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Original Article

An Evaluation of Paddy Field Consolidation Project with a Sustainable Livelihood Approach to Rural Households (Case Study: Choobar Rural District, Shaft County)

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Abstract

Purpose- Among the most important challenges in the agricultural sector are the lack of optimal use of production factors, the multiplicity of parcels, and the dispersion of agricultural lands. Land consolidation is one of the effective solutions which can change the size of fields and organize them to increase production, especially in paddy fields, which facilities agricultural development and ultimately achieves a sustainable livelihood in rural areas. The purpose of this study is to evaluate the success rate of the paddy field consolidation project through the study of a group of farmers who are included in the land consolidation project.

Design/Method/Approach- The population of the study consisted of 285 farmers from 11 villages of Choobar rural district in Shaft County who have been selected by regular sampling method. To collect the data, library and survey methods (observation and questionnaires) have been used. Cronbach's alpha was used to measure the reliability of the research tools, and in the analytical part, a single-sample t-test was used to evaluate the success rate of the project in Choobar rural district; To investigate the relationship between land consolidation project and improvement in economic indicators of rural households, initially, Spearman correlation coefficient was used, then simple regression test and coefficient of determination R2 were used to measure the effectiveness of the project on economic indicators.

Finding- The research findings on the level of economic and social dimensions and the assessment of the success rate of the project in the Choobar rural district showed the project was moderate to highly successful in the study area. The effects of the project in improving the socio-economic indicators of rural households in Choobar rural district are such that the highest correlations were found between the project and economic indicators in the use of machinery, land infrastructure, productivity, household employment, ease of access to machinery and manpower, income, and investment; At the level of social indicators, the highest correlations were respectively found in interpersonal and generalized trust, objective participation, sense of physical security, insurance services, formal participation, conflict reduction, and institutional trust. From farmers' perspective, among the socio-economic indicators, the infrastructure indicator which is created by the government and the use of machinery after the implementation of the project, and the ease of access to machinery and manpower, interpersonal and generalized trust have had the greatest impact on the implementation of the project.

Keywords: Sustainable rural economy, Sustainable livelihood, Land consolidation, Choobar rural district, Shaft county.

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1. Introduction

Land dispersion and its impediments to development that arose from land reform have encouraged experts in fields related to agricultural and rural development after World War II, and more specifically from the 1960s onwards, to focus their theoretical research on the spatial structure and agricultural change, organization of agricultural lands, especially the patterns of family exploitation (peasants), its size, distribution, structure and efficiency (Roknoddin Eftekhari, 2003); particularly the consolidation of agricultural lands. Land consolidation dates back to the 1550s in the Republic of Germany, followed by countries such as Poland, Czechoslovakia, Japan, the Netherlands, and Spain. Today, in different countries agricultural lands are consolidated to increase production, efficiency and improve crop sustainability, as land consolidation is an effective tool in sustainable rural development plans (Sayilan, 2014, as cited in Tajeri Moghaddam et al., 2016). It facilitates making plans for improving the income conditions of the villagers by addressing several key factors and indicators, including economic indicators such as lowering the costs and increasing the job opportunities through more production, non-agricultural activities, increased access to market and credit. In terms of social dimensions, variables such as social interactions of individuals, ownership, literacy, and technical knowledge improve the implementation of the project by creating employment opportunities, higher participation, access to health services, education, etc. (FAO, 2003). Although, inland consolidation, small and fragmented agricultural plots are merged, at the same time the mechanization and promotion of management become possible, due to unresolved acute social problems caused by legal matters of the consolidation project, unfortunately, this important goal has not been achieved. Among the social problems that we face in the implementation of the project is farmers' lack of awareness about this project and its positive effects, and the next problem is the ethnic and tribal conflicts that exist in rural areas (Bouzarjomehri & Anzaei, 2012). Therefore, any policy-making in agriculture without taking into account the role of farmers will not produce the expected results, because the farmers as the final decision-makers to apply new agricultural methods and improve their performance, are facing flows of innovation and acceptance. To empower the audience of development projects, training should be seen as one of the most basic factors in achieving development goals. In Iran, the same as other developing countries, agriculture is one of the most important economic sectors, which has highlighted the issues of sustainable development in the agricultural sector (Ashrafi et al., 2014). In recent decades, one of the most important issues in the agricultural sector of Iran has been the dispersion and fragmentation of land parcels. In addition to the dispersion of the Iranian villages, agricultural lands are divided into small and distant parts. Each farmer in Iran on average has seven land parcels that sometimes the distance between two land parcels of a farmer reaches several kilometers (Tajeri Moghaddam et al., 2016). Therefore, land consolidation has often meant removing the boundaries between agricultural lands, grouping fragmented parcels, and redistributing lands by increasing the size of the parcels while respecting the rights of the owners (Rezaie Moghadam et al., 2014). Therefore, in the long-term Development Plan of Iran (Development Horizon 1404), the following goals are predicted: higher productivity of production factors, reduction of production costs and waste of resources, higher efficiency (manpower and land), increased use of machinery, greater efficiency in water consumption, easier control of pests/diseases, rational use of labor (to save time by not going to distant parcels) and the implementation of suitable cultivation patterns for land consolidation projects.

In Guilan province, land consolidation projects started in 1992 intending to increase rice yield, mechanization of cultivation, the possibility of a second crop, improvement, and protection of soil, farm management, promotion of the socio-economic status of rural communities, and higher productivity. In total, out of 238000 hectares of paddy fields in the province, 180000 hectares can be consolidated. So far, the project has been implemented in 68,000 hectares of paddy fields, and in a period of three to four years, 55,000 hectares of other fields will be consolidated. Up to now, for more than 76,000 hectares of agricultural lands in the province, this project has been stabilized and provided, which has been effective in mechanization, increasing the level of production, reducing the costs, and most importantly, the second crop after the rice harvest (Allahyaria et al., 2018). The land consolidation project in paddy fields of Shaft County almost started as other consolidation projects started in the province. Nevertheless, in Choobar rural district, the largest rural district in the County, the project has gained momentum since 2011. Therefore, given the importance of land consolidation projects in improving the status of rural households, "sustainable

rural livelihood" is the approach of this study, which is one of the approaches that try to address the poverty and vulnerability of households, focusing on man and his activities; it is mainly a reaction to create attractiveness in rural areas that arise through income generation in livestock or agricultural activities (Okali, 2001, as cited in Asghari Lafmejani et al., 2016). In fact, in this approach, the real help for the rural poor is to support them in their way of life. Therefore, to reduce the immediate livelihood problems in rural areas, some basic measures should be taken to develop new methods for organizing activities, job diversity, and resource utilization with a forward-looking approach, as today's rural communities are mainly characterized by features such as information poverty, low skills, weak entrepreneurial culture and ethnic-tribal inequalities that have a significant impact on their livelihood instability. Therefore, the major strategic challenges of these communities in achieving sustainable rural livelihoods include: diversifying livelihoods, establishing an appropriate blend of inter-organizational livelihood in rural areas, reducing the number of livelihood resources, adapting the way of working with environmental potentials, and analyzing vulnerability levels in the environment. Addressing such challenges should start from within the local community only with a holistic view of development, especially rural development, using a special problem-solving methodology to achieve the development of sustainable rural livelihoods through empowerment, capacity building in the rural community for rural projecting and management; nevertheless, external factors may play a role as facilitators. Therefore, given the importance of this issue, this study aims to answer the basic question: Given the variables and indicators obtained from the study, how successful has been the paddy field consolidation project in Choobar rural district, Shaft County?

