



## **Evaluation of the Physical Quality Livestock Hygiene Environment Rule on the Development of the Health of Human and Livestock in the Rural Regions (Case Study: Rural Regions of Firouzeh County)**

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### **Abstract**

**Purpose:** Evaluation of zoonotic diseases have existed since the beginning of human life on earth, but in recent decades it has become much more important. Today, zoonotic diseases not only important in health area, but also in international economics and politics are also special place are important. the main objective of the present article is to assess the impact of the physical quality livestock building on the development of human and animal health in rural areas.

**Methodology:** In this regard, a survey method has been used. After applying the Cochran formula, 382 questionnaires were prepared in the form of a form and a questionnaire. case study is rural regions of Firouzeh county. For measure the research hypotheses, Binomial test and Linear Regression and TOPSIS has been used. Therefore, the research method is descriptive and analytical.

**Results:** Binomial test results show that the villages are unfavorable in terms of physical quality of livestock buildings. Linear regression results show that increased physical quality of livestock buildings has a direct impact on the development of livestock and human health. Also according to TOPSIS, Taghiabad village, Nayerabad and Shorab are ranked first to third in terms of the high quality of livestock buildings.

**Practical solutions:** Provide trifle and long term loans to ranchers, making changes to the old buildings keeping the livestock according to the quality standards of the livestock building, having a regular program for washing and cleaning the livestock building, more systematic monitoring of health centers by collecting livestock excrements and preventing the accumulation of waste at public passages are suggestions that can help improve the quality of livestock building and human health.

**Significance of the Study:** Regarding the approach to physical quality and its impact on the development of human health and livestock in rural areas and in terms of the area studied, this research has been the first research on the health of animals and humans in rural areas (Firouzeh villages).

**Key words:** Physical quality, livestock buildings, the development of livestock health, the development of human health, Firouzeh County.

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## 1. Introduction

**A** According to the evidences, the environment in which people live has a profound impact on their quality of life and health. In general studies, local environmental factors have always been recognized as the most important factor in health.

In recent studies by the British Cape Tidy, the local environment is known as the greatest concern of the people. In this framework, although common human and animal diseases have existed since the beginning of human life on the planet, but in recent decades it has become more and more important and today has a special position not only in terms of health but also in economic and international politics. In recent decades, almost all diseases of the newfound and controversial of human in this group have taken place, And the presence of each of them in a country creates many problems for the statesmen, which will have many consequences. In Iran, due to traditional husbandry, the direct contact of the villagers with livestock's and the lack of observance of the principles of hygienic in the livestock building, the incidence of these diseases is relatively high and causes a lot of economic and life damages. Brucellosis in Iran is endemic, and the incidence of this disease in different regions of the country varies from 108 in 100 thousand people to 1 in 100 thousand people (Hasanzadeh, Rahimi & Shakeriyan, 2013). In other words, it can be said that wherever human have lived in the adjacent of livestock, due to the non-observance of health issues, it has exacerbated the occurrence of common diseases of humans and livestock, which these dangerous diseases are rarely predictable and can create heavy economic losses in the short term. (Seyyed Zadeh, 2006, p. 19). these economic losses not only create additional costs for the villagers, but also reduce the productivity and income of rural households. Therefore, it is necessary to take proceedings in the area of reduction of common diseases of humans and animals, including such proceedings as increasing the physical and health quality of livestock building in rural areas (Dawson, 1997). In the rural areas of Firouzeh county, the majority

of rural inhabitants are husbandry, which often it does in the traditional pattern. Since keeping livestock is inside the village and next to residential units and it does not have the proper physical quality and health indicators are not being used in it, on the other hand, most livestock buildings have old texture. Therefore, one of the most common diseases in this area is Brucellosis. Background analysis shows that in most of these studies, although common diseases of human and animal, attention has been paid but the role of physical quality of hygiene of livestock on the development of human and livestock health Less paid. Battelli, Baldelli, Ghinzelli, Mantovani (2006), Mariska, Wanyama, Pagani, Hoof, Balogh (2008), Gerald, McPherson, Tha'Mes McDaniel, Zhigang Xu, Bryce Holmes, Leonard Williams, Niki Whitley and Jenora Turner Waterman (2013), Elwing(2013), Karami (2014), Tirgar, Agharor, Salari, Rajabalian (2012), Fallah, Matin, Eshrat Beygum Kia, Mobedi (2010), Zarifian, Azizi (2010) Including the researchers who Have worked on the issue of case study. Therefore, it can be said that the present article, with an emphasis on the existing the gap, answers this question: What is the role of the physical quality of hygiene of livestock on the development of human and livestock health?

