



The Role of Rural Communities in Food Security

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ABSTRACT

Food security is everyone has access to enough food at all times to have a healthy body. Availability and sustainability of food intake are the main elements for any country in food security. According to the FAO (2014) report, in order to provide food for the world's 9 billion people in 2050, production will need to be doubled, while the amount of resources will be halved, compared to today. As a result, given the importance of resources in the food security of any country, geographical conditions or spatial differences must be considered in order to adopt the right policies. Production figures in Iran shows that increasing this security is possible in rural community with 70% of the production share possible. The case study of this research has been Isfahan province. This study aimed to consider the infrastructure of the country to ensure food security by emphasizing the share of villages and the social, economic and physical conditions of this group. Due to the relationship between rural agriculture and food security, the researcher first examined the situation of rural agriculture in the province. In the next step, using the Delphi method, the statistical population including farmers and provincial managers was classified and examined, so, the researcher tried to use the descriptive-analytical method by designing questions and methodological research. Paying attention to the special share of the rural community in GDP, guaranteeing purchases and paying attention to the safety conditions of rural production were among the indicators that were considered in this study.

Keywords: rural society, food security, Delphi method, Isfahan, agriculture

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1. INTRODUCTION

According to the first Food Security definition in 1986, this security is the access of all people to adequate food at all times to have healthy body, and the availability, access, and sustainability of food are three essential elements of any country's food security (Qasemi, 1998, 12). In its latest 2014 report, the FAO stated that food supply to billion people in the world by 2050 should double the current levels of production, including obstacles such as agricultural constraints, scarcity of water resources, high energy carrier prices, and security. Investing in agricultural research and increasing food waste in the future (FAO, 2014). Therefore, given the 21st Century food security perspective, food production should not only be reduced by reduccconsumption of resources but must also be avoided today. Food security in the world faces three major challenges: starvation, daily diet imbalances, and damage to environmental resources for food production that can be minimized in the first two by the help of import and international institutions. But the third challenge is environment all destruction and its associated human and environmental factors (Miller, 2006). Now, with this view, where is the food security context in each country, taking a realistic step in adopting policies commensurate to the indigenous situation of food security in the country, while

recognizing the natural and human differences and similarities of geography? In most countries, including Iran, the largest share of food production is provided by the rural community. its geographical location and direct access to natural resources, the group plays a critical role in national security, including food security. Production statistics in each country show that increasing the coefficient of this security is possible with the help of the rural community (Mehrabi Shirabadi, 2010). Given that one of the most important goals of any country is to have access to a sustainable food arena to provide a suitable environment for sustainable food security. Villages are very important in terms of natural and human resources due to specific production conditions. The purpose of this study was to conduct a descriptive-analytic study of factors affecting the role of the rural community in food security using the Delphi technique. This research differs from other studies by focusing on food security, environmental perception of the rural community and its role in food security. Because of previous research focusing on food security, this study focuses on the rural environment as a stable place for food security and emphasizes the factors that diminish the role of the rural community in food security. This study is based on the rural community of Isfahan province as a sample group.

So the main question of this study is what is the role of the rural community in providing food security? What are the government's policies on rural food security, and the other hand, what has been the impact of physical and socio-economic changes in rural areas affected food security? The objectives of

this study are based on four main economic, political, social and physical aspects of the study that, due to the complex rural society system, this study need to be categorized into goals. From an agricultural economic, an important part of the rural economy and the preservation of environmental resources are the factors contributing to sustainable agriculture and stable food conditions. From a political point of view, this study should examine government policies and programs. From a social point of view, considering the social transformations of the rural community in terms of quantity and quality will balance the spatial distribution of the population, and provide safe space for the expression of a nation's national power. Finally, physical aspects of factors such as a land-use change in recent years, changing rural housing patterns, and conductive and detailed plans have been studied. In general, since food security is a multidimensional issue, it is also necessary to maintain and improve many of the economic, social, physical, and political indicators in society, especially rural areas.

