



*Urban expansion phenomenon in Algerian cities and the problem
of urban food insecurity*

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Abstract ;

This research paper aims to reveal the problem of urban food insecurity in Algerian cities, by shedding light on the phenomenon of growth and urbanization and its various motives, and the extent of its impact on the food security of the urban population, and to identify the reality of food security in Algeria according to global food security indicators.

The study found that Algerian cities are witnessing continuous urban expansion as a result of several reasons, including rural displacement and the natural increase of the population, and the search of people for a better life in the regions negatively affected urban food security, as extraneous phenomena such as chaotic buildings, increased poverty..... etc. Despite occupying Algeria fifth place in the Arab world and improving its ranking globally and in the Middle East and North Africa, it is still not up to the required level

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1. Introduction

UN projections indicate that urban populations, which were less than 30% in 1950, exceeded 57% in 2021. By 2025, they are expected to represent 65% of the world's total population, reaching up to 80% in some third-world countries (<http://fac.umc.edu.dz>). Experts suggest that around 70% of the world's population will be concentrated in urban areas by 2050. While urban expansion and growth are linked to economic growth and structural transformation in some regions, this is not the case for all cities and regions. Urban growth is often associated with increased poverty, poor living conditions in rural areas, high unemployment rates, lack of job opportunities, inadequate infrastructure, food insecurity, and the inability to afford its costs.

If urbanization is an inevitable necessity and a living reality, urban food security remains a significant challenge due to high malnutrition rates, increased poverty, and the staggering rise in food prices, especially in developing countries like Algeria. Urban growth has become a global urban phenomenon with historical and human roots, accompanying the actual movement of all human societies and the urgency and desire of humans for renewal and continuous search for a better reality due to social, economic, technological, and cultural influences.

Urban expansion in Algeria has its own characteristics, especially due to the impact of French colonization, which led to demographic growth after independence, resulting in high urbanization rates. Today, more than half

of Algeria's population is concentrated in major cities, disrupting balance and posing a significant burden on the Algerian government to address many problems affecting various aspects of life, foremost among them urban food insecurity.

Research Problem: The core question of our study highlights the following critical issue:

To what extent has the phenomenon of urban growth and expansion affected urban food insecurity in Algerian cities?

To address the research problem, several subsidiary questions need to be posed:

_What is the concept of urbanization and urban growth?

_What are the factors and drivers of urban growth?

_What is the concept of urban food security and what are its causes of deficiency?

_What is the current state of urban food security in Algeria according to the Global Food Security Index?

Hypotheses: Based on the research problem, we hypothesize that:

_Algerian cities are witnessing urban growth that affects the ability of urban households to meet their food needs.

Significance of the Study: The importance of this study lies in defining the concept of urban growth and expansion and its various factors as a living reality, sounding the alarm for its consequences and impacts on urban populations. It also identifies urban food insecurity, its types, causes, and assesses the reality of Algerian urban food security through the Global Food Security Index.

Study Objectives: Through our study, we aim to highlight the seriousness of urban expansion as a global phenomenon that has led to imbalance between food supply and demand among urban households worldwide, affecting their living conditions. It has become a threat to urban food security.

Research Methodology: In this research, we adopted a descriptive and analytical methodology as the most appropriate research methods to illustrate the studied phenomenon. This includes describing the concepts related to urban growth and urban food security, extracting results, and addressing the research problem.

2. Urbanization and Urban Growth in Algeria

2.1 Concept of Urbanization

Urbanization is a global phenomenon that has evolved with city development and has spread significantly in developing countries, including Algeria. **Gerald Breese** defines urbanization as a quantitative and qualitative change that leads to various transformations in the characteristics and functions of local communities (cities, countries). Understanding this process necessitates making various comparisons between countries or within different urban centre's within the same country(www.adhwaa.net).

From an economic perspective, urbanization is understood as a process accompanying structural economic transformation. This belief emerged after the structural transformations in Europe's labor market pushed rural populations to

migrate to urban areas where wages are higher)www.arab-ency.com.sy(. Economists in the field of development generalized this concept, suggesting that urbanization is a by-product of economic development, with rural-urban migration being the primary factor(Khadija & Ben Ateq, 2020, p. 52).