## 2. Research Theoretical Literature

### 2.1. *The physical quality of livestock building*

According to the documents, livestock dense maintenance, especially in closed systems, has brought new issues and has changed the face of livestock diseases. In this respect, in controlling these conditions, is not enough to replicate formulaic and vaccination programs, disinfection and treatment, and need proficiency, guidance and attention to Health items in the building. These elements include:

**Table 1. physical quality of livestock building Standards**

Source: Research findings, 2017

Row	Physical elements	Description
1	topography	The livestock building should be taller or at least equal to the surrounding area.
2	The direction of wind blowing	The building must be in the opposite direction of wind (Honaramoz, 2002, p. 140).
3	Ventilation	The direction of the building be back to the direction of the winds of the region and its open side to the south. (Honaramoz, 2002, pp. 146-147).
4	Moisture	Livestock tolerates a range of relative humidity of at least 30% to 90% at temperate temperatures. (Same, p. 147).
5	the light	Radiation of the sun causes the bed to dry. In the case of most closed positions, the window fitting provides approximately 10% of the floor space of the room, enough light for the saloon per day (Honaramoz, 2002, pp. 149-150).
6	Soil	Soil contamination is caused by urine, stool and corpses of animals that have been lost In effect an infectious disease or In the form of unsafe are buried, and sometimes this infection remains for many years.
7	Water	Drinking water from flocks and water used in washing and cleaning should also be provided with safe water supplies, such as deep water wells (Same, P. 142).
8	Distance	The issue of the distance between a livestock farm of other livestock, and especially livestock farms that raise the same livestock, is very important. (Honaramoz, 2002, p. 140).
9	Beddinr	the preparation of a Beddinr for livestock, on the other hand, reduces direct contact with the floor, sometimes is moist, dirty, cold or hard, and, on the other hand, leads to the absorption of moisture from the Materials of extract and urine (ibid., Pp. 150-151).
10	Maternity hospital	It is the local that enceinte's livestock a few days before the probable date of accouchement to be delivered there is taken. The conditions in this place must be such that the livestock be in perfect comfort. (Boroumand, 2002, p. 224).
11	Manger	1. Sufficient capacity 2. Fast animal access to food 3. Minimal food waste 4. Safety in terms of skin and animal fiber protection.
12	Watering place	Have sufficient capacity for livestock's in flock, washable, impervious and water keeper, don't be near the manger (Behdad and Musagh, 2002, p. 300).
13	Hospital	The hospital's purpose in a livestock building is a separate place where Sick livestock's are kept and treated. (Honaramoz, 2002, p. 154).
14	Foam	The floor of the building should be inaccessible to moisture, rodents, especially the mouse, do not penetrate into it, easy to rinse and disinfect it.
15	Wall	In order to facilitate in cleaning of interior of Hall and complete disinfection, the inner part of the wall should be covered with cement at least one-meter high. (Dahayaran Special Educational Texts, 2006, p. 29).
16	Forage storage	In the forage storage, the moisture and temperature control should be considered and the growth of fungi and bacteria should be prevented And be careful about animals like mice.
17	Ceiling	The ceiling is of Iran, cement, board or other materials available on the site. To prevent heat dissipation, the ceiling of buildings should be insulated
18	livestock excrement management	Livestock production sources in the countryside are usually houses, where there are most of them holding livestock traps (Special Educational Texts, 2006, p. 44).

## 2.2. The relation between livestock health and human health

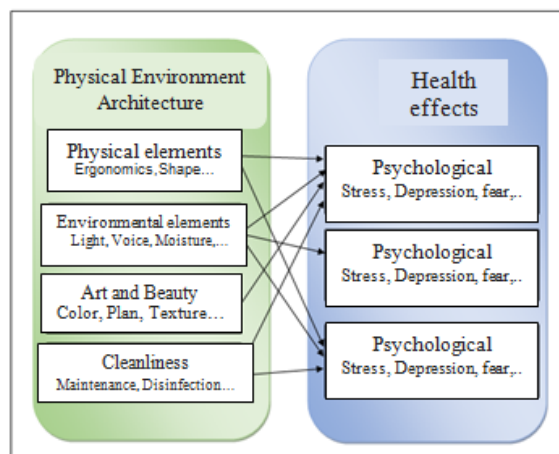
According to evidence, usually among poor households, livestock is kept near residential units, which is common in some developing countries. Therefore, it can be said that this

