

Food Security in Algeria: Towards a National Strategy for Food Independence and Sovereignty

الأمن الغذائي في الجزائر: من أجل استراتيجية وطنية للاستقلال والسيادة الغذائية

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Abstract:

This article presents a scientific reflection on food security. It highlights the need to rethink it in Algeria. The proposed reflection demonstrates the necessary evolution towards the concept of "independence and food sovereignty," which requires the construction of a national strategy based on a new doctrine, updated approaches, and methods to address current geopolitical and geo-economic realities. "independence and food sovereignty" in Algeria is a concern of the state, and that the issue is multisectoral and multidisciplinary.

Keywords: food security, national security, economic development strategy, Economic Warfare, food safety in Algeria.

Jel Classification Codes : F52 ; F63 ; O13

مستخلص:

هذه المقالة هي مساهمة في التفكير العلمي الأكاديمي حول موضوع الأمن الغذائي في الجزائر. التحليل المقترح يُظهر الحاجة إلى التطور نحو مفهوم "الاستقلالية والسيادة الغذائية" الذي يتطلب لتنفيذه تصميم استراتيجية وطنية مبنية على عقيدة جديدة، وطرق وأساليب حديثة لمواجهة الواقع الجيوسياسي والجيواقتصادي الراهن.

"الاستقلالية والسيادة الغذائية" في الجزائر باتت الآن شاغلاً مستمراً على أعلى مستوى في الدولة وتخص كل القطاعات.

الكلمات المفتاحية: الأمن الغذائي؛ الأمن القومي؛ استراتيجية التنمية الاقتصادية؛ الحرب الاقتصادية؛ الأمن الغذائي في الجزائر.

تصنيف JEL : F52 ؛ F63 ؛ O13

1. Introduction

Developing a food security (FS) strategy for a country cannot merely be a matter of addressing immediate crises; whether directly related to food, water, or agriculture, or indirectly linked to climate, energy, health (such as COVID), or even the consequences of the war in Ukraine. Current events can only serve as a trigger.

In Algeria, driven by a strong political will at the highest levels of government, various sectors of the national economy have engaged in extensive discussions and scientific deliberations among researchers and field experts.

These discussions and debates, from a scientific perspective, have primarily focused on issues related to domestic agricultural production to address problems of food product availability, nutrition, and the population's access to healthy and balanced nutrition, in line with the FAO's (Food and Agriculture Organization of the United Nations) definition of food security, which has served as the foundation for nearly all the work conducted in these gatherings (CAPC, 2022).

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The expertise and research fields mobilized to cover the topics of these gatherings have largely been limited to the disciplines of agronomy and agricultural economics. While agriculture has been appropriately involved, the industrial and commercial sectors have only partially participated. Other sectors have not felt directly concerned with this issue. This situation can be attributed to the fact that the approach taken to address this important question is more traditional and compartmentalized. A systemic approach, inherently more comprehensive, becomes necessary, as it requires the involvement of all sectors and the mobilization of all disciplines directly or indirectly related to food security (Badie, 2021).

On the international stage, when addressing the issue of food security worldwide, the "food" aspect is deeply examined, while the "security" aspect is often overlooked by developed countries and even UN bodies, which originally created it for application in developing countries in the global south. Thus, the "security" aspect in the application of this concept has been reduced to the security of individuals (usually the poor) to help them feed themselves and combat hunger globally. In reality, it pertains to the security of nations, posing a challenge to states. In light of the new geopolitical and geo-economic data at both international and national levels, it is imperative to establish the foundations of our food security through a strategy constructed differently, based on new doctrines, approaches, and methods (Berny, Guillot, & Stemler, 2023).

Therefore, this article contributes to the scientific discussion on the topic of food security. Its uniqueness lies in two aspects: 1-A conceptual study that highlights the need to evolve the concept of food security, which we consider outdated and unsuitable for application in Algeria. Security issues are at least as crucial as food issues. 2- A reflection on the necessity of building a national strategy, based on a doctrine and, most importantly, with new methods and approaches.

The ensuing issues that we aim to address with this contribution are twofold: 1-How can we evolve the concept of food security to better adapt it to Algeria, and what would the new concept entail? 2-What are the new methods and approaches for constructing an Algerian food security strategy, and what would the content of this strategy be?