2. Research Theoretical Literature

A sustainable rural economy depends on several factors in social, economic, and environmental dimensions, and achieving each of them requires attention to all other aspects. Successful rural development requires the provision of agricultural infrastructure and facilities to utilize agricultural land at its most appropriate scale; Achieving this goal, requires up-to-date training, maintaining the integrity of the environmental system in the long run, and achieving sustainable income and development in this area (Moradi Masihi & Talebi, 2017). It is important to take into account a range of activities, both in terms of access to assets and how to use them. As long as the life of rural households is facing the challenge of poverty, in the absence of minimum living standards, it will overshadow all aspects of their lives. Extensive problems occur on a large scale, including economic, political, social, and psychological issues. Therefore, attempts should be made to establish a stable livelihood at the rural household level (Nowrouzi & Hayati, 2015). Having this in mind, in rural development projects, resources should be used in a system to promote sustainable agriculture rather than destroy natural resources and existing infrastructure. A system in which by proper management of natural resources, human food needs can be met and the quality of the environment is maintained and the destruction of natural resources can be prevented (Pishro & Azizi, 2009). Therefore, soil protection, irrigation network improvement, land consolidation, unification of land quality, redistribution of agricultural lands within an area, consolidation and redistribution of land parcels within an area, land rearrangement, and land preparation all refer to a process called land consolidation (Roknoddin Eftekhari, 1995), are known as measures to reduce poverty, increase income, and improve the economic well-being of villagers. The main purpose of land consolidation is to improve the productivity of agricultural land by merging land parcels into the smallest possible number, while providing roads, preserving the environment, and improving rural livelihoods (MSLC, 2002). On the other hand, land consolidation by facilitating rural development makes way for optimal use of water, soil, and human resources in rural areas, and it will have undeniable effects on creating a proper economic structure and a favorable trend in national development, as it facilitates proper land planning (Momeni et al., 2017). In other words, this measure can be used to reduce the adverse economic effects of fragmentation and dispersion of agricultural land. This situation, which is the consequence of family exploitation and inheritance law in Iran, is something that has challenged the sustainable economy of many rural areas of Iran and has caused regional inequalities (figure 1).

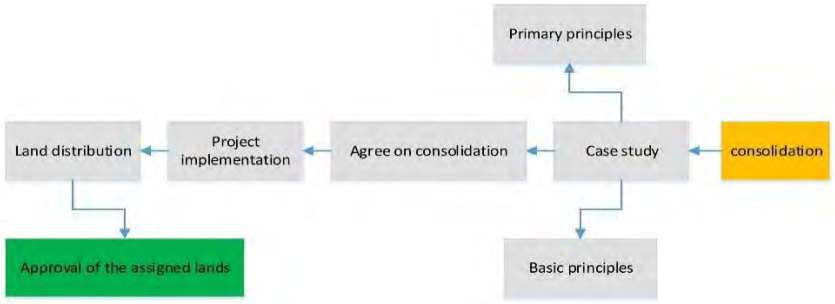

Figure 1. Outline of the executive and operational processes of land consolidation

Iran has one of the most complex systems of agricultural exploitation, and naturally, this complexity requires appropriate and comprehensive approaches to the management of agricultural labor and agricultural development. We cannot expect the realization of agricultural development with a reductionist approach. We need an approach that not also improves agricultural growth and the living conditions of the general farmers, but also improves economic justice (Varmaziari et al., 2013). Therefore, some institutional and participatory infrastructure is essential to achieve the goals of development projects in rural areas. Studies have found that the development of new production technologies and training the agricultural stakeholders play an important role in achieving agricultural and rural development, which is fulfilled through the institutions of agricultural promotion and training. Promoting and training to adopt technologies in the agricultural sector and the successful use of technologies in agricultural development projects, requires that people be persuaded into acceptance or non-acceptance of innovations based on the information obtained and comparing the proposed technologies with the existing methods. In such circumstances, the promotion and training institutions play an important role as they provide the information and training required for these two stages to the target groups. After gaining sufficient knowledge and information, people first think and argue about the proposed technologies, judge the proposed arguments, and finally make decisions (Ismaili Dastjerdipour et al., 2014). Currently, among the important issues in changing the patterns of agriculture and keeping pace with global changes in line with agricultural sustainability, are the farmers' lack of awareness of new farming methods and lack of risk-taking, resistance to changes, and low participation in national and regional projects. However, it has been proven that efficient institutions reduce the costs of inadequate information and production, and encourage the formation of social capital and other participatory facilities. In this framework, the social approach emphasizes the role of the voluntary and grassroots sector, local development, and community-based organizations. Community-based development is the process by which local community groups take the lead, organize, and act to achieve common interests and goals, including social welfare, problem-solving, and overcoming poverty. This process plays a key role in improving the quality of life and social variables especially social capital, as no development can be formed without local people's participation, satisfaction, and social trust. The study of issues of national development programs in Iran also confirms the same issue. Social capital, acts like an adhesive and creates solidarity among individuals in a society and becomes the source of social interactions in various areas of life, including the public sphere, from the local (micro) level to the (macro) level of government. This capital makes the society more powerful in dealing with problems and its reduction leads to the emergence of acute social problems (Hasanzadeh, 2008). Studies show that in Iran, social capital within the rural group is at a desirable level, while social capital outside the group is not in a very good condition, it includes social networks, interactions with external actors and institutions, institutional trust, etc. Attention to this issue and its importance becomes clear when we realize that implementation of any project in the villages without these networks will not be possible, as the communications of the host community with the executive apparatus and planning institutions and trust in them, all lay the ground for the participation of the villagers in the implementation of such projects and represents the social capital outside the groups.

On the other hand, simply emphasizing the importance of participation in the rural development process is not a sufficient reason for the participation of villagers, because maximum participation of rural people in the implementation of development plans requires recognizing the capacities and capabilities as well as recognizing the weaknesses in rural areas, and this way

makes ground for their maximum participation by increasing the current capacities (Aref & Redzuan, 2009, as cited in Heidari Sareban & Majnuni, 2016). In other words, at the community level, the management structure with interactive features should be further supported, i.e., by creating responsibility in individuals, we can increase their level of participation (Johnson & Daley, 2004). Although technical capacities are one of the key aspects in being able to adapt to the environment in carrying out agricultural development projects, the existence of innovations along with the villagers' access to them and the amount of advice received regarding the use of innovations (inland consolidation projects) is also one of the important elements; and in addition to technological progress and economic development, the existing social capital and government structure should also be taken into account (Brooks and Adgar, 2005).

Studies have found that to achieve agricultural development, we need to strengthen and empower rural farmers, as it paves the way for optimal and balanced use of basic resources, higher productivity and production, higher income, and improved quality of rural life, especially among low-income rural people. Empowerment and capacity building can enhance the existing potentials in rural settlements and help to achieve development and improve the socio-economic performance of villagers. Upgrading and improving empowerment indicators to achieve their social development as one of the effective strategies is necessary and attracts the attention of policymakers and rural development planners, and provides the necessary infrastructure for rural development. Therefore, the Iranian agricultural community which has a very low literacy level and is mainly based on indigenous knowledge rather than a formal one can play an effective role in implementing the policies and sustainable agricultural development projects, if the necessary conditions are provided through capacity building and empowerment.

In general, in the paddy field consolidation project, which is implemented as a fundamental policy solution to achieve sustainable environmental and economic development in rural areas, it is possible to encourage the participation of stakeholders by taking the views of villagers, awareness-raising, training, the use of modern technologies, and establishing cooperatives, etc., which pave the way for increasing the socio-cultural and livelihood capacities up to a favorable level which will be significantly effective in advancing the goals of sustainable development in rural areas. Accordingly, the conceptual model of the research is as follows (figure 2):

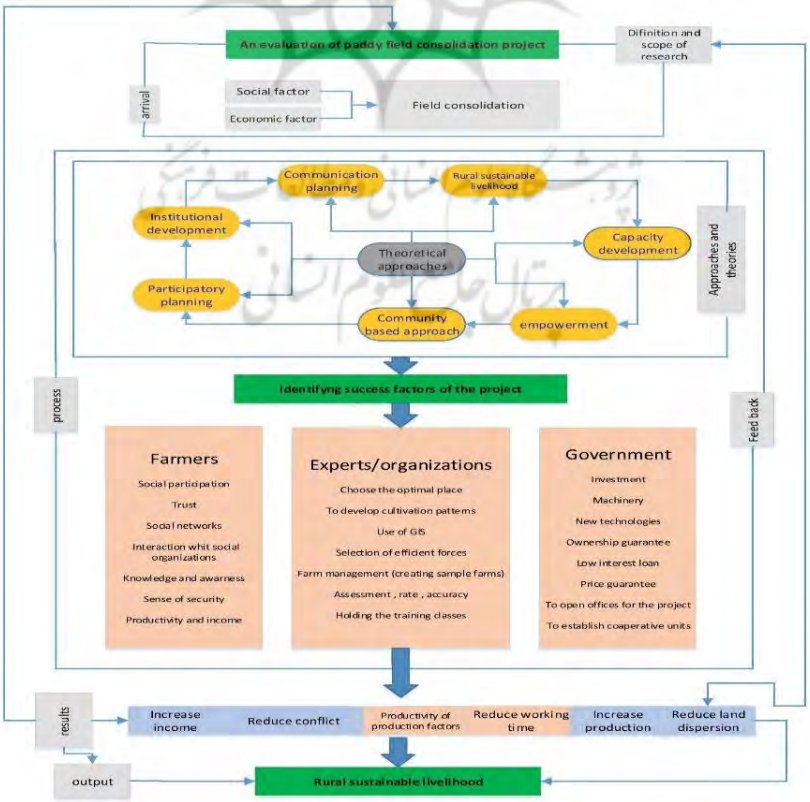

Figure 2. Conceptual model of the research

Table 1 shows summarily the implementation process, goals and obstacles, and the effects and consequences in some of the countries that have implemented the consolidation projects.