facilitates the transmission of disease between humans and livestock's and endangers their health (Elwing, 2013). In other words, if the livestock's kept by the villagers be in complete health, it has many advantages for husbandries because health livestock's have faster growth and produce more

food, and on the other hand, some diseases and infections not only cause livestock diseases also a threat to the health of humans, which are called common diseases of humans and livestock. In many developing countries, this disease causes death in humans. Therefore, many of these diseases can be observed in developing countries and rural poor (Mariska, Wanyama, Pagani, Hooft, Balogh, 2008).

### 2.3. Effective factors of physical quality of livestock Health Environment in the development of human and livestock health

Several factors effect to human health, in which the physical and human environment, among other factors, has an effective contribution. The findings show that the architecture of the physical and human environment which has four dimensions: physical elements, environmental elements, beauty factors, cleanliness and adornment of environment, and is effective on three areas: psychology, physiology and physical of human. As Figure 1 shows, the relationship between each dimension of architectural qualities varies with health dimensions (Emamgholi, 2013).



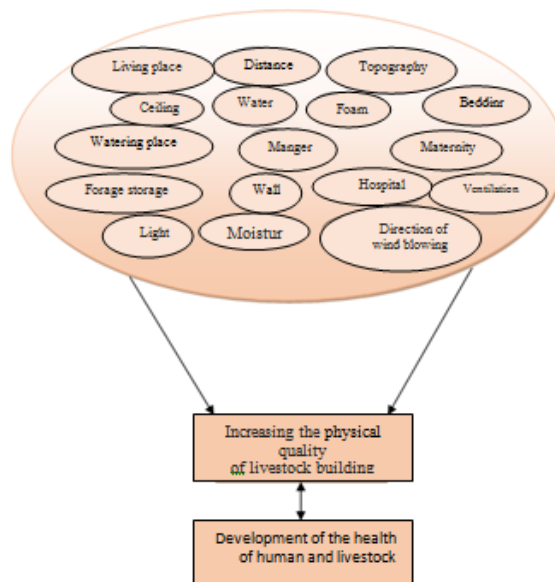
**Figure 1. The Impact of Environmental Architecture Features on Health**  
(Source: Imamgholi, 2014, p. 9)

Today buildings create part of the environment and a large part of the pollutions of environmental create. Of course constructions cannot be stopped, but with a thorough thinking, design and planning, buildings can be made that have the least negative impact on the environment and humans. Sustainable architecture is one of the planning and

design ideas for building such buildings. In general, there are three main pillars in the definition of sustainability:

- 1-Improving the quality of life and health of humans (present generation and future generations)
- 2- Provide everyday human needs
- 3- Maintenance of ecological systems and energy resources

The overall goal of sustainable design in a building, this is which to productivity of utilization of energy and natural resources, the impact of bad of building on the environment is reduced (Kaviani, 2015). Considering all these, it can be said that in rural areas, most villagers tend to build livestock buildings along with their own housing. So, as in the building of the dwelling, must observe the standards, it is necessary which to consider standards and criteria in order to improve the quality of the environment and the health of humans and livestock. As mentioned above, we can establish the criteria for increasing the physical quality of the livestock building in the form of Fig. 2:



**Figure 2. The effect of physical quality indexes on health promotion**  
Source: Research findings, 2017

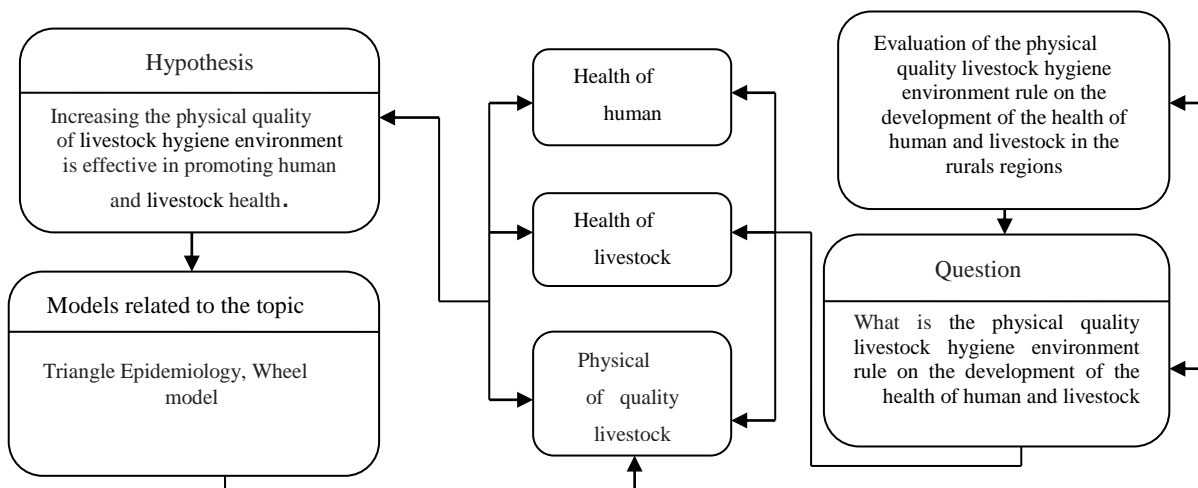
There are different approaches to the subject of research. Therefore, considering the fact that this article examines the impact of the body on human health, the closest approaches in this area can be found in the approaches presented in Table 2:

**Table 2. Approaches related to research topic**

Source: Research findings, 2017

approach	Description
Triangle Epidemiology	The epidemiological triangle consists of three components Host, environment and pathogens. This model is closely aligned with the health ecology perspective and believes that full recognition of health requires that humans be considered as part of their ecosystem. Human ecosystem, in addition to the human environment, includes all aspects of the human environment created by him, including environment physical, chemical, biological and psychological, and, in short, culture and all cultural productions. In fact, the threat to human health is rooted in human ecosystems, and health is taken into account on the basis of ecological concepts as conditions in which a dynamic balance exists between humans and their environment.
Wheel model	This model has a central axis that host's the genetic building is in its center. It is located around the host environment, divided into three sections: biological, social, and physical. The relative size of each wheel component changes in relation to the health threat or the incidence of the disease. This model, like the causality network, Instead of looking for a specific factor (a one-factor approach) to cause illness, it relies on multiple factors to threaten health and disease (ibid., P. 30).

In general, based on studies, the conceptual model of research can be presented in Fig. 3.

**Figure 3. Conceptual Model of Research**

Source: Research findings, 2017

### 3. Research Methodology

#### 3.1 Geographical Scope of the Research

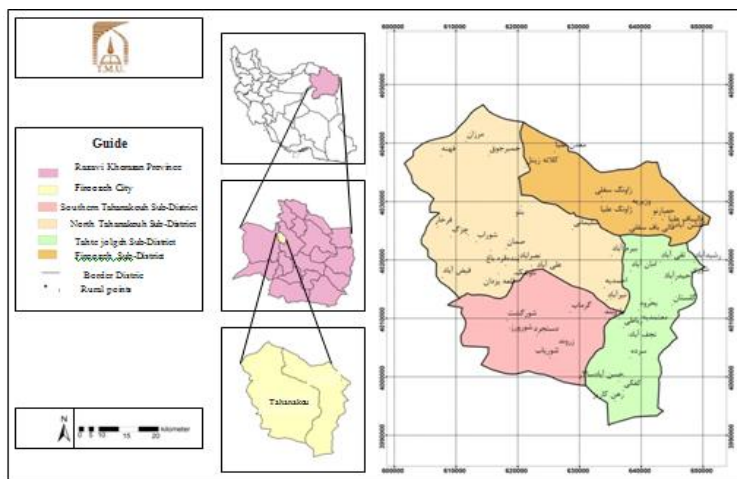
The study area of this article is Firouzeh county villages. According to the latest census by the Iranian Statistics Center, Firouzeh county, in 2011, had 42718 inhabitants. In 2011, from the total population of the district, about 5,769 people lived in the district of Firouzeh and 1,434 people living in the city of Hematabad, and the rest in the 105 rurals inhabited. Among these villages, the village of Garmab (4429 people), Madan bala and payin (1027 people), Shorgesht (1069 people), Soleymani (1272 people), Marzan (1,380 people),

Ghale Yazdan (1043 people) and Shurab (1068 People are the most important and largest villages. In the same year, the Iranian Statistics Center recorded about 98 abandoned villages in the Firouzeh county during the census, indicating the high migration from the village to the city. With this description, 8 villages were selected for research sample and 382 questionnaires were prepared for family caretakers and 382 harvesting forms for rural areas of this city by stratified random sampling. Then, in table 3, the population and number of completed questionnaires were determined. In Figure 4, the location of the studied villages is specified.