To address these issues, the discussion will first focus on the need to establish a doctrine with a new approach and methodology that responds to the prevailing of actual geopolitical and geo-economic conditions. A new framework for interpreting the current world will be adopted. Subsequently, an examination of the state of food security in the world and in Algeria will follow. Finally, based on the adopted doctrine, the content of an Algerian strategy in this field will be proposed—a strategy conceived and contemplated differently, incorporating the new concept and framework of interpretation (Berny, Guillot, & Stemler, 2023).

2. Literature review and Methodology: Doctrine - Approach

The directives of the President of the Republic, as outlined in the 54 commitments, already serve as a doctrinal basis for the development of an Algerian strategy for food security. This signals a strong political will at the highest level to ensure the country's complete food security, which we will see is more about food independence and sovereignty.

Another source of doctrinal inspiration for this strategy is the Algerian Development Strategies (ADS) of the 1960s and 1970s, which laid the foundation for sectoral public policies aimed at Algeria's economic and social development. The doctrine under the slogan "*from political independence to economic independence*" underscores the pivotal role of food security. Thus, we adopt the approach of first constructing a strategy upon which sectoral

public policies will subsequently be built.

These public policies must translate political will (doctrine) and the strategy into concrete actions. They serve as a reference framework for defining the roles of various sector actors and areas of expertise while outlining the actions to be taken and the means to achieve the objectives set by the strategy. To formulate the doctrine effectively, it is necessary to define and establish concepts that are adapted to Algeria's economic, social, and political conditions (Bouroubi, 2014).

An Algerian food security doctrine should be continuously conceptualized in response to evolving geopolitical and geo-economic situations globally while aiming to anticipate transformations (hence why this dossier is critical and must remain open). It was, therefore, essential to define the terms, objectives, and framework so that all discussions in Algeria regarding population nutrition use the same concepts established and endorsed in the country's food security strategy.

The concept of "food security" as defined by international organizations like the FAO (Food and Agriculture Organization of the United Nations) or the WFP (World Food Programme) is limited and insufficient for a country like Algeria, a regional power. This concept, as produced by these organizations, is primarily applied by developed Western countries in their humanitarian aid strategies for food-deficient countries in the global south (FAO; IFAD; UNICEF; WFP; WHO, 2022).

Therefore, according to this concept, with its definition limited to "food and nutrition," Algeria would have achieved food security even though it remains heavily reliant on imports for its food supply. The issue of evolving concepts arises, prompting us to consider adopting new concepts. In-depth reflection on the "security" aspect in international trade relations, viewed through the lens of "economic warfare," directly leads to the concepts of **independence and food sovereignty**.

A food security strategy is only valuable if it is understood, validated, and shared by all stakeholders. And what could be more rallying in Algeria than the notions of **independence and sovereignty**? It is now widely accepted that security is "everyone's business." In practice, it cannot be the exclusive domain of the agricultural sector, let alone the industrial and commercial sectors. The issue of food security is inherently cross-cutting, necessitating interactions in both thought and application, regardless of its structuring in principles and methods. This is also the goal of the food security strategy: to provide references for a new approach, a new process, and new methods.

Algeria's food security situation in relation to the geo-economic and geopolitical conditions of the world must be approached systemically, using a new framework that recognizes the globalization of markets we face today is characterized by a true "economic war," where actors include not only companies but also states. Therefore, it is essential to define concepts, methods, and approaches to determine, defend, and actively promote Algeria's strategic interests. Common concepts, expressed clearly and shared by all stakeholders, are needed to promote exchange and reflection on common grounds.

From an economic perspective, food security is increasingly becoming a matter of national security. This approach must particularly and effectively involve actors in security and national defense in this strategic debate. We must rely on the commitment of all networks of expertise and all sectors that implement their own means of action to disseminate this new culture (systemic approach and economic warfare) and make it a mode of governance. Informal partnerships are also a key element in mastering this complex, uncertain world in

constant conflict.

While the link between national defense and food security is undeniable, it is now necessary to adapt crisis management mechanisms for any food crisis accordingly. The interdependence of food systems and their globalization deserve their rightful place in the intersectoral strategic debate, particularly by integrating national defense and economic diplomacy. It involves adopting a comprehensive vision within a grand strategy against countries that will not hesitate to exploit any food crisis to assert their power.

