

Research Paper: Evaluating the Components of Environmental Quality of Health in Rural Areas (Case Study: Lorestan province- Iran)



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ABSTRACT

Purpose: Health analysis of environmental quality requires available and special indices matched completely with reality which can provide the possibility of full recognition of studying community. In fact, it tends to present a new methodological framework by applying expert surveys.

Methods: Therefore, 153 indices including 21 ecological indices, 21 economic indices, 50 social indices and 61 physical indices are applied to assess and evaluate health sustainability. Identifying the related components and indices to the assessment of health environmental quality in the rural areas to determine if the identified components and indices are able to measure the health of environmental quality in the rural areas. Lorestan province in Iran with 11 cities (divisions) was selected as a sample.

Results: The findings from the field findings indicate that the designed components and indices could evaluate the health status of environmental quality in rural areas. The findings from single-sample T test show that descriptive T and the health of environmental quality test are in an undesirable level in term of components like (economic, physical, social and ecological).

Conclusion: Besides, the findings from utility Radar indicate that 18 villages are in a complete bad situation, while 12 ones are in a fairly weak situation in terms of all aspects of environmental quality health; none has a moderate and complete optimistic status.

1. Introduction

Nowadays, health, as a serious issue, has gotten special significance in residential areas in developing countries (Barati &

Kakavand, 2013). The analysis of international organizations indicates the centrality of health component as an essential or basic index in the measurement of sustainable development. Compared with other indices of development program in the United Nations, health

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component has been recognized not only as a side to evaluate nature planning and operating systems but also as a tool to assess the status of countries in the process of progress and development, being emphasized by “Earth Summit” (Riodojanero). In fact, development is defined as a way to meet people’s need, environmental health and welfare. If we accept the sustainable development as a basic approach to plan, today being focused the health and quality of environment in the heart or center of developmental programs, in the discussion related to settlements planning, guarantees a real progress towards sustainable development. Thus, considered as the final goal of rural planning policies, the environmental quality and health of residents, and rural life are recognized as a crucial issue to achieving rural sustainable development. Life quality is a multi-dimensional matter which includes serious elements in interaction with the living environment (Sarbu & Sebrachievici, 2013). Therefore, simultaneous development of quality with the indices is a targeted activity, because most behavioral abnormalities in urban and rural communities have historical, cultural and economic roots which are hidden in the residential quality and living spaces (Gudes, 2009). As a result, the quality of modern life is one of the attributes in contemporary societies that can be a function for environment quality (Pacione, 2005). The first step is to conduct and manage the environmental quality in urban and rural areas (Rafeian et al., 2010). Focusing on the environmental quality health is considered as a key to study in urban and rural social geography (Van kamp, 2003). In fact, there has been no comprehensive study to check the health of environmental quality in the rural areas which is due to the lack of well- defined set of indices acting like a base to evaluate and analyze the health of environmental quality in rural areas. Since there is no standard or accepted set of indicators related to the concept of environmental quality health due to the relative nature of the concept as well as spatial-spatial requirements, therefore, the extraction of an integrated set of references in indices according to the current subject, contributes the researchers to achieve a clear definition of that. It seems that compiling an integrated set of indices is necessary and essential. Besides, if the presented indices of environmental quality per studying are considered without a refinement, the analysis cannot be done facing numerous problems. Moreover, the findings will not make the strategies and schedule coincide to spatial effects. Therefore, the first researchers in the fields of health aims at concentrating the identification of descriptive indices which determines the environmental quality health and the level of significance. As a result, it is tried to identify appropriate indices (based on sci-

entific and integrated methodology) in order to evaluate environmental quality health. The rural areas of Lorestan province have some environmental problems in terms of environmental health, such as inadequate access and low level of public facilities and services, poor livelihoods, poor physical and mental security, lack of sewage system and surface water pollution; a consequence of contamination of soil and water resources, poor individual and collective health and overall low mental and objective quality of life. Accordingly, the present study aims to determine the status of the settlements in terms of environmental health components and to find out whether there is a significant difference between the studied areas in terms of environmental health components. Moreover, the current study tries to investigate the environmental health components which have the highest priority from the point of view of the sample population