**Table 1. Number of questionnaires by divided village**

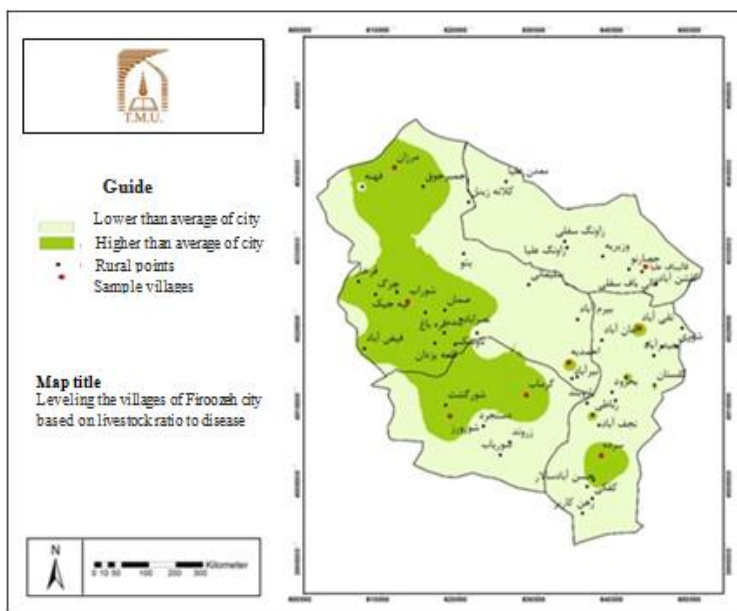
Source: Research findings, 2017

Village	Population	number of questionnaires	Village	Population	number of questionnaires
Sardeh	780	32	Ghalibaf olya	43	15
Taghiabad	372	15	Shorab	1068	44
Marzan	1380	57	Shorvarz	284	15
Garmab	4429	182	Nayerabad	556	22



**Figure4. Leveling of sample villages**

Source: Research findings, 2017



**Figure 5. Political situation in Firoozeh county**

Source: Research findings, 2017

In Figure 5, the overall status of the city Sub-Districts and sample villages from each Sub-districts is shown on the map. From Firouzeh Sub-district, village of Ghalibaf Oliya, from Takhte Jolgeh Sub-district, Taghiabad and Sadeh villages,

from Taghagan-kuh- North Sub-district, Ahmadiyah, Shroub and Marzan villages, from Taghagan-kuh-South Sub-district, Garmab and Shurroz villages are selected as sample villages.

Table 4 shows the status of sample villages, including population, households, average

livestock and the number of common diseases of human and livestock from 2010 to 2015.

**Table 2. Situation of sample villages**

Source: Health Center and Health Network of Firouzeh, 2016

Rural	Population	Household	Average livestock	Common diseases of human and livestock					
				2010	2011	2012	2013	2014	2015
Shorvarz	284	81	950			1	3	3	
Sardeh	780	233	1580		1		3	14	1
Taghiabad	372	113	1850		1	5	2	9	
Shorab	1068	299	2900		2	9	7	4	8
Garmab	4429	1111	6100	1	10	32	34	10	11
Ghalibaf olya	43	15	285		1		1		
Marzan	1380	348	1890	3	9	6		4	2
Nayerabad	556	171	2010	1		3	2	1	2

### 3.2. Methodology

The research method used in this research is applied, exploratory, descriptive -survey. The purpose of this research is applied. In order to collect information and carry out this research, for theoretical studies, library resources and documents have been used. In practical aspect, considering that rural areas do not have a systematic system for registering statistics and information about the subject matter, it is

necessary to collect data and information through setting up a questionnaire. In this framework, to measure the independent variables (physical quality of livestock buildings) were used from the indicators of Table 5 and to measure the dependent variables (human health and livestock health) were used from the indicators of Table 6. For data analysis, binomial distribution, regression, and also Arc-GIS and SPSS software have been used.

