



Structural Analysis of Drivers affecting the Livelihood Sustainability of Villagers, with an Emphasis on Future Studies (Case Study: Marivan County)

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Abstract

Purpose- The main purpose of this study was to identify the drivers responsible for instability of livelihood and to investigate the extent and manner of their influences on each other and on the future livelihood status of villagers in Marivan County.

Design/methodology/approach - Applying a descriptive-analytical method and Delphi Technique, the present applied research identifies first, the most important drivers of the current situation of livelihood instability and their eliminating impact on the future livelihood of the deprived villagers in Marivan County. Moreover, applying cross-impact method in Mick Mac software, it analyzes the effect and direct influence of these drivers on each other.

Findings- The most important drivers of livelihood instability of rural people in the county are a total of 36 drivers in five categories as follows: Economic failures with the influence (346) and dependence (371), social failures with the influence (290) and dependence (315), environmental-physical failures with the influence (172) and dependence (176), institutional-managerial failures with the influence (351) and dependence (287) and trans-regional failures with the influence (23) and dependence (12). Among them the institutional-managerial failures have the most direct influence (315) and the economic failures have the most direct dependence (371) on the other drivers. The regulatory and two-dimensional drivers and their situation on the graph shows the continuing instability of the villagers' livelihood in future, thus, this will increase deserted villages and wasted water and soil resources in the region.

Research Limitations/Implications- The dispersion of a large number of villages, their small sizes in addition to their lack of accessibility, and the lack of cooperation of some experts to conduct interviews were among the main limitations of the present study.

Practical implications - It is suggested to teach villagers about the basic principles of entrepreneurship and taking risks and identifying opportunities. In this regard, making use of entrepreneurial villagers with successful experiences and non-governmental organizations in the region can be effective. Ultimately, plans and programs should be designed and implemented for the regulatory drivers such as fatalism, lack of crisis management policies, recognizing rural development as equal to the traditional agriculture development.

Originality/Value- The outcome of this study can be an introduction for subsequent studies for formulating scenarios, executive strategies, policies and planning in order to move towards sustainable livelihoods and the realization of a favorable livelihood for the villagers.

Keywords- Sustainable livelihood, Future studies, Cross-impact analysis, Villages of Marivan County.

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1. Introduction

Sustainability in its essence is intertwined with future studies because of the core of the sustainability paradigm. The features of sustainable development, which aspire the planners all over the world, is based on continuous changes and consequently readiness and response to them. There are key trends, events and factors in each region that are referred to as “drivers”, which are effective in shaping both current and future situation of sustainable development in the region (Veisi, 2018). Resilience in livelihoods, on the other hand, relies on a simple principle that change is ubiquitous, and living systems are constantly exposed to change and threats. This perpetual alternation should not be ignored. These changes are sometimes slow, and they could happen in a longer time scale. However, they mostly take place suddenly, quickly, and in a short period of time. Due to the lack of long-term perspective, information and awareness of steady changing conditions, social and economic systems are more vulnerable to rapid changes and anticipating them (Pisano, 2012). The existence of uncertainties and the occurrence of discontinuous events make the forecasts discredited and increases the vulnerability of livelihood systems. The shortcoming existed at different local, regional, national and international levels because of the complex conditions of today's changes and twisting factors affecting livelihood systems. As a result, maintaining the livelihood of villagers requires a new and innovative way in the field of planning to understand and adapt to these uncertainties and long-term challenging trends (Naiemi & Poormohamadi, 2016; Taghiloo, 2014). The requirement for vulnerability reduction of the rural poor and helping them sustain their livelihoods are recognizing the drivers to livelihood instability and the possible harm for not considering them in order to increase the resilience (Fouracre, 2001). Accordingly, in order to achieve a sustainable livelihood for the villagers, transformations should be taken place in the future of the current unfavorable status. This also depends on recognizing the effective factors that can be controlled for creating a favorable future, which is the main principle in futures studies. In the present study, a future study

planning approach was used to help sustain the livelihood of the villagers in Marivan County. Most of the people in rural areas in Marivan County along with the rest of the country live in a low level of livelihoods and high level of vulnerabilities, which has led to a vague and unfavorable future, continuous declination of the population, and the evacuation of villages. Therefore, the main purpose of this study is to identify the drivers of instability for the future state of the rural livelihood system of this County, which can be an apparatus for formulating scenarios, executive strategies, policies and planning to move toward a sustainable livelihood and achieving a desirable future for the villages of this area. In order to reach this purpose, the following questions were raised:

- What are the key drivers affecting the sustainability of villagers' livelihoods?
- How do these key affecting drivers show the movement of livelihood system towards sustainability?
- What are the most important drivers to sustain livelihood for the villagers in the study area?
- Which drivers will have the most direct impact on the sustainability of villagers' livelihoods?

2. Research Theoretical Literature

Future studies is about shaping the future in a way that we look for (Goharifar et al., 2015). This process is also part of a strategic thinking, which is used to enable the improvement of the speculations about available strategic options (Parizadi et al., 2017; World Future Society, 2005; Conway, 2002). The world is changing faster than ever, and new and complex forces are influencing economic and social conditions. Not only should we avoid merely watching the events and alternations without any speculations, but we also need to react to them. This requires a revision in the practice and planning. Futurologists believe that future is related to the present, thus, it can be understood and created by understanding the status quo (World Future Society, 2005; Reed, 2013). Moreover, understanding the future and planning for it requires the flexibility in thinking and planning, and awareness of multiple and possible futures (Havas, 2006). There is no certainty about the future, nevertheless the basic tenet of future studies argues that future can be changed (Zareian & Sattarzadeh, 2011). Being process-oriented and systematic, intelligent

forecasting, participatory decision-making and gathering insights, building a favorable future vision, mobilizing resources and facilities are important features of future studies that are deduced from its various definitions (Gavigan, 2001). Future studies are fundamentally different from the usual methods in traditional forecasting planning, and it expands the scope other than mere forecasting. Using the same way of cause and effect as a scientific predication, forecasting is accurate statements about specific variables under certain conditions (the relationship between variables in a model). Another method of forecasting is based on probabilistic and quantitative techniques that predict the linear and predetermined past-related estimation process for the future (such as meteorological, demographic and economic forecasts). It is obvious that in today's systemic and rapidly changing era, such predictions for the future will face many challenges and uncertainties. By rejecting only the existence of one definite future for the current situation, future studies create a future that might not be a continuation of the current trend. Future studies seek to build a future with an emphasis on qualitative methods rather predicting it. Believing that the future is not determined, the researchers state that the best way to predict is to create it according to today's conditions (Luke et al., 2009; Reed, 2013; Miguel & Güell, 2012; Mahmoud, 2009; Mafzali & Jahangiry, 2015; Beheshti & Zali, 2010).

