economic activities

From this analysis, it becomes clear that numerous barriers hinder overall national development, especially within the agricultural sector. Therefore, to develop this sector, the essential elements of economic development must be provided. Since agricultural development cannot be achieved in isolation from other economic sectors, the components of agricultural development must be addressed within the broader framework of national development programs, which will be summarized as follows:

2.1.2.1. Structural Changes: Economic structure refers to the composition of economic sectors and activities, their relative importance, and the interrelationships among them that define the national economic structure, such as the ratio of agricultural output to national output and the proportion of agricultural workers relative to workers in other sectors. These variables reveal the role of agricultural development in driving structural changes and its impact on other sectors and the overall national output.

2.1.2.2. The Big Push: This refers to providing an adequate amount of investment that enables the national economy to begin moving toward a phase of self-sustained growth. The required investment depends on several indicators, including the size of the national economy, the availability of economic resources, and the stage of economic growth prevailing in the agricultural and other sectors.

2.1.2.3. A Suitable Strategy for Continuing the Development Process:

Even if the previous factors are available, the absence of an appropriate development strategy to sustain economic growth rates leads to failure. A suitable strategy depends on the prevailing economic, social, and environmental conditions and the availability of economic resources. The size and importance of the sector play a crucial role in shaping economic growth strategy, along with other variables such as balanced growth or unbalanced growth strategies.

2.1.3. Pillars of Agricultural Development:

Agricultural development relies on several pillars, including:

2.1.3.1. Natural Agricultural Resources: These include agricultural land, water resources, climatic and weather conditions, plant and animal wealth. The focus here will be on two key elements: agricultural land and water resources due to their vital role in agricultural development.

2.1.3.1.1. Agricultural Land: Although the relative importance of land in agricultural production has declined in favor of labor, management, scientific and technical knowledge, and modern inputs, land remains the foundation of agricultural production in terms of quantity (area) and quality (fertility). Agricultural land is a strategic asset that must be preserved and improved. Land can increase or decrease in area and improve or degrade in fertility, influenced by two sets of opposing factors:

- Positive factors: e.g., land reclamation expanding usable area.
- Negative factors: e.g., urban sprawl, erosion, desertification.

2.1.3.1.2. Water Resources: Water is essential for life and agriculture. As a scarce resource, water requires careful management and policies for conservation and efficiency. The growing global demand for water, driven by population growth, industrial, tourism, and agricultural development, poses challenges, including:

- Excessive and random water withdrawal.
- Inefficient use of irrigation water.
- Lack of comprehensive data on water availability and usage.

2.1.3.2. Agricultural Human Resources: Development depends on both natural and human resources. A balance between them is crucial.

Merely having an abundance of one does not ensure increased national income unless there is proper alignment. The optimal population size is that which maximizes real average output per person.

2.1.3.3. Agricultural Capital Resources: Capital is divided into productive capital (equipment and goods) and monetary capital.

- Economic capital includes infrastructure, public utilities, and intermediate goods.
- Social capital includes health, education, and housing.

In agriculture, capital includes all human-made means of production: irrigation networks, machinery, transportation, seeds, fertilizers, pesticides, etc. While monetary capital is not a direct production factor, it is essential for acquiring productive resources. Capital accumulation, saving and reinvesting income, is considered a key driver of economic and agricultural development. This includes:

- Technical capital (tools, machinery),
- Biological capital (livestock, plantations),
- Biochemical capital (fertilizers, pesticides).

Effective development requires not just capital volume, but also its efficient use. Despite expansion in agriculture, capital flows into the sector remain low compared to industry due to:

- Lack of attractive investment opportunities,
- Income instability in farming,
- Farmers' reluctance to invest,
- Banks' reluctance to lend, resulting in higher interest rates in agriculture.

2.1.4. Basic Criteria for Selecting Agricultural Development Programs:

To achieve high agricultural output and low marginal cost, agricultural policy makers must consider criteria such as:

- Rate of agricultural investment,
- Selection of productive programs and projects,
- Agricultural pricing policies,
- Choice of production techniques.

2.1.5. The Role of Agriculture in Economic Development:

Agriculture plays a major role in overall economic development. Experiences from many countries show that economic growth often begins with advances in agriculture, which contributes to the national economy through:

2.1.5.1. Providing Raw Materials and Food: Many manufacturing industries rely on agricultural raw materials. Agriculture also creates demand for industrial products such as machinery, fertilizers, and pesticides. It thus has a reciprocal relationship with other sectors, especially industry. Agricultural income increases farmers' purchasing power, creating a market for industrial goods.

