



The Impact of Environmental Management on Rural Poverty in Ghahan Villages of Ghom Province

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Abstract

The purpose of this research was studying the impact of environmental management on rural poverty in Ghahan villages of Ghom province. The type of research is descriptive-correlation that is done through survey method. Statistical population of research are heads of households in Ghahan villages of Ghom province that through Cochran formula and stratified sampling was selected 318 people totally random. Main tool of this research is a questionnaire that its validity is obtained by using panel of experts and masters in the agricultural management field. The reliability of the questionnaire is done through pre-test and by Cronbach's alpha coefficient, that was acceptable. The results of research shown that exist significant negative correlation between the water resources management, soil management, waste management and collection and disposal of wastewater, maintaining and preserving vegetation and natural habitats and managing the physical environment of the village with rural poverty. The results of analysis regression are indicated water resources management, soil management, maintaining and preserving vegetation and natural habitats and managing the physical environment of the village variables well explain for 59.9% changes in rural poverty.

Key Words: Environmental management, Rural poverty, Ghom province.

Introduction

In recent years, the environmental crisis is not comparable with any other problems all through the world; in fact, any similar problem was not able to influence all human life (Mohammadi Ashnaei and et al 2008). Increasing life quality of people with expensive rate of consuming environmental resources is unwantedly negative influences on human life all through the world and is

faced human with different environmental challenges including: Climate change, reduction of natural resources and losing environmental diversity (Klockner 2013). In the modern ideology of sustainable development, anything is associated with environmental development i.e. the issue of environmental protection and its resources is regarded as most important aspects of

sustainable development and other direct and indirect aspects are influenced by this aspect. Unfortunately, during recent several decades the environment of Iran is faced with many threats based on destructive processes (Masoudizadeh et al 2016). Meanwhile, rural areas for subsistence and meeting their requirements are strongly dependent to natural resources and the activities of rural people is directly associated with natural resources. On the other hand, the environment for many villages of Iran is faced serious threats including: Increasing deserts, destruction of jungles and pastures, changing application of fertile lands, reducing surface of aquifer and landslide (Geravandi and et al 2011). Destruction of environment due to unstable operation of poor rural people from natural resources is performed in different forms including: Excess application of natural resources (wood, animal feces for the purpose of fuel), excess grazing by farm animals, changing application of jungle and pasture lands, using chemical fertilizers for increasing fertility of land, excess harvest of products that leads to environment pollution specially running waters (Batani 2015). Rural poverty due to pressure on natural resources and excess operation of resources have aggravated the process of destruction of environment and as a result of environmental crisis and eliminating resources of some rural people, the poverty of rural people is increased (Sharifinia et al 2010). Thus, there is relationship between poverty and environmental destruction. In fact, poor people are both victim and factor for destruction of environment i.e. eliminating poverty from rural areas is

happened through employment and solving environmental problems and vice versa (Sharafi and Ali Beigi 2015). On this basis, due to concentrating on environmental problems and finding-out its unsuitable consequences, human is in search of finding solutions for environmental problems. One of the solutions for maintaining environment and reducing related problems, is prevention of damaging to environment by human. Thus, an important issue for obtaining this goal is paying specific attention to environment and its management. In Iran like other developing countries, there are several rural civil plans for reducing poverty with the purpose of protecting environment (Salehi and Ghaemi 2013). Some of the reasons for poverty of rural economy are including: Low per-capita income of family, low efficiency of land, limited job opportunities, social poverty, low level of literacy, reduction of saving money, paying expensive costs for health, education, food and housing. Although activities related to social security, supporting poor class of society and vulnerable rural people goes back to 40 years, the achievements of plans from viewpoint of reducing poverty, vulnerability of income in rural areas is not significant and satisfactory (Mohammadi Yeganeh and et al 2016). The issue of poverty is regarded as most controversial issues in the field of development; so that many scholars believe that obtaining development shall be depending on eliminating fundamental impediments including: poverty, imbalance and injustice. Studies related to vulnerability show that poor people are more exposed to environmental shocks; thus, it is necessary



for considering the issue of poverty and related issues causing poverty (Keshavarz 2015). In Ghom province, shortage of water resources due to climate conditions, salt lake have accelerated the process of evacuating villages in recent years. This salt lake is now filled with water through rivers of Karaj, Jajroud, Shor, Ghomroad and Gharechaei. At the present time, through pausing water right, continuous drought and excess collection of underground water, it had led to progress of saline water in aquifer, destruction of plants and ecosystem of this area and active center for haze and this issue also caused for destruction of villages and farming in this area. The environmental crisis, destruction of pasture and jungles in this province, has influence on subsistence of rural people that are strongly depending to natural environment and increased their poverty. It is necessary to state that influence of environmental management on reduction of poverty of rural people due to environmental and economic problems shall be carefully examined. This research intends to find answer for this question that, what is the influence of environmental management on Dehestan Ghahan village on reducing poverty of rural people?