**Table 5. Independent variable indices**

Source: Research findings, 2017

Dimension	Index	Indicator
Livestock Building	Ventilation	Presence of ventilation, humidity status, window facing south
	Beddinar	The existence of beddinar (Honaramoz, 2002)
	Maternity hospital	The existence of maternity (Boromand, 2002)
	Manger	Sufficient manger capacity, Appropriate manger height, Washing ability
	Watering place	Non-penetrating and water-retaining, washable, sufficient capacity, distance from the Manger (Behdad and Mutagh, 2002)
	Ceiling	Suitable Ceiling and prevent heat dissipation (Pourreza, 2002)
	Forage storage	Existence of forage storage, preventing animals entry
	Wall	Avoid of heat dissipation, washability (Dahayaran Special Educational Textbooks, 2006)
	Foam	Having a suitable slope, washability, and impervious to moisture (Pourreza, 2002)
	Hospital	The presence of the hospital (Honaramoz, 2002)
Location and establishment of a livestock building	Hazards	Resist against human dangers, Resistance to natural hazards
	Distance	Distance from similar farms, separation of the place of entry and exit of humans and livestock, separation of livestock buildings from habitat, distance of livestock building from the Village texture, distance from the river (Honaramoz, 2002)

**Table 5.**

Dimension	Index	Indicator
Location and establishment of	Distance	Distance from similar farms, separation of the place of entry and exit of humans and livestock, separation of livestock

a livestock building		buildings from habitat, distance of livestock building from the Village texture, distance from the river (Honaramoz, 2002)
Health-environmental	Animals carcass burial management and livestock excrement management	Collection at a suitable location, Recycling of livestock extinctions, Animal carcass sanitation burial (Dahayaran Special Educational Textbooks, 2006)
	Soil	Suitable soil
	Water	Secure resources
	Cleaning the building	Periodic cleaning and washing (Honaramoz, 2002)
Adaptation to the natural environment	natural conditions	The presence of sufficient light, the presence of a tree around the building, the existence of the building in the opposite direction of the wind, was the level or height of the building compared with the surrounding land (Honaramoz, 2002)

**Table 6. Dependent variable indices**

Source: Research findings, 2017

Index	Indicator
human health	The number of illnesses, the number of visits to the doctor, the number of common diseases of humans and animals, the cost of treatment, unemployment or the loss of job opportunities due to illness, the complications of common diseases of humans and animals, hospitalization of the disease
Livestock health	Number of diseases, number of visits to the vet, number of common diseases of humans and animals, number of livestock deaths due to illness, weight loss due to illness, reduced milk production due to illness, abortion due to illness, treatment cost

#### 4. Research findings

The descriptive information extracted from the questionnaire shows that 68.3% of the respondents are male, of whom 32.5% are between 20 and 30 years old. 33.5% of the respondents had a diploma and 66.2% of them had income less than 600000 tomans. In the index of construction of husbandry, dimension of watering place washable with 96.1% has the highest level and so in the index of environmental health,

dimension of secure water resources with 100% has the highest value, in the index of adaptation to the natural environment, dimension of the presence of sufficient light with 73.3% has the highest level, Finally, in the index of location and establishment of a construction of husbandry, dimension of separation of the place of entry and exit of humans and livestock with 16.5% has maximum amount. (Table 7)

**Table 7. Descriptive results**

Source: Research findings, 2017

Component	Most responsive	Number	Percent
Sex ratio	Man	261	68.3
Age	20 – 30	124	32.5
Level of Education	Diploma	128	33.5
Income level	Less than 600 thousand	253	66.2
having livestock building dimension	watering place washable	76	96.1
having of environmental health dimension	Secure water resources	382	100
having of adaptation to the natural environment dimension	the presence of sufficient light	280	73.3
having Location and establishment of livestock building dimension	separation of the place of entry and exit of humans and livestock	63	16.5

(Source: Field Studies of Writers, 2016)

#### 4.1. Binomial distribution test

According to Table 8, in the studied villages, the significance level (Sig) of all items is less than

0.05. Therefore, it can be said that in all evaluated items, the physical quality of livestock building in the studied villages have unsatisfactory status. In



all indices, the value of don't having was much less than 50%.