Rural communities, all over the world, are looking for strategies to create jobs, initiate enterprises and accumulate livelihood capital, especially in this unstable economy. Almost all villages in national and global economic field tend to create stability and maintain the desirability of their living conditions in the future, yet the trajectory is not very clear for all villages. Consecutive economic, social and environmental crises at different time scales and at regional, national and global geographical scales have created challenges and opportunities for sustainable rural livelihoods (Taghiloo, 2014). It is noted that livelihood is activities people do to make a living or acquire, maintain and manage assets (Ellis & Allison, 2004; Mphande, 2016; Assan, 2014). The concept of livelihood in the Advisory and Supervisory Board of the World Commission on Environment and Development (1987) was defined as adequate and appropriate access to

food and financial resources to meet basic human needs (Anderson, 2001). Five assets are included as financial assets (cash, savings, etc.), human assets (skill level, knowledge, etc.), natural assets (the water status and soil resources, natural landscape, etc.), physical assets (welfare and service infrastructure) and social assets (social capital, dependency, interaction, etc.). These are obtained and managed in interaction with structures, institutions and organizations, all of which are the core of the sustainable livelihood approach (Morse, 2013). According to Chambers (1992), one of the main theorists of this approach, livelihood will be sustainable when it is resistant to tension, stress and shock and the capabilities and assets are maintained not only for the present generation but also for the future (DFID, 2008). What is significant in defining sustainable livelihoods is first dealing with critical situations that increases vulnerability, including intermittent and seasonal threats (price fluctuations, production, job opportunities, etc.), sudden shocks and disturbance (war, flood, drought, pest, etc.), and long-term crises (population growth, seasonal fluctuations, types of pollution and climate change, etc.) (Ellis, 1999). Moreover, future-oriented approach is both to deal with existing and progressive crises and preserve livelihoods for future generations. Therefore, sustainable livelihoods are continuous processes of adaptation and change (Griffiths, 2016). In order to achieve this, most importantly, we need to identify the threats as drivers of instability of livelihood in the current situation and probably effective in the future (Figure 1). Driving forces are forces and natural events and actions that influence key decisions and change their course. These include drought, globalization, industrialization, information technology, economic crises, security, demographic policies, etc. (Taghiloo, 2014). These are factors that were effective in shaping the past and present, so they can be effective in shaping the future (Ghisha & et al, 2011). Determining the drivers and understanding their effects on one another is the main prerequisite for developing qualitative models, and then scenarios and strategies for mapping multiple and achievable futures (Reed, 2013). Ignoring recognition of key forces and drivers of the development process causes their gradual weakening and ultimately their negative impact on the performance of the whole system (Beheshti

& Zali, 2010). Accordingly, failure of identifying and planning for instabilized livelihood drivers can lead to increasing vulnerability and reducing the

level of livelihood resilience of villagers in the future.

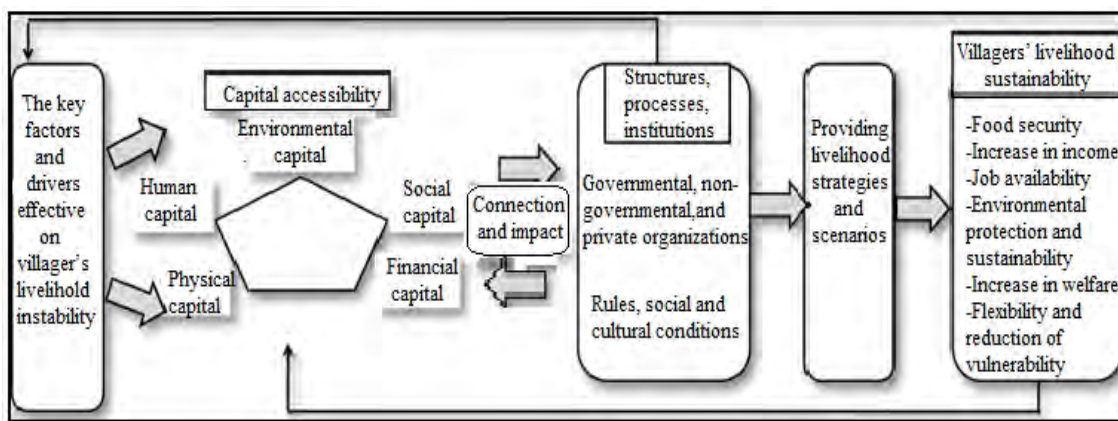


Figure 1. Conceptual framework of the study

Future studies is a new field in the geographical studies of the country. It has been applied by researchers and planners in recent years. The number of studies related to villages is small. One of them is [Moradimasih & Talebi \(2017\)](#) which recognized the variables of instability in development, which are in three categories of risk drivers such as government investment in infrastructure and credit allocated to rural development and renovation, migration control drivers like life expectancy, and objective drivers like the earnings obtained from sustainable jobs. [Pourmohammadi & Toorani \(2017\)](#) came to a conclusion that the rural-urban communication system of Minoodasht is in an unstable state, and 54 variables affect this turbulent situation in the sectors of agriculture, industry, services, labor, infrastructure, education, social, natural resources and management planning. [Ghişa et al. \(2011\)](#) stated that the most important challenges and problems of rural development in Romania are poverty, inequality of access, waste of resources, traditional and low-income agriculture, etc. He believes alternation of current unfavorable situation with forecasting and planning for different scenarios of development is achievable. The main guidelines and steps for the development of scenarios and strategies are based on three steps of comprehensive understanding of the current situation, imagining of different paths to future and ultimately determining the most probable future with a participatory approach. [Maynooth \(2005\)](#) in a study examines the future

of rural Ireland up to 2025. As a result, after considering the current situation and their drivers in the economic, demographic and environmental sectors, scenarios were presented for the realization of a desired future. Using structural analysis method and MICMAC software, [Ambrosio & Amador \(2015\)](#) studied and evaluated the situation of rural development based on local development in rural areas of Spain and Nicaragua (where acted on the principles of this strategy). Stakeholder participation, innovation, private and public sector co-ordination, network and cooperatives cooperation, management and financial capacity, effective measures and programs, and coordination of policies and strategies were identified as drivers. [Ambrosio & Lozano \(2009\)](#), using structural analysis method and MICMAC software, sought to explain the impact and complex relationships of economic, social and natural variables on rural development in Andalusia, Spain. Ultimately, the rural development system of the region was indicated unsustainable because of variables like the regulatory, natural hazards and distribution of other drivers. Likewise, the economic status as the most macro-influential factors will play the greatest role in the stability of the system in the future. [Taghiloo et al. \(2016\)](#) analyzed the interaction of drivers and used hierarchical analysis model. The results indicate that the most important key factors affecting the future of rural development in Iran include partnerships, investment and entrepreneurship, labor training,

natural resources, revenue generation, rural pilot projects, resource ownership, technology, services and tourism. [Plinginger et al. \(2016\)](#) in a systematic study examined the content of the results obtained from 144 related studies in the European Union. They introduced a set of economic, social, political, institutional, technological, cultural and environmental-spatial forces or drivers of landscape change and land use change. [Sobczyk \(2014\)](#) states the necessary actions for the economic, social and environmental implications to achieve sustainable rural development in the European Union. Focused on the rural development situation in Poland, this study emphasizes the improvement of the economic situation in the sustainability of rural development. It examines the development of rural tourism in this country and introduces the environmental dimension of sustainable development as the most important dimension in rural areas, the realization of which also depends on the education of local people. [Small \(2017\)](#) examined the effects of technology and its changes in agricultural development in rural New Zealand with a forecasting perspective. He emphasizes that the evolution of new and emerging digital technologies as an important driver of global change. On the one hand, it can be an opportunity to improve the welfare, livelihood and business of the villagers. On the other hand, it might as a threatening force acted against the functioning of the rural agricultural system and the quality of life in the villagers of New Zealand.