Table 1. Global experiences in agricultural land consolidation

Countries	Objectives	obstacles	Execution methods		Success factors	Results and Consequences
Germany	To eliminate destructive effects of land fragmentation, to improve production process, to improve working conditions of the farmers	Land fragmentation, traditional way of using land (traditional beliefs), conventional rules, common laws limiting ownership	Agents Non-spontaneous	Dimensions Land consolidation	Taking into account the factors of location, shape and size of land parcels, use of the GPS technology	Minimized effects of dispersion, improvement in the structure of agriculture, management of water and protection of natural resources
Japan	To increase the productivity of the agricultural sector, to increase the gross agricultural production, to raise the production level of certain products and improve the structure of agricultural sector	Small agricultural exploitation, low concentration of agricultural activities compared to other developed countries, low share of leased land in total agricultural land	Non-spontaneous	Land consolidation	Establishment of regional management cooperatives, building the trust of the villagers, support of the central government, granting financial credits	Improved utilization of resources, reduced production costs, higher profitability of products, development of agriculture
The execution method was spontaneous at first and by governments; then they got successful by establishing agricultural cooperatives and using local capacities and greater empowerment of farmers.						
Netherlands	To rearrange and modernize the agricultural operations, to improve infrastructure and manage water and soil	Low level of mechanization, differences and conflicts between farmers, lack of mutual trust between farmers and the government, farmers' lack of proper understanding of the project	Voluntarily	Incomplete (limited delimitation	Recognition of rights related to land, detailed preliminary studies, awareness of farmers, mechanisms for the resolution of the disputes between farmers	Improved public space of the villages, making the lands economical, improved land management
Serbia	To improve people's living conditions ,to increase the yield of agricultural products, to create large farms	Lack of laws to prosecute property violations, large dispersion of land parcels	Spontaneous	Land consolidation	Guarantee of land repayment to the original owners, active public participation, government financial credits	Rural revitalization, economic sustainability, improved agricultural production performance

Countries	Objectives	obstacles	Execution methods		Success factors	Results and Consequences
This project was initially unsuccessful in this country, but by applying and creating repayment laws and guaranteeing lands to their original owners, the project was employed seriously and successfully.						
Turkey	To prevent the exploitation of agricultural lands for purposes other than cultivation, to organize activities of rural settlements, to protect agricultural lands, to raise the level of production	Fragmentation of land parcels, cumbersome laws on inheritance, negative views of older farmers about consolidation project	Agents	Dimensions	To pass an environmental protection law, to allocate credits for the expansion of land optimization by the Labor Bank, revision about organizations implementing the project, public awareness	Land consolidation, protection of water and soil resources, higher production efficiency, farm management and optimization of agricultural structure
			Non-spontaneous	Land consolidation		
The implementation of the project was in both methods (voluntary and non-voluntary), but in the following stages, the focus is on the non-spontaneous method that has been conducted by the government						
China	To preserve agricultural land, increase agricultural production, reduce the loss of agricultural land, increase surface area and improve the productivity of agriculture	Conflicts between central and local governments, lack of effective cooperation between land consolidation policies and other socio-economic programs, lack of long-term investment	Semi-spontaneous	Full	Development of local projects, bottom-up operational strategy, determination of the annual project goals, considering the land slope	Agricultural production efficiency, food security, agricultural development
In this project, small parcels are joined together and turned into large pieces; the construction of irrigation systems, drainage, roads were government-oriented and public participation was welcomed in the implementation of the project.						
Iran	Production efficiency, cost reduction, higher efficiency, easy control of pests and diseases, rational use of labor	Land reform, socio-economic and climatic conditions of the regions, the inheritance law, differences in land quality	Semi-spontaneous	Incomplete (delimitation)	Awareness raising, enactment of laws to prevent land fragmentation, to encourage farmers, to review executive policies	Reconstruction of irrigation networks, reconstruction and improvement of rural settlements, increased production and productivity, reconstruction of production
The implementation of the project in most areas has led to higher productivity of production factors. The project was conducted in a semi-spontaneous method, in which the government has granted some financial facilities. The villagers can actively participate and help advance this project						

Ghaffari et al. (2016) conducted in a descriptive-analytical method, found a significant difference in the period before and after the implementation of the project in the number of land parcels per farmer, area under cultivation, wheat and barley yields, area covered by pressurized irrigation, cost of using machinery for plowing, plotting, demarcation, dredging, and land preparation, the use of machines for fertilizing and sowing, harvesting and transporting the crops, the use of pesticides, labor, as well as the rate of water consumption that in general have made significant changes in the productivity of production factors in the study area.

Yasouri et al. (2012) used inductive method and survey to directly collect information from target groups (farmers who are heads of households). The population of this study consisted of 410 farmers whose lands have been consolidated in 1997-2005. The findings showed that the implementation of land consolidation project has produced positive social effects by changing the structure of agricultural land, increasing the land area and the use of new irrigation methods. The social effects included less disputes over water distribution and boundaries between parcels, more social participation and saving time. However, a large part of the positive effects of the project were economic such as reduced number of parcels, larger areas for farming, having enough water for irrigation, using agricultural machinery and equipment, easier use of pesticides, etc., which have increased the production of crops and the efficiency of various crops per unit area.

Bouzarjomehri and Anzaei (2012) conducted a study using a descriptive-analytical and survey method, in their evaluation of the views of farmers and experts on the successful implementation of the project showed that both farmers and experts with a correlation coefficient of 0.641 have evaluated the project successful in technological performance. Based on the test results, all technology variables have been evaluated good from the perspective of both farmers and experts. On the other hand, it was found that the presence of effective criteria for achieving the quantitative and qualitative goals of the project to equip and renovate paddy fields in the current infrastructure in Mazandaran province is very low.

Allahyaria et al. (2018) using 385 questionnaires, and multi-stage cluster sampling method from four districts of Masal County found that most of the farmers in these areas are smallholder farmers who have three land parcels and a significant proportion (26.5%) have more than 5 parcels who are the elderly. Findings showed that four important factors in terms of variance were: economic productivity (16.93), physical working conditions (16.73), technical efficiency related to better use of resources (12.34), and land productivity (4.09), all of which are effective in farmers' satisfaction. Finally, it was found that the success rate of the project mainly emphasizes the satisfaction and acceptance of the farmers.

Lisec et al. (2012) introduced the benefits of land consolidation including: better land use, improved roads and drainage networks, landscaping, environmental management, conservation projects and other functions that can be implemented in such projects. The authors have compared the organizational framework of land consolidation between Slovenia and Norway. In Norway, there has been more or less continuous legal and cultural development of land ownership institutions. In Norway, the Court of Land Consolidation also acts as a coordinator of judicial decisions, but in Slovenia various political and economic regulations over the past two centuries have left Slovenia with difficulties in changing the development of land management and ownership institutions. The current system of land consolidation in Slovenia is criticized for the lack of a systematic organization of public services, and in Slovenia the overlap in decision-makings of organizations is also seen a weakness.

Vitikainen (2004) discussed the similarities and differences in land consolidation methods in different European countries. He argued that there are differences in goals and methods of land consolidation in each country, which are due to the historical backgrounds, culture, traditions and laws of each country. Land consolidation in all countries is legalized and its laws were amended in the 1970s and 1980s due to modern agriculture and socio-political demands, and the laws are seen as a multifaceted tool for rural development.

Zaheer (1975) showed that land consolidation in large parts of India, including more than 80,000 villages, has had benefits in various social, cultural, economic and ecological dimensions, such as improved water and soil management, time savings, lower production costs, higher revenue, use of new inputs and machinery, etc. Land consolidation transforms rural life and ultimately paves the way to achieve the rural development goals.

3. Research Methodology

This research is an applied one, conducted in a descriptive and analytical method. The data was collected by document analysis and survey (observation and questionnaire). The study area includes 11 villages out of a total of 35 villages in Choobar rural district, in which the land consolidation project has been carried out by the Water and Soil Management of Jihad Agricultural Organization in Shaft County. The 1137 households in Choobar rural district that have been included in the land consolidation project, and 285 farmers were selected by Morgan method.

