

## Qualitative Analysis of the Effective Factors in Sustainable Agricultural Development: A Case Study of Khuzestan Province, Iran

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### ABSTRACT

The purpose of this research was to analyze the effective factors of sustainable agricultural development in Khuzestan Province, Iran, through qualitative method. To achieve the objectives of the research, semi-structured interviews and brainstorming techniques were used to collect data, and triangulation was used to evaluate the validity of qualitative findings. In order to implement the qualitative method, three types of open, axial, and selective coding were used. MAXqda<sub>12</sub> software was used to analyze the collected data. Based on the qualitative analysis, 127 initial codes with 1,785 repetitions with 42 sub-categories in 4 main categories were identified: Strength, Weakness, Threats and Opportunities. By strengthening strengths and taking advantage of opportunities, we can reduce weaknesses and get rid of threats. Using the obtained results by planners will pave the way for sustainable agricultural development in Khuzestan Province, Iran.

**Keywords:** Agricultural sustainability, Brainstorming technique, Grounded Theory, MAXqda<sub>12</sub> software.

### INTRODUCTION

According to the FAO report, in 2021 the global consumption of fertilizers (N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O) reached 198.2 million tons, which is almost 10 million tons (5.2%) more than in 2019/2020. This is the largest increase since 2010. Nitrogen, which accounts for more than half of the global fertilizer consumption, experienced an increase of 110 million tons in 2021, with demand increasing by 1.4%, i.e. 4.3 million tons. The demand for phosphorus increased by 7% (3.3 tons) and reached 49.6 million tons. The demand for potassium increased by 6.2 percent (2.2 million tons) to 38.5 million tons (FAO, 2021). According to the report of Iran's Soil and Water Research Institute, about 3 million tons of fertilizer were

consumed in 2017. In 2017, the consumption of urea fertilizer reached nearly two million tons. The consumption of potash fertilizer reached 953 thousand tons. Khuzestan, Fars, Golestan, and Khorasan Razavi provinces have the highest amount of fertilizer supply (Rasouli, 2018). Currently, pesticides are used in 15 million hectares of agricultural and horticultural fields throughout Iran. The annual consumption of pesticides in Iran is, on average, 25,000 to 30,000 tons (Ag News, 2020).

One twelfth of the total soil erosion in the world, about 2 billion tons, happens in Iran alone. Meanwhile, Iran has only one percent of the world's land. That is, relative to the area, the soil erosion rate in Iran is 8 times the world average (Darvish, 2017). Transformation or destruction of habitats due to unsustainable land use is one of the

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major threats to biodiversity (Farahmand and Nazari, 2015). Because of changing land-use, most lands have been deteriorated by human (Vahdati *et al.*, 2018). The agricultural sector of Khuzestan Province is also facing many unsustainable challenges. One of them is excessive use of external inputs. As a result, this province has become one of the most critical regions of the country in terms of environmental hazards (Moridosadat and Roknoddin Eftekhari, 2018). Soil erosion in Khuzestan Province is at a critical level and this province ranks first in the country in terms of soil erosion. On average, about 18 tons of soil erosion is recorded annually from each hectare of land (Khaiz, 2018). Based on the research of Moridosadat *et al.* (2017), Khuzestan Province is at the lowest level in terms of the sustainable development of agriculture. Based on this, it should be emphasized that agriculture in this province is currently in an unfavorable situation in terms of sustainability. Sustainable agricultural development plays a vital role in protecting natural resources, protecting the environment and improving the well-being of people in rural areas (Zhang *et al.*, 2022). Agricultural production and food security around the world are under great threat due to the increase in the world's population, climate change, the spread of environmental pollution, and the increasing demand for safe water and energy supply (Sarkar *et al.*, 2022). According to FAO, the world population will reach over 10 billion people by 2050, and it is predicted that 50% more food will be needed for the increased population (Calicioglu *et al.*, 2019). In the current situation, the development of agriculture in the world is at a critical time, because with the increase in population and the increase in the need for food, agricultural land has been overused and the use of external inputs has reduced soil production capacity, and the lands have been degraded and we face serious environmental issues (Deng *et al.*, 2022).