Although many studies on the subject have been conducted by domestic and international researchers, in general each of them has somehow examined the drivers of sustainable development from different perspectives, but no study is directly related to livelihood sustainability in the country and region. So the present study seeks to identify instability drivers, examine the extent of their impact on each other and the future livelihood conditions of villagers in Marivan. This also can be an introduction for subsequent studies on the basis for formulating scenarios, executive strategies, policies and planning in order to move towards sustainable livelihoods and the realization of a favorable livelihood for the villagers.

3. Research Methodology

3.1 Geographical Scope of the Research

Due to the fact that in the first stage of the study we ought to use qualitative method, and it needs a high amount of creativity and innovation, we chose a population of experts, and official informants, who are well-informed in development of the region. It was noted that sustainable development is a comprehensive and interdisciplinary matter, so we tried to include the most capable regional individuals in the research. For this purpose, the snowball sampling method was used to identify the possible participants. The criteria for identifying specialists were told to each person, so they would also assign another specialist based on to the conditions like specialization in fields related to sustainable development, scientific knowledge and appropriate educational rank (master and doctorate), their research background and familiarity with the study area. Ultimately, some individuals were also selected among the governmental organizations related to rural development in the region, due to their effectiveness and undeniable role in achieving rural development. In total, 20 participants were identified and questioned.

Marivan city is the center of Marivan County. The province is located in the west of and adjacent to the territory of northern Iraq. The county has 3 Central, Sersshio and Khavomirabad districts, four cities named Marivan, Bardeh Rash, Kani Dinar, Chenareh. Six rural districts contain 174 villages (151 inhabited villages and 23 empty villages). The county occupy an area of 2326.4 square kilometers, and a population of 169680 people settled in it ([Provincial Government of Kurdistan, 2015](#)).

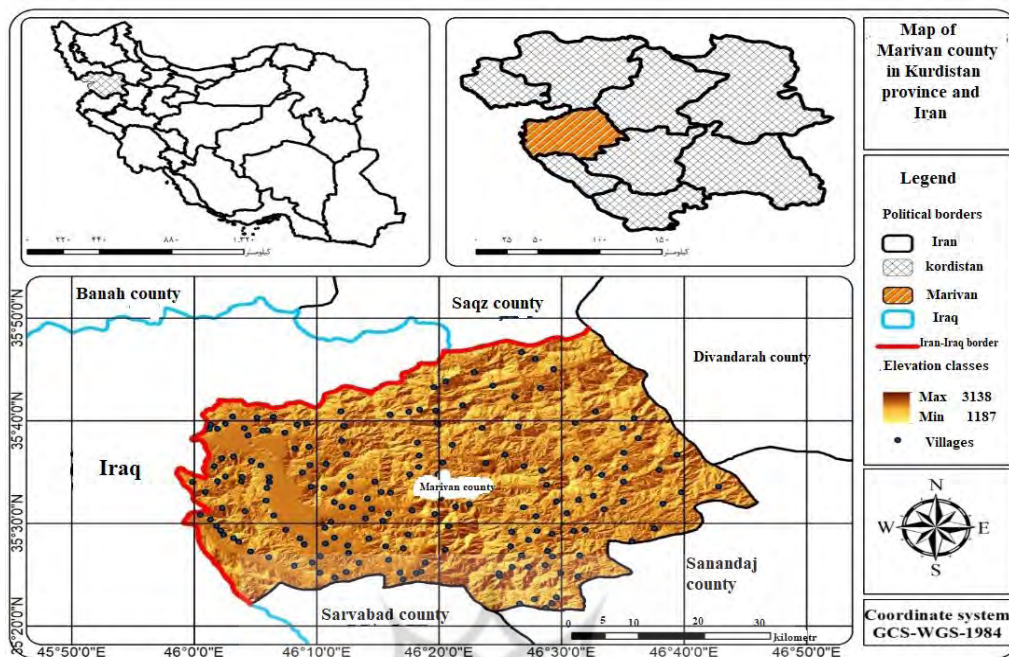


Figure 2. Area of study

3.2. Methodology

This study, in terms of goal is applied, in terms of nature is analytical and exploratory which is based on future studies. Documentary and field methods were used as the methods of data collection. Among the various methods of identifying the drivers and key factors in futurology, this study used Delphi technique in the qualitative section and their analysis was performed by the interaction / structural effects analysis method in the quantitative section. In the case of latter, we used a forecasting software named MICMAC.

Accordingly, initially open-ended questionnaires were anonymously assigned to freely express opinions by creating a brainstorm (individually), in relation to the current livelihood conditions of the villagers and factors that could perpetuate this situation in the future. Accordingly, these questionnaires were purposefully distributed among specialists and experts in the field of rural development in the region to identify and extract factors affecting the sustainability of villagers' livelihood. These people included 33 researchers, officials in development, university specialists, and a number of village informants and rural council members. In selecting these people, their expertise, experience and education and familiarity with the region were taken into account. Among the numerous cases raised in the

first phase (Q1), after combining, overlapping, removing irrelevant and ambiguous items and making the necessary corrections were applied to make a questionnaire. In the second phase (Q2) a structured questionnaire was used for the same people in the first round in order to quantify each factor (factors that destabilize the livelihood of the villagers in the region) using the Likert scale. As a result, the cases of agreement and disagreement were identified to distinguish new factors, correct, interpret and eliminate previous ones. In the next step, the third stage (Q3), a descriptive analysis was done (presenting the mean, mode and percentage of consensus for each instable factor) from the data obtained from the answers given by the individuals in the second stage. The Q3 questionnaire asks members to review their answers based on the group response obtained from Q2 and to change them if necessary. Then, after these three stages and achieving a reliable consensus, the factors or drivers affecting the livelihood sustainability (or instability) of the villagers in the region were identified; MICMAC software was used in the process of review for the cross-impact method. Cross impact method is an efficient and useful approach for detecting interactions. So that the impact of each variable is scored on other variables. Cross impact analysis as a tool for future study, reveals the power of

drivers of a variable in relation to other variables within a system and identifies those variables that play an important role in the development of the system in the future. The performance of the system is developed through examination of the output (the result of pair comparing in the row and column of the matrix) variables or drivers. In the analysis of the variance distribution (Figure 2),

five categories of variables can be identified in the system based on the rating of drivers, which is a scale from zero to three. The rating or weighting of the drivers in the matrix was done by a more limited number of research experts and then a theoretical consensus and agreement of other experts was provided.