The content validity of the questionnaire was confirmed after consulting experts and professors of the University of Guilan, including four faculty members of the Department of Geography and four faculty members of the Department of Agricultural Economics; Its reliability was assessed using Cronbach's alpha coefficient (0.89) which confirms the reliability of the questionnaire (table 2 & 3).

Table 2. Cronbach's alpha coefficient of the components and indicators in the questionnaire

Components	Alpha coefficients	Indicators	Alpha coefficients
Farm management and productivity	0.71	Conditions of the lands	0.74
		Productivity and employment of the households	0.78
Government	0.70	Support and facilities	0.71
		Infrastructure	0.73
Income and investment	0.70	Income	0.72
		Investment	0.70
Machinery	0.79	Use of machinery	0.72
		Ease of access to machinery and manpower	0.70
Social participation	0.84	Objective participation	0.74
		Formal participation	0.76
Social Networks	0.70	Intra-group and inter-group relations	0.76
		Extra-group relations	0.76
Social organizations	0.72	Private organizations and institutions	0.70
		Formal and governmental organizations and institutions	0.72
Trust	0.74	Interpersonal and generalized trust	0.74
		Institutional trust	0.70
knowledge and awareness	0.71	Individual awareness	0.75
		To use others' experiences	0.71
		Education (formal knowledge)	0.75
Sense of security	0.71	Insurance services	0.74
		Physical	0.71
		Conflicts and quarrels	0.80

The villages of the study included 11 villages (Tani Mahalla, Sayqalan, Kuchak Kamsar, Lifko Khandan, Lifko, Kazemabad, Mirsara, Bijarsar, Choobtarashan, Khoramabad, Shadneshin) in which the land consolidation project was implemented; they are shown in the maps below (figure 3 & 4).

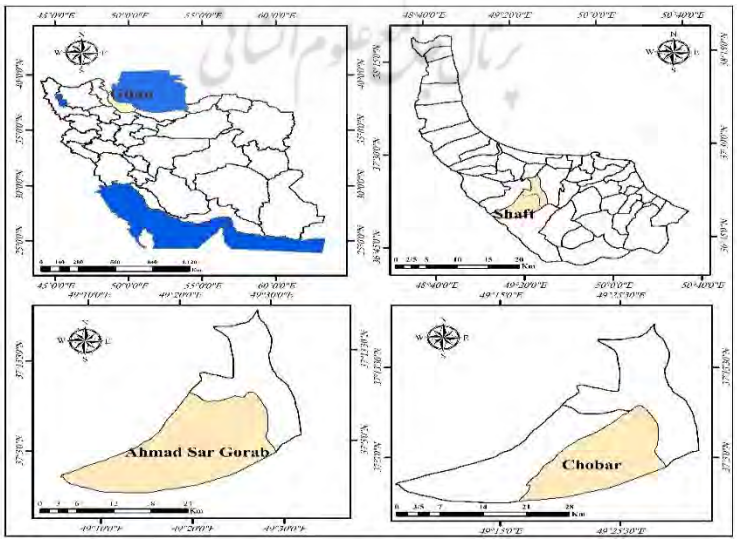

Figure 3. The situation of the study area in the administrative divisions

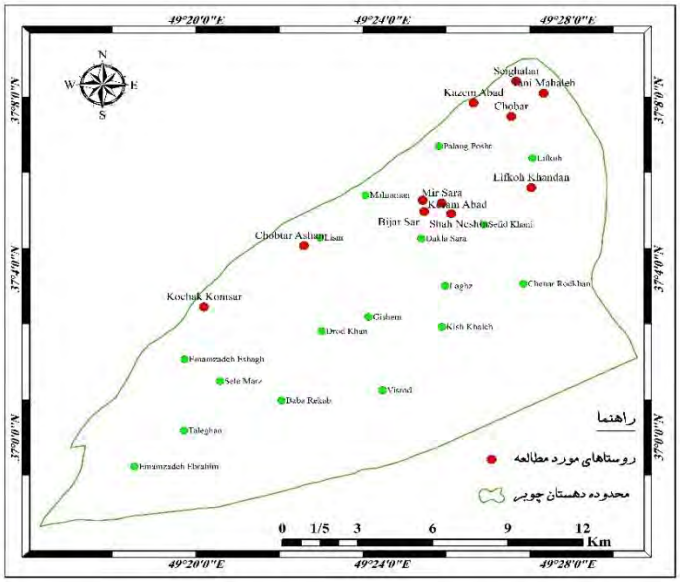

Figure 4. Location of the study villages in Choobar rural district

Table 3. Dimensions, components, indicators and variables affecting the success of the paddy field consolidation project

Dimensions	Components	Indicators	Variables
Economic	Farm management and productivity	Conditions of the lands	Land quality (production capacity), area of plots, distance between plots, demarcation of plots, ease of access (movement) to agricultural plots
		Productivity and employment of the households	Crop yield, reducing the need for labor, reducing unemployment, family labor, diversity of activities and production, new techniques (skills development) of human resources
	Government	Support and facilities	Credit and financial facilities, product purchase guarantee, price guarantee, product marketing, insurance services, farm input supply
		Infrastructure	To open offices for the project, to construct irrigation canals, to build roads between farms, to establish cooperative units, to develop cultivation patterns
	Income and investment	Income	Farmers' income level, household income level, income from diversity of activities and production, ancillary income (from renting machines, equipment, etc.), increase in income from the second crop
		Investment	Investment in banks and financial institutions, farmers' capital to purchase land and property, investment to increase crop yield, investment in development and purchase of agricultural equipment
	Machinery	Use of machinery	Use of modern machinery, machine efficiency, proper equipment maintenance, equipment costs
		Ease of access to machinery and manpower	Access to machines, easy use of machines, employment of manpower, saving working time
social	Social participation	Objective participation	Having a say in the project, the elders advise, consulting with successful farmers, accompanying the farmer's neighbors (adjacent farmers), public participation in agricultural development projects
		Formal participation	Partnership with local managers (Dehyars and Rural Councils), partnership with Agricultural Jihad, cooperation with agricultural promoters
	Social Networks	Intra-group and inter-group relations	Relations with neighboring farmers, relations between farmers, relations with local trustees, relations with rural managers (Dehyars and Rural Councils)

Dimensions	Components	Indicators	Variables
		Extra-group relations	Communication with executors of the project, relations with non-governmental organizations (such as Farmer's House, Research and Development Association, etc.), communication with production cooperatives, communication with agricultural promoters
	Social organizations	Private organizations and institutions	Satisfaction with local organizations, support of the NGO (e.g.: Farmer's House, Research and Development Association), performance of agricultural unions
		Formal and governmental organizations and institutions	Satisfaction with Agricultural Jihad, satisfaction with Keshavarzi Bank, satisfaction with insurance companies, satisfaction with local managers (Dehyars and Rural Councils)
	Trust	Interpersonal and generalized trust	Trust in neighboring farmers, trust between farmers, trust in elders, trust in the effectiveness of rural projects, trust in improving livelihoods as a result of the project, trust in technical experts of the project, trust in agricultural promoters, trust in executors of the project
		Institutional trust	Trust in the government, trust in local organizations (such as credit and savings), trust in Agricultural Jihad, trust in local managers (Dehyars and Rural Councils), trust in NGOs (Farmer's House, Research and Development Association, etc.,), Trust in Rural Dispute Resolution Councils
	knowledge and awareness	Individual awareness	Awareness of the possible results of the project, to know the responsible authorities, to know the rules of the project, the number of studies conducted for agricultural projects
		To use others' experiences	Talking to the elders, agreeing with other farmers, consulting with the experts of the Agricultural Jihad, to consult with neighboring farmers, to visit model farms, talking to farmers successful in the project
		Education (formal knowledge)	The amount of participation in training classes, the amount of training and skill courses, the amount of access to agricultural publications, the amount of role and performance of agricultural promoters, watching educational videos
	Sense of security	Individual	Individual ownership, to ensure the cultivation of the desired crops, to ensure a proper business environment, no reduction in the value of lands
		Insurance services	How to organize one's insurance, land insurance services before the implementation of the project, land insurance services after the implementation of the project, free insurance consultation
		Physical	How to implement the project, reduced water loss (by drainage and canals), optimal land design, equal distribution of land, optimal access to land
		Conflicts and quarrels	Farmers' conflict over land division, conflict with experts of the project, disagreement with executors of the project, dispute over how to implement the project

(Mahdavi et al., 2017; Hadizadeh Bazaz & Bouzarjomehri, 2017; Haghighat et al., 2015; Varmaziari et al., 2013; Lowe et al., 2005; Brooks & Adgar, 2005)

4. Research Findings

4.1. Individual characteristics

Of the total number of farmers, 256 or 89.8% are men and 29 or 10.2% are women. Regarding the age characteristics of the total sample size, 34% (97 people) of the respondents in the 53-59 age group had the highest frequency and only 4.9% (14 people) of them were in the 30-37 age group**.** Besides, out of the total sample, 46.3% (132 people) were illiterate which has the highest frequency in the study area; Then, 26% (74 people) with primary education have the highest number of respondents (table 4).

