



## CONTRIBUTION OF THE SAFA METHODOLOGY TO FOOD SECURITY: A REVISITATION

## CONTRIBUCIÓN DE LA METODOLOGÍA SAFA A LA SEGURIDAD ALIMENTARIA: UNA REVISITACIÓN

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### Abstract

Food security is a global challenge that involves the availability, access, and adequate use of food for all people. In this context, SAFA (Sustainability Assessment of Food and Agriculture Systems) is presented as a key tool for assessing and improving the sustainability of food and agricultural systems. This work aimed to evaluate the contribution of the SAFA Methodology to food security. This methodology promotes a holistic assessment of agricultural systems, considering factors such as biodiversity, efficient resource use, and community well-being to sustainably increase food production. SAFA encourages the adoption of agricultural practices that increase productivity, protect ecosystems, and improve resilience to climate change, emphasizing the importance of social well-being, training, social equity, and access to resources within a framework for the management of effective policies, projects, and strategies that directly contribute to food security. The integration of this sustainability approach into sustainable agricultural and rural development represents a valuable tool for addressing the complex challenges of food security in the face of current and future challenges.

**Keywords:** agricultural sustainability, food sovereignty, sustainable agricultural and rural development

### Resumen

La seguridad alimentaria es un desafío global que involucra la disponibilidad, el acceso y el uso adecuado de alimentos para todas las personas. En este contexto, SAFA (Sustainability Assessment of Food and Agriculture systems) se presenta como una herramienta clave para evaluar y mejorar la sostenibilidad de los sistemas alimentarios y agrícolas. El presente trabajo se propuso como objetivo valorar la contribución de la Metodología SAFA a la seguridad alimentaria. Esta metodología promueve una evaluación holística de los sistemas agrícolas, considerando factores como la biodiversidad, el uso eficiente de recursos, y el bienestar de las comunidades para el aumento de la producción de alimentos de manera sostenida. SAFA fomenta la adopción de prácticas agrícolas que incrementan la productividad, protegen los ecosistemas y mejoran la resiliencia ante el cambio climático. Enfatizando la importancia del bienestar social, la capacitación, la equidad social y el acceso a recursos en un marco para la gestión de políticas, proyectos, y estrategias efectivas que tributen directamente a la seguridad alimentaria. La integración de este enfoque de sostenibilidad para el desarrollo agrario y rural sostenible representa una herramienta valiosa para abordar los complejos desafíos de la seguridad alimentaria frente a actuales y futuros retos y desafíos.

**Palabras clave:** desarrollo agrario y rural sostenible, soberanía alimentaria, sostenibilidad agraria

### Introduction

*"Food self-sufficiency and food sovereignty are interrelated concepts that have profound implications for food security, the local economy, and community well-being. To effectively promote these concepts, it is essential to adopt a comprehensive approach that includes appropriate policies and practices, as well as a solid legal and political framework." (Gómez, 2024, p.69).*

At the international level, authors call for the social component of agrarian sustainability, highlighting the mediating role of culture and its generational role: "Family farming can play a central role in terms of production, the environment, and food security, supplying and occupying the peri-urban areas of cities, avoiding monocultures, and promoting diversified agri-food systems. It can also act as a transmission belt for a political representation of food that allows us to consider the complex and determining processes hidden in the act of consuming and eating" (Urcola and Nogueira, 2020, p. 46).

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Food security is a global challenge that limits the lives of millions of people worldwide. It is defined as the access of all people to sufficient, safe, and nutritious food to lead an active and healthy life (Ramírez et al., 2020). "Food security, from a normative perspective that considers food access in its dimensions, is possible if the population has sufficient income to acquire it, a condition that is not met and is increasingly uncertain for large sectors of the countryside and cities" (Ramírez, 2022, p. 561). Achieving food security implies progress in overcoming inequality and social exclusion, in the redistribution of income, and in strengthening agri-food production.

As the global population continues to grow and the effects of climate change become more evident, the need to develop sustainable food systems becomes increasingly urgent (Bonet et al., 2023). In this context, assessing and evaluating the sustainability of agricultural systems becomes an essential component for ensuring long-term food security.

The SAFA (Sustainability Assessment of Food and Agriculture Systems) methodology, developed by the Food and Agriculture Organization of the United Nations (Candio et al., 2025), offers a comprehensive framework for assessing the sustainability of food and agriculture systems. This methodology is based on a multidimensional approach that considers social, economic, and environmental aspects, allowing for a holistic assessment of agricultural practices and their impact on food security. By identifying the interrelationships between different components of the food system, SAFA facilitates informed decision-making that can lead to significant improvements in food production and distribution.