2. THEORETICAL FOUNDATIONS OF RESEARCH

So far various definitions of food security have been provided by various individuals and institutions, most notably the 1986 World Bank definition "Providing food security with a role in political, economic, social and cultural development is the first principle for maintaining community health. Investigating the food security situation of the community and identifying the factors affecting it to provide appropriate political, economic and practical solutions to improve the nutritional status of all segments of society, especially the poor, is of particular importance (Razaghi, 2009) A functional definition of food security was presented in 1996 by the World Food Conference. This definition refers to various aspects of food security, including its four main components, such as availability of food, access to food, food utilization, and food stability (Pakravan et al., 2015). Important in the definitions of food security is in the hierarchical nature of its four dimensions, namely access to food is a sufficient condition for economic viability and the next two are essential for food security. There must be stability at all times in all four concepts. Food security has four main axes, each of which is an indicator for assessing food security in society. Villages are reliable food security and should be a turning point in achieving sustainable food security with an emphasis on environmental conditions and human resources. The rural farmer in Iran this is a milestone that emphasizes its various dimensions in light of the current food security situation in Iran. Rural agriculture can provide a good place for food security in the rural community. But what should be the status of this agriculture, or more precisely, how can the pattern of cultivation affect the development of this sector? The role of sustainable agriculture in food security is defined by the pattern of cultivation because it shows how resources are used in each community and the capacity of each village to provide food security. In line with the pattern of cultivation, the cultivation method is also important and complementary to sustainable rural development. If the village has a suitable cultivation pattern, this means not only crop production but also future planning to preserve production resources. A suitable agricultural model ensures rural development, which includes the modernization of villages and practices of farming, the

cultivation and equipping of human resources, and the provision of public services needed by the villagers to improve the living standards of their inhabitants. On the other hand, villagers' participation in national economic policy is one of the ways of rural development and modernization of the general cultivation method (Pourtahari, 2014). In line with changes in the rural economy and agricultural production, diversifying livelihood is one of the measures that can help the rural community with its critical contribution to food security. The purpose of diversifying livelihoods in rural areas is to endorse the world commission on environment and livelihoods development concerning the abilities, assets, resources, needs, and opportunities of an individual in the community. It is the natural environment and agricultural activity. Therefore, through the concept of rural livelihoods with agriculture, it should be emphasized that the concept of livelihoods and the model of rural livelihoods comprise the production method and the exploitation system, each of which has no meaning. In other words, it is not possible to define the pattern of rural livelihoods without considering spatial production and exploitation, both of which play a central role in validating the rural livelihoods model (Sadeghloo, 2016).

The role of agriculture in food development and security includes people who form a group with a shared need and problem, and are organized to evaluate this problem by people's organizations such as giving and cooperating. The organization seeks to achieve the goals of a democratic approach to scrutiny, and ultimately its success depends on the participation of those whose needs are met with the help of officials. Among the theories related to food security, the most recent is presented in this article, which has led to a major change in the food security situation of the target community. The phrase "food desert" was first introduced by the US Department of Agriculture, which includes a large proportion of low-income families, inadequate access to the transportation system and retailers of food, and fresh produce and healthy food for prices. It becomes affordable. Researchers use census data to identify these areas, such as income levels, food type, and various indicators. The title was introduced in the United States in 2008 with the main goal of evaluating the extent of hard food access. This trend was initially considered nationally, but then food distribution agencies also considered insecurity. With this theory, they had a spatial view of food insecurity. According to them, improving nutrition is very important for women and children to improve food security. Because at the household level, women's access to food supplies has a direct impact on household food security. Overall, this theory refers to the family's ability to provide family food security by producing or purchasing food and providing appropriate food for all members (Houser, 2016).

Study area

Isfahan province is one of the economic centers of Iran's agricultural and industrial hub. With a variety of climatic conditions and the potential of natural and human resources as one of the most important provinces in the field of agricultural production and livestock. The province is located between 30 degrees 43 minutes to 34 degrees 27 minutes north latitude and 49 degrees 38 minutes 55 degrees and 32 minutes east of the Greenwich meridian. According to the latest national divisions of the province, it includes 24 cities, 107 cities, 50

districts, and 127 districts, with the capital city of Isfahan. The area of the province is 10,7029 square kilometers (5.6% of the total land area), the area of agricultural lands is 569,000 hectares (5.2% of the total land area), the area under cultivation in the normal year is 430,000 hectares (3% of agricultural lands), agricultural production rate 2. 6 million

tons (6% of the country's total production), average annual rainfall less than 120 ml (one-country median and one-seventh global), agricultural workers 162,000, urban population 4.8 million (5.5% of total) the rural population is 705,000 (3.3% of the total country) and the tribal population is 53,000 (1.7% of the total) (Isfahan Agricultural Office, 2016).