Table 4. Gender and age characteristics of the sample population

Description	Class	Frequency	Percent	Description	Class	Frequency	Percent
Gender	Male	256	89.8		illiterate	132	46.3

Description	Class	Frequency	Percent	Description	Class	Frequency	Percent
	Female	29	10.2	Literacy and education	Primary education	74	26
	. Sum	285	100		Secondary education	49	17.2
Age	30-37	14	4.9		High school diploma	23	8.1
	38-45	49	17.2		Associate Degree	4	1.4
	46-52	87	30.5		BA/BSc	3	1.1
	53-59	97	34		MA/MSc	-	-
	60+	38	13.3		P.H.D	-	-
	Sum	285	100		Sum	285	100

Paddy field consolidation in of Shaft County was implemented in 2014 by Jihad Agriculture Organization to consolidate the agricultural lands of the villagers in the region. Out of a total of 12,317 hectares of lands in the County, 5,500 hectares were included in the project. In Choobar rural district, out of 35 villages, 11 villages of Tani Mahalla, Sayqalan, Kuchak Kamsar, Lifko Khandan, Lifko, Kazemabad, Mirsara, Bijarsar, Choobtarashan, Khoramabad, Shadneshin were included which had 1137 farmers and 490 hectares of their lands were included in the project. The project was implemented in 425 hectares of lands whose villages are selected as the villages of the study. Among these villages, the small villages of Kamsar and Tani Mahalleh had the highest rate of inclusion (89.2 and 88%) respectively, and Khorramabad village had the lowest rate of inclusion (77.7%) compared to other villages (tables 5 & 6).

Table 5. Number of farmers, agricultural lands, lands consolidated until 2017

Description	Number of farmers	Agricultural land (hectares)	Land consolidated (hectares)
Shaft County	10275	12317	5500
Ahmadsargourab	5281	6375	921
Choobar District	1855	2755	
The study villages	1137	598	

Table 6. Farmers subject to land consolidation project by cultivation area in the study villages

Villages	Number of farmers	Land cultivated (hectares)		
		Total	Subject to the project	Percent
Tani Mahale	80	42	37	88
Seyghalan	187	62	55	88.7
Kouchak Komsar	47	28	25	89.2
Lifkukhandan	88	32	26	81.2
Lifkhouh	148	96	85	88.5
Kazem Abad	108	54	48	88.8
Mirsara	145	. 70	60	84.5
Bijarsar	81	40	35	83.3
Chobtarashan	135	20	17	85
Khoram Abad	66	18	15	77.7
Shadneshin	52	28	22	78.5

4.2. Aagricultural lands & mechanization

The area of agricultural lands of the villages in 2004 was 660 hectares, which has been reduced to 630 hectares in 2014, and 598 hectares in 2017. The reduction of land in this area is due to the constructions (change in land-use) that have taken the lands out of agricultural use. Besides, due to the implementation of the land consolidation project, some roads, canals and drainage were built which reduced the agricultural land in this area. Among

the study villages, Kazemabad and Choobtarashan have had a positive coefficient in recent years due to the development of barren lands for agricultural purposes; therefore, the area of agricultural land in these villages has increased (table 7).

Table 7. Area of agricultural land (hectares) in the study villages in 2004-2017

Villages	Area			Percentage of changes	
	2004	2014	2017	2004-2014 (Before the project)	2014-2017 (After the project)
Tani Mahale	56	53	50	-5.36	-5.66
Seyghalan	85	78	71	-8.24	-8.97
Kouchak Komsar	40	37	34	-7.50	-8.11
Lifkukhandan	45	42	39	-6.67	-7.14
Lifkhouh	137	128	118	-6.57	-7.81
Kazem Abad	55	57	60	3.64	5.26
Mirsara	86	83	80	-3.49	-3.61
Bijarsar	61	57	53	-6.56	-7.2
Chobtarashan	32	35	38	9.38	8.57
Khoram Abad	23	22	20	-4.35	-9.09
Shadneshin	40	38	35	-5	-7.89
All of the study villages	660	630	598	-3.52	-5.8
Choobar District	3091	2976	2755	-3.72	-7.43

The coefficient of changes in cultivated lands in Choobar rural district in 2004-2014 was -4.4% and this figure has decreased to -8.06.06 in 2014-2017. In Shaft County, this figure has changed from -4.97 to -6.01. This increase in the negative coefficient indicates a decrease in the area under cultivation in this area. Among the studied villages, in the villages of Choobtarashan and Kazemabad in recent decades, due to the development of barren lands for agriculture, the area under cultivation has increased in these villages; however, other villages are experiencing a negative coefficient (table 8).

Table 8. Area of agricultural lands by agricultural and horticultural lands (hectares) in 2004-2017

Source: Shaft Jihad-e Agriculture Organization, 2017

Villages	2004				2017				Percentage of changes	
	agricultural		horticultural		agricultural		horticultural			
	Area	Percent	Area	Percent	Area	Percent	Area	Percent	2004-2014 (Before the project)	2014-2017 (After the project)
Tani Mahale	46	95.8	2	4.2	42	93.3	3	6.7	-4	-6.25
Seyghalan	69	95.8	3	4.2	62	93.9	4	6.1	-7.69	-8.33
Kouchak Komsar	32	94.1	2	5.9	28	90.3	3	9.7	-5.56	-8.82
Lifkukhandan	33	94.2	2	5.8	32	91.5	3	. 9.5	-5	-7.89
Lifkhouh	107	93.9	7	6.1	96	91.4	9	9.6	-7.32	-7.89
Kazem Abad	52	96.3	2	3.7	54	94.7	3	5.3	3.85	5.56
Mirsara	72	93.5	5	6.5	70	94.6	4	5.4	-3.75	-3.90
Bijarsar	44	81.5	10	19.5	40	78.4	11	21.6	-5.26	-5.56
Chobtarashan	20	64.5	11	35.5	20	60.6	12	39.4	-6.90	-6.45
Khoram Abad	18	90	2	10	18	94.7	1	5.3	-4.76	-5
Shadneshin	31	88.6	4	11.4	28	87.5	2	12.5	-7.89	-8.57
Choobar District	955	42.8	1274	57.2	878	42.5	1187	57.5	-4.40	-8.06
Shaft County	6123	67.4	2964	32.6	5455	65.5	2875	34.5	-4.97	-6.01

In the study area, thanks to changes in approaches to agriculture and increasing use of agricultural equipment and tools, the mechanization has led to growth in this index, as the mean mechanization coefficient in Choobar rural district has increased from 0.423 in 2014 to 0.457 in 2017. The highest mechanization coefficient belongs to village of Bijarsar (0.149) and the lowest coefficient belongs to Khorramabad village with a coefficient of 0.087 (table 9).