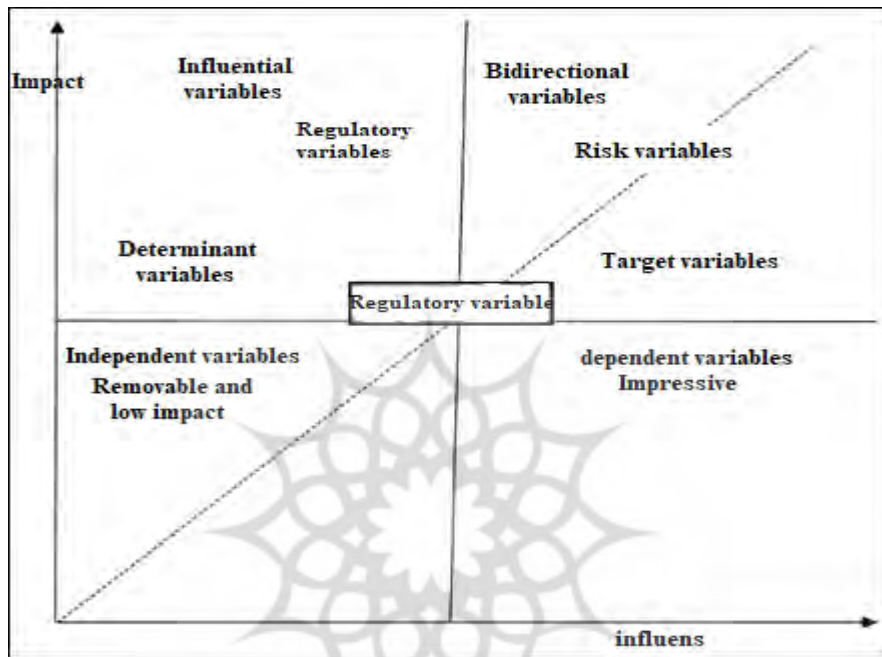


Figure 3. Driving and dependence power diagram of structural analysis method in MICMAC software (Godet, 2008; Sirius et al., 2003)

4. Research Findings

Preliminary analysis of the data and the cross impact of the drivers in the matrix of direct influence (MDI) show that according to the dimensions of the matrix, there were a total of 1296 options for the matrix, of which 645 matrix cells, zero, that is, factors were not affected by each other or will not affect each other. In contrast, 236 cells have a low impact value of 1,

264 cells have a moderate impact value of 2, and 151 cells have a value of 3 which means high impact. In total, 651 cells of the matrix equal to 23.50 % of the all evaluations have an impact on each other, and also reaching 99% of the desirability and optimality after two rotations, shows a good internal relationship between the answers provided (Table 1).

Table 1. Preliminary data of matrix interaction analysis and its degree of desirability and optimality

Matrix size	Repetitions	Zero Numbers	Ones	Twos	Threes	Total	Degree of loading	Rotation	Dependence	Impact
36	2	645	236	264	151	651	23.50	1	97%	97%
								2	100%	99%

In a cross matrix, the sum of the rows of each factor shows the degree of influence, and the sum of the columns shows the degree of dependence of the factor to other factors. First, as it is clear

(Table 2), a combination of local, regional, national and transnational factors cause instability in the livelihood system of the villager in the future. Indeed, from a systemic point of view, it

must be accepted that the livelihood of the villagers is like a landscape composed of different actors, the performance of each of which can improve or stagnate the performance of other actors, and finally, the stability or instability of the villagers' livelihood. Both sides of the border have had many cultural and social similarities between the peoples, which have long formed social and economic relations based on cross-border trade in the region. In the meantime, the decline in economic growth in Iraqi Kurdistan and the decline of sustainable social relations, which is crucial for the development of economic activities, has caused that this factor, as a trans-regional factor, affect the instability of livelihood of the villagers in the region.

The influence of factors (drivers) causing livelihood instability are more than their dependence on other factors for two indicators of institutional-managerial failures and extra-regional failures (Table 2), which shows the relations of this rural sector with the Kurdistan region in Iraq. In contrast, in the three indicators of economic failures, environmental-physical failures and social failures shows more dependence to other factors that make the livelihood of villagers instable. In other words, the introduction of these factors as instability drivers is because of their dependence to two influence indicators of the matrix. Among these, according to the influence of the indicators, the institutional-managerial failure index has the most direct influence among this kind of indicators, and the

economic failure index also has the most dependence among the indicators on other indicators of rural livelihood instability. In marginal and remote rural areas, such as the study area, numerous economic, social and environmental disadvantages that threaten and reduce the livelihoods of villagers. The centralized system, the absence of the private and non-governmental sector, and this fact that the government is solely responsible for rural development in the country, are among the major reasons that institutional and managerial inadequacies affecting the livelihood instability of villagers. On the other hand, the reason that the economic index received the most direct dependence on the other indicators of instability is the prevalence of poverty and widespread unemployment in this deprived and marginal environment, which has made the livelihood of the villagers very difficult and vulnerable. That is to say, the index of economic failure, which includes the financial and human capital of the villagers, is more dependent on factors of instability than other indicators. Similarly, its improvement depends on improving the situation of other indicators, and therefore it is very vulnerable to threats and crises. Moreover, because of the influence of economic indicators on the stability of social capital in border villages, the dependence of the economic index has caused the dependence of social index of rural livelihood to other indicators instability.

Table 2. Direct effects of effective drivers on livelihood stability of villagers in the study area

Indicator	Variable	Indicator	Influence	Total of influence	Dependence	Total of dependence
Economic failures 6/34	Low level of practical human resource skills	Variable 1	49	346	44	371
	Development of cross-border trade in absence of villagers and toward urban advantages	Variable 8	37		41	
	Frequent closures and suspensions of border markets in the area	Variable 6	38		24	
	Economic inequalities within rural system	Variable 7	25		24	
	Economic turbulence of the country	Variable 9	37		32	
	Poverty and unemployment	Variable 12	31		55	
	Lack of economic diversity (Single-product	Variable	43		34	

Indicator	Variable	Indicator	Influence	Total of influence	Dependence	Total of dependence
	economy)	18				
	Preference of villagers to invest in the city	Variable 21	21		27	
	Lack of employment and production of women in the rural environment of the region	Variable 28	35		31	
	Lack of self-employment and entrepreneurship culture	Variable 29	30		59	
Social failures	Decrease in youth population	Variable 4	39	290	31	315
	Info poverty (Knowledge and skills) and Technological	Variable 33	38		29	
	Fatalism and cognitive weakness in villagers	Variable 14	37		33	
	Socio-cultural transformation toward unsustainable urbanism	Variable 15	27		26	
	Insignificant and purposeless attention to vulnerable groups	Variable 17	28		18	
	Deficient in insurance needed by villagers in economic and social activities	Variable 26	46		36	
	Increase in migration	Variable 31	28		38	
	Inadequate property rules in villages	Variable 36	25		11	
	Disinclination towards participatory development	Variable 35	23		36	
	Unsuitable level of food safety and food security	Variable 24	27		57	
Environmental-physical deficiencies	Unsustainable exploitation of resources and depletion of natural resources	Variable 5	40	172	53	176
	Weak fundamental service and welfare infrastructure	Variable 19	38		32	
	Conversion of the potential agricultural lands into second homes	Variable 25	40		55	
	Fragmentation of lands	Variable 27	29		19	
	Housing instability	Variable 16	25		17	
Institutional-managerial failures	A centralized perspective on the allocation of services and facilities	Variable 2	37	351	24	287
	Inability in adaption to natural and human threats and post-crisis livelihood rehabilitation (low level of resilience)	Variable 3	35		25	
	Lack of a comprehensive plan for the development and sustainable livelihood of the villagers of the region (not using the potentials abilities and capabilities)	Variable 13	37		23	
	Priority of security-oriented policies in regional border management	Variable 10	43		20	
	Weak local management of villages	Variable 20	14		39	
	Lack of crisis management policies	Variable 22	30		37	
	Geographical isolation of the villages of the region and lack of mobilization toward local	Variable 23	46		28	

Indicator	Variable	Indicator	Influence	Total of influence	Dependence	Total of dependence
	and regional planning with emphasis on the principle of complementarity of spatial-local relations (unclear functional-spatial position of villages in land and territorial management)					
	Lack of a responsible and competent entity for rural development at the national level	Variable 30	39		21	
	Poor coordination in rural development at the regional and local levels	Variable 32	40		34	
	Recognizing rural development as equal to the traditional agriculture development in the region	Variable 34	30		36	
Trans-regional failures	Declining economic growth and sustainable social connection between the villages of the region and the autonomous region of Iraqi Kurdistan	Variable 11	23	23	12	12