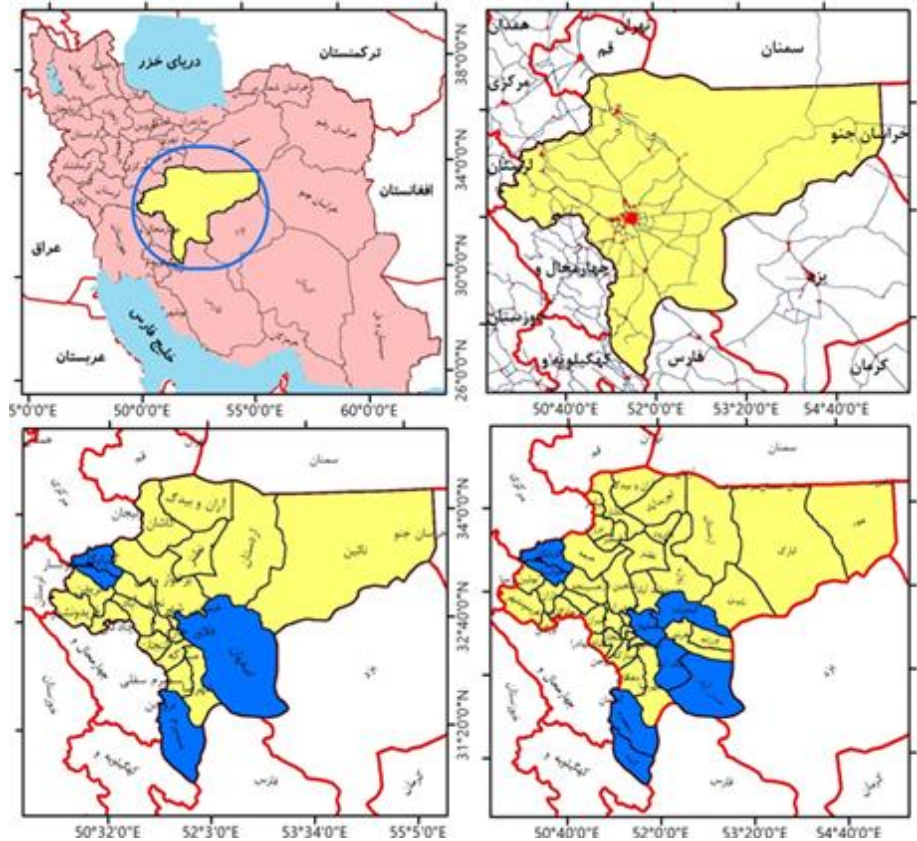


Figure 1: The geographical location of the study area

Important components to be considered in this section with emphasis on food security include ecological indicators such as rough weather, climate, soil and water resources, physical conditions, climatic conditions and environmental hazards in Isfahan province which causes damage to the production sector. This province, located between the central mountains of Iran and the eastern slopes of Zagros, has created different regions with completely different climatic and climatic conditions. Also, in some parts of the province, natural conditions are favorable for the development of natural resources, and in parts due to the desertification of drought, it has an important role in guiding and distributing the population and its economic activities. In the field of human geography, this section began by examining social indicators, emphasizing the importance of human capital in the villages as the main potential for production and achieving sustainable development of food security. Demographic conditions, especially the rural population, as well as the issue of migration, were considered among all the components to evaluate these indicators. The following is an overview of the type of economic activity that has been considered as a model of economic activity

to provide food security to the agricultural sector. The types and scope of economic activity at the three levels of agriculture, industry, services, access to production resources, markets, and rural credit were other factors. Isfahan province, despite having only 2.4% of Iran's total agricultural land, generates nearly 6% of the country's agricultural value-added. The province has the highest production of horticultural products in the country and accounts for 2 to 5 percent of annual production in strategic crops such as wheat and barley. Isfahan exports many agricultural products worth \$ 46 million annually to various countries. One of the good agricultural opportunities in Isfahan province is the presence of experienced farmers who often go to Hormozgan, Khuzestan and Bushehr provinces because of water and land where they practice their agricultural activities. Finally, there is severe climate variability that in some areas sometimes allows two crops and sometimes three crops to produce different crops (Zargarpur, 2016) Although the appearance of Isfahan province is an industrial province, its agricultural sector has a high capacity. 569957 hectares or 5.3% of the province's land is used in agriculture. The Survey of agricultural conditions in Isfahan province

shows that the province has overcome all the difficult conditions of production such as water crisis and the possibility of increasing production per unit area and even shifting agricultural activities from the agricultural sector to other sectors.