Table 9. Mechanization coefficients in the study villages, 2014-2017

Villages	2014				2017				Percentage of changes (2014-2017)
	Cultivated lands (hectares)	Machinery	Total horse Power (HP)	Mechanization coefficients	Cultivated lands (m^2)	Machinery	Total horse Power (HP)	Mechanization coefficients	
Tani Mahale	48	45	784	0.163	45	48	805	0.177	8.36
Seyghalan	72	65	818	0.114	66	78	1045	0.123	8.26
Kouchak Komsar	34	20	418	0.123	31	28	432	0.134	8.99
Lifkukhandan	38	32	519	0.137	35	40	568	0.143	4.70
Lifkhouh	114	115	1289	0.113	105	125	1480	0.121	7.01
Kazem Abad	54	38	629	0.116	57	46	700	0.123	5.43
Mirsara	77	70	900	0.128	74	77	1023	0.138	7.74
Bijarsar	54	49	752	0.139	51	55	929	0.149	6.99
Chobtarashan	31	23	282	0.090	33	25	296	0.095	5.55
Khoram Abad	20	15	144	0.083	19	16	173	0.087	5.26
Shadneshin	35	33	405	0.116	32	40	507	0.122	5.43
Choobar District	955	1625	40380	0.423	878	1881	46305	0.457	8.08
Shaft County	6123	4795	159185	0.260	5755	5250	179745	0.279	7.31

4.3. Social and economic indicators

Based on the results, the infrastructure indicator with a mean of 3.57 had the highest mean and the 'support and facilities' indicator with a mean of 2.71 had the lowest mean among economic indicators from the farmers' point of view. It should be noted that in reviewing the indicator of support and facilities, items such as granting incentive loans to farmers for successful implementation of the project, guaranteeing the purchase of agricultural products, marketing products produced in consolidated lands, providing agricultural inputs by the government and insurance services after the implementation of the project have been evaluated. For the infrastructure indicator, items such as organizing water canals, improving access roads between farms, developing a cultivation pattern, establishing cooperative companies for rural production, etc. have been considered. The findings showed significant differences in these indicators (table 10).

Table 10. Descriptive findings of the economic indicators

Components	Indicators	Mean	Standard Deviation (SD)
Farm management and productivity	Conditions of the lands	3.31	0.74
	Productivity and employment of households	3.25	0.83
Government	Support and facilities	2.71	0.69
	Infrastructure	3.57	0.77
Income and investment	Income	3.05	0.86
	Investment	3.21	0.95
Machinery	Use of machinery	3.38	0.85
	Ease of access to machinery and manpower	3.37	0.84

Based on the results obtained from the table 11, the indicator of personal security with a mean of 3.52 has the highest mean and the indicator of 'conflicts and quarrels' with a mean of 2.89 has the lowest mean among the indicators of success in the social dimension. It should be noted that the low level of conflicts and quarrels between farmers and each other and the executive agents of the project, on the one hand is due to their satisfaction with the implementation of the project and on the other hand, the high level of participation and trust has led to reduced conflicts and quarrels.

Table 11. Descriptive findings of the social indicators

Components	Indicators	Mean	Standard deviation (SD)
Social participation	Objective participation	3.41	0.91
	Formal participation	3.35	0.76
Social Networks	Intra-group and inter-group relations	3.36	0.82
	Extra-group relations	2.93	0.74
Social organizations	Private organizations and institutions	3.13	0.83
	Formal and governmental organizations and institutions	3.29	0.81
Trust	Interpersonal and generalized trust	3.41	0.65
	Institutional trust	3.42	0.61
Knowledge and awareness	Individual awareness	2.92	0.8
	To use others' experiences	3.44	0.78
	Education (formal knowledge)	3.08	0.82
Sense of security	Sense of personal security	3.52	0.69
	Insurance services	3.21	0.81
	Physical	3.33	0.86
	Conflicts and quarrels	2.89	0.72

The skewness, Kurtosis and Kolmogorov–Smirnov test were used to assess the normality of the distribution of scores of the indicators used to measure the success rate of the paddy field consolidation project in of Choobar rural district (table 12). Based on the results, the degree of Kurtosis and skewness of the indicators of the success rate of the agricultural land consolidation project is in the numerical range (±1), which indicates the symmetry of the mean and mode, as well as the normal distribution of data in descriptive terms. In addition, the significant level for the success rate in the economic and social dimensions and the success of the consolidation project was calculated ($p > 0.05$); In general, the dimension of the parametric tests could be used to measure the success rate of the consolidation project in paddy fields.

Table 12. Descriptive statistics of the indicators of the success rate of the project in terms of normality in the sample population

Indicators / variables	Kolmogorov–Smirnov test		Coefficients	
	Statistics	Significance level (sig.)	Skewness	Kurtosis
Conditions of the lands	0.186	0.000	-0.52	-0.068
Productivity and employment of the households	0.131	0.000	-0.355	-0.559
Support and facilities	0.082	0.000	-.001	-0.829
Income	0.122	0.000	-0.342	-0.718
Investment	0.118	0.000	-0.269	-0.882
Use of machinery	0.108	0.000	-0.393	-0.682
Ease of access to machinery and manpower	0.114	0.000	-0.384	-0.453
Interpersonal and generalized trust	0.154	0.000	-0.267	-0.325
Institutional trust	0.155	0.000	-0.457	-0.38
Personal security	0.107	0.000	-0.456	-0.084

Indicators / variables	Kolmogorov–Smirnov test		Coefficients	
	Statistics	Significance level (sig.)	Skewness	Kurtosis
Insurance services	0.107	0.000	-0.182	-0.584
Physical	0.116	0.000	-0.288	-0.811
Reduced conflicts and quarrels	0.096	0.000	-0.041	-0.591
Success rate in the economic dimension	0.037	0.200	-0.238	0.586
Success rate in the social dimension	0.046	0.200	0.258	-0.118
Success rate of the whole project	0.051	0.073	0.048	0.672

4.4. Evaluation of the success rate of paddy field consolidation project in the study area

The results of the evaluation of the success rate of the paddy field consolidation project in the study area are summarized in the following tables. Given the positive value of the t-statistics (economic dimension: 12.39; social dimension: 18.78; implementation of the consolidation project: 20.31) and the significance level of $p<0.01$ for social and economic dimensions, as well as the success of the consolidation project in general indicate that the above results are greater than the number (1.96) of the critical table 13 t, and there is a significant difference between the mean base and the mean dimensions of the success rate as well as the total success rate; The positive low and high limits in these items also indicate that the mean economic and social dimensions and the success of the paddy field consolidation project in Choobar rural district is above average; Therefore, it can be said with 99% confidence that the implementation of the project in the study area from farmers' view is more than normal. In other words, it has been moderately to highly successful.

Regarding the success rate of the paddy field consolidation project, the mean obtained for the economic dimension is 3.23, for social dimension is 3.34 and the consolidation variable is 3.28, all of which are more than 3 and indicate the success of the project.

Table 13. The success rate of the consolidation project based on the one-sample t-test

Dimensions / variables	Test level = 3					
	Mean	Mean difference	Statistics t	Significance level- p	95% confidence interval	
					Lower limit	Upper limit
Economic	3.23	0.23	12.39	0.000	0.18	0.26
social	3.34	0.34	18.78	0.000	0.31	0.37
Success of the project	3.28	0.28	20.31	0.000	0.26	0.31

4.5. The relationship between the implementation of land consolidation project and improvement in economic indicators of rural households

Based on the results obtained from the table 14, the highest correlation between the implementation of the consolidation project and the economic indicators of households were found respectively, for the use of machinery, infrastructure, productivity and employment of the households, ease of access to machinery and manpower, income, investment and conditions of lands at the significance level of $p\leq 0.01$. The correlation between the land consolidation project and the indicator of 'support and facilities' had no significance at 99% confidence level.

Table 14. Determining the degree of correlation between implementation of the project and improvement in economic indicators in the study area

Economic indicators	Correlation results	
	Correlation coefficient	Significance (sig.)
Conditions of the lands	0.192**	0.001
Productivity and employment of the households	0.295**	0.000
Support and facilities	0.076*	0.100
infrastructure	0.330**	0.000

Economic indicators	Correlation results	
	Correlation coefficient	Significance (sig.)
Income	0.286**	0.000
investment	0.260**	0.000
Use of machinery	0.355**	0.000
Ease of access to machinery and manpower	0.290**	0.000

$p^{ns} > 0.05$ $p^{**} < 0.01$

Simple regression was used to identify the success of the land consolidation project in improving the overall economic effectiveness. Table 15 summarizes the regression analysis on the implementation of the consolidation project and its impact on the improvement of economic indicators in the study area. Based on the findings, R or the correlation coefficient of the research variables is 0.718. The above figure indicates the correlation between the research variables and shows that the independent variable has an effect on the dependent variable (economic indicators). The coefficient of determination calculated in the model is equal to 0.515, which indicates that the independent variable increases the predictive power and it can be said that the effectiveness of the consolidation project on the economic indicators of the residents of Choobar rural district can be predicted and identified.

Table 15. Test of correlation between the implementation of land consolidation project and the improvement of economic indicators

Correlation coefficient (R)	Determination coefficient (R Square)	Adjusted correlation coefficient	Standard Deviation
0.718	0.515	0.513	0.21

According to the table 16, which shows the analysis of variance of the regression model, the F-statistic is equal to 296.6, which means that independent variable of the research is correlated with the dependent variable and shows that the implementation of agricultural land consolidation project was effective in improving the economic indicators of rural households. It should also be noted that the greater the sum of the regression squares than the sum of the error squares, the better the fitted model.