System stability and instability: The distribution and dispersion of variables on the graph indicates the motion of the system toward stability or instability. According to Figure 3, if the distribution of variables is like the letter L, the system is moving towards stability. In this case, the distribution of variables is in three categories of key variables (highly influential in Zone 1), autonomous (Zone 4) and dependent or result variables (Zone 3). In contrast, if systems that are moving towards future instability, the distribution of variables is more complex. Most variables are scattered around the diagonal axis or toward the bottom of the graph. This way, they are in

between two states of influence and dependence, so in addition to determinant variables, result autonomous variables, two-dimensional (strategic and objective) and regulatory variables are also distributed on the graph. Looking at the distribution of variables affecting livelihood stability in the villages (Figure 4), it is seen that the existence of strategic, regulatory variables around the axis and towards the end of the graph the movement of the system (the livelihood condition of villagers in the area) is towards a more instability in the future unless the current unfavorable situation won't continue.

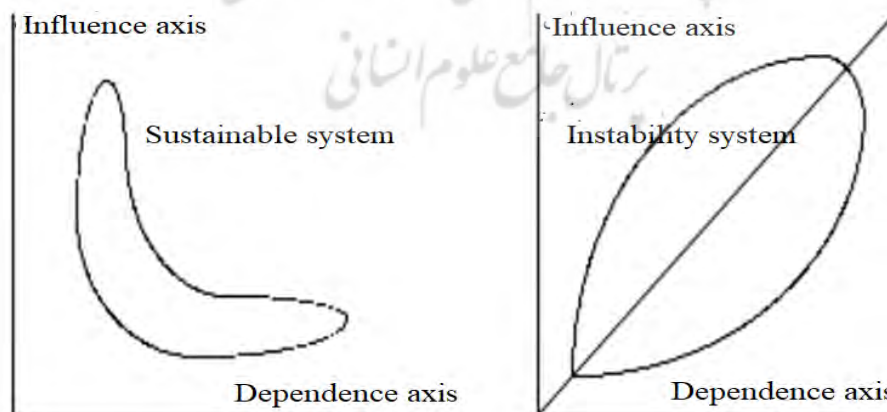


Figure 4. Stable and instable systems based on the distribution of variables
 Source: Mafzali & Jahangiry, 2015; Beheshti & Zali, 2010

Furthermore, as Figure 4 shows the position of the agents in the cross matrix, we can identify the

position of the agents according to the situation of their direct dependence and influence

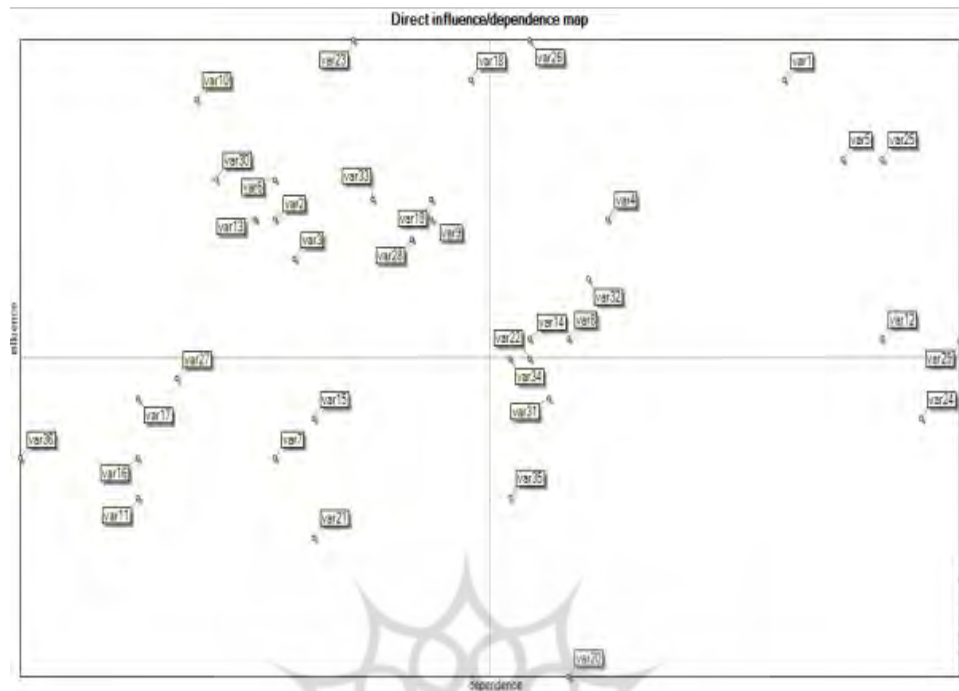


Figure 5. Variables distributed in the matrix of direct potential influence and dependence

First zone (determining variables): The variables in this zone are: Economic turbulence (var. 30), geographical isolation of the villages of the region and lack of mobilization towards local and regional planning with emphasis on the principle of complementarity of spatial-local relations (unclear functional-spatial position of villages in land and territorial management) (var. 22), weak fundamental service and welfare infrastructure (var.19), lack of a comprehensive plan for the development and sustainable livelihood of the villagers of the region (not using the abilities and capabilities) (var. 13), inability in adaption to natural and human threats and post-crisis livelihood rehabilitation (low level of resilience) (var. 3), a centralized perspective on the allocation of services and facilities (var. 2), priority of security-oriented policies in regional border management (var. 10), lack of knowledge and skills and technological information (var. 33), lack of woman employment and production in the rural environment of the region (var. 28), lack of economic diversity (single-product economy) (var. 18), lack of a responsible and competent entity for rural development at the national level (var. 9), frequent closures and suspensions of border markets in the area (var. 6). These are variables or factors that, as independent variables,

their influence is greater than their dependence, and dynamism and instability of the system depend on these variables. Therefore, controlling and organizing these variables is crucial. These variables, apparently, are the ones that depend on macro level of the planning and management system. Among these, the three variables of geographical isolation of the villages of the region, priority of security-oriented policies in regional border management, and lack of economic diversity (single-product economy) are the variables that have the most direct impact on the livelihood instability of the villagers in the area. In this regard, it should be noted that the lack of a comprehensive plan which acknowledges the importance of villages in the country's development system and spatial relations, has led to the isolation of villages especially border villages. The continuation of this process and neglecting the villages will be ended in the perpetuation of the vicious cycle, and thereby unfortunate results. There is an interrelation between the way border security is provided and the development of the border area. In the study area, priority of security-oriented policies in regional border management will block the borders, which is an important factor in providing livelihood in this border area. This,

consequently, will bring the rural economy back to a single product economy because border trade is based on the activities of other villagers. The reductions in the financial capital of the villagers will also lead to reductions of businesses such as animal husbandry, horticulture and tourism activities due to their high cost and unprofitable activities. Economic diversity is the core of the sustainable resilient livelihood. Lack of resiliency is likely to occur in the study area if the current trend continues. In this case, there will be deserted village and wasted water and soil resources in the region.