Sustainable agricultural practices can be considered as an important factor to achieve

sustainable development goals (Artiom *et al.*, 2022). Raman (2020) emphasized on maintaining the production capacity and focusing on the sustainability of the production system and sustainable agricultural development to preserve the environment and human health. Ryan *et al.* (2016) considered the development of sustainable agriculture as an important factor in achieving competitive advantage and protecting the environment. Dorninger *et al.* (2020) emphasized the need to consider all interventions in agro-food systems within the framework of sustainability dimensions. Abson *et al.* (2017) proposed sustainable agricultural practices as an important factor in the development of socio-ecological systems and conservation of environmental resources. In sustainable agriculture, researchers are looking for approaches and technologies that seek to maintain production capacity and protect natural resources and the environment while increasing production (Shah, 2021). This issue is one of the most important goals of sustainable development (SDG), in which, while meeting the food needs of humans, environmental pollution and destruction are minimized and the quality of life is improved (Kazemi *et al.*, 2018). In sustainable agriculture, all social, economic, and environmental aspects are taken into consideration. That is, while providing human food needs, attention is also paid to ecological processes (Tanguay *et al.*, 2010). According to the evaluation done in the existing documents and previous researches, the most important existing research gap is the lack of a qualitative study on the identification and prioritization of factors affecting the development of sustainable agriculture in Khuzestan Province, Iran. This issue has also been mentioned in various researches. This issue has made this research highly innovative and able to answer the issues that exist in this field. The objectives of this research are:

- Identifying factors affecting the sustainable agricultural development through qualitative methods.

- Grouping of factors affecting the sustainable agricultural development through qualitative method.
- Classification and prioritization of factors affecting the sustainable agricultural development through qualitative methods.

## MATERIALS AND METHODS

The research method is qualitative. Qualitative research is defined as a research method that focuses on obtaining data through open-ended, conversational communication and other qualitative techniques. The reason for using the qualitative research method is that the issue of sustainability is not a one-dimensional issue that can only be investigated with a quantitative method. Due to the social, cultural, and epistemological aspects governing this issue, it is necessary to conduct a qualitative study and identify the thoughts, descriptions, statements and opinions of experts. For qualitative analysis, the information obtained from the brainstorming and interview methods was entered into the software after writing edits. Then, three types of coding were implemented. In the open coding, by performing content analysis and detailed study of the obtained information line by line, the concepts were adjusted. First, the data from the interview was analyzed and the answers were converted into semi-structured questions during the interview. The key issues discussed were extracted in separate sentences.

In this way, the results of interviews and brainstorming with experts were identified and extracted in the form of initial codes. First, the main sentences under the title of initial codes were extracted from direct quotes that had at least 5 repetitions and each of the codes was indicated by special abbreviations. In the axial coding, the most important points mentioned for the development of sustainable agriculture were identified in the sub-categories in the form

of a number of brief descriptions and by evaluating repetitions with different items. In the following, in selective coding, the relationship obtained in open coding and the subcategories resulting from axial coding with the main category was determined in the form of a graph based on the index of repetition. Figures 1, 2, 3, and 4 show the most important strengths, weaknesses, threats, and opportunities based on priority. The data were collected by using in-depth semi-structured interviews and brainstorming techniques with the 30 agricultural experts in this field. In order to conduct sampling in this qualitative research, non-probability and purposeful snowball sampling method was used. In this way, among the experts of sustainable agricultural development, those who had the most experience in this field in the province were selected as interviewees. The following people were selected by the suggestion of the same experts. The sampling continued until the theoretical saturation stage and the information obtained from the experts of the province could be generalized to the entire province of Khuzestan, and no new information was obtained by continuing the interview.

Their implementation lasted from December 2021 to March 2022. Data analysis was done by using MAX qualitative data analysis version 12.3 software (Maxqda12.3) in three steps: open coding, axial coding, and selective coding. In this research, the perspective of Corbin and Strauss (2014) was used to analyze qualitative data: three types of open coding, axial coding, and selective coding were used. In open coding, concepts and brief descriptions were recorded under the title of initial codes that had significant repetition. In the axial coding, all the initial codes obtained in the previous coding were evaluated and related codes were placed in sub-categories. Next, all sub-categories were analyzed and classified into the main categories. In the selective coding, according to the identified categories, all sub-categories were prioritized based on the



number of their repetitions using the diagram. Based on the qualitative analysis, 127 initial codes with 1785 repetitions and 42 sub-categories in the 4 main categories were identified: Strength, Weakness, Threats, and Opportunities. This classification was based on the opinion of experts. In numerous brainstorming sessions, based on the opinion of the majority of experts, a consensus was reached that divided the factors affecting the development of sustainable agriculture into 4 categories: strengths, weaknesses, threats, and opportunities. Considering that the basis of this research was based on the qualitative method, the criterion for grouping was the opinion of experts who were both familiar with the conditions of the region and had expertise and experience in the field of sustainable agriculture. Classification of obtained codes into the four sub-dimensions of SWOT is one of the most used techniques in brainstorming (Phadermrod *et al.*, 2019).

The following assumptions were considered for brainstorming in the research: Providing a stress-free environment for expressing ideas, making lists, grouping, describing, explaining and clarifying prioritized ideas in a non-threatening environment and ready for creative expression (Wilson, 2013).