*"SAFA fosters continuous improvement and builds capacity for sustainability. It also helps to clearly understand the constituent components of sustainability and how strengths, weaknesses, and progress can be assessed. There are several levels of SAFA, which are nested to enhance consistency."* (Heredia et al., 2020, p.317).

This article aims to assess the contribution of the SAFA Methodology to food security. Through a detailed analysis of its principles, tools, and applications, we will explore how this methodology can be used to promote sustainable agricultural practices, improve access to nutritious food, and strengthen rural communities.

Additionally, the role of SAFA in designing public policies that foster equitable and resilient agricultural development will be discussed, at a time when food security is facing unprecedented challenges. This study seeks to contribute to the scientific debate on sustainability in agriculture and offer practical recommendations for its implementation in different contexts.

## Development

This research is the result of a comprehensive analysis of previous and updated studies and background information on the SAFA methodology, seeking to reinterpret its contribution to food security. This approach allowed for an interdisciplinary study of the topic in question, with the aim of heterogeneizing the results and arriving at partial and final conclusions.

*Food is one of the fundamental problems facing the contemporary world. As a sociological phenomenon, it is conditioned by multiple social, cultural, economic, and political factors that determine secure access to food. Regarding this, the Food and Agriculture Organization of the United Nations (FAO) warns of the importance of analyzing the dimensions of food security (access, stability, availability, and utilization) based on their interrelationships at the macro and micro social levels.* (Domínguez and Soler, 2022, p.447).

Food security is a fundamental concept in the analysis of agricultural and rural development, as it refers to the guarantee of access to sufficient, safe, and nutritious food to meet people's dietary needs. According to Ramírez (2022, p. 561), this definition "considers the dimensions of food access, a condition that is not met and is increasingly uncertain for large sectors of the countryside and cities. Achieving food security implies progress in overcoming inequality and social exclusion, in the redistribution of income, and in strengthening agri-food production."

This aspect becomes an essential component not only for the health and well-being of rural populations, but also for the economic and social stability of communities. In this regard, the criterion of Ruderman and Nuñez (2022, p. 121) is essential: "Although there is an extensive body of literature on the relationships between SA conditions and different variables or physical indicators of health from a biocultural perspective, there is no review to date that accounts for the diversity of this type of studies in the context of Latin American populations." In this sense, food security is intertwined with various dimensions of agrarian development, including agricultural production, environmental sustainability, social equity, and agri-food culture.

From a sociological perspective, food security can be understood as an indicator of power and control over resources. In rural communities, access to fertile land, water, and agricultural technology defines who can produce food and under what conditions. The concentration of these resources in the hands of a few can generate significant inequalities, affecting the ability of the most vulnerable communities to ensure their own food security. Thus, agricultural development must consider policies that promote a more equitable distribution of resources.

Food security has different components, such as availability, referring to access to food found in each group or defined geographic area, and the way in which it is used. Other factors also play a role, such as purchasing power, market stability, local self-sufficiency, and processing and consumption (Choco, Teresa, and García, 2022). These are phases or stages of the food production cycle, conceived as an expression of agricultural development.

Furthermore, food security is considered to be intrinsically linked to local culture and traditions. Agricultural practices and consumption patterns are often reflections of a community's cultural identity. Regarding the role of cultural processes and their relationship with agrarian and rural development, González et al. (2024a) propose the transversality of the agrarian way of life for achieving food production chains, taking into account the management of territorial public policies that prioritize local food sovereignty.

*"Agrarian identity constitutes a logical and articulated construction of what it means to be and feel agrarian, which varies and changes according to structures, meanings, policies, and lifestyles. These senses of identity are a conditioned reflection of life itself and express the form that behavior takes after cultivating new experiences and concepts, based on accumulated experiences, ranging from the way food is produced to the way one eats daily and sustains oneself."*(González et al., 2024b, p.4).

A threat to food security is the loss of intergenerationally learned practices due to globalization or industrialization. This can lead to a decrease in dietary diversity and, consequently, increase social and food vulnerability. In this context, it is considered that the articulated approach to agricultural development through policies and programs must incorporate appropriate treatment and respect for local traditions, promoting culturally relevant food systems.

*"Therefore, a food security strategy in the public policy arena has a broad connotation; that is, it can be due to structural factors stemming from historical accumulation or to temporary factors affecting the most vulnerable populations. In this sense, it is necessary to identify the problem, define the design, and outline the public policy strategy to be implemented."*(Cárcamo and Álvarez, 2014, p.115).

Governments, taking into account different levels of poverty, must implement policies, programs, and strategies that address the structural causes of food insecurity, such as poverty, unemployment, and limited access to basic services. This includes investments in rural infrastructure, agricultural education and training, as well as strengthening marketing strategies that offer smallholder farmers new opportunities and strengths.