Theoretical Fundamentals of Research

Environmental Management on Village

Environment means an area that consists life and has mutual reaction and this area is created by nature, human societies and covers the entire biosphere (Bahram Soltani 2008). Environment management is a decision making process for human activities that influence on environment, so

that tolerable capacities of environment are not eliminated for human development (Faryadi 2012). Environmental management has tendency toward “human orientation” i.e. environmental problems upon determining development goals are considered and there is common goal that is insisted on definition of development and that is “sustainability”. In fact, sustainability is a simple concept and that is “Living together in nature”. More obviously, there is optimum balance between using natural resources and this duty of environment for recognizing this balance and benefit from its skills for planning and making decision for obtaining them (Chapman 2016). Until recent few years ago any plan and action was not recommended on behalf of rural management for organizing and managing rural environment and only in limited sections of rural health center, there was consideration toward rural environment. Nevertheless, it is to be noted that rural environment like urban environment has broad range and in compliance with changing lifestyle of rural people, the suitable plans for maintaining and managing rural environment shall be prepared and executed (center for specialty urban and rural study and services, 2006). Environment is one of the sensitive and vulnerable parts of village that is less influenced by different pollutants. Changing in the natural infrastructures and pollution of ecosystem are regarded as recent evolutions in rural society. Maybe it is claimed that developing urban consumption pattern and increasing some pollutants to domain of villages and changing consumption pattern of rural people, has prepared grounds for

environmental pollution in villages of Iran. On the other hand, life of rural people is strongly associated with nature and formation of artificial environment in village either residential home or villages is strongly influenced on nature. This issue reveals undeniable sensitivity and importance for role of environment on obtaining and designing process of sustainable development of villages from viewpoint of all aspects (Statistics, 2015). According to elements of environment in village and environmental problems of villages, the environmental management of village is divided in 5 sections including: Water resources management, soil management, waste material management, collection and discharging sewage system, maintain plants, natural Habitat, management of physical and spatial atmosphere of village. Water Resources Management: Management of supply and development of water resources is regarded as dynamic and effective factor for policy making, planning and required facilities for benefiting water resources since many years ago by focusing on developing water resources, environmental, political, social, legal and organizational topics. In fact, water management based on understanding water resources as inseparable part of biome, natural resource and economic-social goods (Ebrahimi and et al 2009). Water management consists of studying, planning, supervising, application of qualitative and quantitative methods, techniques for developing water in long-term and different application of water resources. Water resources management refers to all duties with the purpose of producing water and

related services, constructing buildings and facilities and its most important duty is obtaining balance between supply and demand of water (Bakhti 2008). Aghae (2009) has referred that the most important solutions for management of agricultural water is executing modern under pressure irrigation system, developing irrigation and drainage network, constructing dames, amending and improving available irrigation systems through tubing, integrating and equipping lands, protecting, amending and improving fertility of agricultural soils, equipping points of delivering water with suitable measurement tools, constructing pools for adjusting and reserving agricultural land, reviving qanat and small plans for supplying water, organizing wells and underground waters. Hosseinzade and et al 2013 has referred to mechanism of management of agricultural water as follows: Prevention of excess application of underground water, observing suitable distance between wells, prevention of excavating unauthorized deep wells due to its influence on semi-deep wells, elimination of surface wells, compatibility between number of wells and land under planting and using modern irrigation methods. Determining water right for wetlands (lagoon) is one of the goals of Environment Protection Organization for improving water quality and reviving related ecosystem and this issue leads to maintaining natural environment and bio value of wetland and enriching products of wetland and supplying benefits of native people (Mehdiabadi et al 2008). Soil Management: Soil management refers to correct and logical application of soil by observing its potentials and