2. Literature Review

Being as old as human presence, health (being healthy) has always been a concept discussed by human communities (Yeatts et al., 2013). Perhaps the oldest definition of health is not being sick, a common definition in many sources. This concept is a bio medical sense of health that was considered as the basis of microbial theory of diseases (Shahdadi khajeh Askari, 2015). However, in the recent years, various definitions and concepts used in the field of health have been evolved and completed including biomedical, ecological, economic, social and psychological concepts and combined ones. The most complete one is a combined concept being able to detect social, economic, political and environmental effects and the other effective factors on the health (Sajadi & SadrSadat, 2003). It is crucial to determine not only the effective personal factors but also various factors such as the quality of natural environment and the type of health, in restructure or available jobs (Richards, 2011). The notion of environmental quality is a complex concept that is neither relative nor absolute, focusing on two elements of measurable bio-geographical implementation and subjectivity and its environmental context (Streimikiene & veinhardt, 2017). The health of environmental quality is an essential condition to playing the social tools. Moreover, human can have full decisiveness, provided that not only do they feel healthy but also the also society finds them healthy. (Mohseni, 2002). Kampe and et al. knew the quality, resulted from the elements form of region (Van kamp, 2003). Thus, it can be claimed the concept of environmental quality is a complex meaning that emphasizes on bio-geographical elements and mental attributes of human (Thogersen, 2018). Human

quality provides the access to human health and well-being. An intact environment can be a source of spiritual satisfaction, allowing you to be able to ask them to take the opportunity and to do so. Access to the resources of this green space base, forests and rivers is after the quality of life (Chervinski, 2018). Environmental quality, the interaction of environmental conditions and social, economic, cultural situations and their spatial interaction have been defined together, like the rural environment. In fact, quality depends on the quality of infrastructure and a proper environmental management. The service system like health network, sewage, drainage drinking water network, waste disposal system, the network of gas and fueling are essential physical networks to maintain the duality of rural environment (Yuliastui & Sarasvati, 2014). In this framework, the analysis of international organization indicates the centrality of health component as a key index per measuring for a sustainable development (Australian institute of health and welfare, 2008). The program in the United Nations has considered health component as an aspect to evaluate the nature of executive policies and planning and also as a tool to assess the status of countries in the process of development and progress. "Rio de Janeiro Earth Summit" has emphasized on the fact that the development is actually meeting the needs, environment health and the welfare of individuals. If we accept the sustainable development as a basic approach to plan, focusing on the environmental health and quality in the heart of developmental programs guarantees a real movement in planning for habitations. Therefore, the environmental quality and health of life in the rural habitations is an accepted issue not only as a central goal of rural planning policies but also as a critical matter to achieve rural sustainable development (Sarbu & Sebarchievici, 2013). In other words, the health of environmental quality has turned into an essential and significant issue in rural habitations attempting to improve the indices in levels of rural communities (Gudes, 2009). The changes in the quality of rural environment are the instances which especially increases the negative factors such as delinquency, pollution and land-leaving, physical damage like vacating or desolating the villages. Inappropriate space among rural uses (applications), landfill location and power plant, unpleasant odors, inappropriate housing and vulnerability against natural disasters in rural areas have decreased the health of environmental quality leading to an increasing concern among people and governments. (Ferry, 2018). In this framework, many social scientists, architectures and planners who look for the optimization of residential environment including urban and rural areas are dealing with reviewing and identifying the

components and factors of environmental quality, thus, as it presented in Table 1, the comments of environmental quality such as vitality, readability (legibility), and security are generally represented (Pakzad, 2008).

The quality of rural environment involves social, physical, economic and environmental attributes (Sein, 2002). Improving the quality of the environment is effective in enhancing the desirability of physical space for work, health, living and recreation, and socio-cultural economic and performance functions. (Shen et al., 2019). Low quality of rural environment affects the quality of life in some fields such as health and security leading to dangers like abandoned houses, polluted places, landfill location and high rate of crime. Besides, we can add other dangers such as lack of utility of rural environmental quality which increases negative factors like the discriminations and pollution of landscapes concerning people and government. Not only does it lead to a decrease in the quality of rural environment but also it makes an interior danger for individual security and health. Moreover, environmental quality depends closely on justice; in fact, environmental quality that forms a historical view is revealed by the movement of social justice (Ferrey, 2018). Considered as a tool, the standards and indices of environmental quality health are necessary to emphasize the important basic topics in the section of general health which used to be either ignored or underestimated by different institutions and organizations in the past. The indices of environmental quality health are used to support human health and the environment and to evaluate environment capacities (United Nations, 2007). These indices also can alarm the advent of imminent environmental problems. Besides, they can also help the establishers and policy makers to manage and solve the problem. They can also be used to evaluate the progress of achieving too long and short term environmental goals. The health of a population and the quality of environment are the result of complicated interactions between individuals and the background of various physical environment, political and social factors (including built environment, social supports and relationships, attitude, systems, services and policies) (Yeatts et al., 2013).