Globalization has transformed food systems, creating both opportunities and challenges for food security in rural communities and other vulnerable groups. While access to

international markets can benefit some producers, it can also create dependency due to fluctuations in global prices. Therefore, it is essential to promote policies that strengthen local economies and reduce dependence on imports, while encouraging local production and responsible consumption.

*"Given the complex and multisectoral nature of food security and nutrition, the financing landscape must shift from a siloed approach to a more holistic perspective that enables financial stakeholders to incorporate food security and nutrition objectives into broader financing and investment flows."*(UNICEF, 2024, p. 46). The previous call from the United Nations Children's Fund (UNICEF) constitutes a multinational alert for the comprehensive treatment of this component from different perspectives such as environmental, educational and sociological.

The interconnectedness between food security and the environment is another crucial aspect for the multisectoral coordination of agricultural and rural development. Intensive agriculture can compromise soil health, biodiversity, and water resources, which in the long term affects a region's ability to produce food. A sustainable approach to agricultural development focuses on increasing production and preserving the ecosystems that support that production to promote sustainable agricultural practices that ensure food availability without compromising future generations.

Regarding the role of education and its contribution to these processes (Castro and Leal, 2023), they point out that it is currently necessary to rethink the transformative and participatory role of education, understanding it as an opportunity to solve challenges and unresolved issues that affect everyday life. Furthermore, they propose as priorities the treatment and priority attention of children and young people not only from an environmental and nutritional perspective, but also towards sustainable development.

Resilience to food crises is another relevant aspect in the sociological analysis of food security. Communities with strong social networks and high levels of social capital tend to recover more quickly from natural disasters or economic crises. Fostering social cohesion and mutual support among group members and individuals can be key to addressing constraints and threats.

It is important to note that food security reveals its complexity and interrelationship with multiple dimensions of agricultural and rural development. To effectively address this challenge, it is necessary to adopt comprehensive approaches that consider economic, social, cultural, and environmental factors. Therefore, the ability to access adequate food is fundamental to people's physical and mental well-being, as well as to their ability to actively participate in social and political life. Therefore, a holistic approach to agricultural development must integrate food security as a central component in the pursuit of more just, equitable, and sustainable societies.

*"In the Cuban context, achieving food security and sovereignty involves processes such as 'the participation and inclusion of all social subjects to achieve not only the nutritional well-being of individuals and thus avoid situations of social vulnerability related to food that disintegrate or destructure access to food, but also more inclusive and sustainable local food systems. Food security policy, while it has focused its efforts on strengthening the links between access, availability, stability, and utilization, still has limited relationships between these dimensions at the micro level and macro-social influences at the national level.'"* (Domínguez and Soler, 2022, p.448).

The SAFA methodology has a multidimensional character since it can be used at the individual, household and territorial levels, internationally identified as an institutional strategy for the permanent updating of human capacities. SAFA provides dissimilar social, public and private actors with a set of indicators that are useful for detecting problems and identifying solutions (Heredia, Bravo and Torres, 2020).

SAFA is a comprehensive approach designed to assess the sustainability of food and agricultural systems. From a sociological perspective, its implementation and effects can be analyzed in terms of their social, economic, and environmental implications, as well as their ability to promote more sustainable development in specific communities and regions.

*"The Indicators for Sustainability Assessment in Food and Agriculture Systems, or SAFA, is a guide or protocol for assessing sustainability specifically for the agricultural sector. This initiative was born because, since the incorporation of the concept of sustainable development, approaches related to food and value chains have focused on sustainability holistically. For this reason, FAO decided to develop guidelines on sustainability assessment for food and agriculture."* (Coronado, 2023, p.17).

SAFA is based on the premise that sustainability cannot be understood solely from an environmental perspective, but must include social and economic dimensions. This implies a recognition of the interconnectedness between these factors, which is fundamental in sociology to understanding how agricultural practices affect not only the environment but also social structures and power relations within communities.

For (Saca, 2019), this tool offers significant advantages for economic entities in the various food production processes, including consumption, mediated by the final sale of agricultural products. SAFA can be developed as a method for self-assessment and measurement of sustainability, and can be used by startups, projects, and companies anywhere in the world and in any institutional setting.

*"The sustainability performance assessment using the SAFA methodology involves four key stages: mapping,*

*contextualization, indicators, and final report. Each phase can be repeated or evaluated throughout the process, creating a dynamic methodology that draws on feedback from the information obtained at each stage or step."* (Angón, et al., 2016, p.87).

The SAFA methodology promotes a participatory approach, involving diverse stakeholders, from farmers to consumers and policymakers. This collaborative approach can strengthen social capital by fostering networks of cooperation and communication between different groups. From a sociological perspective, this is crucial, as social capital can influence community resilience in the face of economic or environmental shocks.