2.2 Concept of Urban Growth

Urban growth is defined as a process of increasing demographic growth (urban population growth or spatial growth of urban units). Urban growth is also associated with economic aspects, often dominated by service jobs. Although scholars debate a precise definition of urban growth, they generally agree on the characteristics of this phenomenon (natural population increase, migration, etc(Khadija & Madah Araibi, 2021, p. 123).

2.3 Factors of Urban Growth

There are several factors contributing to urban growth or expansion, characterized by rapid movements from rural to urban areas. These factors include(Aissawa & Younesi, 2020, p. 11):

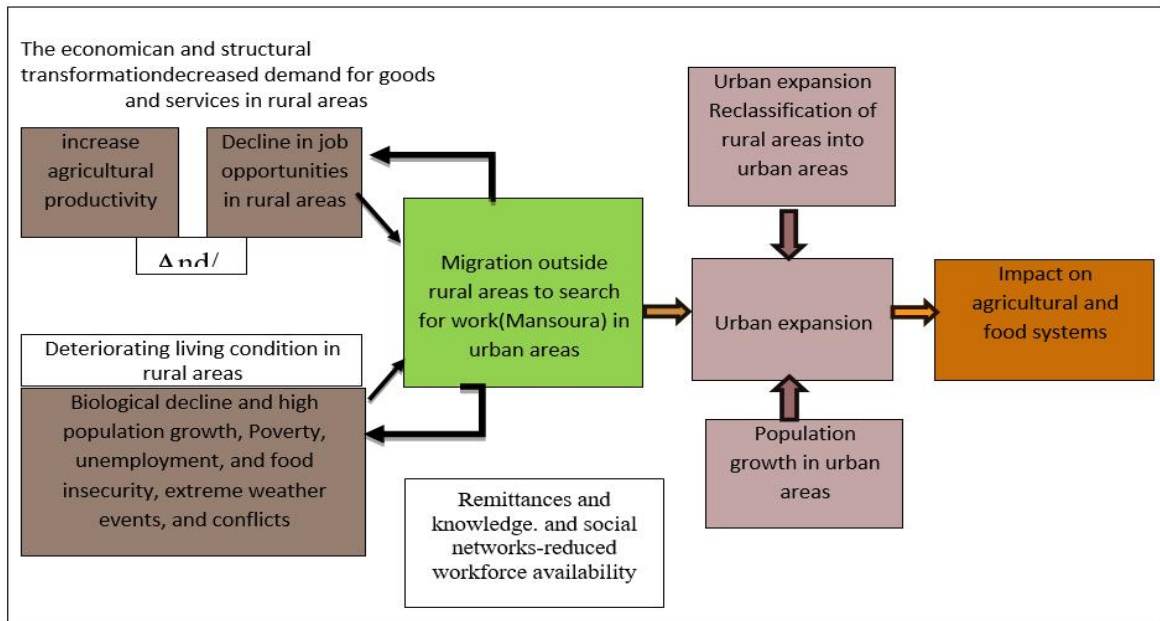
- **Natural population growth:** The natural increase in urban population is a factor contributing to urban growth, reflecting the difference between birth and death rates. Population growth leads to increased urban expansion rates, accompanied by structural changes in food demand, as observed in some Asian cities where urban expansion has coincided with rapid economic growth, increasing demand for grains for consumption and production alike.

- **Migration:** Migration, whether internal or external, is another influential factor in sustaining urban area growth. Urban areas offer attractions that prompt rural residents to migrate, seeking better opportunities such as stable employment, diverse services (healthcare, education, security, etc.). Some also choose international migration for better living standards, although Algeria, like many other developing countries, faces challenges in collecting population data related to internal migration, hindering the development of economic and social development plans (Qalil, 2023, p. 60).
- **Incorporation of villages into urban areas:** Urban expansion of many medium and small cities often integrates these urban areas with neighboring villages and desert regions, which is another factor contributing to urban growth.
- **Municipal administrative and regulatory decisions:** These decisions classify some settlements as urban areas.
- **Technological and industrial factors:** Technological advancement and industrial development have significant impacts on urbanization and its growth. Industrialization not only affects the growth rates of some urban centre's but also influences the urbanization pattern itself and its relative internal level, being a fundamental cause of city urbanization and rapid growth in terms of area, population, and function.
- **Globalization and Urban Expansion:** Globalization has led to the dissolution of barriers between countries and economic, social, cultural, and political transformations. Increased awareness of quality and sustainable development, among other factors, has significantly impacted the internal spatial and material changes in urban structures. Consequently, urban expansion has become one of the faces of global economic globalization in the context of international cooperation. This, in turn, poses significant challenges to developing countries in providing transportation, infrastructure, employment, food security, and more.