Table 1. Factors and effective indices on the health of environmental quality form the scientists' view.

theorist	Effective factors on environmental quality
Iyan Bentley (1985)	Permeability, variety, vulnerability, flexibility, visual proportions, emotional richness color-enjoyment belonging, resources efficiency- cleanliness, bio support.
Mathieu Carmonu (2003)	Physical components, cognitive or semantic component, social component, visual comment, functional component- time component.
Panther and Carmoha (1997)	Bio-environmental sustainability, sights, city form, building form, public area
Swath worth (1989)	Structure and readability, form, comparability and convenience, access, health and safety, historical protection, vitality, natural environment protection, variety, consistency, social Communication, equality and equity, maintenance and adaptability.
Rajers transic (1986)	Maintaining the sequence of movements, enclosure, merging inside and outside spaces.
Haten and hather (1994)	Diversity, focus, democracy, security, flexibility, participation.
Shirvani (1981)	Adaptation, vitality, readability.
Kolman (1981)	Historical protection, designing for pedestrians, vitality and diversity, the use of bed and cultural environment, bed and natural environment.
Green	Performance, order, identity
Brayan Goodi (1993)	Vitality, harmony with available diversity, human scale, permeability, readability, flexibility.
Jeun jicepez (1961)	Appropriate activity, visual order of the environment, mixed user, being permeable, social chat and being flexible the space
Margaret meed (1999)	Compatible neighbors, sense of location belonging, sense of continuity, diversity, mobility, selection of residence, social bonds.

Source: [Rafieian et al., 2010](#)

3. Methodology

The method of research and the studied region» method of doing research in this study according to the nature of work, is based on descriptive, and researchers indifferent universities of country). There are 5 steps to design and explain the indices of environmental quality health. The first step is identifying the principles to assess the environmental quality health. The second step is identifying the dimensions and components of environmental quality health. The third one is explaining the selection criteria for indices of environmental quality health. The fourth one is measuring the indices by scientific experts (or elites). The fifth step is calculating the final value of each index based on the viewpoints of experts. At first, 56 different internal and external sources have been studied to obtain the components, indices and significant

indices in relation to health of environmental quality. The indices were documented on the basis on theatrical studies. Having compiled theoretical foundations, a set of indices, which linked the environmental quality health of rural areas in social economic, environmental and physical dimensions with measuring are marked. Then, the indices related to the studied subject have been observed and selected by questionnaire method. The method of selecting the experts and researchers is based on a purposeful sampling which is applied to select the experts with expertise in the field of environmental quality health. As a sample, the number of the whole questioned community in this research has been 33 people involving 11 people of the rural planners, 12 people of the managers (landlord managers) and Islamic councils of the village and 11 people of environmental health experts in the universities of Tehran, Tarbiat modares, Fer-

dosi of Mashad, Shahid Beheshti, Sistan and Baluchestan and also the relevant organization and ministries such as the ministry of health and medical education. In this research, after the initial screening, 153 indices were included in the questionnaire to score (to give a grade). The participants were supposed to give or dedicate a grade from (1) (means low credibility and value to measure the health of quality environment) to (9), (the highest value and credibility). In the next step. The collected information was analyzed in the environment of Excel and SPSS. Ultimately, the space of coherent indicator related to evaluation of environmental quality health in the rural residences was extracted with the certain values, presented in Table 2 the level evaluation of villages in Lorestan Province just started after extracting the indices related to the evaluation of environmental quality health in the rural residences. Besides, a questionnaire was applied to gather self-made in formation. Content or face validity method or technique was used to increase the validity of the questionnaire. In this regard, the validity of the research instrument was confirmed by a number of experts in the field, then Cronbach's alpha technique was applied to measure the research instrument obtained

a value of 0.905 which is suitable enough for research tools.