The implementation of SAFA can contribute to social equity by identifying and addressing inequalities within food systems. Sustainability assessment not only focuses on production and consumption but also analyzes how decisions affect different social groups. This allows for a deeper understanding of the power dynamics and injustices that may exist in access to resources and opportunities (Luque, 2021).

A central aspect of SAFA is its focus on transparency and accountability. By promoting sustainable practices, stakeholders are expected to be more accountable for their decisions. From a sociological perspective, this can lead to changes in cultural and social norms related to food production and consumption, promoting greater awareness of the impact these decisions have on the community and the environment.

The methodology also addresses the importance of education and awareness-raising about sustainability. Through training and knowledge sharing, SAFA can empower farmers and other stakeholders to adopt more sustainable practices (Lora et al., 2023). This resonates with sociological theories that emphasize the role of social learning in transforming behaviors and attitudes toward the environment.

This tool presents a flexible approach for multisectoral coordination and integration of livestock farmers, small producers, partners, trainers, and governments. "With its 116 indicators, it allows for a thorough diagnosis of business sustainability. Based on these indicators, an action plan has been proposed, outlining activities that will allow for achieving the ideal situation in the critical areas identified during the diagnosis, seeking to involve all stakeholders in this improvement of sustainability" (Angón et al., 2020, pp. 87-88).

However, it is important to consider the limitations, challenges, and risks associated with the implementation, monitoring, and sustainability of SAFA. In contexts where unequal power structures prevail or where there is resistance to change, the effectiveness of this methodology may be compromised.

Furthermore, the SAFA methodology can serve as a tool to inform policy decisions and foster regulatory frameworks that support sustainability. Sustainability assessment also has implications for local economic development. By promoting sustainable agricultural practices, SAFA can contribute to job creation and the strengthening of local economies. From a sociological perspective, this can help reduce economic inequalities and foster more balanced development between urban and rural areas.

In general, processes that manage mediations and impacts in SAFA are considered fundamental, given the valuable tools they provide for understanding how food systems interact with social, economic, and cultural structures. As global challenges such as climate change and food insecurity are overcome, approaches like SAFA can pave the way toward inclusion, sustainability, and multilevel food security.

SAFA provides a comprehensive framework for assessing sustainability in agriculture and food systems. Some of its contributions to food security are identified below:

1. **Holistic approach to food security:** Considers a broader range of interconnected dimensions of food security. This includes accessibility, affordability, nutritional quality, and the stability of food systems. This holistic approach allows for the identification of weaknesses in the food system that could compromise long-term food security, beyond mere food availability.
2. **Agricultural Systems Resilience Assessment:** Assesses the resilience of agricultural systems to external shocks such as climate change, pests, diseases, and market volatility.
3. **Promoting sustainable agricultural practices:** Promote the adoption of sustainable agricultural practices that reduce environmental impact and improve long-term productivity. These practices, such as conservation agriculture, integrated pest management, and crop diversification, can sustainably increase food production and contribute to food security without harming natural resources.
4. **Identification of socioeconomic challenges:** Assess the social and economic dimensions of food security, such as equity in access to land and resources, fair working conditions, women's participation in production, and access to fair markets. By addressing these challenges, food security for the most vulnerable groups can be improved and inequalities reduced.
5. **Monitoring and evaluation of public policies:** This helps identify which policies are effective in promoting sustainable production, improving food distribution and access, and strengthening the resilience of food systems.
6. **Promoting multi-stakeholder participation:** Promotes the participation of diverse stakeholders in assessing the sustainability of food systems, including producers, consumers, civil society organizations, and policymakers. This also generates greater ownership and commitment to the actions emerging from the assessment.
7. **Improving Nutrition and Health:** Assesses the nutritional quality of food and the impact of food systems on human health. By considering these factors, SAFA helps reduce malnutrition problems, such as undernutrition and obesity, which affect food security.
8. **Promoting innovation:** Encourages the search for creative solutions and the use of new technologies that contribute to sustainable food security. This includes adaptation to climate change, efficient use of resources, and the diversification of production systems.

## Conclusions

By integrating environmental, social, economic, and governance dimensions, the SAFA methodology constitutes a strategic tool for assessing and strengthening food security from a systemic perspective. Its application helps identify gaps, enhance sustainable practices, and guide continuous improvement processes in diverse agrifood systems.

In the Cuban context, SAFA offers a useful framework for territorial planning, participatory decision-making, and multi-stakeholder coordination, contributing to food sovereignty through the recovery of local knowledge, contextualized innovation, and responsible resource management.

It is recommended that they be incorporated into public policies, agricultural training programs, and local development strategies as a way to address current and future food challenges. Furthermore, we suggest further comparative studies and methodological adaptations to validate their relevance in specific community settings.

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