In general terms, the motives behind urban expansion can be clarified through the figure below:

Fig.1. Motives of Urban Expansion

source: Report on the State of Food Security and Nutrition in the World (2023), available at: www.fao.org



2.4 Demographic Growth and Urban Growth

2.4.1 Demographic Growth and Urban Growth in the Arab World

The most significant characteristic of urban growth in the Arab world is the rapid population increase. Despite this rapid population growth and urbanization occurring in an environment with weak infrastructure, economic structures lacking diversity, and the absence of security and political stability.

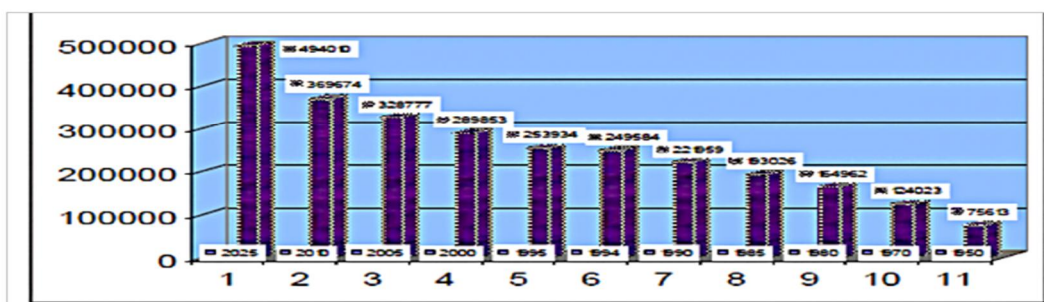
The figure below illustrates the doubling of the population

Fig.2. Increase in the Population of the Arab World between 1950 and 2025

in the Arab world over several decades, expected to reach 494 million people by the year 2025.

As illustrated in the figure below, there are future projections for the distribution of the total population of the Arab world between urban and rural areas during the period 1975-2025

Increase in the Population of the Arab World between 1950 and 2025



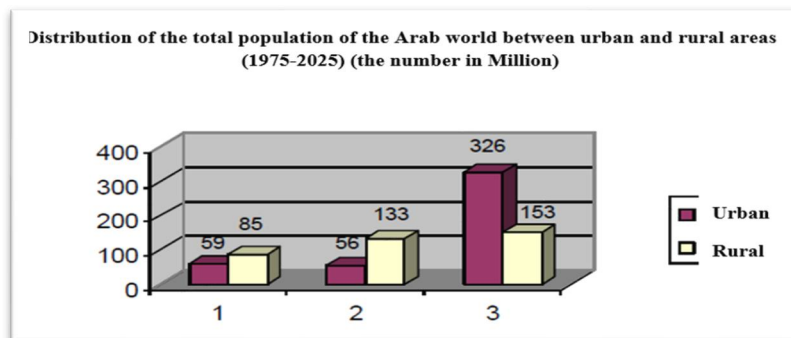
Source: (Aissawa & Younesi, 2020, p. 20).

There is a noticeable difference in the movement of migration from rural to urban areas. The rural population in Arab cities constitutes about 30%, and this percentage is steadily decreasing.

This is attributed to several reasons mentioned earlier. Meanwhile, the

percentage of rural population is increasing in some Arab countries due to their agricultural nature, including Comoros 72%, Sudan 66%, Somalia 60%, and Egypt 57%. These countries represent half of the rural population in the Arab world.

Fig.3. Distribution of the total population of the Arab world between urban and rural areas (1975-2025)



Source: (Aissawa & Younesi, 2020, p. 26).

2.4.2 Urban Population in Algeria:

According to the World Bank estimates and the urban areas' percentages from the United Nations report on World Urbanization Prospects, the urban

population in Algeria has witnessed a significant increase during the period (2011-2022), moving from 68.2% in 2011 to 74.8% in 2022, as illustrated in the table below.

Table 1. Development of Urban Population Percentage in Algeria (2011-2022)

| Percentage/ Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|--------------------------------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Percentage of Urban Population | 68,2 | 68,9 | 69,6 | 70,2 | 70,8 | 71,5 | 72,1 | 73,6 | 73,2 | 74,7 | 74,3 | 74,8 |
| Percentage Change | -- | %1,00 | 0,96 | 0,93 | 0,89 | 0,86 | 0,83 | 0,80 | 0,77 | 0,74 | 0,72 | 0,69 |

Source : (ar-knoema-com.cdn.amproject.org).