The basis of designing the questionnaire of integrated indicator package was made by the experts and elites. At first, the most important indices and effective services on environmental quality health in rural areas of Lorestan Province were identified to determine the studied villages. In this stage, the indices and services were identified including running a conductor plan, having educational centers, using light energy, accessing service centers and health facilities, and recognizing the villages with healthy drinking water, the villages with technology of information and communication, the villages with methods of the waste collection in a healthy way, the villages with positive growth rate of population. In the next step, the changes of centrality index were calculated to find the sort of the residences with mentioned services.

Finally, having determined the number of classes and villages in each category, 450 household heads were randomly selected and completed according to Cochran formula.

Table 2. Operational definition of variables.

Component	Index	Indicators of indexes
Economic component	Economic stability	Continuity of family income, income earned from turning agricultural activities into non-agricultural, job diversity, variety of products in level of village.
	Economic welfare	Satisfaction with annual savings, income gained from agricultural, industrial and service activity, satisfaction with production process, income gained from non-agricultural activities.
Physical component	Aesthetic quality	Benefiting the residences from landscapes, greenness in residences (exiting the trees, shrubs, vases and grass at the level of public passageways), lack of eyesore elements, appropriate lighting the level of public passageways, quality of designing alleys and passage ways network.
	Visual proportion and physical identity	Adaptation of the current uses (applications)in villages, fitness or coordination of physical environment with the nature of the village (the use of local materials), fitness between old and new applications, simplicity in the architecture, and evasion of uselessness the fitness of physical environment with social, cultural attributes in village, adaptation of housing with identity and family structure.
	Spatial (location) belongings	Tendency to live in the village, a nostalgia feeling in the case of being away from the village, a good relationship with relatives and highborn in most appropriate place-for tending to work in village.
	Permeability (penetrability)	The number of entering routs in village, lack of routes and blind alleys multiplicity, multiplicity lack of the routes are unlikely to pass and access to rider (riding people) multiplicity lack of the snaky roads and lack of existing the lands.
	Readability (legibility)	A system in village that makes permeability impossible in the different levels of village. Presences of the recognizable paths (as unfamiliar people can find their ways), naming the passageways in the village, presence of signpost and marks, discovering and marking the symbolic elements in village, clarity and visibility of exists (out puts) and the junctions from an appropriate distance.
	Physical quality of residence	Strength of housing- quality of housing according to the light and brightness, quality of housing with facilities (bath- kitchen)quality of housing according to the health status quality of housing considering preservation of privacy, quality of housing with fitting the number of family members. Quality of housing according to energy efficiency.

Table 2. Operational definition of variables.

Component	Index	Indicators of indexes
Social- cultural component	Social security	Crime rate- public safety, benefiting insurance supports, safety feeling of the children and women for commuting during the night and day, the tribal conflicts in the residence location, quality of performance of police (constabulary) in creating the safety.
	Social quality	Job satisfaction, satisfaction with income, quality of access to public services, quality of housing.
	Institutional contribution and capacity	Peoples 'participation in the meetings and the local groups, the people's self-help during performing the prospects, residents, contribution for mourning and joy rites, extroversion and social interaction of residents.
Environmental component	The health environment	Having the hygienic system to collect the household waste, with the hygienic system of collecting the animal feces, with sewage disposal system, use of fossil fuels for cooking and heating collecting or eliminating the superficial waters in the level of village.
	Vulnerability of environment	Presence of the fault, becoming dry the springs and seasonal rivers, destruction of natural beauties, the built dwellings on dangerous and steep lands, vulnerable residential units, torrents located in the vicinity of dangerous vulnerable residential units located in vicinity of dangerous faults.

Source: Islik & Tulbentci, 2008; Dincer, 2011; Zavadskasn et al., 2014; Berardi, 2015; UNEP, 2016



4. Findings

The health of environment quality has a close relationship with physical components. According to this research, the average value of physical indices equals to 8.42 which was tested and measured by 8 indices including permeability, ready ability, vitality, visual components, belongings related to place (place belongings), aesthetic quality, physical quality of residence and accesses. In new developmental approaches, mental- perceptual environment and its consequence, the behavior of societies, is considered as one of the most important factors that influences environmental quality health of geographical spaces. Therefore, the analysis of the social attributes utilizes from a high value to understand the effective factors on environmental quality health. The average value for the indices of social component equals to 5.21. Also, 21 indicators were selected for the economic component. The results show that the average value of economic component indicators is 5.32.