Table 16. Variance analysis of regression model in research variables

Model		Error sum of squares	Degrees of freedom	Mean square error	Statistics F	Significance (sig.)
1	Regression	13.89	1	13.89	299.6	0.000
	Residual	13.07	282	0.046	-	
	Total	26.96	283			

1. Independent variable: Consolidation project
2. Dependent variable: Economic indicators

As table 17 shows, the beta coefficient was equal to 0.718 and significant at a significant level of p-<0.01. Therefore, it can be said with 99% confidence that the implementation of paddy field consolidation project in Choobar rural district have a positive and significant effect on economic indicators of rural households.

Table 17. Standard coefficients of the consolidation project variable on economic indicators in the regression model

Model	Non–standard coefficients		Beta Standardized coefficients	Statistics t	Significance (sig.)
	B	Standard deviation error			
Consolidation project	0.944	0.05	0.718	17.31	0.000

1. Independent variable: Consolidation project
2. Dependent variable: Economic indicators

4.6. The relationship between the implementation of land consolidation project and improvement in social indicators of rural households

As table 18 shows, the highest correlation between consolidation project and social indicators of households was found in interpersonal and generalized trust, objective participation, physical participation, insurance services, formal participation, conflicts and quarrels, and institutional trust at the significance level of $p \leq 0.01$. The results for the indicators of private organizations and institutions and intra-group and inter-group relations, were obtained at the significance level of $p \leq 0.05$. Nevertheless, the correlation between land consolidation project and indicators of extra-group relations, formal and governmental organizations and institutions, individual awareness, using others' experiences, and education (formal knowledge) was not significant at the confidence level of 99%.

Table 18. Correlation between implementation of the project and improvement in social indicators in the study area

Social indicators	Correlation results	
	Correlation coefficient	Significance (sig.)
Objective participation	0.349**	0.001
Formal participation	0.260**	0.000
Intra-group and inter-group relations	0.099*	0.048
Extra-group relations	0.039ns	0.254
Private organizations and institutions	0.126*	0.017
Formal and governmental organizations and institutions	0.011ns	0.428
Interpersonal and generalized trust	0.389**	0.000
Institutional trust	0.160**	0.000
Individual awareness	0.020ns	0.370
To use others' experiences	0.022ns	0.356
Education (Formal knowledge)	0.008ns	0.445
Insurance services	0.272**	0.000
Physical	0.320**	0.000
Conflicts and quarrels	0.235**	0.000

$p^{ns} > 0.05$ $p^{*} < 0.05$ $p^{**} < 0.01$

Based on the findings of regression analysis, R or the correlation coefficient of research variables is 0.623. The coefficient of determination in the model is equal to 0.389, which indicates that the independent variable has increased the predictive power and it can be said that the social indicators of rural households are affected by the success of the paddy field consolidation project in Choobar rural district, and it is predictable and identifiable (table 19).

Table 19. Correlation test between the implementation of the land consolidation project and the improvement in social indicators

Correlation coefficient (R)	Coefficient of determination (R Square)	Adjusted correlation coefficient	Standard deviation
0.623	0.389	0.386	0.17

As table 20 shows, the F statistic is equal to 179.23 and it means that the independent variable is correlated with the dependent variable and shows that the implementation of the project was effective in improving social indicators of rural households. It should also be noted that the greater the sum of the regression squares than the sum of the error squares, the better the fitted model.

Table 20. Variance analysis of regression model in research variables (social indicators)

Model		Error Sum of Squares	Degrees of freedom	Mean square error	Statistics F	Significance (sig.)
1	regression	5.281	1	5.281	179.234	0.000

Model		Error Sum of Squares	Degrees of freedom	Mean square error	Statistics F	Significance (sig.)
	Residual	8.309	282	0.029	-	
	Total	13.59	283			

1. Independent variable: Implementation of consolidation project
2. Dependent variable: Social indicators

As table 21 shows, the beta coefficient was 0.623 at a significant level of p≤ 0.01. Therefore, it can be said with 99% confidence that the paddy field consolidation project has a positive and significant effect on social indicators of rural households in Choobar rural district.

Table 21. Standard coefficients of implementation of consolidation project on social indicators in the regression model

Model	Non –standard coefficients		Beta standardized coefficients	t Statistics	Significance level Sig.
	B	Standard deviation error			
Implementation of consolidation project	0.09	0.015	0.259	6.07	0.000

1. Independent variable: Implementation of consolidation project
2. Dependent variable: Social indicators

5. Discussion and Conclusion

The research findings in the economic and social dimensions and the assessment of the success of the implementation of the paddy field consolidation project in Choobar rural district have shown that project was moderately to highly successful in the study area. The effects of the project in improving the socio-economic indicators of rural households in Choobar rural district is such that the highest correlation between the project and economic indicators was found in the use of machinery, land infrastructure, productivity and employment of the households, easy access to machinery and manpower, and income respectively. In fact, land consolidation in the study area has increased production and efficiency in production factors and agricultural inputs by expanding land, building roads between farms, reshaping and increasing the area of agricultural plots, as well as improving the use of agricultural machinery, which is in line with the main approach of the research, sustainable rural livelihoods, which views paddy field consolidation project as a fundamental process about land resizing and explains its relationship with the living conditions of households and access to livelihood capital in terms of sustainability. At the level of social indicators, the highest correlation was found with interpersonal and generalized trust, objective participation, sense of physical security, insurance services, formal participation, conflict and quarrel reduction and institutional trust, respectively. In this regard, Yasouri et al. (2012) found that implementation of land consolidation project could be effective in social dimensions by reducing disputes over water division and boundaries between parcels, saving time and social participation. Nevertheless, a large part of the positive effects of such projects are economic one including smaller number of land parcels, higher efficiency, sufficient water for irrigation, the use of machinery and agricultural tools, the use of pesticides, etc., which increases the crop yields and efficiency of various crops per unit area. From the perspective of farmers, among the socio-economic indicators, the infrastructure indicator created by the government and the use of machinery after the implementation of the project and the ease of access to machinery and manpower, interpersonal and generalized trust, have the greatest impact on project implementation. In this regard, from experts' view, increase in production, better utilization of rural household labor, skill development, organizing farm water canals, improvement in access roads between farms, and developing a cultivation pattern have a key role in the implementation of paddy field consolidation project. The results of the present study are in line with Bouzarjomehri & Anzaei (2012) that acknowledged that in the implementation of the consolidation project in addition to effective criteria required to fulfill the quantitative and qualitative goals of the project in achieving the potential in rice yield, it is necessary to take some measures to equip lands and farmers with up-to-date knowledge. Successful implementation of the

project from technological perspective is one of the elements that contributes to the quantitative and qualitative development of rice cultivation. Rezaie Moghadam et al. (2014) acknowledged that farmers who had more access to promotional services on consolidation information, have a better attitude and higher participation in the implementation of land consolidation project.

In general, as the economy of the study area is dependent on rice cultivation and thanks to the implementation of paddy field consolidation project as well as suitable environmental conditions of the villages in the region for rice cultivation, consolidation has helped to expand the agricultural land, build roads between farms, reshape and increase the area of agricultural plots, improve the use of agricultural machinery, increase production, improve productivity in agricultural factors and inputs; This is in line with the main approach of the study, namely sustainable rural livelihood, which views the paddy field consolidation project as a basic process for land resizing through the consolidation of farmers' arable land parcels, which can be recognized through the livelihood of households and their access to livelihood capital, as livelihood status will affect the current state of the study area in terms of sustainability. In the meantime, if the views of the farmers are taken into account, it can enable the agricultural sector, to supply the basic food needs of the country. In fact, the application of new technologies in the implementation of the project can play an important role in improving the living conditions of the population, and help save inputs and reduce production costs and raise farmers' satisfaction and willingness to implement the project in their farms. It also increases their leisure time which makes way for increasing the social, cultural and livelihood capacities up to a favorable level, which is effective in advancing development goals in rural areas and very effective in improving the economic and social status of rural households.