capacities for obtaining continuous and sustainable production (Hersiloud 2006). World Bank has defined sustainable soil management as follows: Maintaining and increasing productive abilities of meadow, even lands, supporting jungle generative, maintaining commercial and non-commercial potentials, maintaining watershed management for reserving water, increasing capacity of aquifer for being used in farm and other productive activities, prevention of erosion and reducing effect of atmosphere through incorrect previous application at upstream level and aquifer (Bayat and et al 2011). Rural people due to their lifestyle and method of subsistence, are directing operating natural water resources (water, soil, jungle and pasture); thus, taking any action for maintaining environment and natural resources through Desert greening, controlling soil erosion, prevention of destroying pasture and jungle within focusing on villages and rural development plans (Rezvani 2004). Ghazani and Bizhani (2016) believe that plowing land suitable depth and time, using green and organic fertilizers instead of chemical fertilizers, protective plow at sloped lands, using biologic control methods instead of chemical poisons for control of pests and weeds, prevention of burning remained products after harvest are regarded some activities for protection of soil. Waste Material Management, Collection and Discharging Sewage System: Waste material management is based on observing reduction and separation at origin of producing waste materials, recycling and discharging materials on hierarchy method with priority of reducing, separating and recycling waste

materials. The purpose of waste material management is regular control of elements, producing, displacing, separating and processing in origin, collecting and recycling waste materials, transferring, carrying and discharging waste materials from production point to final discharge (Bozjomhuri and Faal Jalali 2016). Existence of sewage systems, is regarded as another factor for environment pollution and in many villages of Iran, lack of having system for collecting surface waters is regarded as one of the main problems and even this problem is more significant for villages lack of having home sewage system. In many villages, the sewage system of home are directed toward streets and alleys and through rainfall, this sewage that is mixed with rainfall is running over streets and roads and due to circulating pathogenic factors, it may have serious health consequences and environmental pollutions (Statistics, 2015). Maintaining Plant Cover and Natural Habitat: Human as part of nature is strongly depending to life of plants and animals living on earth and if the bio diversity is higher, the higher capacity of natural resources is offered to human. Through excess application of plants, animals and destroying their habitat in recent decades, a serious threat for continuity of life of plants and animals is created. In order to maintain environment and increasing diversity of bio life, it is necessary for using immediate action. Through increasing cultural-social education, it is possible to increase awareness of rural people about their natural habitat. Other effective actions for maintaining environment are including:

Increasing level of income-making of rural people, creating substitute jobs, lack of financial dependency to natural resources of area, preparing opportunity for residence and employment of rural people immigrating in other areas, strict rules for controlling hunter native people, prevention of excess harvest of plants and maintaining available live animals. Through prevention of entering farm animals to natural habitat, the process of hunting wild and unique animals and plants is paused and the suitable grounds for reviving these genetic resources is created (Farhadi 2010). Management of Physical and Spatial Area of Village: In recent years, many organizations and institutes are focusing on planning rural inhabitation for increasing compatibility between environment and a natural area of habitat and related changes in buildings, streets, facilities are regarded as spatial elements occupying the space. Preparing suitable spatial elements, facilities for appropriate life in compliance with terms and conditions of time are regarded as main factors for sustainability of bio complex especially in rural area (Anabestani and Akbari 2012). The physical space of village shall be able to offer environmental services, creating suitable space for residence and activity of persons living in village. The following activities may be performed in order to obtain this task: Drainage of roads and streets through constructing street curb, street gutter for directing surface waters, constructing green space and park, amusement park, preparing opportunity for reducing danger of incidents and natural disasters through recognizing natural disasters, improving safety of streets,

collecting and directing surface water and sewage system, localization in cemetery, reinforcing buildings, constructing floodgate, shore wall in compliance with rules and regulations (Azizpour and Hosseiniasl 2008).

Rural Poverty

The concept of poverty due to its complexity, dynamism has diverse definitions and this complexity is that there are several diverse factors and variables influencing on poverty (Adjasi and Osei 2007). Townsend in 1960's and 1970's believed that people, families, population groups are recognized as poor when they have shortage of resources for food diet, attending at activities, conditions and ordinary life facilities. Amartyasen in the year 1981 referred that poverty shall be regarded as depravity of fundamental abilities; instead of only having low income that is most famous indicator item for poverty. It is to be noted that depravity is relative concept that may have diverse definitions in different places and times and thus our understanding from nature and reason of poverty and depravity is increased (Barati 2011). Adam Smith is the father of new economy and he has defined depravity as follows: Poverty is lack of meeting requirements, habits and traditions that are determined by society. In fact, such requirements are classified into 2 groups including: Fundamental requirements that are necessary for continuing life and people of each country believe that lack of having such traditions and habits for each society is disrespectful and are consisting of non-physiologic and non-fundamental requirements (Fetros and Shahbazi 2016).