Second Zone (two-dimensional variables): The hypothetical diagonal line divides this zone to two sets of high-risk variables and the objective variables, which can be seen above and below the line, respectively. the diagonal line. At first, the variables related to the risk zone are: Low level of practical human resource skills (var. 17), deficient in insurance needed by villagers in economic and social activities (var. 26), decrease in youth population (var. 4), and poor coordination in rural development at the regional and local levels (var. 32). These are variables or drivers that have a great potential to be among the influential factors (zone 1) if the instability of the system continues. As a result, this will eventually make the system more instable (of villagers' livelihood). The second category of variables in this zone is objective variables or drivers, which are: Unsustainable exploitation of resources and depletion of natural resources (var. 5), conversion of the potential agricultural lands into second homes (var. 25), poverty and unemployment (var.12), lack of self-employment and entrepreneurship culture (var. 29). These variables are more dependent. They are likely to become the outcome (result variables) that we are looking for in the system (rural livelihood sustainability) by appropriate planning on them. The variables of this category are focused on the access of local people to the financial and natural livelihood assets. According to the purpose of these variables, two observations are deduced. First, if the natural assets of rural areas as a basis for economic activities get destructed and weakened, other dimensions and sources of livelihood of villagers will be threatened. Second, any activity in rural areas to increase the financial resources of villagers cannot lead to the sustainability of the villagers' livelihood unless the natural and

environmental resources of the village is considered.

Third zone (dependent or result variables): The variables in this zone are: increase in migration (var. 31), unsuitable level of food safety and food security (var. 24), disinclination towards participatory development (var. 35), and weak local management of villages (var. 20). Weakness in the main factors of stability in villagers' livelihoods will cause these negative results that will indirectly add to the instability of villagers' livelihoods. Because these variables are affected as dependent or results variables, their status is highly dependent upon changes in two-dimensional and influential variables (1st and 2nd zones). In other words, improving and controlling the unstable drivers of rural livelihoods located in 1st and 2nd zones will have consequences such as controlling the migration, achieving food security, improving rural management, and moving toward participatory development in rural areas.

Fourth zone (independent variables):

The variables in this zone are: Declining economic growth and sustainable social connection between the villages of the region and the autonomous region of Iraqi Kurdistan (var. 11), housing instability (var. 16), insignificant and purposeless attention to vulnerable groups (var. 17), fragmentation of lands (var. 27), preference of villagers to invest in the city (var. 21), economic inequalities within rural system (var. 7), socio-cultural transformation towards unsustainable urbanism (var. 15). These are variables that can be ignored and are considered as low-impact variables in the livelihood instability of the villagers in the region because they do not have much relationship, effectiveness and impact on other drivers.

Fifth zone (regulatory variables):

The variables in this zone are: Recognizing rural development as equal to the traditional agriculture development in the region (var. 34), fatalism and cognitive weakness in villagers (var. 14), development of cross-border trade without in absence of villagers and toward urban advantages (var. 8), and lack of crisis management policies (var. 22). Regulatory variables act as accelerators to move the system toward stability or instability. Accordingly, the fact that these variables are located near the center of the graph shows that by adjusting them, many unstable drivers and variables of rural livelihoods will be easily and

quickly eliminated and moving toward sustainable rural livelihoods. The opposite is also the case, if the reform is not done, we will see more instability in the livelihood of the villagers. Finally, Figure 6 shows the direct impacts of the

drivers related to the instability of the livelihood of the villagers in the region, ordered as the weakest to the strongest effects

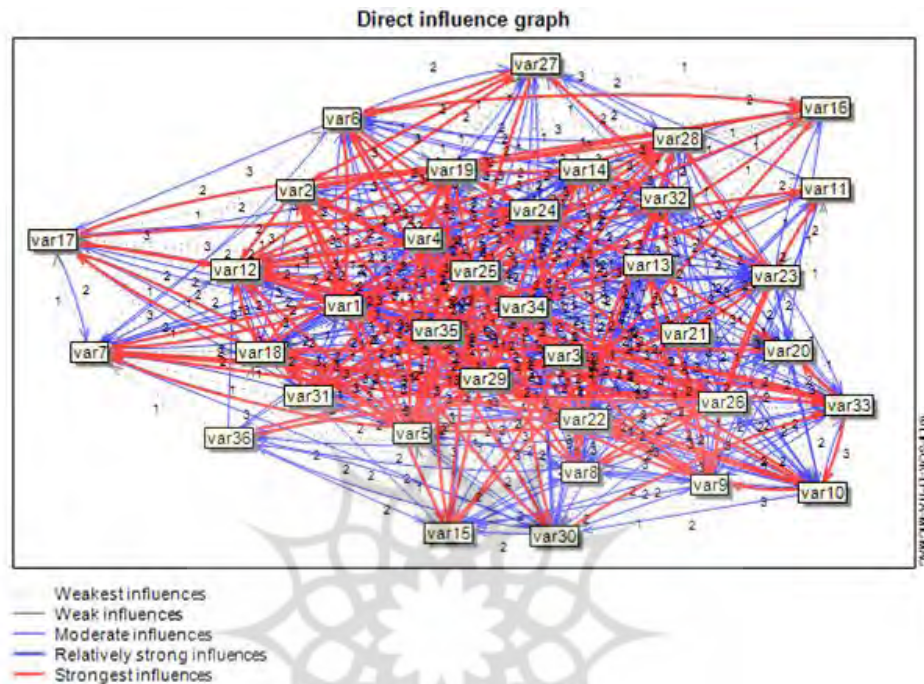


Figure 6. Direct impact of influential drivers on livelihood stability of villagers in the study area

5. Discussion and Conclusion

Future studies are the basis for achieving a rural resilient society, which is also known as the core of the sustainability paradigm. In fact, the impact of key factors and events on the economic and social status of rural areas has made rural areas vulnerable to intermittent changes in the economic, social and technological situations. Such changes become a threat and then crises, and eventually they challenge the livelihood and quality of life of the villagers. Identifying these key factors and drivers and being prepared for them can prevent being surprised by threads; therefore, it makes the rural communities more resilient, which, as a result, have favorable future prospects for economic and social development in rural areas. In this regard, the present study was designed to identify the drivers of livelihood sustainability in villages of Marivan counties investigating three questions, the answer to these research questions is as follows:

First question: How do the key affecting drivers show the movement of livelihood system towards sustainability? Considering the distribution of

drivers in the graph, it was concluded that the performance of drivers will cause the livelihood system of the villagers in the region to go towards instability in the future. This will result in the evacuation of villages in the region and waste of water and soil resources, which creates many security instabilities because of the direct relationship between sustainable security and sustainable development (livelihood) especially in a sensitive area like border regions.

Second question: What are the most important drivers to sustain livelihood for the villagers in the study area? Applying Delphi technique, we found and analyzed the most important drivers of livelihood sustainability of rural people in Marivan County. These drivers are categorized in the form of five indicators of economic failure including ten drivers, social failure including ten drivers, environmental-physical failure including five drivers, institutional-managerial failure including 10 drivers and trans-regional deficiency failure containing one driver, all of which are a total of 36 drivers. In another words, a combination of instability drivers at the local to

transnational levels will cause shocks, negative trends, threats and ultimately create a crisis in the sustainability of the villagers of this marginal region by reducing their livelihood assets and thus increasing their vulnerability.

Third question: which drivers will have the most direct impact on the sustainability of villagers' livelihoods?