3. RESEARCH METHOD

This study is a descriptive-analytic one in terms of purpose and nature, which presents its analysis based on the quantitative data availability. The information required for this study was collected in two ways: library and field research. Field studies included observation, questionnaires, interviews with subordinate officials and discussions with the target community, especially the villagers. About describing the research process, this study begins with its methodology. Therefore, since the ultimate goal is to introduce the factors affecting the stabilization of rural community's position in food security as a sustainable environment, considering the existing capacities and familiarity with rural areas of Isfahan province through 12 years of agricultural activities in this province, extracting Necessary indicators began to reach the general population. In this regard, the methodology of this study has an inductive approach and the selection of the surveyed villages is started based on the detailed research methodology. This work began with the first step of the research methodology, as it aims to examine the importance of rural communities in securing food regard to socio-economic and physical indicators, which has two parts. The first part was to examine the factors that defined this site and the second part was to identify the impediments that could damage the site. So the main question was, what is the role of the rural community in ensuring food security? To answer these questions, many variables have been extracted that were taken into consideration to classify them as the main topic of research, namely food security. The issue of food security is a global issue, but a single solution cannot be devised, and each country has its strategy for maintaining that security. In Iran, providing this security is tied to the rural community and should not neglect the environmental and human potentials of this community. Therefore, it is necessary to see what the activities related to the provision of this security are concerning natural and human resources, and only at this scale can the activities related to this security exist in the agriculture sector in Iran and the rural community. From this perspective, the main variables of the research were identified, finalized, classified and related components. But in extracting data and categorizing the variables, two groups were responsible for reviewing existing policies and laws, and the second group of rural communities considering changes over the past few years based on economic, social and physical indicators. It provided the results. To organize the data and questions that came to mind from the first review, this part of the research was continued by selecting an appropriate research method to conclude. Due to the multiplicity of variables in the relationships between phenomena, different types of research methods were used, which was the best method in this section. The reason for choosing a systematic review of how variables relate to this approach is that it has a fundamental aspect in addition to the functional aspect. This research distinguished it from other research on food security exit from economic and

political monopoly research and has finally provided an appropriate environmental strategy regarding the structure of the village and its role in food security. In this regard, the inductive approach has helped the descriptive and analytical research to identify the indices needed for this capacity in each region and to classify it according to the research objectives. After extracting the data by the proposed method, the next important part of the data classification was the Delphi technique used in this section by agricultural experts and officials and villagers to classify and analyze priorities with environmental attitude. The statistical population of this study, due to its high volume in Isfahan province, first started with a Cochran formula with initial drop and then proceeded with systematic selection. At the stage of sample community selection, environmental and human conditions of the area were considered, in the human dimension one of the authorities and the other of the rural community. The election of officials to perform their role in agricultural activities as the only economic activity related to food security. The choice of the rural community was also systematically randomized due to the high volume and the snowball technique was not affected. The emphasis here was on the villages and areas in Isfahan province that were relatively good conditions in terms of environmental resources such as water, soil, and climate as well as human resources. It can be said to be a comparative study of the views of the rural community and local and provincial authorities.

This comparison sought a technically appropriate classification strategy so that both these findings could be applied and the findings generalized. Therefore, as a descriptive-analytical research method and the ultimate goal of using these findings to the benefit of the rural community, the Delphi technique has been used to classify the data. The study began with an open-ended question about panel members' views on the role of the rural community in food security, and the next step was to categorize these findings, eliminating redundant, non-relevant and irrelevant options, and finally to 4 items. The final of the total reached more than 90 data in total. Finally, it can be said that the survey began with field visits to some villages in the province and conversations with some villagers. This method helped to establish a detailed epistemology of the research topic by emphasizing the rural community perspective. After identifying the problem, data extraction was started according to the research literature to help identify the gap in the previous research and design the research questions with the help of the problem statement. In this regard, before concluding and analyzing the data, the results were assumed to be defaults, which presented themselves as hypotheses. So far, there has been a problem statement with questions and assumptions that had been made before the initial field visit for identification. At this stage, a good statistical population was selected, which was one of the aims of this study to make the results of the research practice and not only in the hands of the rural community. Finally, a group of 60 people became the criteria for data analysis.