## RESULTS AND DISCUSSION

### Individual Characteristics

The results show that the lowest frequency of 2 people (6.67%) were aged 61 to 71 years. Also, the highest frequency was 14 people (46.6%) aged 41 to 50 years. Also, the results show that the lowest frequency of 13 people, (43.33%) had a master's degree, and the highest frequency of 17 people (56.67%) had a bachelor's degree. According to the results, the lowest frequency of 5 people (16.67%) had an income between 4800 to 5600 Dollar per year and the highest frequency of 10 people (33.33%) had an income between 4000 to 4800 Dollar.

### Coding/Categorization Stage

Based on the qualitative analysis, 127 initial codes with 1,785 repetitions and 42 sub-categories in the 4 main categories were identified: Strength, weakness, threats and opportunities.

### Open Coding

At this stage of coding, by performing content analysis and detailed study of the obtained information, the concepts were adjusted. First, the data from the interview and brainstorming methods were analyzed and the answers were converted into semi-structured questions during the interview. The key issues discussed were extracted in separate sentences. In this way, the results of interviews and brainstorming with experts were identified and extracted in the form of 127 initial codes (with a frequency of 1785). First, the main sentences under the title of initial codes were extracted from direct quotes that had at least 5 repetitions and each of the codes was shown with a numerical code. The results of open coding are presented in Table 1.

### Axial Coding

In the axial coding, all the initial codes obtained in the previous coding, based on the opinion of experts and conducting semi-structured interviews and brainstorming sessions, were evaluated and the related codes were placed in sub-categories and labeled. Based on the results of axial coding, 42 subcategories and 4 categories were identified. As mentioned in the previous section, this classification was based on the opinion of experts. In numerous brainstorming sessions, based on the opinion of the majority of experts, the factors affecting the sustainable agriculture development were divided into 4 categories:

**Table 1.** Concepts (Initial code) extracted from the interviews and brainstorming.

Initial code that had at least 5 repetitions	Code number
Favorable economic effects of rural projects in the region	01.
Implementation of extension programs regarding the integrated use of pest control	02.
Implementation of oil seed cultivation development programs to increase villagers' income	03.
Indiscriminate use of agricultural machinery	04.
Low use of biological fertilizers and natural methods of fighting against pests and diseases	05.
Continuation of the migration process from village to city	06.
Low credits for training programs for sustainable development of agriculture in the region	07.
Adequate credits of village councils and councils to support agriculture in the region	08.
Granting subsidies for the development of new irrigation systems	09.
Increasing farmers' information about the harmful effects of chemical pesticides	10.
Increasing the importance of paying attention to wetlands and rivers	11.
Limitless increase in the price of production inputs	12.
Increasing social problems in rural areas	13.
Pollution of river and wetland environment by chemical fertilizers, poisons and drainage	14.
The possibility of building secondary industries for the conversion of agricultural products	15.
The possibility of using virtual training in the field of production sustainability	16.
The possibility of attracting foreign and private investments	17.
The possibility of participating in scientific meetings and conferences virtually	18.
High production waste of agricultural products	19.
Improving insurance coverage of agriculture, livestock and poultry	20.
Partial improvement of agricultural soil with low tillage operations	21.
Low use of animal and plant integrated methods	22.
Market instability and exchange rate instability	23.
The low level of knowledge and information of farmers in the field of sustainable agriculture	24.
The low level of technical knowledge of farmers in the field of sustainable agriculture	25.
The low skill level of farmers in the field of sustainable agriculture	26.
Acceptance of sustainability laws and guidelines by local and indigenous people	27.
Waste from oil companies and agriculture and industries	28.
Emphasis on the development of the cultivation of healthy and biological products in Clause C of Article 31 of the Law of the Sixth 5-Year Plan	29.
Emphasis on the development of conservation agriculture in Paragraph A of Article 31 of the Sixth 5-Year Plan Law	30.
Emphasizing the production of healthy and clean products and promoting human health at the national level	31.
Emphasis on the optimal use of chemical inputs and the use of organic and biofertilizers in Article 31 of the Sixth 5-Year Plan Law	32.
Following the strict rules of land use change by villagers	33.
Allocation of at least 20% of the resources of the support fund from the agricultural sector for export facilities in the law of the Sixth 5-Year Plan	34.
Leveling the lands of the region in the leadership plan	35.
Good interaction of farmers with research centers regarding conservation programs	36.
Climate changes of the last decade and pollution caused by fine dust	37.
Attention to environmental protection	38.
The development of rich literature on the extension of sustainable agriculture in the national and international arena	39.
Development of information and communication technologies	40.
Recruitment of active labor force in non-agricultural sectors	41.
Financial and tax support for manufacturers of protection agricultural tools and machinery	42.
Support of people and spontaneous people groups for environmental programs	43.
Support of the banking system for the sustainable development of agriculture	44.
Targeted government support for producers of healthy products	45.