3. Situation Worldwide – Situation in Algeria

3.1. Current Food Security Situation Worldwide

The world is currently dominated by geopolitical and geoeconomics situations that demand new perspectives to find our place in a globalized world characterized by market globalization, and intense economic warfare. As we will demonstrate, it has become essential to address the issue of food security within the new framework of a global environment subjected to fierce and complex competition, technological disruptions, economic transformations, and major geopolitical and geoeconomics changes.

To integrate this context into their strategies, economic actors (both states and businesses) must seek new methods and tools based on the cross-mobilization of sectors and expertise from distinct disciplinary fields. The accepted framework is that the world today, under the forced globalization of markets, finds itself in an economic war where actors engage in battles that practically follow all the rules of warfare, meaning "all's fair in love and war." Food systems are now part of the grand strategies of countries, and it has become a matter of national security (Badie, 2021).

With just the Covid crisis and well before the war in Ukraine, developed countries, considered to have complete food security, began to question themselves to prioritize "agricultural independence" as a strategic goal. The war in Ukraine and its consequences have further confirmed these stances. What is noticeable here is a change in strategy and an evolution of the concept. In today's international relations, dominated by the economy and viewed through the lens of "economic warfare," there are no friends, nor are there declared enemies; there are only interests that must be defended through equitable partnerships (Badie, 2022).

In this context, and beyond economic aspects, food security is intimately tied to the sovereignty and stability of food-insecure countries (commonly referred to as "southern" countries), either as a cause or consequence, often both. In the latest report from the FAO, two-thirds of populations affected by severe food insecurity live in conflict zones. At the beginning of the 21st century, before the COVID crisis in 2019, food issues were perceived by developed Western countries as a matter of health or diet for themselves and a humanitarian aid concern for countries in food crisis, with famine used as a weapon of war. In underdeveloped, food-vulnerable countries, the risks of popular uprisings due to rising food prices are real. However, the issue of food security in the power dynamics between these states is still underestimated.

For a country like Algeria, a regional power, there can be no help from developed countries; instead, there will likely be an exploitation of its vulnerability in the event of food insecurity to weaken its power. In light of the Russo-Ukrainian events and their consequences on the food front, national security, including within the framework of "national defense," has a role to play in this strategy. Feeding the population is now seen as a strategic consideration that must be taken into account in national defense matters. What has reinforced these positions in the Western world post-war are the advances in agricultural industrialization that

have gradually dispelled the specter of food production shortages and even famine. The illusion of a perpetual state of abundance has gradually taken hold in societies whose younger generations have never experienced shortages, even temporarily. This is why so-called Western food security strategies have primarily focused on agricultural production, health, and diet issues. They address social justice, waste reduction, and food education, without considering the notions of globalization and the security of nations.

In these developed countries, food security, during the pre-COVID period, shifted away from strategic debates in favor of an individual security approach, centered around the concept of human security, one of whose pillars is food security, with its six dimensions as defined by the FAO: availability, access, utilization, stability, agency (the ability to choose one's food), and sustainability. The implementation of these theories was mainly driven by humanitarian actors, national development agencies, and international or global institutions such as the FAO and WFP. During this period, there was a discontinuity in the perception of food security issues. For Western civil society, believing itself to be permanently secure, the issue of food security moved away from the defense and security sphere. It is now a concern reserved for food crisis areas (primarily poor countries in Africa and Asia) and is addressed through a comprehensive approach in which food issues are primarily considered by agricultural and humanitarian development actors (FAO; IFAD; UNICEF; WFP; WHO, 2023).

These challenges imposed in this approach on Southern countries have found solutions in massive subsidies for key food sectors, and even, as is the case in our country, for widely consumed food products. For all these food-insecure countries, subsidies are often presented as humanitarian aid from developed countries but are never without cost. The counterpart is often the loss of national sovereignty, this time on a national level. The adoption of the "economic warfare" framework perfectly explains this kind of situation and these types of threats, which are by definition systemic, hence the need to adopt a strategy that prioritizes food sovereignty.