4. RESULTS

The Final Output: The first step of the Delphi technique

In the first stage, Delphi provided an open questionnaire to identify the role of rural communities in food security. After

receiving the response and reviewing the views of the statistical community, similar cases of integration and additional items were omitted, the results of which are presented in the table below. According to the accurate identification of the statistical population, the return rate of the

questionnaire and its effectiveness was 100%. But their analysis is different from the discussion, and some questions were more frequently asked by the authorities and others by the rural community.

Table 1. Summary of Research Data

Physical	Social	Economics
Transportation and Distribution System	Agricultural Law	Strategic Product
Sector Cultivation Pattern	Agricultural Women	Taxation of rural
Rangelands	Age Conditions of Rural Community	Privatizing
Second Home	Rural Immigration	Pricing and Guaranteed Buying
Irrigation and Sewage Systems	Rural Management	GDP
Greenhouse Development	Training	Sales and Marketing Agents
Agricultural Mechanization	Young Experts	Expensive Production Inputs
	Cooperatives and NGOs	Wholesale
	Insurance	Unregulated Imports of Agricultural Products

Source: Research Findings, 2016

The final output of the second stage of Delphi

After collecting the first questionnaire, the answers were categorized and the basis for adjusting the second stage questionnaire. The questionnaire was the second stage of the extracted findings in the first stage, which was categorized and provided to the statistical community for evaluation and adjustment of the Laurite Spectrum Questionnaire in the third stage. The average of each index was based on the extraction

goals and the indexes are adjusted based on the economic, social and physical spectrum. Finally, an average of 26 final items were presented to illustrate the importance of their examination in the third subtle stage of lecithin. The second stage of the Delphi technique in this study was the qualitative evaluation of the first questionnaire and the mean and standard deviation of the proposed items.

Table 2. Items Extracted from food security and rural communities in the second phase of Delphi testing

row	Subject Category	Average *	Standard deviation	C.V
1	Economic Consideration of Rural Agriculture Sector's High Contribution to Gross Domestic Product in Credit Allocation	4.46	0.81	0.23
2	Considering the structural barriers to investment and the use of the private sector to generate	3.86	0.68	0.21
3	Unconventional pricing of rural agricultural products from Guaranteed Purchase to Harvest Season	4.85	0.91	0.24
4	Existence of sales intermediaries, lack of marketing and sales terminals and inappropriate transportation system for distribution of production products	4.73	0.75	0.22
5	The necessity to deal with crude wholesale and import control of crops to maintain the motivation of the farmer	3.96	0.78	0.23
6	The necessity of Tax Administration of Agriculture and Planning for Taxation of Other Sectors in Production Period	3.56	0.81	0.24
7	Lack of proper comprehensive planning for the development of strategic products in the province due to existing capacities	3.26	0.86	0.25
8	Expenditure and lack of facilities for production inputs and strengthening of mechanization during the planting season for villagers	4.92	0.88	0.26

9	Social	There was no social plan for farmers' insurance and job security to secure food security	4.42	0.83	0.21
10		Revisions to the Laws on the Payment of Rural Agricultural Water Due to Shortcomings in this Source	2.03	1.17	0.57
11		Attention to Rural Women, Age Conditions, Rural Community Aging, and Rural Migration with a Production Potential	4.52	0.89	0.20
12		Vacancies for Young Trainers and Experts Alongside Traditional Farmers in Promoting	3.48	1.29	0.32
13		Lack of attention to the impact of cooperatives and NGOs active in rural agriculture	3.06	1.14	0.31
14	physical	Physical Inadequacies for Equipping and Renovating Irrigation and Feeding Systems for Farmers	3.74	0.68	0.21
15		Damage to Public Rangelands to Private Villages Around Villages for Production of Animal Feed	2.01	1.14	0.53
16		The necessity of Greenhouse Cultivation Development and Agricultural Mechanization due to Provincial Water Resources Control in All Dimensions	4.68	0.69	0.21
17		Serious Threats of Extending Secondary Homes and Digging Unauthorized Wells in Provincial Villages with Emphasis on Water	4.71	0.71	0.27
18		Absence of a Watershed Master Plan for Flow Control of Surface Water in the Province to Strengthen Groundwater aquifers	3.26	1.29	0.37