According to the current definition, the components related to environmental health in the level of rural areas have been defined by being focused on the maintenance and improvement of environmental quality, human's life and nature. The subjects such as ecosystem harmonization, biodiversity, and natural sources are in the center of attention in the ecological system. The evaluation of ecological components indices from the experts' view

shows (or indicates) that the average of final value for ecological component, indices equals to 7.38, presented in Table 3.

As Table 4 revealed the average value for all indices equals to 6.78. Moreover, the Table 4 indicates that the physical components, from view- point of the experts, have the highest grade by 8.42. The ecological environment component by 7.38 grade is ranked in the second, and social, cultural and economic components are ranked in 3th and 4 the respectively.

In order to analyze the available data from the field studies, the following steps have been added. The components of environmental quality health from the perspective of a sample society have been evaluated by the use of sample-T test in the first step. According to Table 5, the findings from this test indicates that the sample society status in all components of environmental quality health is lower than the normal showing that environmental quality health in the studied region does not possess a favorite level. However, the highest average is related to the social component that has been evaluated by 1.85 expressing that the status of this component is more suitable than other environmental quality health components. From the perspective of the sample society, the most unsuitable status is related to the economic component with the average of 3.318. Figure 1 shows the status of some indices of environmental health quality in the studied area.

Table 3. The average value for environmental quality health components from the experts' view.

Component	Indexes	The average value of indicators from the rural planners, view point	The average value of indicators from the experts, view appoint in the field of environmental health	The average value of indicators from the rural managers, view point	Total (sum) average from view of planners experts and managers	The total average of component
physical	Permeability	7.94	8.37	7.92	8.07	8.42
	Readability	8.76	8.60	8.23	8.53	
	Vitality	8.74	8.44	8.09	8.42	
	Visual proportion and physical identity	8.81	8.75	8.28	8.61	
	Place belonging	8.24	8.42	8.23	8.29	
	quality of aesthetic	8.68	8.42	8.22	8.44	
	Physical quality of residence	8.45	8.42	8.04	8.24	
	Access	8.65	8.77	8.52	8.64	
Social	Human resources	5.89	5.17	4.44	5.16	5.74
	Social safety	7.69	6.78	6.65	7.04	
	quality of life	7.14	5.98	5.20	6.10	
	Participation and institutional capacity	5.77	4.55	4.39	4.90	
	Healthful (health)	6.55	5.88	6.05	6.16	
Economic	Economic justice	6.12	4.16	4.23	4.83	5.42
	Economic stability	6.19	4.81	4.85	5.28	
	Economic welfare	6.90	5.27	5.38	5.85	
Ecological	Health of environment	8.27	8.23	8.17	8.22	7.38
	Resources of country	6.83	6.34	6.12	6.43	
	Environment vulnerability	7.46	7.09	6.82	7.12	

Source: Writer's finding, 2019



Table 4. Final average value of environmental quality health components from the experts' view.

The components of environmental quality health	physical	social	economic	ecological	Total average of indexes
Sum of scores	16937	9475	3760	5116	8822
The final value average of indexes	8.42	5.74	5.42	7.38	6.74
The experts of rural planning	8.53	6.6	6.4	7.52	7.26
The rural managers (Dehyar- council)	8.19	5.34	4.82	7.03	6.34
The experts of environmental health	8.5	6.61	4.72	7.22	6.77

Source: Writer's finding, 2019



Table 5. The semantic level of evaluation of environmental health quality components.

	Components	T statistic	The average	The semantic	The limit of average	Standard deviation
The components of environmental quality health	Economic	-96.263	1.38	0,000	2	0.1510
	Physical	-57.173	1.419	0,000	2	0.21545
	Social	-44.906	1.85	0,000	2	0.262
	Environmental	-51.483	1.415	0,000	2	0.2409

Source: Writer’s finding, 2019



Figure 1. The status of some indices of environmental quality health in the studied region



In the second step, the method of radar was used to access more accurate result for evaluation of the utility level of environmental quality health in each studied village. In this method, calculating the statistics, scaling down data aligning them, it deals with the evaluation of environmental health quality level in the sample villages. The different quantities of indices obtained from the calculation of utility final indices in each component were converted to comparative data with no sale by the phase without scaling method. Unlike the other methods, the reason for index distribution and the following consequences are more accurate than other methods with no scaling. Finally, the average and the obtained number were considered as the utility index in each component. The five (quintuple) categories of Allen precast have

been used to convert the quantitative calculations to the qualitative values, presented in Table 6.