According to the definition of world bank, poverty is relative and formal depravity of welfare and consists of low income, inability for obtaining fundamental goods and services for survival of life. In fact, poverty consists of low level of health, treatment, education, poor access to healthy water, insufficient physical security, absence of complaint and potentials and opportunities for better life (Seif and Malek, Sep 2015). World bank has referred to reasons of rural economy poverty as follows: Low level of annual per capita, low efficiency of land, limited job opportunities and the reasons of social poverty of rural society are including: Low literary of family, low level of saving money, spending expensive costs for health, education, food and housing (Beshagh and et al 2015). Booth and Rountree as 2 pioneers in the field of studies associated with poverty in the later 19th century have divided poverty into 2 classes including: Absolute poverty and relative poverty and has distinguished them from each other. They believe that absolute poverty is objective issue that guarantees a scientific definition based on subsistence and it refers to meeting minimum life requirements for maintaining life. Based on this point of view, absolute poverty is inability for obtaining minimum life standards. On the other hand, relative poverty intends to obtain definite level of suitable life standards. In definition of relative poverty it has referred to imbalance for distributing income and wealth more than absolute level of income of people (Khodada Kashi and et al 2002). Depending on absolute or relative type of poverty, a threshold is defined as border between poor people and other classes of society and this

threshold is called “Poverty line – poverty threshold”. According to this definition, the poverty line is “Level of income in compliance with cultural, social, economic affairs for meeting minimum life requirements (food, clothes, housing) or minimum condition (minimum education, income and housing) that lack of supplying them may lead to regarding person as poor class of society. The relative poverty line is defined as definite percentage for income of society (average income of society) or a border line that definite percentage of people are classified lower than this line (Khosravinejad 2012). In a general definition, poor person is a person that is not able to meet his daily life affairs (food and non-food); thus, poverty line is calculated by determining suitable consumption basket for elementary requirements and then estimating cost of elementary requirements i.e. poverty line is regarded as minimum required costs for meeting elementary food and non-food requirements (Bagheri and et al 2007). Considering the statistics of poverty in developing countries shows that although there is poverty in both urban and rural society; most of poor people are residing in villages and the intensity of poverty in rural areas is more than urban areas (Bani Asadi and Mohseni 2014). According to the report of The International Fund for Agricultural Development (IFAD) in the year 2010, nearly 2/1 billion people all through the world are faced with extreme consumption poverty and more than two third of these people are in Asia, half of them in South of Asia and one fourth are in Africa, three fourth of these poor people (nearly 900 million people) are working and living in

rural area and it is interesting to know that it is anticipated that more than half of them may have the same condition in the year 2025 (IFAD 2010). The institute of bread for world in its report announced that from each 6 persons living on earth, one person is hungry and on this basis, from each 4 hungry person in world, 3 of them are living in rural areas and retailer farmers with highest percentage, are regarded as most of hungry people all through the world. In this report it is stated that the poorest and marginal group of people in world are retailer farmers and rural people without fertile land; in which, they are regarded as three fourth of hungry people or malnutrition people of world (Beshagh and et al 2015). In Iran poverty in villages is more than cities and although the share of urban population is very higher than rural people, according to the estimations, 54% of total poor people living under absolute poverty line are rural people and if the number of relative poverty is added to them, maybe it is stated that most of rural people are poor (Sheikh Zeinaladein and et al 2016). Whereas most of rural people are farmer or subsistence their life through selling agricultural products, any event leading to destroying their farming products make turn them into poor people (Sarvari and et al 2013) and environmental crisis due to reducing and destroying the resources of rural people may increase their poverty (Najafi 2007). Meanwhile, the living condition for poor people is very different; since, environment is vital resource for their subsistence and nowadays one of the most significant aspects of poverty is obvious relationship between poverty and destructing

environment. The issue of poverty that has influence on cutting jungle trees by poor families, excess using farm animals for grazing, excess application of fertile lands, imbalance for access to energy resources, increasing drought, residence in dangerous ecologic areas threatens poor families and enforce families that due to imposed pressure to face with environmental crisis. In fact, poverty has specific cycle and is regarded as important factor for destroying jungle; since, in order for survival of poverty there is solution only to excess operation of natural resources that leads to further crisis. One of the most common approaches in relation to poverty and environment is the theory of descending spiral of poverty and environment. The implied coincide of population growth, marginal economy within poverty and environmental studies, may lead to establishment of negative theories including: population growth, economic problems in descending spiral. There are following hypothesis in this approach.