Table 1 Continued...

**Continued of Table 1.** Concepts (Initial code) extracted from the interviews and brainstorming.

Initial code that had at least 5 repetitions	Code number
Climate risk in regional agriculture	46.
Price risk in regional agriculture	47.
Technical infrastructures of irrigation and drainage networks	48.
Weak private sector investment in sustainable agriculture	49.
Burning plant residues after harvest	50.
Wrong agricultural export policies	51.
Inappropriate product pricing policies	52.
Oil and drilling companies based in the region and creating environmental problems	53.
Weakness of communication between human resources and extension experts	54.
Designing appropriate promotional approaches in biological control and sustainable production in the national and international arena	55.
Failure to provide innovation and new technology in line with sustainable agriculture	56.
Not using protective plow	57.
Insecurity of investment due to the border of two cities	58.
Failure to hold educational and promotional programs with sustainable agricultural content	59.
Failure to hold agricultural risk management training courses	60.
Failure to develop binding laws and policies for the sustainable development of agriculture in the region	61.
Reluctance of the private sector in agricultural investment	62.
The disproportion of prices of agricultural products	63.
Lack of attention to the development of technology suited to the conditions of the region	64.
Lack of attention to cultural infrastructure	65.
Lack of attention to entrepreneurship and job creation in the field of sustainable agriculture	66.
Failure to pay attention to the training and participation needs of farmers and timely information	67.
Lack of development of the culture of using sustainable agricultural products	68.
Lack of orientation towards the rural economy	69.
Lack of ease of entry into sustainable agricultural business	70.
Lack of policies to support production sustainability	71.
Lack of proper policy for the cultivation pattern	72.
Lack of transparency of insurance laws	73.
Lack of institutionalization of the principles, foundations and strategies of sustainable agriculture	74.
Lack of sufficient credits for insurance of agricultural products	75.
Lack of job security in rural areas	76.
Lack of a suitable market for products with a sustainable and organic approach, cost	77.
Absence of correct fallow management and crop rotation programs	78.
Absence of suitable training programs in order to increase the level of production	79.
Lack of provincial vision for sustainable development	80.
Absence of investment facilitation policies for sustainable agricultural development	81.
Absence of support policies for the sustainable development of agriculture in the region	82.
Absence of packaging industries in the region	83.
Absence of conversion industries in the region	84.
Lack of carrying out sustainability research according to the conditions of the region	85.
Lack of financial foundation to provide protection machinery	86.
Lack of suitable conversion and packaging industries to create added value	87.
The law of allocating at least 85% of new irrigation costs as free aid by the government	88.
High price of organic products and lack of government support	89.
Cultivation of pulses and soil-enhancing and nitrogen-fixing plants	90.
Extensive land cultivation and land fertility and earning good income	91.
Lack of construction and infrastructure credits in the field of sustainable agriculture	92.
National tendency to develop the production of clean and healthy organic and greenhouse products	93.
The expansion of urban attractions and the difference between rural and urban facilities	94.
Multiple provincial agricultural higher education centers to support agricultural knowledge management	95.
Cultural similarity and language compatibility with neighboring Arab countries to facilitate export	96.

Table 1 Continued...

Continued of Table 1.

Initial code that had at least 5 repetitions	Code number
Rich sources of manure in the region for use in farms	97.
Lack of proper health, welfare, transportation and communication infrastructures	98.
Lack of proper financial infrastructure	99.
Absence of national consulting companies regarding sustainability issues	100.
Absence of studies on suitable land in the region and suitable cultivation pattern	101.
Low ratio of promoters and experienced experts to the rural population	102.
Positive attitude towards teamwork and cooperation	103.
Favorable attitude towards no-tillage and low-tillage methods at the national level	104.
High costs of producing sustainable agricultural products	105.
The province's neighborliness with Iraq and the countries of the Persian Gulf for the export of agricultural products	106.
Cooperation of councils and village councils in the direction of sustainable agricultural development	107.
Existence of health and welfare facilities	108.
The existence of various agricultural production cooperatives in the region	109.
Existence of beautiful landscapes and Horulazim lagoon for the development of ecotourism	110.
The existence of indigenous knowledge of agricultural sustainability at the regional and national level	111.
The existence of the Karkhe River as a valuable source of economic income	112.
The presence of dust and the reduction of the production level	113.
Existence of favorable and fertile lands with favorable production performance	114.
Existence of virtual infrastructure and internet for information exchange	115.
The existence of diverse and numerous eco-ecosystems with economic benefits	116.
Existence of numerous floods and droughts and creating problems for production	117.
Existence of necessary conditions for private sector investment in the region	118.
Existence of expert and experienced experts in agricultural Jihad centers	119.
The presence of capitalist farmers in the villages	120.
The existence of many provincial agricultural research centers for the development of sustainable agriculture	121.
The existence of numerous scientific research articles on sustainability	122.
The presence of rich water resources and rivers for the production of agricultural products	123.
Existence of various export barriers and influence on the production level of products	124.
Existence of favorable attitude towards the sustainable development of agriculture at the national level	125.
Existence of young and active agricultural workforce in villages	126.
The existence of numerous agricultural colleges in the province to teach sustainable agricultural strategies	127.