a) The Arrival of Two Crises: COVID and the Ukraine War

At the beginning of the 21st century, with the continued industrialization of agricultural production, the West believed itself to be permanently secure in terms of food for its populations, and the global food systems in place were expected to withstand major shocks. These two crises demonstrate the opposite and starkly illustrate the fragility of these systems. The Ukrainian crisis, of a geopolitical and geostrategic nature, directly impacts production (mainly threats to wheat harvests) due to difficulties in seed transportation (Black Sea ports blocked, economic blockade), food raw materials, and inputs. Russia is the world's leading exporter of ammonia fertilizers, essential for improving yields. In Europe, Belgium and Lithuania are the main producers of nitrogen fertilizers, which are largely synthesized with Russian gas. Moreover, in terms of climate degradation, excessive globalization has meant that if an event were to impact crops in one region of the world, a major crisis could affect the global food system, fueling internal crises, regional conflicts, and competition among major powers for access to food, especially its use as a weapon in economic warfare. In this food system, based on interdependencies linked to the specialization of entire regions of the world and globalized food value chains, which are sources of bottlenecks, upcoming crises are likely to be amplified. They will undoubtedly be global, caused by various economic shocks and fueled by geostrategic competition among powers.

For this reason, food is becoming a strategic issue for defense and national security in Western countries that have lost sight of these risks, with the industrialization of their

agriculture since the second half of the 20th century. In this logic, the strengthening of Russian (by limiting exports) and Chinese (through massive imports of Ukrainian wheat) cereal stocks in late 2021, and the start of the Russian "special military operation" in February 2022, likely indirectly fit into this type of strategy. Additionally, the COVID-19 crisis demonstrated the need for states to reinvest in their sovereignty, especially in the field of food.

Alongside the persistence of undernutrition, there is a rapid increase in overweight and obesity, affecting more than 13% of the world's population today. The evolution of food systems and behaviors has led to the emergence of a new phenomenon, where different forms of malnutrition coexist in some countries. Some countries are facing high rates of undernutrition, overweight, and malnutrition simultaneously. Multisectoral factors contribute to malnutrition, including the quality and quantity of food, healthcare practices, access to satisfactory health services, sanitary environments, and education. Developed countries are now emphasizing factors related to malnutrition, food, agriculture, and food security. Health, education, water, hygiene, and sanitation aspects are considered in more detail in sectoral public policies. Food security has now also become a matter of national education and public health.

b) Global Framework of SDGs: Sustainable Development Goals

Numerous international and global entities operating under the United Nations (UN) continuously address the issue of food security worldwide. Their production of a significant body of knowledge on food security can greatly inspire the construction of national strategies in this field. In this context, the Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015. It is a global program consisting of 17 goals to be achieved by 2030, based on three pillars: eradicating poverty in all its forms and in all countries, protecting the planet, and ensuring prosperity for all.

Specifically, SDG 2 aims to eliminate hunger, ensure food security, improve nutrition, and promote sustainable agriculture. For strategies inspired by these goals, actions should be oriented toward achieving this objective while also contributing to the achievement of other goals related to food security, nutrition, and sustainable agriculture. The numerous connections between different SDGs demonstrate the need for a multisectoral, multidisciplinary, and cross-cutting approach, where food insecurity and malnutrition are often linked to economic incapacity of vulnerable populations to produce or purchase adequate quantities and quality of food (CSA, 2014).

Furthermore, this program promotes family farming, which produces over 80% of the world's food, supplying both local and international markets and managing a significant proportion of natural resources. Family farming is essential and contributes to food security and improved nutrition. In 2017, the United Nations General Assembly adopted the Decade 2019-2028 to promote family farming. Regarding acute food insecurity crises, the situation regarding hunger in the world remains alarming. According to the WFP's 2022 report, 193 million people were in a state of acute food insecurity in 2021, a record figure representing an increase of nearly 40 million people compared to 2020, which had already reached an unprecedented level. Conflicts and insecurity in general remain the primary factors for food insecurity (CSA, 2021).

WFP and FAO predict a worsening of this situation in around twenty highly food-insecure countries in the very short term. The agricultural world in these countries is seeking food security, and its multidisciplinary nature implies involvement not only in environmental, health, and sovereignty issues but also in social issues that need to be addressed carefully in

the development of future strategies.

In conclusion, from this analysis of the current situation in the world, it is clear that the issue of "food security" first arises in terms of national security before being economic and food-related.

3.2. Situation in Algeria

In light of all these conditions characterizing food security worldwide, the construction of a food security (FS) strategy for Algeria must meet the commitments of the President of the Republic. To achieve this, it is necessary to broaden and strengthen this path to facilitate the use of knowledge produced as key success factors in ensuring sustainable food security. This involves understanding and anticipating the external environment, preventing its risks and threats, exploiting its opportunities, and increasing Algeria's presence on the international stage, particularly a return to the African scene. Finally, it requires raising awareness and mobilizing skills, without which nothing is possible (Bouchafaa, Kherchi-Medjden, & Rouaski, 2023).