A) Population and environment have mutual effect on each other

B) The subsistence of people either low or high is based on management of natural resources

C) Poverty and environmental problems have direct-causative relationship and may improve each other within cause-effect relationship

D) Poverty is the single and main reason of destructing environment and vice versa and finally this mutual relationship that leads to increasing poverty and destroying the environment (Firouzabadi and Azimzadeh 2012).



In ecologic point of view, poverty is examined as a phenomenon that is due to several factors and based on this point of view, a set of geographical factors including: Climate condition, natural resources, natural disasters, geomorphology, soil and plant cover, dispersion of facilities and services create poverty (Pourtaheri and et al 2011). Moreover, many studies have examined the factors leading to create poverty and many studies showed that rural people and families that their economy is based on agriculture due to strong dependency to natural resources, facing with environmental shock (drought) and low income are more faced with poverty (Keshavarz 2015). The environment and environmental changes may influence men, women and children in 3 dimensions from viewpoint of causing poverty including.

Subsistence: Poor people have more tendency toward their environment; thus, when environment is destroyed, their access to natural resources is paused and the local societies shall require safe access to natural resources in the way of subsistence. In many developing countries, the tenure of people due to increasing population and development is changed; thus, due to useless and obsolete rules and regulations, excess operation of natural resources, the environment is destroyed and it has negative influence of ability of subsistence.

Health: When poor people inhale polluted air and drink polluted water, they receive higher level of damage and the environmental risks are regarded as most important reason for outbreak of disease and disorder of health in developing countries

Vulnerability: Poor people are mainly

exposed to environmental dangers and struggles and they have limited potentials for coping and overcoming disasters and environmental problems (Talebi and Ahmadi 2017). The globalism strategies in relation to poverty and environment generally focus on variables and opportunities of economic and political affairs, historical affairs, environmental, social and economic process. According to inner field analysis of this strategy, often a network of causative relations from macro to micro level are in charge of determining interactions between poverty and environment. The short study of many researches about relationship of social and environmental phenomenon reveals that both poverty and destructing environment have deep and complicated reason and their relationship goes beyond mutual relationship so that other items are influencing on this item (Anbarloo and et al 2016). Results of research by Aghayari and Velaee (2017) for studying the effective factors for destructing environment on rural habitat reveals that increasing rural poverty, developing industries and tourism, urban movement, physical underdevelopment of rural areas, changing application of lands, using chemical and animal fertilizer are regarded as most effective factors for destructing environment among rural habitant. Telebi and Ahmadi (2017) in the way of studying role of destructing environment on increasing income have reported that the main reason of outbreak of poverty in world, is excess utilization of resources and destruction of environment that has led to reducing potentials of earth for meeting resources of human for continuing survival.

Mohammadi Yeganeh and et al 2016 in the way of evaluating and describing rural poverty and its relationship with environmental sustainability showed that rural poverty is influenced by environmental unsustainability. Keshavarz 2015 in the way of analyzing the fundamental reasons of rural poverty in Fars province showed that a set of human, social, economic, physical and environmental structures lead to increasing rural poverty. Ngonghala et al 2017 in the way of studying general ecologic models for sustainability of human and environment showed that in environmental economic systems that people for subsistence are depending on natural resources, the reduction of natural resources due to incorrect management and related diseases of ecologic pollution with limitations for economic growth, leads to continuous poverty. Walelign et al 2016 in the way of evaluating environmental income on rural poverty in Nepal reported that without environment based income, the number of families that are classified as poor families is significantly increased; thus, the environment is very effective on subsistence of rural families. Madulu 2015 in the way of studying environmental and health effects of human activities in relation to recognizing indices of poverty in Tanzania, stated that level of poverty is related to population growth, air pollution, elimination of wild life, farm animal grazing in pasture and many other items and he inferred that at the present time, the level of poverty in all villages has led to unsustainable application of resources and destructing of natural ecosystem.