strengths, weaknesses, threats, and opportunities.

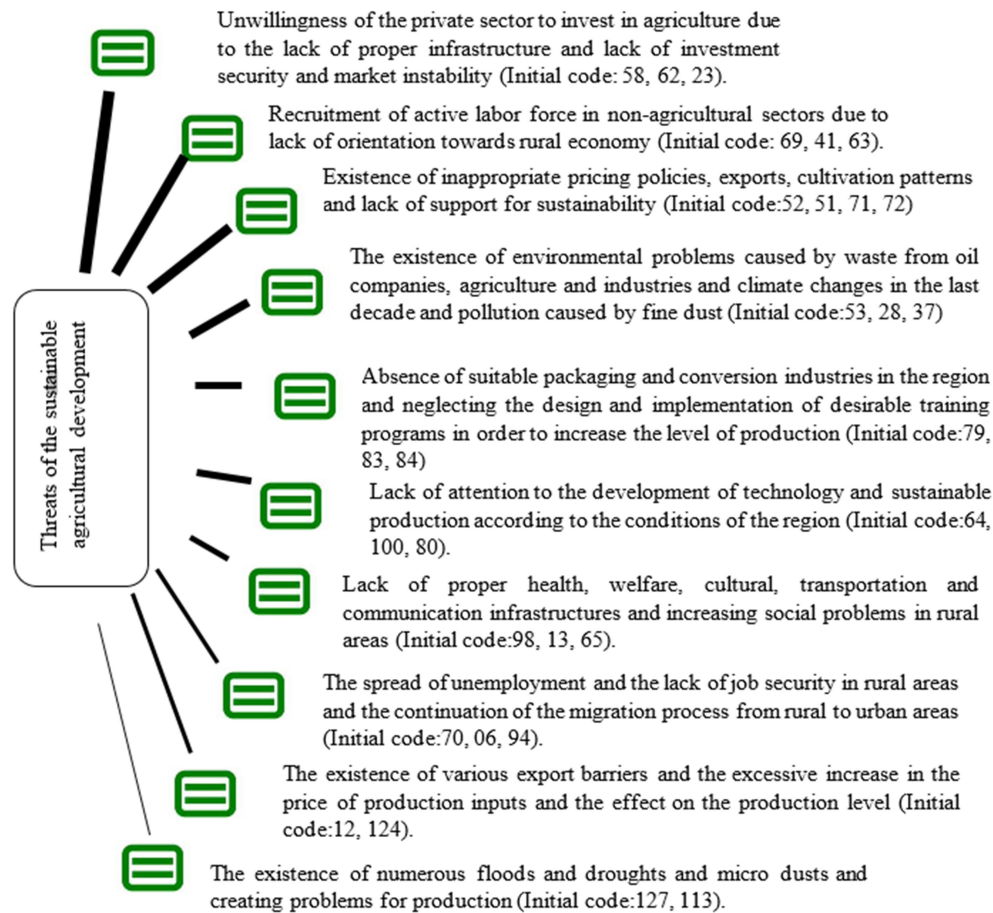
categories based on the index of repetition was determined in the form of a diagram.

### Selective Coding

In this step, the relationship obtained in open coding and the sub-categories resulting from the axial coding with the main

### Important Threats

Based on priority, three of the most important threats to the agricultural sector of the studied region in the field of compliance with the indicators of sustainable



**Figure 1.** Threats to the agricultural sector of Khuzestan Province in the field of compliance with the indicators of sustainable agricultural development.

agricultural development were as follows (Figure 1):

1) The unwillingness of the private sector to invest in agriculture due to the lack of suitable infrastructure and the lack of investment security and market instability. This result is in line with the research results of Momeni and Khezri (2015) who pointed out the necessity of investment security on the development of private sector activity.