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Research Article

ارزیابی میزان موفقیت طرح یکپارچه سازی اراضی شالیکاری با رویکرد معیشت پایدار خانوارهای روستایی (مطالعه موردی: دهستان چوبر، شهرستان شفت)

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چکیده مبسوط

۱. مقدمه

امروزه در اراضی کشاورزی کشورهای مختلف، یکپارچه‌سازی اراضی با هدف افزایش تولید، کارایی و بهبود پایداری محصولات انجام می شود و یکپارچه سازی زمین یک ابزار مؤثر در برنامه های توسعه پایدار روستایی است. از همین‌رو، در سند چشم انداز توسعه بلندمدت ایران (افق توسعه ۱۴۰۴) اهدافی از قبیل بهره وری عوامل تولید، کاهش هزینه های تولید و اتلاف منابع، افزایش کارایی (نیروی انسانی و زمین)، به کارگیری بیشتر از ماشین آلات، افزایش بهره وری در مصرف آب، سهولت مبارزه با آفات، بیماری ها، کاربرد عقلایی نیروی کار (کاهش اتلاف وقت نیروی کار از طریق رفت و آمد بین قطعات) و اجرای الگوی مناسب کشت برای طرح های یکپارچه سازی اراضی پیش بینی شده است. لذا هدف این تحقیق پاسخ به این سوال اساسی است که: اجرای طرح یکپارچه‌سازی ارای شالیکاری در دهستان چوبر واقع در شهرستان شفت برمبنای متغیرها و شاخص های بدست آمده از تحقیق تا چه اندازه موفقیت آمیز بوده است؟

۲. مبانی نظری تحقیق

رویکرد اجتماعی در دستیابی به اهداف توسعه‌ای و بویژه طرح‌های مشارکتی همچون یکپارچه‌سازی اراضی بسیار قابل توجه است چراکه رویکرد مذکور بیش از همه بر نقش بخش داوطلبانه و مردمی، توسعه محلی و سازمان های اجتماع محور تأکید دارد. توسعه مبتنی بر سازمان های اجتماع محور فرایندی است که در آن گروه های اجتماعات محلی پیش قدم شده، سازماندهی و اقدام می کنند، تا به علایق و اهداف مشترک از جمله دستیابی به رفاه اجتماعی، حل مسأله و خروج از وضعیت فقر دست یابند. این فرایند در ارتقای کیفیت زندگی، متغیرهای اجتماعی به ویژه سرمایه اجتماعی نقش کلیدی ایفا می کند؛ چرا که هیچ توسعه ای بدون مشارکت محلی مردم، رضایتمندی و اعتماد اجتماعی شکل نمی گیرد. سرمایه اجتماعی همچون چسبی میان افراد جامعه همبستگی ایجاد می کند و منبع کنش های اجتماعی در عرصه های مختلف زندگی ازجمله حوزه های عمومی، از سطح محلی (خرد) گرفته تا سطح حکومت (کلان) می‌گردد. این سرمایه، جامعه را در برخورد با مسائل تواناتر می سازد و کاهش آن منجر به بروز مسائل و معضلات حاد اجتماعی می شود. از سوی دیگر، صرف تأکید بر اهمیت مشارکت در روند توسعهٔ روستایی دلیل کافی برای مشارکت روستاییان نیست زیرا مشارکت حداکثری روستاییان در روند اجرای طرح های توسعه‌ای، نیازمند شناخت ظرفیت ها و قابلیت ها و نیز شناخت درست ضعف های موجود در روستاها است؛ تا از این طریق بتوان با افزایش ظرفیت های فعلی زمینه را برای مشارکت حداکثری آنان فراهم نمود. اگرچه در انجام طرح های توسعه کشاورزی ظرفیت های فنی یکی از جنبه های کلیدی در توان سازگاری با محیط است، اما وجود نوآوری ها در کنار دسترسی روستاییان به آن ها و میزان مشاوره دریافتی در خصوص بهره‌گیری نوآوری ها (طرح یکپارچه سازی اراضی) نیز از مولفه های مهم در این امر به شمار می رود که علاوه بر پیشرفت فناوری و توسعه اقتصادی باید سرمایه اجتماعی و ساختار دولتی موجود نیز در نظر گرفته شود.

۳. روش تحقیق

روش انجام این پژوهش به صورت توصیفی و تحلیلی و از نوع کاربردی می باشد. روش گردآوری اطلاعات،کتابخانه ای و پیمایشی (مشاهده و پرسشنامه) است. منطقه مورد مطالعه در این پژوهش شامل ۱۱ روستا از مجموع ۳۵روستای دهستان چوبر می باشد که در آن ها طرح یکپارچه سازی اراضی از سوی مدیریت آب و خاک

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سازمان جهاد کشاورزی شهرستان شفت انجام گرفته است. تعداد خانوارهای دهستان چوبر که مشمول طرح یکپارچه سازی اراضی شده اند، ۱۱۳۷ بوده است که تعداد ۲۸۵ نفر از بهره برداران با روش مورگان انتخاب شدند.

۴. یافته های تحقیق

پژوهش در سطح ابعاد اقتصادی، اجتماعی و سنجش میزان موفقیت اجرای طرح یکپارچه‌سازی اراضی شالیکاری در دهستان چوبر نشان از موفقیت حد متوسط و بیشتر این طرح در منطقه موردمطالعه بوده است. اجرای طرح یکپارچه‌سازی در بهبود وضعیت شاخص‌های اقتصادی- اجتماعی خانوارهای روستایی در دهستان چوبر به گونه‌ای است که بیشترین همبستگی و ارتباط بین طرح با شاخص‌های اقتصادی به ترتیب در بکارگیری ماشین‌آلات، وضعیت زیربنایی اراضی، بهره‌وری و اشتغال خانوار، سهولت دسترسی به ماشین‌آلات و نیروی انسانی و درآمد بوده است. همچنین در سطح شاخص‌های اجتماعی به ترتیب برای اعتماد بین فردی و تعمیم یافته، مشارکت عینی، احساس امنیت کالبدی (فیزیکی)، خدمات بیمه‌ای، مشارکت رسمی،کاهش نزاع و درگیری و اعتماد نهادی به دست آمد. از سوی دیگر از دیدگاه کشاورزان در بین شاخص های اقتصادی- اجتماعی شاخص زیربنایی ایجاد شده توسط دولت و بکارگیری ماشین آلات بعد از اجرای طرح و سهولت دسترسی ماشین آلات و نیروی انسانی، اعتماد بین فردی و تعمیم یافته، دارای بیشترین اثرگذاری در اجرای طرح هستند.

۵. بحث و نتیجه‌گیری

با عنایت به یافته‌های پژوهش، اجرایی شدن طرح یکپارچه سازی اراضی شالیکاری در شهرستان شفت و منطقه موردمطالعه توانسته با وسعت بخشیدن به اراضی، ساخت جاده بین مزارع، بازشکل‌دهی و افزایش وسعت قطعات کشاورزی؛ بهبود بکارگیری از ماشین آلات کشاورزی، افزایش تولید، بهره وری در عوامل تولید و نهاده های کشاورزی را بهبود بخشد؛ که این خود منطبق با رویکرد اصلی پژوهش یعنی معیشت پایدار روستایی است که طرح یکپارچه سازی اراضی شالیکاری را یک فرایند اساسی در ارتباط با تغییر اندازه‌ی زمین از طریق یکپارچه کردن نسق زراعی بهره برداران می‌داند که می تواند با شناخت وضعیت معیشت خانوارها و میزان دسترسی آن ها به سرمایه های معیشتی و از حیث پایداری، وضعیت موجود منطقه مطالعه تحت تاثیر قرار دهد. در این بین، چنانچه نقطه نظرات و دیدگاه های بهره برداران لحاظ گردد، می تواند بخش کشاورزی که با بافت سنتی و با واحدهای بهره برداری کوچک دهقانی است را قادر به تأمین حداقل مواد غذایی موردنیاز جامعه نماید. در واقع، بکارگیری تکنولوژی های نوین در اجرای طرح، می تواند نقش مهمی در بهبود وضعیت زندگی بهره‌برداران داشته و در پی آن صرفه جویی در نهاده ها و کاهش هزینه های تولید و افزایش رضایتمندی کشاورزان و تمایل آن ها برای اجرای طرح در مزارع و افزایش اوقات فراغت، زمینه را برای افزایش ظرفیت های اجتماعی، فرهنگی، معیشتی را به حد مطلوب برساند که این خود تأثیرگذار در پیشبرد اهداف توسعه در روستاها بوده و در بهبود وضعیت اقتصادی و اجتماعی خانوارهای روستایی بسیار موثر و کلیدی تلقی می‌گردد.

کلیدواژه‌ها: اقتصاد پایدار روستایی، معیشت پایدار، یکپارچه سازی اراضی، دهستان چوبر، شهرستان شفت.

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