Research Methodology

This research from viewpoint of goal is regarded as applied research and from viewpoint of methodology is regarded as descriptive-correlation research that is performed on survey basis. The statistical society of this research is family guardians in Dehestan- Ghahan village in Ghoma province that according to results of census issued by Iran Statistics Center in the year 2016, total number of 1159 persons attended in our study. By using Cochran formula and according to volume of statistical society, the number of samples was estimated as 289 persons and in order for increasing return rate of questionnaires and compensating incomplete questionnaires, 10% of statistical volume sample (29 questionnaires) were added to volume sample and 318 questionnaires were distributed. In this research by using random class sampling method and suitable affiliation, the samples were elected from Dehestan- Ghahan village in Ghoma province. The main tool for data collection is self-designed questionnaire of researcher that for determining validity of research tool, it was benefit from specialist panel and Cronbach's alpha for evaluating reliability of questionnaire and the reliability of questionnaire was confirmed. Dependent research variable is rural poverty that in order to evaluate this item, it was benefit from rural poverty questionnaire designed by Mohammadi Yeganeh and et al 2016. According this questionnaire, the economic poverty consists of 3 items including: Economic safety, income and housing. For each of the item a 5 Likert spectrum (5= very high, 4= high, 3= medium 2= low 1= very low). For easy understanding the questions by respondents, the questions were designed with positive concept and finally 3 items including: Economic safety, income and housing and rural poverty were encoded reversely. Independent variable of this research is environment management that consists of 5 items including: Water



resources (7 items), soil management (8 items), management of waste materials, collection and discharging sewage system (9 items), maintaining and protecting plans and natural habitat (8 items), management of physical and spatial environment (7 items). The questions of each item is designed by 5 Likert spectrum (5= very high, 4= high, 3= medium 2= low 1= very low). In order to analyzing the correlation between variable of environment management and rural poverty, it was benefit from Spearman Correlation Coefficient and in order to determine the role of independent variables on dependent variable of rural poverty, it was benefit from regression analysis. The calculation of this research was performed by using SPSS software.

Findings

Descriptive Findings

Results of research showed that in the statistical society of this research the average age of despondences is 46/67 years and most of despondences are male and married, from viewpoint of employment the most of respondents are self-employed and average monthly income of them is RIs M 13.77 and most of them have High School Diploma. Results of research showed that in the villages in our study, the food safety is at average level and satisfaction of people from income and housing is at low level. Finally, level of rural poverty is at average level, so that there is low level of consuming different fruits, vegetables and red meat and most of people do not have access to bank loans and don't have enough money. Moreover, their

house doesn't have enough facilities and architecture of rural residential units is that it wastes energy resources. Results of research in villages attended at this study showed that the level of environment management is at medium level, so that the environment of many villages of Ghahan is faced with serious threats including: developing desert, continuous drought and excess collection of underground waters, progression of saline water in aquifers toward plains, destruction of plant cover and ecosystem of region, changing application of farming lands, reducing level of aquifers, saline lands, reducing agricultural lands, soil erosion, destruction of villages and agriculture and under such condition it seems that obtaining to sustainable development is impossible; since, there is bilateral relationship between sustainable development and environment and negligence of environment prevents from obtaining to goals of sustainable development.

Inferential Findings

Results of correlation analysis show that there negative and significant relationship between variable of rural poverty and variable of management of water resources, soil management, waste material management, collecting and discharging sewage system, maintaining plants, natural habitat, management of physical environment of village; so that through improving items of environment management in villages of this study, the level of rural poverty is reduced.

Table 1: Reliability of different sections of questionnaire

Variable	Cronbach's Alpha
Food safety	0.833
Income	0.718
Housing	0.813
Management and protection of soil	0.886
Water resources management	0.859
Management of waste materials, collecting and discharging sewage system	0.888
Maintaining and protecting plants and natural habitat	0.858
Management of physical and spatial environment of village	0.875

Table 2: Items and indices of rural poverty

Variable	Index
Food safety	Lack of using red meat (sheep and calf), lack of using white meat (poultry and fish), lack of using dairy products and Legume, lack of using fruits and vegetables
Income	Dissatisfaction of income, lack of saving money, lack of accessing to loan, inability for buying and accessing to different fertilizers and seeds, inability of investment on agriculture, inaccessibility to market of agricultural products
Housing	Poor quality of building materials, poor quality of residential structures, influence of architecture of housing rural apartments for lack of economizing energy, shortage of residential unit, lack of having facilities at residential unit, inaccessibility to facilities, lack of satisfaction from architecture of housing