The current situation in Algeria shows that previous policies regarding food security were developed with very ambitious perspectives but struggled to translate into concrete action plans. At the same time, sectoral guidelines proved incapable of reflecting the magnitude of the issue and offering adequate solutions. Indeed, the proposed solutions have often been the result of a restrictive approach, limited to the agri-food sector alone or short-term policies without doctrinal and strategic foundations. This is why we believe that the content of an FS strategy represents the first step towards building a foundation for effective and efficient sectoral food security policies (Chehat, 2012).

In Algeria, the issue of food security is addressed separately by each sector. Experts from the same sector or field retreat to their intellectual comfort zones to address food security from the perspective of their specialty alone. With their mastery of their field, the diagnostics they made were excellent, the problems well posed, and the solutions seemed evident. However, these solutions are rarely implemented, objectively remaining inapplicable because they addressed the issue from only one angle. The authors of these solutions, by remaining confined to their respective fields, did not feel concerned about the "how" of implementation. So, did they pose the real problems? So, were they able to define the real problems? (Toumache & Rouaski, 2016). This is why all the meetings organized throughout the country for a long time (in the form of symposia, seminars, conferences, and others) have always yielded excellent results separately but have practically never been implemented. Thus, posing the real problem to arrive at applicable solutions requires adopting a new approach. Indeed, changing the approach means moving towards a more systemic and comprehensive approach. We must break down sectoral barriers and focus our thinking on creating synergy and connections between scientific domains and economic sectors. Therefore, to address the highly strategic issue of food security, a systemic approach is imperative. It allows us to "break down thought silos" and build the necessary bridges between sectors. It is the only approach capable of providing the insights needed to construct a national strategy that effectively guides public policies to ensure the country's food security (Bouchafaa, Kherchi-Medjden, & Rouaski, 2023).

In this logic, we have observed that only the food security study days organized by INESG have been multidisciplinary and multisectoral meetings (INESG, 2022). All sectors directly or indirectly related to food security have been involved, and experts from distinct scientific fields have participated in discussions. As the main results of these discussions, it is definitively acknowledged that food security cannot be reduced to a question of feeding the population solely within the realms of agriculture, agro-industry, or agroeconomics.

Practically all strategic sectors directly or indirectly contribute to ensuring the country's food security. These include but are not limited to (INESG, 2022): -Agriculture - Commerce - National defense - Economic diplomacy (foreign affairs) - National education - Higher education and scientific research - Finance - Industry - Information and communication, including ICT -Justice -Religious affairs -Health.

In order to integrate all these sectors into our thinking, a systemic approach has been adopted to create links and promote synergy among actors. The issue of food security is thus addressed from multiple perspectives, each representing scientific domains and disciplines to be mobilized. Thus, the new doctrine and concepts to be adopted must be defined with the new framework (economic warfare) as key analytical tools to better understand the true international challenges of food security. This framework places Algeria in a systemic world characterized by globalization, economic warfare, and information warfare, which succeeded the Cold War (Bouroubi, 2014).

Conceptually, we have already recognized the need to evolve the concept of "food security" towards the adoption of the concept of food independence and sovereignty as the vision and primary goal of the strategy to be developed. This will protect the Algerian population from any food crisis and enable the country to confront such crises regardless of their scale. However, in a systemic world, the independence and sovereignty in food, as aimed for in the strategy, can only be achieved within the interdependencies of production chains imposed in the globalized production of food products (Toumache & Rouaski, 2016).

These interdependencies between production chains operate within partnerships between states involving competition, hyper-competition, power, power relations, and economic warfare. This is where the need arises to adopt a framework that allows us to understand the world today, where antagonistic actors (businesses and states) engage in "merciless" battles in a very real economic war. This framework is what is needed to construct the FS strategy, now renamed the "Algerian Strategy for Food Independence and Sovereignty." It is a concept built on a doctrine, within a systemic approach, and:

- Inspired by Algerian development strategies (SAD / 1960s and 1970s)
- Developed based on the analysis of the world's food security situation, especially with the two recent crises: Covid and the war in Ukraine, which saw developed countries reconsider their food security strategies.
- Starting from the premise that Algeria is an indispensable regional power.