2) Recruitment of active labor force in non-agricultural sectors due to lack of orientation towards rural economy. Sadrmosavi *et al.* (2016) also obtained similar results in this field.

3) Existence of inappropriate pricing policies, exports, cultivation patterns, and

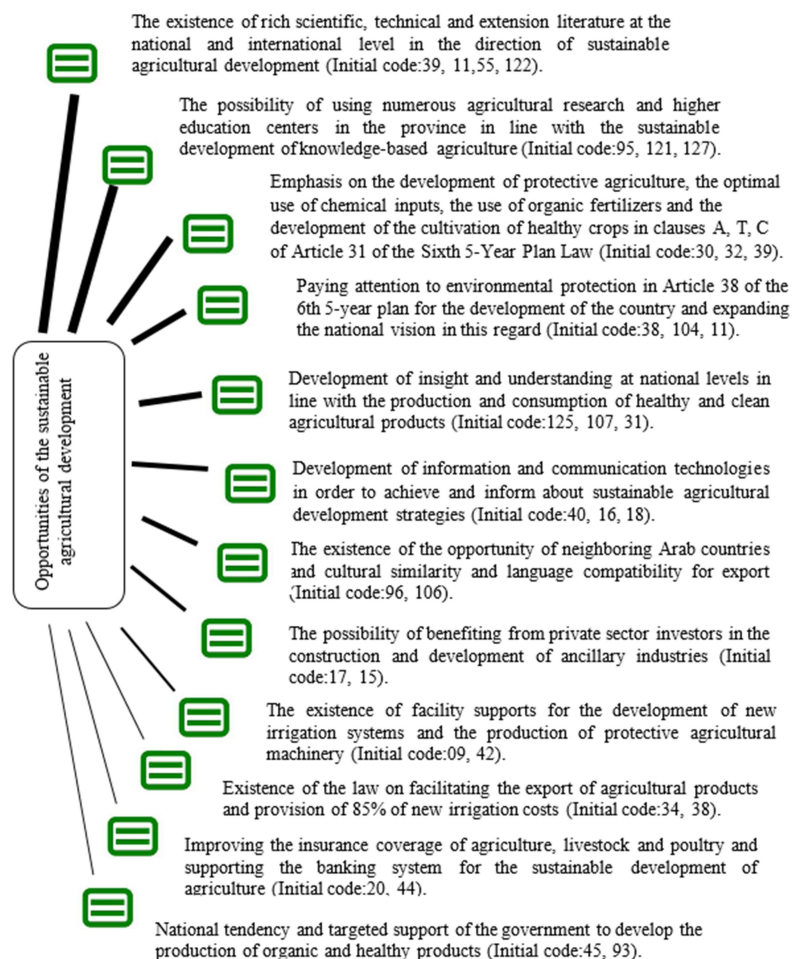
lack of support for sustainability. Moosavi *et al.* (2009) and Jafari Lisar *et al.* (2019) concluded that the product pricing policies were not favorable and led to losses for farmers.

### Important Opportunities

Based on priority, three of the most important opportunities for agricultural sector of the studied region in the field of compliance with the indicators of sustainable agricultural development were as follows (Figure 2):

1) The existence of rich scientific, technical and extension literature at the national and international level in the





**Figure 2.** Opportunities in the agricultural sector of Khuzestan Province in the field of compliance with the indicators of sustainable agricultural development.

direction of sustainable agricultural development. Viana *et al.* (2022) also emphasize the existence of rich literature in the field of sustainability.

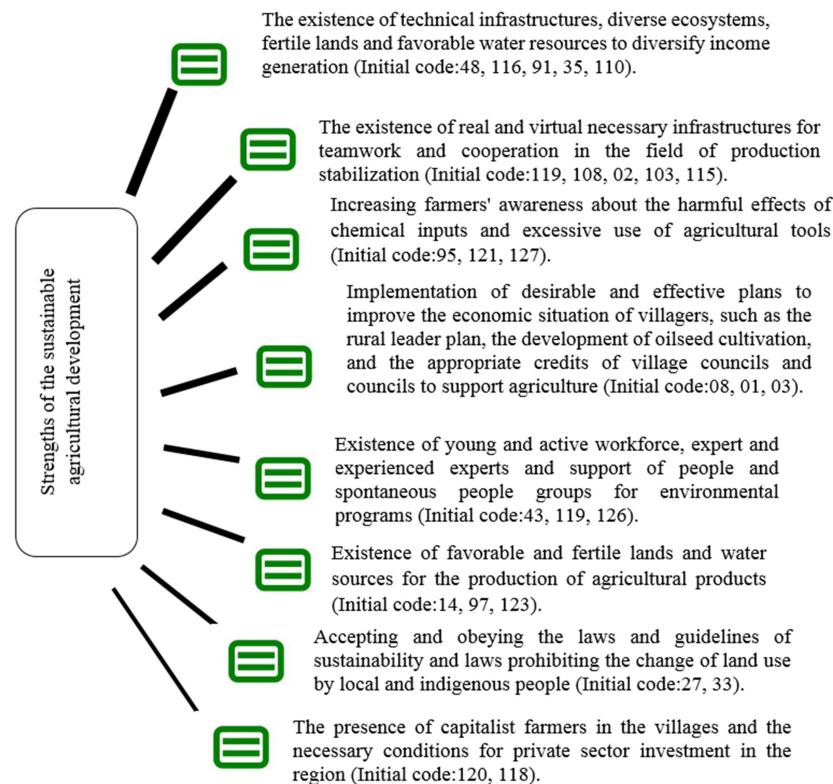
2) The possibility of using numerous agricultural research and higher education centers in the province in line with the sustainable development of knowledge-based agriculture.