Among these, based on the influence of the indicators, the institutional-managerial failure has the most direct influence, and the economic failure also has the most dependence among the indicators on other indicators of rural livelihood instability. Considering that in economic, social and physical-environmental failures that include internal drivers affecting the livelihood instability of rural people in the region, the amount of dependence is greater than their influence and only in the institutional-managerial shows more influence than dependence. We can conclude that institutional-managerial failure is the most important instability indicator among other ones. This can be explained by the strong dependence of rural livelihood on government planning and the recognition of the government as the sole custodian of rural development. In order to verify this, it should be noted that the most determining or influential drivers (located in the first zone) on the instability of rural livelihood is accumulated in this indicator (six drivers). The driver of "geographical isolation of the villages of the region and lack of mobilization toward local and regional planning" with an emphasis on the principle of complementarity of spatial-local relations (unclear functional-spatial position of villages in land and territorial management) has the most direct effect on livelihood instability of villagers among the other influential drivers. Furthermore, the drivers of "low level of practical human resource skills" and "lack of economic diversity" in economic failure indicator, the driver of "deficient in insurance needed by villagers in economic and social activities" in social failure indicator, and the driver of "unsustainable exploitation of resources and depletion of natural resources" in physical-environmental failure indicator had the greatest direct impact on the instability of livelihood of the villagers in the region. Similarly, institutional-managerial failures "weak local management of villages", in physical-environmental failures, conversion of agricultural lands to second homes in vulnerable areas, in

social failures, inadequate level of food security and safety. And in economic failures, lack of a culture of self-employment and entrepreneurship and poverty and unemployment are the drivers that will be most directly affected by other unstable livelihoods in the region.

Finally, based on the results, the following solutions are proposed for a sustainable rural livelihood in the future and change both the current unfavorable situation and also the future of rural livelihood into a sufficient status:

The key drivers, that is, the main causes of continuing instability of rural livelihood in the region is the institutional-managerial indicator, which is at the macro level of the countries' management and development planning. Considering this, adjusting the unfavorable management situation is of a great importance. Therefore, suggestions are proposed such as determining the spatial-local situation of rural areas, especially remote border areas in the system of development and moving towards territorial management, appointing one responsible rural development entity in the country, avoiding sectorial planning, changing the centralization point of view based on population in regional policy to a justice-oriented perspective, distribution of services and facilities in rural areas based on their role in the spatial system of development at the regional and the national scale. On the other hand, at the local level, another key driver that affects the livelihood instability of the villagers in the future is priority of security-oriented policies in regional border management. The region should be changed due to a niche management because of the correlation between the security and the level of livelihood and development of the rural areas. It is also necessary to eliminate the drivers of economic diversity and single-product economy in order to use all agricultural and non-agricultural potentials (rural tourism, cross-border trade, horticulture, animal husbandry, etc.). This will ultimately end up in the elimination of the other livelihood instability driver the lack of employment of women. Moreover, cooperation and security agreements for facilitating the communicating of the people on both sides of the border is proposed. This will improve the transnational drivers effective in the livelihood instability of the villagers of the region, due to the many cultural and social similarities that can provide economic

development. The two factors of poverty and unemployment, and lack of self-employment and entrepreneurship culture are both indicators of economic failures as objective drivers (drivers whose necessary solution is the goal of stabilizing the livelihood of rural villagers) shows the importance of economic status in sustaining the livelihood of villagers. Thus, the success of any program to change the livelihood of the villagers in the region should have tangible economic benefits for the villagers. On the other hand, the two drivers become the objective drivers because poverty caused by unemployment and lack of income will increase vulnerability and thereby reduces the level of resilience of villagers. On the other hand, a new and popular approach is suggested by planners which is not relying solely on the government in the issue of job creation and moving towards entrepreneurship and obtain development and increase the quality of life of villagers. Thus, the achievement of these two drivers in the desired ways will ensure the sustainable livelihood of the villagers in the future. It is certainly necessary to implement strategies related to improving the influential drivers in order to achieve these goals as well as the removal of individual and environmental barriers affecting the spread of entrepreneurial activity, which is one of the most important strategies. Entrepreneurship training is conceived as an important strategy by theorists and

successful regions. This strategy contains teaching villagers about the basic principles of entrepreneurship and how to take risks and identify opportunities. In this regard, using entrepreneurial villagers with successful experiences and non-governmental organizations in the region can be effective. Finally, regulatory variables should be planned to alter, namely fatalism, lack of crisis management policies, development of cross-border trade in absence of villagers and recognizing rural development as equal to the traditional agriculture development. This would prevent them being located in the area of two-dimensional or key variables which brings more destabilizing effects.

This study is consistent with the results of Moradimasih & Talebi (2017), Poormohammadi & Torlani (2017), (Ghişa & et al (2011), Ambrosio & Amador (2015), Taghiloo et al. (2016) and Sobczyk (2014) about the large number of drivers that affect the sustainability of villages, despite the geographical diversity. The achievement of this study can be a basis and a step for further studies, scenarios, executive strategies, policy-making and planning for sustainable livelihood and achievement a desirable livelihood future for villages in Marivan County.

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تحلیل ساختاری پیشران‌های مؤثر بر پایداری معیشتی روستاییان با تأکید بر کاربرد آینده‌پژوهی (مورد مطالعه: روستاهای شهرستان مریوان)

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چکیده مبسوط

۱. مقدمه

هسته اساسی رویکرد معیشت پایدار به شمار آنچه در تعریف معیشت پایدار قابل توجه است، در ابتدا مقابله با شرایط بحرانی و زمینه‌های مؤثر بر آسیب‌پذیری، شامل تهدیدهای مقطعی و فصلی، شوک و تکان‌های ناگهانی و روندهای بحران‌زای بلندمدت و در وهله بعد، آینده‌محور بودن؛ هم برای مقابله با بحران‌های موجود و پیشرو، و هم به منظور حفظ سرمایه‌های معیشتی برای نسل‌های بعد می‌باشد بنابراین، پایدار ماندن معیشت یک فرآیند مستمر از انطباق و تحول در برابر تغییرات و تهدیدها است و لازمه تحقق این امر نیز، در وهله اول در گرو شناسایی پیشران‌هایی هستند که به‌عنوان تهدیدها و زمینه‌های ایجادکننده آسیب‌پذیری معیشتی، موجب ایجاد تهدید و ناپایداری معیشتی در وضعیت فعلی بوده و می‌توانند در آینده اثرگذار باشند غفلت از نیروهای کلیدی و پیشران در فرآیند توسعه باعث تضعیف تدریجی آن‌ها و در نهایت تأثیرگذاری منفی آن‌ها بر عملکرد کل سیستم می‌شود. بر این اساس، عدم شناسایی و برنامه‌ریزی بر روی پیشران‌های ناپایدارکننده معیشتی روستاییان، می‌تواند به معنی تقویت آن‌ها، افزایش آسیب‌پذیری و کاهش سطح تاب‌آوری معیشتی روستاییان در آینده باشد.

۳. روش تحقیق

این پژوهش از نظر هدف کاربردی، از نظر ماهیت بر اساس روش‌های جدید علم آینده‌پژوهی، تحلیلی و اکتشافی است و به منظور گردآوری اطلاعات برای کسب بینش نظری لازم و بررسی ادبیات موضوع، داده‌ها و اطلاعات موردنیاز از شیوه اسنادی و میدانی استفاده شد. از میان روش‌های مختلف شناسایی پیشران‌ها و عوامل کلیدی در آینده‌پژوهی، جمع‌آوری اطلاعات با به‌کارگیری تکنیک دلفی در بخش کیفی و تجزیه و تحلیل آن‌ها نیز با روش تحلیل اثرات متقاطع/ساختاری در بخش کمی، مورد ارزیابی قرار گرفت و از نرم‌افزار تخصصی آینده‌پژوهی MICMAC بهره گرفته شد.