We notice that Algeria is experiencing urban growth during the period (2011-2022), which leads us to pose the following question: Is Algeria capable of addressing the challenge of food security for urban populations? And does urban growth in Algeria affect the food security of urban populations?

3.urban growth in Algeria and its implications for urban food security

3.1 Definition of urban food security:

Urban food security was defined at the World Food Summit in 1974 as ensuring food supplies of basic food resources at all times to accommodate expansion in consumption and to counterbalance fluctuations in production and prices. The

Food and Agriculture Organization (FAO) further defined food security as achieving a balance between supply and demand in the food security equation, ensuring that individuals have access at all times to the basic food they need (Khalaf & Al-Jubouri, 2012, p. 59).

It is also defined as ensuring economic, social, and material access to safe, sufficient, and varied calories and nutrients that are necessary for a healthy lifestyle (Khadija & Madah Araibi, 2021, p. 126).

It is also known as population growth, in addition to human waves that have migrated from rural areas due to poverty and lack of employment opportunities (Al-Julani, 2000, p. 45).

3.1.1 Dimensions of Urban Food Security: The dimensions of urban food security are as follows (Aisha, 2022, p. 211):

- **Adequacy:** Meeting the needs of urban populations and ensuring sufficient food supply in local or external markets.
- **Actual Access to Food:** Individuals obtaining adequate resources to purchase sufficient food for a nutritious and healthy diet.
- **Economic Ability to Access Food:** The ability of households to purchase the required quantities of food amidst price fluctuations and low purchasing power. Statistics indicate that the cost of a healthy diet globally increased by 4.3% in

2021 compared to 2020, and by 6.7% compared to pre-COVID-19 levels in 2019. Middle-income countries have been most affected by this increase, with the majority of people unable to afford a healthy diet residing in Southeast Asia, East and West Africa.

- **Stability in Food Availability and Access:** Access to a healthy, nutritious diet that meets all physiological needs of individuals.
- **Utilization of Food:** How the body uses diverse nutrients present in food to achieve sufficient energy through rational distribution of food within households. Unfortunately, according to a World Health Organization report on monitoring food security and nutrition worldwide:

An estimated 148.1 million children under the age of five (22.3%) worldwide suffered from stunting in 2022, 45 million (6.8%) suffered from wasting, and 37 million (5.6%) were overweight in urban areas, in addition to 19.8 million children born with low birth weight in 2020.

3.1.2 Types of Urban Food Security:

We distinguish between two types of urban food security: chronic, which persists over a long period, and temporary or circumstantial, which can be overcome and treated. The table below illustrates the types of food security, when they occur, and how each type can be addressed.

Table 2. Types of Urban Food Security.

| Aspect | Chronic Food Insecurity | Transitory Food Insecurity |
|--------------------------------|---|--|
| Definition | Long-term or persistent | Short-term or temporary |
| Occurs When | People are unable to meet their food needs over a long period | There is a sudden drop in the ability to produce or obtain enough food to maintain good nutritional status |
| Caused By | Extended periods of poverty, lack of goods, insufficient access to productive and financial resources | The unpredictability makes planning and programming difficult, requiring different types of interventions, including early warning systems and safety net programs |
| Can Be Overcome Through | Typical long-term development measures also addressing poverty issues (e.g., education and access to productive resources such as credit) | The unpredictability makes planning and programming difficult, requiring different types of interventions, including early warning systems and safety net programs |

Source:(Yassin & Ghribi, 2023, p. 314)

3.2 Urban Growth and its Impact on

Urban Food Security: The increase in urban growth affects urban food security through several factors (Hudhbi, 2021, pp. 20-24):

- **Population Growth:** Population growth is one of the most important factors contributing to increased urban growth rates and leads to higher demand for food. Unfortunately, population growth continues to outpace the available food supply in many countries, creating a food gap. Algeria's population reached 41.2 million at the beginning of 2017. However, given the natural, human, and financial resources available, it can be said that there is no cause for

concern regarding urban food security, provided these resources are utilized before depletion (Nassef, 2018, p. 165), especially since the urban population in Algeria reached 74.8% in 2022.