2.1.5.2. Creating Employment Opportunities: Agricultural development provides jobs, especially when supported by training and mechanization. Employment can grow through expanding cultivated land or improving worker productivity. When labor exceeds agricultural needs, surplus labor can be transferred to other sectors like industry and trade. Development goes through:

- **Initial phase:** agriculture absorbs labor until industry matures,
- **Advanced phase:** industry absorbs labor surplus from agriculture.

2.1.5.3. Achieving Food Security: Food security remains a key challenge in many developing countries, where local production often fails to meet growing demand. Agriculture is vital to ensuring a secure and sufficient food supply.

2.1.5.4. Generating Financial Resources and Foreign Currency: Agriculture can be a major source of income and foreign currency, particularly through the export of agricultural products. Increased agricultural production raises farmer incomes and savings, which can support broader economic development. To boost agricultural exports and reduce reliance on imports:

- Study international market needs,
- Differentiate export products by quality,
- Match demand in quantity, quality, and timing,
- Meet domestic needs first and export the surplus,
- Streamline export procedures and legislation,

- Provide exporters with flexibility due to the sensitive nature of agricultural goods.

2.1.5.5. Contribution to National Income: Agriculture contributes significantly to national income. However, in low-income countries, it struggles to match industry in attracting resources and boosting income due to:

- Declining agricultural income compared to other sectors,
- Low capital investment due to lack of incentives and unstable incomes,
- Rural-to-urban migration reducing agricultural labor,
- Reduced enthusiasm and initiative among agricultural workers compared to industrial workers due to limited opportunities and support.

Overall, successful development programs require coordinated agricultural policies aligned with available resources and broader economic objectives.

3. Section II: The Concept and Nature of Urban Agriculture

3.1. Definition of Urban Agriculture:

Urban agriculture refers to the practice of growing, processing, and distributing food in and around urban areas, such as villages, towns, and cities. This practice may include animal husbandry, aquaculture, agroforestry, and horticulture, and it can also extend to peri-urban areas. Urban agriculture is typically pursued for income generation or food production; however, in some communities, recreation and leisure serve as primary motivations.

Urban and peri-urban agriculture (UPA) contributes to broadening the economic base of cities by producing, processing, packaging, and marketing consumer products. This, in turn, stimulates entrepreneurship and job creation while reducing food costs and improving the quality of available products. Moreover, UPA provides employment, income, and food to urban dwellers, thereby helping alleviate both chronic and emergency food insecurity. Chronic food insecurity is associated with inadequate food availability and rising urban poverty, whereas emergency food insecurity results from disruptions in food supply chains.

Urban agriculture plays a crucial role in enhancing food availability and providing emergency food supplies. Research on the market value of crops grown in urban gardens has shown that the average output of community farms can range between \$200 and \$500 (USD, adjusted for inflation). In successful programs such as Seattle's P-Patch community gardening initiative, annual yields can reach a total market value of \$1.25 million (Brown & Jameton, 2000; Hodgson et al., 2011).

3.2. Benefits of Urban Agriculture

Urban agriculture generates a wide range of social, economic, and nutritional benefits, including better health and nutrition, increased income, job creation, household food security, and social engagement within communities. UPA is often viewed as an informal activity, yet in cities where food insecurity is widespread and access to reliable supplies is limited, urban agriculture has emerged as an effective response to food-related challenges (FAO, 2020).

Families and small communities benefit from utilizing vacant land, not only to meet their own food needs but also to contribute to the food supply of the broader urban population. According to the Community Food Security Coalition, community and home gardening, along with small-scale farming, help households reduce food expenses. These activities promote healthy eating and allow families to save money for purchasing non-garden food items or other goods (Mougeot, 2005).

Moreover, families can generate additional income by selling their harvests to local vegetable vendors or open markets, while at the same time consuming nutritious, fresh produce. Some community urban farms have proven highly efficient, especially in empowering women, who often face exclusion from formal employment sectors. Studies show that women's participation in urban farming significantly increases productivity, ensuring food sufficiency for households and surplus production for local markets (Slater, 2001; Hovorka, 2006).

Given that most urban farming takes place on vacant municipal land, growing concerns have emerged regarding land tenure and property rights. In response, organizations such as the International Development Research Centre (IDRC) and the Food and Agriculture Organization (FAO) have

issued municipal policy guidelines for urban agriculture. These institutions collaborate with local governments to integrate agriculture into urban planning frameworks, ensuring that land is used appropriately to support poor communities in their efforts to escape urban poverty (FAO & RUAF, 2007).