Table 3: Items and indices of environment management

Variable	Index
Water resource management	Changing traditional irrigation methods under pressure, investment on related infrastructures related to water, irrigation and drainage system, prevention of excess application of underground water resources, excavating unauthorized wells, prevention of unauthorized application and excess using lagoons by farmers and maintaining environment water right
Soil management	Vertical plow on slope of agricultural land, using organic and green fertilizers by chemical fertilizers, using minimum plow, prevention of burning remained products after harvest, using biologic control methods instead of chemical poisons for control of pests and weeds, applying agricultural alternate methods for amending low fertile soil, using fallow, prevention of destruction of agricultural lands, changing application of agricultural lands and gardens in villages
Management of waste materials, collecting and discharging sewage system	Having mechanized garbage in different areas of village, separating home-industrial and agricultural rubbish, having system for collecting and purifying Leachate, system for collecting and managing waste material gas, installing fence in area of rubbish discharge, limitation for easy access to burial place of rubbish, collecting rubbish by using mechanized machine minimum 500meters out of domain of village, having system for collecting and purifying sewage system, prevention of entering sewage system to river, changing waste materials and animal feces to organic fertilizer by using compost method
Maintaining and protecting plants and natural habitat	Prevention of picking up bush for preparing firewood for cooking food, prevention of excess grazing by farm animals, prevention of changing application of pasture to farming land, executing watershed management plan with other related organizations, prevention of entering farm animal to natural habitat, prevention of hunting wild animals in natural habitat
Management of physical and spatial environment of village	Executing rural plans, maintaining and observing public health in village, constructing network of roads and squares, developing green space and parks, drainage of roads through constructing street curb, constructing industries and factories adjacent to villages by observing environmental standards, maintaining domain of villages, maintaining natural sceneries of village



Results of regression analysis showed that there is significant relationship between independent and dependent variable and the following 4 variables including: Management of water resources, Management and protection of soil, Management of waste materials, collecting and discharging sewage system, Maintaining and protecting natural plant and habitat, Management for physical environment of village are important factors on variable of rural poverty, so that they are able to describe 59.9% of changes of dependent variable. Moreover, the variable of management and protection of soil has the highest influence on rural poverty and is able to anticipate the sig level for this variable. According to B and Beta regression coefficients a fixed amount is obtained and by using multi regression analysis by using step

step and regression question the following equation is obtained:

$$Y = 0.611 - 0.204X_1 - 0.184X_2 - 0.194X_3 - 0.158X_4$$

$$Y = -0.247X_1 - 0.202X_2 - 0.240X_3 - 0.180X_4$$

Results path analysis showed that Management and protection of soil, Management of water resources, Management for physical environment of village, Maintaining and protecting natural plant and habitat, through other research variables has indirect influence on rural poverty. Waste material management, collecting and discharging sewage system does not have direct significant influence on rural poverty; nevertheless, through management of water resources and maintaining plant, there is -0.110 indirect influence on rural poverty.

Table 4: Analyzing the correlation for variable of rural poverty with other research variables

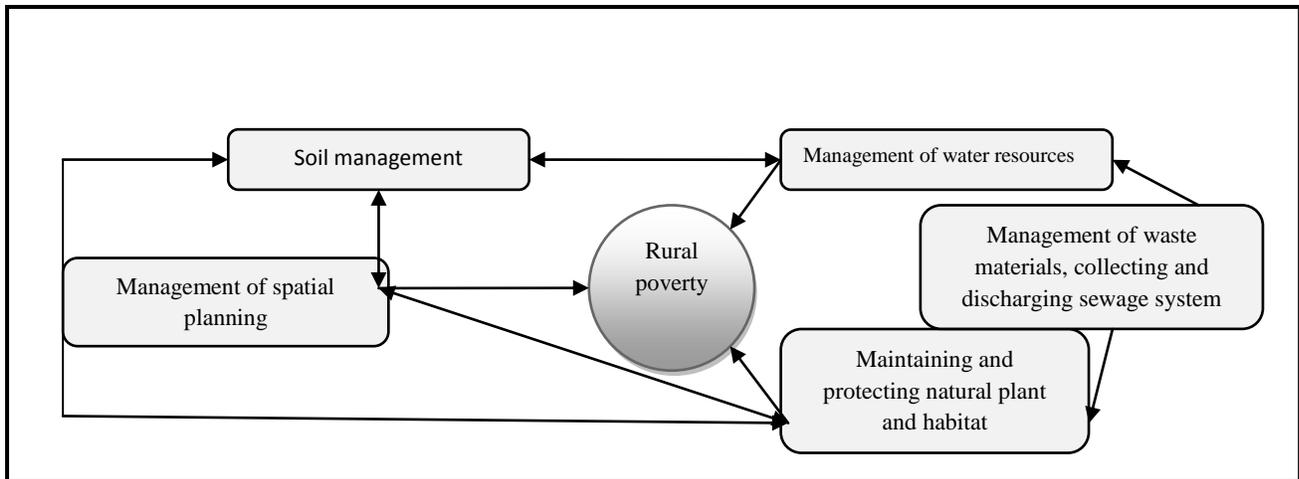
Variable	Level of Correlation	Sig Level
Management of water resources	-0.669	0.000
Management and protection of soil	-0.705	0.000
Management of waste materials, collecting and discharging system	-0.622	0.000
Maintaining and protecting natural plant and habitat	-0.670	0.000
Management for physical environment of village	-0.711	0.000