Once the new concept we have constructed is adopted, the strategy to be developed will be the "Algerian Strategy for **Food Independence and Sovereignty**." It involves all the relevant sectors (as mentioned above) in its conception and implementation and mobilizes all disciplines in the social sciences and some technologies like agronomy, biology, medicine, and, of course, information technology. The domains to explore and the themes to address that emerge are therefore diverse, multisectoral, and multidisciplinary. They cover both the security aspect (in terms of national security) and the food and nutritional aspect. In this context and analysis, we identify three main areas of study and research, each broken down into several themes. They must be studied in a systemic approach and with the "economic warfare" framework:

- Financing the population's food supply system, agricultural land, subsidies, and imports as the "**nerve of war**."
- Agricultural production, the development of sectors, and regulation for operational aspects,

which can be considered the "**heart of battles.**"

- National defense and economic diplomacy - Information systems and the national communication system in the food system, to be developed as "**logistic support**" for this economic war.

4. Proposed Content Elements for the Strategy

The Algerian strategy for independence and food sovereignty must now be approached in a systemic manner to be translated into public policies by sector in an intersectoral and multidisciplinary approach. It must evolve the positioning of sectors to move towards a common and continuous understanding of food issues to address the looming systemic crises. A strategy, primarily focused on security, must first enable Algeria to assume its role as a regional power, and then address economic issues related to agricultural and agro-industrial production. With globalization, the food security of each country depends on the choices made by all actors. While independence and food sovereignty remain strategic objectives, they can only be achieved with the capacity to address the new challenges of globalization (Lawrence, Lyons, & Wallington, 2010).

These capacities depend on global governance efforts but are also subject to systemic crises that need to be effectively managed in economic, political, military, and diplomatic domains. It is widely accepted that food security cannot be merely an economic issue (supply and demand of food goods) but primarily a strategic question of national security, which gives the sector of national defense a special role in this matter (FAO; IFAD; UNICEF; WFP; WHO, 2023).

Given the acknowledged strategic importance of the security dimension of food sovereignty, which can only be achieved with well-managed partnerships, it is essential to be discreet in striving for independence and sovereignty within this interdependence. Achieving a certain level of food security while still heavily reliant on imports for our sustenance is a paradox that is difficult to comprehend. Therefore, we must become aware of our unawareness and capitalize on it to protect our interests internationally, both in terms of security and diplomacy (Badie, 2022).

The development of the Algerian strategy for independence and food sovereignty must be the result of in-depth consultation with researchers from all necessary scientific disciplines and the involvement of all relevant sectors. It serves as the reference framework for the development of all public policies related to food security, with two main missions:

- Define the vision, strategic objectives, and major guidelines for the development of sectoral public policies, all contributing to the construction of "food security" in its new definition and with the new concepts defined and retained in the strategy, namely, independence and food sovereignty.
- Guide the relevant sectors in their contributions to the country's food sovereignty effort by providing clear guidance based on the thinking of researchers and experts and with their participation.

The following guidelines are exclusively strategic and are intended for the relevant sectors to develop their policies. They have been developed based on our synthesis of the conclusions of the food security study days (INESG, 2022) organized by INESG. In our view, this was the only meeting that addressed food security issues with a new multidisciplinary and multisectoral approach. The real problems were then posed in terms of both "security" and "food," opening the way to the development of a genuine Algerian strategy for food independence and sovereignty. We structure the presentation of these few

content elements of the strategy in line with the systemic approach and the adopted framework; economic warfare, and which summarizes the entire approach in three major academic research and expertise domains for the relevant sectors (FAO; IFAD; UNICEF; WFP; WHO, 2023).

4.1. Financing - Agricultural Land - Subsidies and Imports: "The Nerve of war."

a) Financing and Land Tenure

Securing land rights is a vector of resilience and an important factor in contributing to the development of modern agriculture. Therefore, it is recommended in this strategy to:

- Develop a land policy that guarantees the conditions for efficient and sustainable land use and equitable access while ensuring the sustainability of agricultural lands.
- Promulgate a comprehensive agricultural and food law to regulate the national agricultural and food system.

b) Subsidy System and Imports

The greatest weakness of the Algerian food system is the subsidy system, which has clearly shown its limitations. The negative effects it has generated have led to the opposite of the initially intended socio-economic objectives. Despite its noble initial goal of social justice, it has produced true injustice in the distribution of subsidies. For example, subsidizing the consumption of products that have been definitively proven to be harmful to health, such as sugar and white flour, is catastrophic for our food security, especially in terms of health, security, and socio-economics (FAO; IFAD; UNICEF; WFP; WHO, 2023).