3) Emphasis on the development of protective agriculture, the optimal use of chemical inputs, the use of organic fertilizers and the development of the cultivation of healthy crops in clauses A, T, C of Article 31 of the Sixth 5-Year Plan Law. Khorami *et al.* (2022) also achieved similar results in this field.

### Important Strengths

Based on priority, three of the most important strengths in the agricultural sector of the studied region in the field of compliance with the indicators of sustainable agricultural development were as follows (Figure 3):

1) Existence of technical infrastructure, diverse ecosystems, fertile lands and water resources favorable for income generation. This result is consistent with the results of FAO research (2011), which acknowledges that the existence of natural resources and diverse ecosystems has an effective role in



**Figure 3.** Strengths in the agricultural sector of Khuzestan Province in the field of compliance with the indicators of sustainable agricultural development.

the development of income and is a suitable strength for the development of sustainable agriculture.

2) The existence of real and virtual necessary infrastructures for teamwork and cooperation in the field of production stabilization.

3) Increasing farmers' awareness about the harmful effects of chemical inputs and excessive use of agricultural tools. Jacquet *et al.* (2022) also emphasize the reducing pesticide use as a goal shared by several European countries and a major issue in public policies due to the negative impacts of pesticides on the environment and on human health.

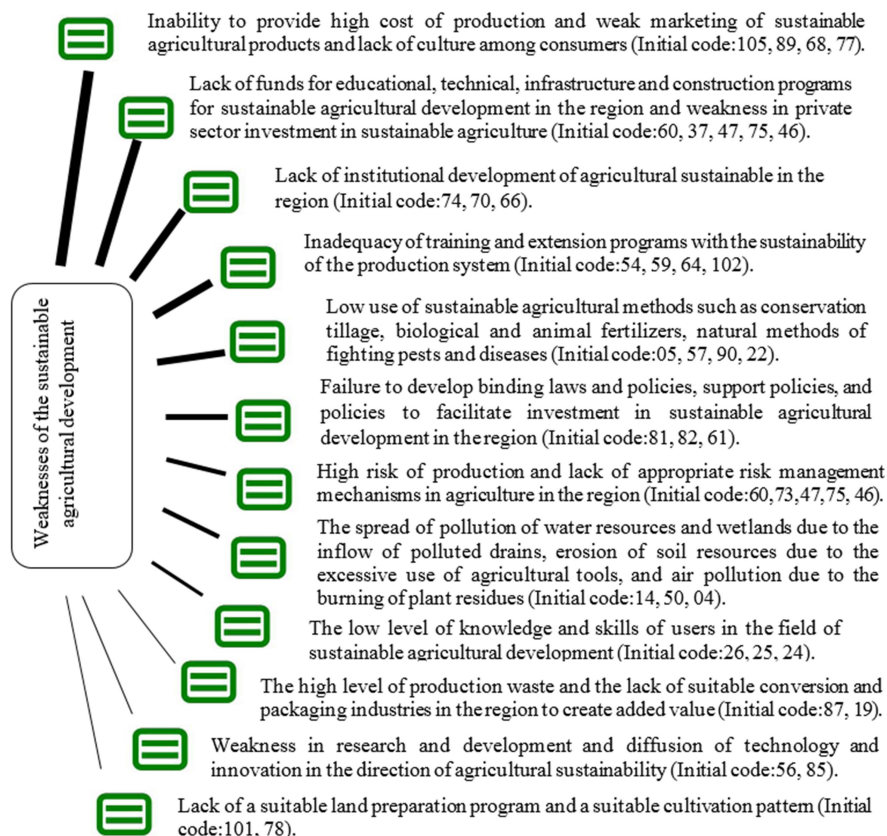
### Important Weaknesses

Based on priority, three of the most important weaknesses to the agricultural

sector of the studied region in the field of compliance with the indicators of sustainable agricultural development were as follows (Figure 4):

1) Inability to provide high cost of production and weak marketing of sustainable agricultural products and lack of appropriate culture. Barbosa Junior *et al.* (2022) also found similar results. They pointed out that sustainable agriculture seems to represent a solution, but, social, economic, and environmental barriers impede the adoption of this practice.