Local food production in urban and peri-urban areas contributes to local economies by creating jobs and generating high-value products. Researchers suggest that unemployment rates in cities and suburbs could be reduced if local food initiatives incorporated the urban jobless into food production activities. Additionally, schools have recognized the value of local food systems and have begun integrating agricultural subjects into their curricula, presenting them as viable career options. Urban agriculture projects have already begun opening new labor markets in regions negatively affected by the decline of outsourced industrial jobs (De Zeeuw et al., 2011).

4. Section III: Models of Urban Agricultural Settlement

In theoretical economic thought, several theories and models have emerged to explain urban agriculture and its emergence. These aim to identify the reasons and factors behind urban agricultural settlement. Among these models is the **Johann Heinrich Von Thünen** model, which is considered one of the most prominent applied theories in urban agriculture specifically, and agricultural settlement in general. This paper will present this model in detail.

4.1. Assumptions of the Model

The Von Thünen model of urban agricultural settlement is based on the following assumptions:

- An isolated region or state where a city lies at the center of the surrounding agricultural lands.
- The city is assumed to be the only market for selling surplus agricultural production from the surrounding region. In this city, the farmer and the merchant exchange agricultural goods for money.
- The model assumes homogeneity in the region's natural features: it is envisioned as a flat plain without any rough terrain, with uniform soil,

climate, and biological conditions. There are no natural barriers impeding movement across the plain.

- Von Thünen assumes that farmers are fully aware of market needs and aim to achieve the highest possible profit, i.e., they act as rational economic agents.

- There is only one mode of transport—at the time, this was horse-drawn carts using the road network.

- Transport costs are assumed to be directly proportional to the distance traveled.

4.2. Practical Applicability of the Model

The examples discussed previously reflect some of Von Thünen's principles in land use. However, we find that the complete realization of the theory's assumptions in reality is rare, as many influencing factors have changed since its development, especially transport patterns and relative transport costs.

- Technological advancement and human innovation in resource use have altered land-use dynamics. For example, the use of wood as fuel has declined with the advent of petroleum, natural gas, and electricity, removing the need for fuel sources to be near the city. Trucks and refrigerated storage allow milk and other perishables to be transported from farther away. Advances in transport and storage technologies have significantly reduced relative transport and total production costs, enabling production to occur farther from urban markets. For these reasons, Von Thünen's rings are now wider and more complex, often encompassing other market centers, making them harder to delineate.

- Agricultural production tends to concentrate in specific regions due to favorable natural conditions such as climate and fertile soil. This has led to regional specialization in specific crops, moving away from the ring structure to what is now referred to as *agricultural regions*.

- Transport costs and distance to the market have become relative and less important, meaning that the anticipated spatial output patterns have also changed.

- In reality, farmers no longer behave as individual rational economic agents as Von Thünen assumed. The emergence and development of

production cooperatives has enabled large-scale production at lower per-unit costs. Specialized production in certain areas, combined with affordable labor transport through transportation companies, has enabled even greater efficiencies.

These new considerations have widened the theoretical applicability of Von Thünen's model, which did not account for the effects of large-scale production in reducing production and transport costs. This has led to changes in *location rent* and patterns of agricultural land use.

- Farmers do not possess perfect knowledge. They cannot independently determine which crops to grow next year due to unpredictable weather conditions, which may lead to crop diversification even within a single site.

- Government policy has become a new influencing factor in land use, guiding farmers to grow specific crops, guaranteeing product marketing or purchase, and implementing regulations on free trade, tariffs, and other constraints.

The discussion shows that multiple factors influence agricultural land use, most of which have evolved over time. Von Thünen did foresee the relative decline in transport costs, and although the model itself is no longer used in its original form, the **core principle of location rent** remains a vital analytical foundation in land-use studies.

4.3. Evaluation of the Von Thunen Model

Von Thünen's model of urban agricultural settlement can be evaluated through three main points:

- It emphasized the importance of economic factors, especially transport costs and proximity to the market, whereas, prior to the 19th century, natural factors played a more dominant role in land use (i.e., environmental determinism).

- It introduced the concept of *location rent* into the field of geography, a useful concept in studying rural and urban land use patterns.

- Von Thünen's land-use theory offers a practical framework for organizing village and farm studies.