The current subsidy system has created rent-seeking situations, and the material stakes involved make it difficult, if not impossible, to dismantle. A profound reconsideration of this system is necessary, and this is the first strategic action to be undertaken in this direction. This strategic action is justified by the fact that our food self-sufficiency is truly covered only to the extent of 55% by domestic production, with 54% for cereals and 57% for fresh milk. This dependence results in a significant increase in the food import bill, with a negative impact on the trade balance (FAO; IFAD; UNICEF; WFP; WHO, 2023).

Furthermore, in 2020, Algeria imported more than 10 billion dollars' worth of food products, which constitute the largest expenses for Algerian households (42% in 2015 according to the ONS), mainly represented by subsidized products (cereals, sugar, milk, and edible oils). A profound reconsideration of the current subsidy system is more than necessary. The resulting strategy should aim to channel and target all state aid. This requires courage and political will at the highest level, and this will exist, as the strategic vision regarding subsidies is clearly outlined in the commitments of the president of the republic.

4.2. Agricultural and Agro-industrial Production - Development of Value Chains - Regulatory Capacity: "The Heart of Battle."

a) Governance in Agriculture and Agro-Industry / Supply Aspect:

With its abundant resources, Algeria possesses significant capacities that serve as key success factors, advocating for the growth of the food sectors and establishing Algeria as a country that has achieved food security (FAO; IFAD; UNICEF; WFP; WHO, 2023). This observation is confirmed by the latest ranking of the World Food Programme (GFSI), which places Algeria first in Africa, tenth in the MENA region, and fifty-fourth / 113 countries in the world (GFSI, 2022).

Indeed, addressing systemic crises demands a "strike force" that resides in strong governance capacities. It is these competencies, capable of producing good governance actions, that would allow for the management and control of any crisis situation. **Algeria possesses these competencies** and this "strike force," as demonstrated objectively during the two crises that significantly impacted global food systems: the COVID-19 pandemic and the war in Ukraine, which even affected developed countries known for their food self-sufficiency. When the COVID-19 pandemic emerged, and mandatory lockdowns were in effect, many world economies faced the risk of collapse with serious food shortages looming (Toumache & Rouaski, 2016).

Algeria faced a similar situation, exacerbated by factors such as the Ramadan month in 2019 (when shortages were observed even under normal circumstances) and consumer panic often leading to a rush for essential products. All indicators pointed to a crisis during Ramadan with severe food shortages anticipated. However, this was not the case; Algeria managed to cope with the crisis using the same resources, undoubtedly thanks to the competencies that successfully activated the "strike force" through good governance of production and regulatory systems.

Regarding the consequences of the war in Ukraine, they were anticipated through the promotion and development actions of our economic diplomacy, initiated at the highest political level and implemented by the foreign affairs sector. Once the war began, the impact, even if indirect, was well controlled and managed. Good governance that enables coping with this crisis can also enable the exploitation of the opportunities it presents. For all relevant sectors, strategic orientations are developed, taking into account a paradigm shift towards more efficient and sustainable agricultural and food systems necessary for achieving food independence and sovereignty (Ingram, Ericksen, & Liverman, 2010).

These two examples demonstrate that Algeria possesses the governance capabilities required to address two global crises with a significant impact on food systems. To draw inspiration from these experiences, the recommended strategic orientation is to "self-benchmark" in the selection of competencies capable of representing this "strike force" to be activated in such systemic crisis situations.

b) For a new consumption model / "demand" aspect

In line with lifestyles, the strategy should emphasize the crucial connections between food systems, consumption patterns, and population health. The population's food system should be based on a social justice system aiming to ensure access to quality, nutritious, and sufficient food that aligns with each person's dietary preferences and allows everyone to lead an active and healthy life (FAO and WFP).