It is necessary to note that indices and the indices of environmental quality health were evaluated in the sample society from the view point of household people. Therefore, at first, the real values by indices and the indices of environmental quality health were collected; the average was calculated. Then, the utility of environmental quality health indices in each of components was evaluated based on average value. The results have been presented in Figure 2. According to the calculated data from the respondents’ view, the highest rate of utility in the field of economic components has been dedicated to “Dome Roodbala” village by (0.374), while the lowest to Seren-

jeh village by (0.068) In terms of social components, the maximum score of utility equals to (0.488) that belongs to “Cham moort village”, while the lowest score of utility by (0.111) belongs to ‘Khoshkeh rood” village. In terms of physical utility, “Serenjeh” village by (0.402) and ‘Choobdar Paen” village by (0.14) have obtained the highest and lowest score respectively, Table 7. According to environmental utility component, the maximum utility by (0.218) belongs to Gازه village, while the minimum utility by (0/168) belongs to “Gol sefid” village. Considering all environmental quality health components, “Domroodbala” village by the average of (0.345) has earned the highest rank and “Gang Ali” paen village by (0.158) has earned the lowest utility according to quintuple, Table 7. Based on the categories of precut Allen’s utility evaluation in terms of economic components, 28 villages are in a full inutility status (poor

utility). According to social components among all studied villages, 20 villages are unfavorable, 6 villages are in a potential unfavorable, status (poor utility) and 4 villages are in the average (medium) utility. In the field of physical utility, 23 villages are in a full inutility status. 6 villages are in a potential inutility status (poor utility) and 1 village has an average utility. However, in terms of bioenvironmental utility, 22 villages are in a potential inutility status (poor utility). Considering all environmental quality health component, 18 villages are marked for potential utility status (poor utility) and none is in an average (medium) utility status and in a full utility. As it has been shown in Table 7, from the perspective of the sample society, the social component by the average of (0.228) has been the most utilizable and the economic by (0.158) has had the lowest rate of utility (Table 8).

Table 6. The quintuple categories of Precast Allen’s utility evaluation.

Status	Equivalent	value	grade
Unfavorable	0-0.2	0-20	5
Potential un utility (poor)	0.2-0.4	20-40	4
Medium (average)	0.4-0.6	41-60	3
Potential utility (good)	0.6-0.8	61-80	2
unfavorable	0.8-1	81-100	1

Source: Rokanuddin Eftekhari et al., 2010

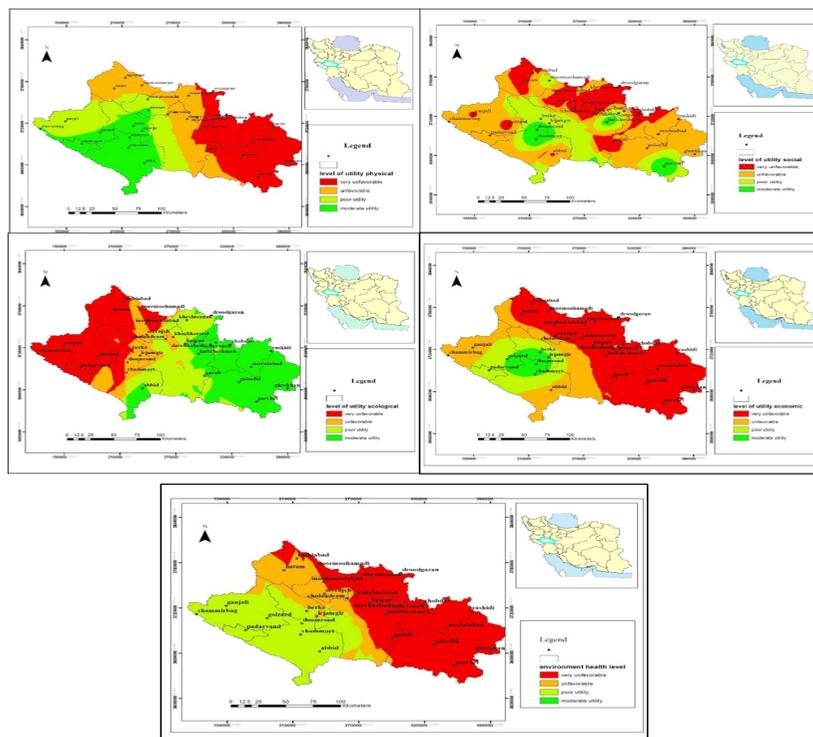


Figure 2. The status of environmental quality health components in the studied region according to Interpolation . JSRD

Table 7. The different quantities of environmental quality health utility in the villages of Lorestan province.