- **Urbanization and Changes in Consumption Patterns:** The rise in

urbanization coincides with income growth, increased female employment in urban areas, and significant expansion in the variety of available food compared to rural areas. Consumption patterns have changed, as despite the stability of the percentage of grains and staple crops, per capita consumption in developing countries has doubled in some items. For example, milk consumption has doubled, meat consumption tripled, and egg consumption increased fivefold. This has

led to a significant increase in individual energy intake from animal products, with notable differences between regions (Africa, Asia, and America) (Hudhbi, 2021, p. 21). Urban expansion is causing changes in agricultural and food systems, altering consumer behavior as consumption shifts towards more processed and conveniently available foods, which have become more affordable.

▪ **Decline in the Number of Farmers:**

The increase in urban growth rates and the migration of rural populations to cities have raised concerns about future urban food security, as the number of farmers has declined. This decline is due to their pursuit of stable and profitable wages in urban areas. Most farmers who were engaged in agricultural land cultivation have aged. Therefore, who will bear the future agricultural work and provide food for urban residents remains a critical question. Agricultural labor force participation rates in Arab countries are continuously declining, currently not exceeding 25% of the total workforce, ranging between 30% and 38% in countries like Mauritania, Sudan, Egypt, Yemen, and Morocco, and between 10% and 29% in Algeria, Tunisia, Syria, Iraq, Kuwait, and Oman. In the remaining countries, it is less than 10%. (Report, 2018)

▪ **Nutritional Health:** Providing safe and healthy urban food is essential for ensuring the health of adults, infants, and urban populations. However, this has become challenging with the rise in urbanization rates and changes in

household consumption patterns. The risks threatening their health come from crowded makeshift houses abundant with garbage and polluted water, lacking proper sewage systems. According to UNICEF and the World Health Organization, less than 20% of the urban poor have access to clean water, compared to 80% of the wealthy. Poverty and inequality are among the most significant determinants of health and nutrition outcomes in cities. (Hudhbi, 2021, p. 24)

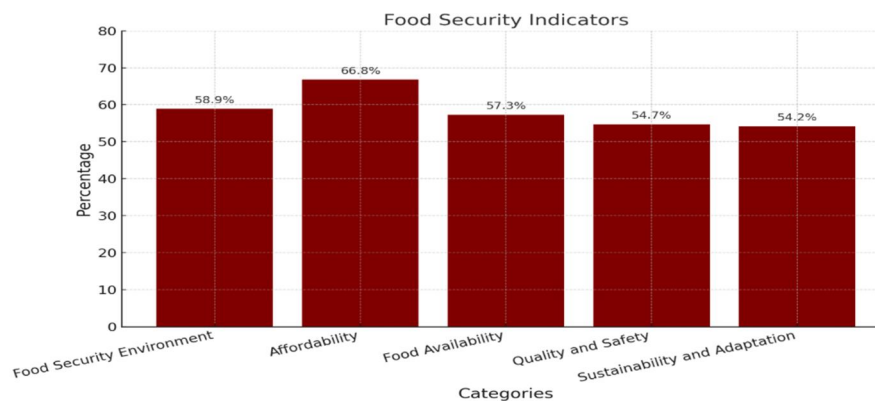
▪ **Extreme Climate Phenomena:** This factor constitutes a major driver of urban food insecurity in 12 countries, where 56.8 million people were in the third phase or above in the Integrated Food Security Phase Classification in 2021. These phenomena include storms, droughts, and hurricanes (www.fao.org). The recent Hurricane Daniel caused humanitarian disasters in Libya. Climate change or environmental degradation significantly affects people's movement from rural to urban areas. People who rely on natural resources in their livelihoods are forced to migrate to cities due to the impacts of climate change and loss of biodiversity.

4. The Reality of Urban Food Security in Algeria in Light of the Global Food Security Index

Algeria ranked fifth among Arab countries in the Global Food Security Index for the second quarter of 2022, according to the Deep Knowledge Analytics report. The Minister of

Agriculture stated that agricultural production increased by 38% in 2022 compared to 2021. Algeria is capable of achieving self-sufficiency in grain production. Production of dry legumes increased by 20%, and potatoes, a staple food for Algerians, saw a 30% increase in production. Production of red meat, poultry, and milk also saw significant increases. This is sufficient to cover 75% of local food needs. However, Deep Knowledge Analytics warned in the same report of increasing levels of hunger and food insecurity in Sub-Saharan Africa, the

Fig.4. Algeria's Scores in the Global Food Security Index for 2022



Source: (Mahammadi & Hafsaoui, 2023, p. 191).