جهت حرکت به سمت تحقق معیشت پایدار روستاییان، بایستی آینده وضعیت نامطلوب کنونی را تغییر داد و این امر نیز، در گرو شناخت عوامل کلیدی و مؤثری است که می‌توان با کنترل یا تقویت آن‌ها آینده‌ای قابل تحقق را که اصل اساسی در مطالعات آینده‌پژوهی است، خلق نمود. بر این اساس، پژوهش حاضر نیز، رویکرد برنامه‌ریزی بر پایه آینده‌نگری را جهت تحقق آینده‌ای مطلوب به‌منظور پایداری معیشت روستاییان شهرستان مریوان استان کردستان که به‌مانند شرایط عمومی کشور و حتی بسیاری از کشورهای دیگر در حال توسعه بیشتر فقرای آن در نواحی روستایی زندگی می‌کند، اتخاذ کرده است. بر این مبنای، هدف اصلی پژوهش حاضر، شناسایی پیشران‌ها و عوامل کلیدی و بررسی میزان و نحوه اثرگذاری این پیشران‌ها بر یکدیگر و بر وضعیت آینده نظام معیشتی روستاییان این شهرستان می‌باشد که می‌تواند زمینه‌ساز و مبنایی برای تدوین سناریوها، راهبردهای اجرایی، سیاست‌گذاری و برنامه‌ریزی به‌منظور حرکت در مسیر پایداری معیشت و تحقق آینده مطلوب معیشتی برای روستاهای این شهرستان باشد.

۲. مبانی نظری تحقیق

مفهوم معیشت در هیئت مشورتی و نظارتی کمیسیون جهانی محیط‌زیست و توسعه (۱۹۸۷) مطرح و به‌عنوان دسترسی کافی و مناسب به غذا و منابع مالی برای برطرف کردن نیازهای اساسی بشر، تعریف شده است. دارایی‌های پنج‌گانه، مبتنی بر دارایی‌های مالی (پول نقد، پس‌انداز و غیره)، دارایی‌های انسانی (میزان مهارت، دانش و...)، دارایی‌های طبیعی (وضعیت منابع آب‌وخاک، چشم‌انداز طبیعی و...)، دارایی‌های فیزیکی (زیرساخت‌های رفاهی و خدماتی) و دارایی‌های اجتماعی (سرمایه اجتماعی، وابستگی، تعامل و...) که در تعامل با ساختارها، نهادها و سازمان‌ها حاصل می‌آیند و مدیریت می‌شوند.

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۴. یافته‌های تحقیق

مجموعه‌ای از عوامل محلی، منطقه‌ای، ملی و فراملی موجب ناپایداری سیستم معیشتی روستاییان این بخش مرزی شده‌اند که می‌توانند تداوم‌دهنده این ناپایداری در آینده باشند. در این میان با توجه به تشابهات فرهنگی و اجتماعی بسیار بین مردمان دوسوی مرز که از دیرباز روابط اجتماعی و اقتصادی مبتنی بر تجارت مرزی را در منطقه شکل داده است، افول رشد اقتصادی در اقلیم کردستان عراق و کاهش مرادفات پایدار اجتماعی مردمان دوسوی مرز که زمینه‌ساز فعالیت‌های اقتصادی می‌گردید، موجب شده است تا این عامل نیز به‌عنوان عاملی فرامنطقه‌ای موجب اثرگذاری بر ناپایداری معیشت روستاییان منطقه گردد.

بر اساس نتایج ماتریس، در دو شاخص نارسایی‌های نهادی-مدیریتی و نارسایی‌های فرامنطقه‌ای که متکی بر روابط این بخش روستایی با اقلیم کردستان عراق می‌باشد، میزان اثرگذاری عامل‌های ایجادکننده ناپایداری معیشتی موجود در این شاخص‌ها بیشتر از میزان اثرپذیری از سایر عامل‌ها بوده و در مقابل در سه شاخص نارسایی‌های اقتصادی، نارسایی‌های محیطی-کالبدی و نارسایی‌های اجتماعی، وضعیت عملکرد عامل‌های موجود در آن‌ها به‌صورت اثرپذیری از سایر عوامل ناپایدارکننده معیشت روستاییان بوده است. در این میان با توجه به مقدار اثرگذاری شاخص‌ها، شاخص نارسایی‌های نهادی-مدیریتی، دارای بیشترین اثرگذاری مستقیم و شاخص اقتصادی نیز، دارای بیشترین اثرپذیری مستقیم از سایر شاخص‌های ناپایدارکننده معیشت روستاییان می‌باشند. همچنین نحوه پراکنش متغیرهای مؤثر بر ناپایداری معیشتی در روستاهای مورد مطالعه نشان داد که می‌توان با توجه به وجود متغیرهای دوجبهی مخاطره‌آمیز، تنظیمی و پراکنش متغیرها در حول محور و به سمت انتهایی نمودار به حرکت سیستم یعنی معیشت روستاییان منطقه

مورد مطالعه در صورت تداوم وضع نامطلوب موجود به سمت ناپایداری بیشتر در آینده پی برد.

۵. بحث و نتیجه‌گیری

با توجه به اینکه پیشران‌های کلیدی که علل اصلی تداوم ناپایداری معیشتی روستاییان منطقه در آینده می‌باشند در بعد نهادی-مدیریتی و در سطح کلان مدیریت و برنامه‌ریزی توسعه کشور قرار دارند نیاز است که این وضع مدیریتی نامطلوب اصلاح گردیده و در این راستا نیز تعیین جایگاه مکانی-فضایی نواحی روستایی به‌ویژه نواحی دورافتاده مرزی در نظام توسعه و حرکت به سمت آمایش سرزمین، تعیین یک متولی اصلی توسعه روستایی در کشور و فاصله گرفتن از برنامه‌ریزی‌های بخشی، تغییر دیدگاه تمرکزگرایانه و مبتنی بر تعداد جمعیت در نواحی روستایی به دیدگاهی عدالت محورانه و توزیع خدمات و امکانات در نواحی روستایی بر پایه نقش آفرینی آن‌ها در نظام فضایی توسعه کشور و منطقه در سطح ملی پیشنهاد می‌گردد. همچنین بایستی بر روی پیشران‌هایی که به‌عنوان متغیرهای تنظیمی شناخته شدند یعنی ضعف تقدیرگرایی، فقدان ساختار مدیریت بحران، توسعه تجارت مرزی بدون حضور روستاییان و هم‌ردیف دانستن توسعه روستایی با توسعه کشاورزی نیز برنامه‌ریزی لازم را جهت بهبود آن‌ها انجام داد تا از قرار گرفتن این متغیرها در ناحیه متغیرهای دوجبهی و یا کلیدی که تأثیرات ناپایدارکننده بیشتری را به همراه آوردند، جلوگیری نمود و با بهبود آن‌ها سرعت حرکت به سمت پایداری معیشت روستاییان در آینده بیشتر و مطلوب‌تر گردد.

کلیدواژه‌ها: معیشت پایدار، آینده‌پژوهی، تحلیل اثرات متقاطع، روستاهای شهرستان مریوان.

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