The name of village	Economic utility	Social utility	Physical utility	Bioenvironmental utility	Total utility
Kasian rostan khani	0.119	0.166	0.198	0.21	0.173
Gazeh	0.143	0.14	0.167	0.218	0.161
Haft chshmeh	0.115	0.453	0.159	0.21	0.234
Khoshkeh rood	0.158	0.111	0.212	0.159	0.16
Hattam	0.131	0.18	0.184	0.147	0.161
Noor mohammadi Amaneh	0.077	0.36	0.185	0.186	0.202
Taqi abad	0.091	0.182	0.191	0.181	0.162
Serenjeh	0.068	0.185	0.402	0.162	0.205
Mohammad Abad	0.158	0.18	0.182	0.169	0.177
Choolan dim	0.102	0.164	0.179	0.207	0.163
Kabood valley	0.148	0.17	0.188	0.174	0.17
Doroodgaran	0.092	0.17	0.157	0.205	0.156
Kheshtianak	0.149	0.188	0.181	0.178	0.174
Perchal	0.145	0.47	0.18	0.192	0.247
Gole sefid	0.141	0.181	0.174	0.168	0.166
Ghareh khan	0.161	0.189	0.141	0.192	0.171
Cham mirbag	0.162	0.204	0.3	0.192	0.215
Gole zard paeen	0.229	0.154	0.238	0.187	0.202
Gang Ali paeen	0.133	0.154	0.153	0.169	0.152
Cham moort	0.211	0.488	0.306	0.174	0.258
Ab bid gerda kaneh	0.129	0.196	0.308	0.169	0.201
Dam rood bala	0.374	0.422	0.379	0.205	0.345
Nosrat abad	0.15	0.169	0.98	0.192	0.177
Rashidi	0.102	0.196	0.12	0.207	0.156
Hamianeh	0.067	0.195	0.186	0.174	0.156
Choobdar paeen	0.102	0.183	0.14	0.205	0.158
Zargaran bala	0.247	0.282	0.18	0.178	0.254
Lajam gir	0.267	0.204	0.178	0.192	0.21
Berkeh	0.287	0.228	0.292	0.168	0.244
Padervand paien	0.257	0.226	0.305	0.192	0.245

Source: Writer's finding, 2019

**Table 8.** Inutility of environmental health quality components in the villages of Lorestan province.

Total utility	Ecological utility	Physical utility	Social utility	Economic utility
0.209	0.186	0.212	0.228	0.158

Source: Writer's finding, 2019



After that, the status of environmental quality health components in the studied villages was determined. According to frame work of Scoot Alan, the kriging interpolation method was used to evaluate the components status through the studied region.

5. Discussion

The indices and standards of environmental health can lead to make better decisions and to perform more effectively providing comprehensive information for decision makers. Moreover, they can be considered as a warning device in order to prevent obstacles of economic, social and bio environmental development. Therefore, the current study intends to introduce a new psychological frame work by using academic and local experts, survey for identifying environmental health quality components in rural region. The examination of the world literature shows that most presented studies related to environmental quality have been conducted in the field of urban residences. Therefore, the studied indices do not have measurement capability (can't measure) in the rural areas. The findings from this study indicate that environmental quality health components in the rural areas can include four components (physical, economic, social, bio environmental), and nineteen indices, in which there are 8 physical component indices (readability, vitality, visual proportions and physical identity, location belongings, aesthetic quality, physical quality of residence and access), social component by three indices (human resources, social safety, life quality), economic component can include three indices (economic justice, economic stability and economic welfare), and ecological component with three indices (environment health, land resources and environment vulnerability). Besides, from experts' point of view, the physical component has more importance (is the most important) in the field of environmental health quality in the rural areas. Eco-environmental component is the second important one with the maximum significance to evaluate environmental quality in rural areas. After designing the package of environmental quality health survey, Lorestan province was selected as one of the provinces in Iran with 11 cities in order to determine if these designed components and indices have the ability to evaluate the environmental quality health in the rural areas. These findings indicate that the designed package can accurately reflect the status of environmental quality health in the studied areas.

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Conflict of Interest

The authors declared no conflicts of interest.

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