Table 5:

Stages	Independent variable	B	SE B	Beta	T	Sig
	y-intercept	0.611	0.101		6.054	0.000
First stage	Management and protection of soil	-0.204	-0.056	-0.247	3.631	0.000
Second stage	Management of water resources	-0.184	-0.055	-0.202	3.365	0.001
Third stage	Management for physical environment of village	-0.194	-0.054	-0.240	3.605	0.000
Fourth stage	Maintaining and protecting natural plant and habitat	-0.158	-0.056	-0.180	2.809	0.005

Table 6: Results of path analysis

Independent variable	Direct influence	Indirect influence	Total effect
Management and protection of soil	-0.247	-0.168	0.415
Management of water resources	-0.202	-0.054	0.256
Management for physical environment of village	-0.240	-0.115	0.355
Maintaining and protecting natural plant and habitat	-0.180	-0.175	0.355
Management of waste materials, collecting and discharging sewage system		-0.110	-0.110



Discussion and Conclusion

The purpose of this research is studying influence of environment of rural poverty of Ghahan village of Ghom province and management and protection of environment is regarded as most important factor for sustainable development. Not only environmental damages lead to reducing farming and non-farming activities; but also causes health and hygiene dangers for human, animals and other forms of life and for obtaining sustainable economic and social advancement, first of all it is necessary for preventing environmental destructions. Results of research showed that management and protection of soil has negative significant influence on rural poverty, so that through one unit of increase in variable of management and protection of soil, the dependent variable of rural poverty reduces with 0.247 units. Management and protection of soil assists for sustainability of ecosystem and environment, improving agricultural products, rural economy and reducing poverty. Talebi and Ahmadi 2017, Mohammadi Yeganeh and et al 2016, Keshavarz 2015, Valgian et al 2016; in their researchers confirmed the role of management and protection of soil for reducing rural Poverty.

It is recommended that organicfarming methods shall be developed and using chemical pesticides shall be minimized and also fallow and suitable farming pattern shall be applied for reducing pressure over agricultural lands. Management of spatial planning has negative significant influence on reducing rural poverty, so that one unit of increase in variable of management of spatial planning, reduces 0.240 unit of dependent variable of rural poverty. The nature environment of habitat is among main factor for sustainability of living place specially at rural places. The physical environment of village shall be able to offer environmental services and creating suitable atmosphere for residence and activity of persons living in village. Talebi and Ahmadi 2017, Keshavaz 2015, Valigan et al 2016 in their researchers confirms the role of management of spatial planning of village for reducing rural poverty. In development plan, the beautifying plan of environment of village is also considered and also determining village as tourism target and executing tourism plans in village leads to improving environmental aspects. Management of water resources has negative



significant influence on rural poverty, so that one unit of increase in variable of management of water resources, reduces 0.202 unit of the variable of rural poverty. Development and improvement of management of water resources for continuity of agriculture in low water areas shall be necessary and improving management of farming water for optimum application of water, increasing efficiency of irrigation, increasing producing agricultural crops, obtaining to environmental, economic and social goals of sustainable farmers may be regarded as important and effective factor. Talebi and Ahmadi 2017, Keshavaz 2015, Valigan et al 2016 in their researchers confirms the role of management of water resources on reducing rural poverty. Executing modern under pressure irrigation methods, improving available irrigation systems through tubing, integrating and equipping lands, repair ghanat, creating and organizing deviating dams with partnership of related authorities in this field may be effective. Protection of plan has negative significant influence on reducing rural poverty, so that through one unit of increase in variable of protecting plants, the dependent variable of rural poverty is reduced 0.180. For having better future in natural resources, it is necessary that government and related authorities shall completely prevent from all natural resources and enacting strict rules for prevention of cutting trees and destroying pasture. Talebi and Ahmadi 2017, Mohammadi Yeganeh et al 2016, Keshavaz 2015, Valigan et al 2016 in their researchers confirms the role of protecting plants for reducing rural poverty. It is recommended

for maintaining farming lands, gardens, supervision over systematic growth of physical structure of rural habitat and increasing public partnership for plantation.

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