* Scale: Very Low =0.1- 1, Low = 2, Average = 3, High = 4, Very High = 5 (Source: Research Findings, 2016)

The Final Output of the Third Stage of Delphi

After collecting the second questionnaire, the answers were categorized and the basis for adjusting the third stage questionnaire. The third questionnaire was a closed questionnaire based on 26 items of data analysis. The Likert spectrum was used to determine the degree of agreement of

each expert with the category (strongly disagree = 1, disagree = 2, disagree = 3, agree = 4, at least agree = 5), the result of which is shown in the table. Respondents fully agreed with what was stated in the table below, and only two options opposed.

Table 3. The importance of extracted items in food security and rural community in the third stage of Delphi test

Row	Item Category	Percentage Agree	Percentage Disagree	
1	Economic	Consideration of Rural Agriculture Sector's High Contribution to Gross Domestic Product in Credit Allocation	96	4
2		Considering the structural barriers to investment and the use of the private sector to generate	88	12
3		Unconventional pricing of rural agricultural products from Guaranteed Purchase to Harvest Season	94	6
4		Existence of sales intermediaries, lack of marketing and sales terminals and inappropriate transportation system for distribution of production products	90	10
5		The necessity to deal with crude wholesale and import control of crops in order to maintain the motivation of the farmer	70	30
6		The necessity of Tax Administration of Agriculture and Planning for Taxation of Other Sectors in Production Period	61	39
7		Lack of proper comprehensive planning for the development of strategic products in the province due to existing capacities	64	36

8		Expenditure and lack of facilities for production inputs and strengthening of mechanization during the planting season for villagers	97	3
9	Social	There was no social plan for farmers' insurance and job security to secure food security	77	23
10		Revisions to the Laws on the Payment of Rural Agricultural Water Due to Shortcomings in this Source	40	60
11		Attention to Rural Women, Age Conditions, Rural Community Aging, and Rural Migration with a Production Potential	86	14
12		Vacancies for Young Trainers and Experts Alongside Traditional Farmers in Promoting	71	29
13		Lack of attention to the impact of cooperatives and NGOs active in rural agriculture	65	35
14	physical	Physical Inadequacies for Equipping and Renovating Irrigation and Feeding Systems for Farmers	69	31
15		Damage to Public Rangelands to Private Villages Around Villages for Production of Animal Feed	43	57
16		The necessity of Greenhouse Cultivation Development and Agricultural Mechanization due to Provincial Water Resources Control in All Dimensions	79	21
17		Serious Threats of Extending Secondary Homes and Digging Unauthorized Wells in Provincial Villages with Emphasis on Water	85	15
18		Absence of a Watershed Master Plan for Flow Control of Surface Water in the Province to Strengthen Groundwater aquifers	69	31

Source: Research Findings, 2016

Delphi's fourth stage output

The fourth step was to reach a consensus on the extracted items. The fourth questionnaire containing the modified items in the third questionnaire was given to the experts and they were asked to indicate their agreement or disagreement in each of the identified items in order to finally reach an agreement on the unique role of the community status. A village arrived in food security. In the fourth stage, the items were accepted with a high level of agreement and reached a consensus.

5. CONCLUSION

Analysis of the findings of this study showed that in the economic sector, due to the high share of the rural sector in GDP, the allocation of credit and the necessity of tax management in the agricultural sector and planning for taxation of other sectors to the highly regarded production interval of the two study groups. Improving it requires long-term planning. In the social part of the Qur'an related to this community, especially the revision of the laws related to the payment of the rights of rural agricultural water and the reform of the management of this community is needs to be improved according to the conditions of each village. Also, the development of insurance in the agricultural sector and the development of NGOs greatly contributes to the development of this sector to both maintain the status of rural women as a production base and prevent irregular migration into the city. Physically, point of view of preserving the native texture of the villages, it is important to control the conditions of production and expansion of mechanized cultivation infrastructures such as greenhouses. In general, the impact of a rural community on food security with an emphasis on rural

geography is an economic need that, if properly linked to positive social infrastructures, can provide the basis for growth and development on a global and national scale.

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