The new consumption model to be developed should be based on the following key elements:

- A thorough revision of the current model, including questioning certain recently acquired habits outside of our consumption culture that are detrimental to health, such as white flour and sugar, etc.
- Support for organic agricultural, agri-food, and fisheries production models, with the goal of preserving natural resources (soil, water, biodiversity, and energy), reducing the effects of climate change, and increasing productivity, within a governance framework that is both horizontal and vertical.
- The fight against food waste, particularly through consumer education on good practices.
- Education on balanced nutrition and responsible eating habits.
- Algeria possesses significant advantages to counter external influences in consumption and nutrition fields.

4.3. National Defense and Economic Diplomacy - National Information and Communication Systems / "Logistic Support"

a) Economic Diplomacy and National Defense

The national defense sector is heavily involved in this strategy, given the national security dimension induced by food security. Internationally, our diplomacy must keep pace with global geostrategic developments in the field of food, in order to have a perspective beyond our country's borders and to anticipate potential consequences of systemic crises. Within the framework of the adopted systemic approach, interactions should be developed with sectors that are capable of facilitating solutions to global crises influenced by food factors. For instance, the Ukrainian crisis, through its food-related consequences, could have a security impact on our country. Economic diplomacy, when pursued in coordination with other relevant sectors, can provide opportunities for preventive actions or preparations for negotiations with international partners (MEAE/DGM/DDD, 2019).

Developing anticipation capabilities in this strategic area can also be achieved with the contribution of the country's intelligence resources, which can help gather information on global food systems. Indeed, the logic of competition analyzed through the "economic warfare" lens opens the door to exploiting vulnerabilities of partners. In this regard, food can be a prime target. Understanding the vulnerabilities of a food system could therefore be a way to gain an advantage over a partner. It is the responsibility of actors in this field to assist in this regard, particularly through intelligence, and conversely, to be prepared to face any threats that may arise. For example, monitoring foreign flows upon which our food system depends and providing intelligence to the relevant authorities (CSA, 2021).

Thus, food security is presented as an integral part of the national defense security policy. In this sense, the war in Ukraine has brutally highlighted the strategic link between food and national security. It is crucial to incorporate such a situation into the consideration of managing systemic crises. This would make it possible to exploit the vulnerabilities of partners or adversaries in case power dynamics with them become established. Around the world, there is an increasing trend among many developed countries towards seeking food sovereignty. Numerous initiatives have been launched in this direction in response to the consequences of the Covid crisis. For example, Europe is committed to strengthening its food sovereignty through an emergency plan (DGRSDT, 2021).

b) Regulation, Information Systems, and Communication

The creation of an efficient information system is a prerequisite for producing reliable data. Decision-making in food security depends on the quality of the information that underpins it. For managing and preventing food crises, the surveillance and anticipation system should provide decision-makers with reliable information to properly assess the food security situation in the country and worldwide (Hadbi & Hadid, 2023).

The resulting information and communication actions would reassure populations increasingly swayed by pessimistic assumptions often originating elsewhere. The action of producing relevant information necessary for the proper functioning of any food system, coupled with effective communication, must now be seen as part of a "global information war," a corollary of the "economic warfare" framework we have adopted. While agricultural production is the linchpin of this battle, it remains insufficient, as in addition to knowing how to produce, there is an entire environment to create, techniques to apply, and, most importantly, to have it supported by an efficient information and communication system (Ingram, Ericksen, & Liverman, 2010). For example, the agricultural statistics produced will

enable the establishment of effective stock management strategies, the regulation of distribution, or the limitation of unnecessary imports that inflate the food bill.

As for the regulatory framework, it appears necessary to revise it to reorganize the agricultural sector as the pillar of the country's food security. All elements of the recommended strategy require an appropriate regulatory framework for their implementation (Toumache & Rouaski, 2016).

5. Conclusion:

Food security is a multidisciplinary and cross-sectoral strategic issue. It is a major concern that calls for the development of collaborative interfaces between sectors and scientific disciplines to break down "silos of thought" and build the necessary bridges to facilitate exchanges and connections among stakeholders. This article contributes to the construction of these bridges.

Key elements of the proposed strategy based on this doctrine highlighted the main strategic orientations for the relevant sectors in developing their public policies on food security.

Finally, this article serves as a contribution to underscore the highly strategic significance of the food issue in Algeria. It should now be addressed with the concept of "food independence and sovereignty" and necessitates a doctrine, a scientific approach based on a systemic perspective, and a new framework for understanding today's world characterized by globalization and economic warfare.

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