4.4. The Algerian Experience in Green Economy and Urban Agricultural Settlement: A Case Overview

Discussing Algeria's experience in the green economy is a modest endeavor, as there are no clear legislative or executive frameworks related to the environment or green economy. Moreover, there are few associations that focus on this issue. The following points summarize the situation:

- The green economy in Algeria is mostly linked to symbolic events such as "Tree Day" campaigns, which involve planting saplings under slogans like "One Million Trees" or "One Tree for Every Citizen," after which the initiative often fades.
- There is no clear and genuine protection of Algeria's vegetation cover, neither from the Ministry of Agriculture nor from the forestry directorates.
- Widespread forest fires and illegal exploitation of forest resources continue without serious recognition of the environmental threat.
- Algerian cities and villages are largely lacking in public parks and green spaces.

As for urban agricultural settlement, it primarily occurs in plains near villages, cities, and municipalities. Algeria has a deeply rooted agricultural heritage, but urban expansion has overtaken many traditional agricultural zones. Thus, what exists today can be termed *urban agriculture*, but it does not meet the established criteria and standards of the concept.

To avoid focusing solely on the negative aspects, it can be said that green economy and urban agricultural settlement do exist in Algeria, but more serious efforts are required. Attention must be paid to the plains of Blida, Mitidja, Annaba, and Maghnia, among others, as well as to oases as integral parts of the green economy. These include the oases of Ghardaïa, Biskra, Béchar, Tamanrasset, and others, which must be preserved and integrated into sustainable development plans.

5. Conclusion

Sustainable development issues have become among the most important research topics in the recent millennium. Sustainable development is now a very tangible reality in a global environment that calls for the ethical conduct

of international relations within the framework of economic development that prioritizes environmental protection, social justice, and social solidarity.

Agricultural development is considered one of the pillars of economic development. Its concept does not significantly differ from that of economic development in terms of objectives and means. Agricultural development has been defined as: *“all measures that increase the agricultural output available for the economic development process.”* It has also been described as: *“the process by which the maximum possible agricultural output is achieved, or the reallocation of economic resources in a way that ensures maximum agricultural output.”*

According to this modest presentation of the topic, the following conclusions can be drawn:

- Urban agriculture can be considered a vital sub-sector in initiating economic growth.
- Urban agriculture is a foundation for sustainable economic development for both present and future generations.
- Urban agriculture and agricultural urban settlement contribute to reducing dependence on foreign food supplies.
- Urban agriculture helps boost growth in the agricultural sector by increasing agricultural GDP.
- Urban agriculture can be successfully implemented in Arab societies, especially in Algeria, given its historically agricultural nature.
- One of the most significant models of urban agriculture is the Johann Heinrich Von Thunen model.

Recommendations

Based on this research, which tackled one aspect of the green economy, namely urban agriculture and its role in promoting sustainable agricultural growth, we recommend the following:

- Countries should prioritize the green economy in practice, not only as an academic or theoretical concept.
- Governments worldwide should pay greater attention to urban agriculture due to its advantages over other forms of agriculture, and its

environmental and urban benefits, helping to redefine the concept of the city.

– Algeria, in particular, should adopt such concepts, given the inherently agricultural nature of its society.

6. References:

- Brown, K. H., & Jameton, A. L. (2000). Public health implications of urban agriculture. *Journal of Public Health Policy*, 21(1), 20–39. <https://doi.org/10.2307/3343472>
- De Zeeuw, H., Van Veenhuizen, R., & Dubbeling, M. (2011). The role of urban agriculture in building resilient cities in developing countries. *Journal of Agricultural Science*, 149(S1), 153–163.
- FAO. (2020). *Urban agriculture: A growing necessity*. Food and Agriculture Organization of the United Nations.
- FAO & RUAF. (2007). *Profitability and sustainability of urban and peri-urban agriculture*. Rome: Food and Agriculture Organization and Resource Centres on Urban Agriculture & Food Security.
- Hodgson, K., Campbell, M. C., & Bailkey, M. (2011). *Urban agriculture: Growing healthy, sustainable places*. American Planning Association.
- Hovorka, A. J. (2006). The No. 1 ladies' poultry farm: A feminist political ecology of urban agriculture in Botswana. *Gender, Place & Culture*, 13(3), 207–225.
- Mougeot, L. J. A. (2005). *Agropolis: The social, political and environmental dimensions of urban agriculture*. Earthscan and IDRC.
- Slater, R. (2001). Urban agriculture, gender and empowerment: An alternative view. *Development Southern Africa*, 18(5), 635–650.