2) Lack of funds for educational, technical, infrastructure and construction programs for sustainable agricultural development in the region and weakness in private sector investment in sustainable agriculture. Namdar and Sadighi (2013) also emphasize the major challenges of rural development in Iran.



**Figure 4.** Weaknesses in the agricultural sector of Khuzestan Province in the field of compliance with the indicators of sustainable agricultural development.

3) Lack of institutional development of agricultural sustainability in the region. The findings of Yazdanpanah *et al.* (2022) confirm our results. Based on the paradigm model, the core category identified in their research was “institutional, structural, and functional weakness” that was found to be related to other categories.

According to the experts in the brainstorming sessions, paying attention to the threats and identifying strategies to avoid them and understanding the weak points and trying to reduce them along with strengthening the strengths and using the opportunities properly, will provide the necessary conditions and background for the development of sustainable agriculture in the region.

## CONCLUSIONS

Based on the qualitative analysis, 127 initial codes with 1785 repetitions with 42 sub-categories in 4 main categories were identified in Khuzestan Province: Strength, Weakness, Threats, and Opportunities. using the strength points, various weaknesses and threats can be overcome. Weaknesses are one of the important challenges of not realizing the sustainable development of agriculture. Despite the extensive strengths in the region, these weaknesses can be overcome by using appropriate strategies. Based on the results, several opportunities and threats were identified. By using strengths and opportunities, we can



overcome weaknesses and threats using the following strategies and recommendations:

- Providing the necessary facilities to farmers to develop production of healthy products.
  - Facilitating investment of the private sector in the production of healthy products by reducing administrative bureaucracy in obtaining a production and processing at the province level.
  - Improving extension methods and using new methods and educational visits.
  - Continuous assessment of educational needs through participatory methods.
  - Evaluating the level of sustainability of the production system and designing educational and extension programs according to it at the village level.
  - Using and strengthening local and indigenous capacities in research and development of sustainable agriculture.
  - Organizing farmers and strengthening cooperatives and agricultural organizations to play a role in the field of agricultural research in sustainability.
  - Implementing producer and consumer awareness programs to control and reduce food and agricultural product waste.
  - Facilitating the use of technical, skill, financial, and credit support for the development of modern irrigation and conservation agriculture in order to reduce production costs at the province level.
  - Accurate planning and implementation of the appropriate annual cropping pattern in the region with regard to the protection of water and soil resources and sustainable agricultural indicators.
  - Implementation of desertification and soil and water erosion reduction projects and green management in the lands at the end of the Karkheh River at the province level.
- Implementation of support, technical and educational programs for the integrated fight against pests and diseases, the use of animal and biological fertilizers, minimum plowing, crop rotation and the appropriate pattern of cultivation at the city level.
  - Support of private sector investors in the construction and development of conversion industries.

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## تحلیل کیفی عوامل موثر بر توسعه پایدار کشاورزی: مطالعه موردی استان خوزستان، ایران

ک. طرفی، ا.ر. عمانی، آ. نوراله نوری وندی، و م. ص. صبوری

### چکیده

هدف از این پژوهش، تحلیل عوامل موثر بر توسعه پایدار کشاورزی در استان خوزستان با روش کیفی است. برای دستیابی به اهداف پژوهش از مصاحبه نیمه ساختاریافته و تکنیک طوفان فکری برای جمع آوری داده ها و از مثلث بندی برای ارزیابی روایی یافته های کیفی استفاده شد. به منظور اجرای روش کیفی از سه نوع کدگذاری باز، محوری و استفاده شد. برای تجزیه و تحلیل داده های جمع آوری شده از نرم افزار MAXqda12 استفاده شد. بر اساس تحلیل کیفی، ۱۲۷ کد اولیه با ۱۷۸۵ تکرار با ۴۲ زیرمجموعه در ۴ دسته اصلی قوت، ضعف، تهدید و فرصت شناسایی شد. با تقویت نقاط قوت و استفاده از فرصت ها می توان نقاط ضعف را کاهش داد و تهدیدات را از بین برد. استفاده از نتایج به دست آمده برای برنامه ریزان، راه را برای توسعه پایدار کشاورزی در استان خوزستان هموار می کند.