It is evident that Algeria's scores across the dimensions of food security within the Global Food Security Index ranged from moderate to weak. The highest score was 66.8 out of 100 for the Affordability dimension, rated as moderate (very good for the percentage of population below the international poverty line index and good for food safety nets). This was followed by a score of 57.3 for the Availability dimension, also rated as moderate (very weak for supply chain infrastructure, very good for food supply sufficiency index, and other indicators ranging between moderate and weak). Next are the Quality and Safety, Sustainability, and

Middle East, North Africa, Latin America, and South Asia in the near and medium term (<http://news.radioalgerie.dz>).

Algeria ranked 68th out of 113 participating countries in the Global Food Security Index with an overall score of 58.9 in the 2022 Global Food Security Index. The figure below illustrates Algeria's scores in each dimension of food security within the Global Food Security Index.

Adaptability dimensions, with scores of 54.7 and 54.2 respectively, rated as weak (very weak in nutrition standards and poor performance in water, oceans, rivers, and lakes indicators in addition to political commitment to adaptation). This indicates that Algeria is obligated to develop stronger plans, programs, and measures to ensure a healthy and safe urban dietary pattern characterized by quality and safety. Below is a detailed table illustrating the sub-indicators for each dimension.

Table 3. Algeria's scores according to the Global Food Security Index for the year 2022.

| The food security environment | | | |
|---|--|---|---|
| Ability to bear costs 66.8 | 2- Food Availability 57,3 | Quality and safety 54,7 | Sustainability and adaption 54,2 |
| 1,1 Change in costs medium food 48.5 (9,0) | Access to agricultural inputs 49,0 (+1,9) Expenditure on agricultural research and development 54,1 (+16,3) | Dietary diversity 49,1 (+3,3) | Exposure to risks 76,2 Water 33,7 |
| 1,2 Proportion of the population under the global poverty line 96,2 (30,5) | Infrastructure of the farm 54,1 (+36,6) Agricultural output volatility 78,2 (61,2) | Nutritional standards 0,0 (-29,8) | The earth 64,7 (-0,2) (-0,2) Oceans and rivers and lakes 26,6 (-20,7) |
| 1.3 Index adjusted income for inequality 63,1 | Lost food 58,2 (-4) Supply chain infrastructure 34,4 (+9,2) | Availability of micronutrients 64,7 (+3,3) | |
| 1.4 – Trade in agricultural products 50 (-8,7) | Supply adequacy 100 (+59,6) The political and social barriers 42,1 (-6,2) | Protein quality 67,3 (+3,3) | Political commitment to daption 28,5 (+25,9) |
| 1.5 - Presence of food safety net programmes 79,3 | Food security policy commitments 55,2 (+52,5) | Food safety 42,4 (+21,9) | Disaster risk management 100 (100) |

Source: (Mahammadi & Hafsaoui, 2023, p. 192)

4. CONCLUSION

It becomes clear that with the increase in expansion and urban growth, the distinction between urban and rural areas has become less clear, as rural and urban areas have become intertwined. This development has significantly impacted urban households and their living conditions, exacerbating their purchasing power decline. Urban growth has brought about numerous repercussions and foreign phenomena to urban populations, such as increased poverty, child labor, crowded and dirty tin neighbourhoods, water pollution, proliferation of chaotic markets, and population growth, among others. All

these repercussions have increased the suffering of urban households in meeting their various needs. The issue of urban food insecurity now threatens everyone, given the impact of urban expansion in disrupting food demand and its supply. It has also brought about changes in agricultural and food systems.

Through analyzing the reality of food security in Algeria within the Global Food Security Index, despite ranking fifth in the Arab world and improving its global

ranking in the Middle East and North Africa region, Algeria has not yet reached the required level. According to the dietary patterns of local citizens, self-sufficiency rates have not exceeded the threshold that alleviates concerns about food insecurity. Algeria still experiences widening food gaps in several essential commodities and often resorts to imports to cover deficits. Algeria possesses

material and human resources that stakeholders should prioritize and utilize optimally. Additionally, its water resources such as seas, rivers, and lakes need protection from pollution and preservation of marine biodiversity to ensure urban residents have access to sufficient, safe, diverse nutrients for a healthy lifestyle within their economic means.

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