**Table 8. Binomial distribution test results**

Source: Research findings, 2017

Items	Class	N	don't having ratio	ratio	Significance
Existence of ventilation	No	306	.80	.50	.000
	Yes	76	.20		
Good humidity condition	Yes	75	.20	.50	.000
	No	307	.80		
Existence of window to the south	Yes	81	.21	.50	.000
	No	301	.79		
Existence of Beddinr	Yes	8	.8	.50	.000
	No	374	.98		
Existence of maternity hospital	No	382	1.00	.50	.000
	Yes	0	0		
Sufficient manger capacity	Yes	350	.92	.50	.000
	No	32	.08		
Appropriate manger height	No	153	.40	.50	.000
	Yes	229	.60		
Proper Ceiling	Yes	237	.62	.50	.000
	No	145	.38		
Having fence forage storage	Yes	168	.44	.50	.000
	No	214	.56		
Existence of forage storage	Yes	172	.45	.50	.000
	No	210	.55		
Fit the wall	No	111	.29	.50	.000
	Yes	271	.71		
Washable wall	Yes	11	.03	.50	.000
	No	371	.97		
Having a good slope for the Foam	Yes	51	.13	.50	.000
	No	331	.87		
Washable Foam	Yes	3	.01	.50	.000
	No	379	.99		
Impervious Foam	Yes	36	.09	.50	.000
	No	346	.91		
Existence of hospital	No	382	1.00	.50	.000
	Yes	0	0		
water-retaining of Watering place	No	16	.04	.50	.000
	Yes	366	.96		
Washable Watering place	No	15	.04	.50	.000
	Yes	367	.96		
sufficient Watering place capacity	No	25	.07	.50	.000
	Yes	357	.93		
Washable manger	No	269	.70	.50	.000
	Yes	113	.30		
Avoid Watering place from the manger	Yes	181	.47	.50	.000
	No	201	.53		
Resistance to natural hazards	No	380	.99	.50	.000
	Yes	2	.01		
	No	15	.04		

**Table 8.**

Items	Class	N	don` t having ratio	ratio	Significance
Resistance to Human Dangers	No	324	.85	.50	.000
	Yes	58	.15		
having distance from the same husbandry	Yes	5	0.1	.50	.000
	No	377	.99		
separation of the place of entry and exit of humans and livestock	No	319	.84	.50	.000
	Yes	63	.13		
Separating livestock building from residence	No	327	.86	.50	.000
	Yes	55	.14		
having distance of livestock building from the village texture	No	382	1.00	.50	.000
	Yes	0	0		
Periodic cleaning and washing	No	242	.63	.50	.000
	Yes	140	.37		
Safe Water Resources	Yes	367	.96	.50	.000
	No	15	.04		
Animal carcass sanitation burial	No	382	1.00	.50	.000
	Yes	0	0		
Collecting livestock products at the right place	Yes	110	.29	.50	.000
	No	272	.71		
Recycling products livestock	Yes	367	.96	.50	.000
	No	15	.04		
Suitable soil	Yes	367	.96	.50	.000
	No	15	.04		
be taller or equal buildings compared to the surrounding area.	Yes	217	.57	.50	.000
	No	165	.43		
Existence of Building in the opposite direction of the wind	No	265	.69	.50	.000
	Yes	117	.31		
Existence of tree around the building	No	372	.97	.50	.000
	Yes	10	.03		
Existence of enough light	Yes	280	.73	.50	.000
	No	102	.27		

**4.2. Ranking of the villages**

In order to ranking the villages based on the physical quality of the livestock building, the average percentage of the enjoyment of each index Is obtained to Separate from the village , as presented in Table 9. Then, using the TOPSIS method, the villages to be rated are ranked.

According to Table 10, It can be said that the Taghiabad village, in terms of the quality of the physical of the livestock building condition, with receive the score of 1 in the first rank is located and Garmab Village with receive the score 0 in the last rank is located. (Figure 6)

**Table 9. Average percentage of the enjoyment divided of index**

Source: Research findings, 2017

Village name	Livestock Building	Establishment of a livestock building	Environmental health	Adaptation to the environment
Marzan	45	13.3	71.9	53.5
Taghiabad	54.2	33.3	64.4	80

Table 9.

Village name	Livestock Building	Establishment of a livestock building	Environmental health	Adaptation to the environment
Ghalibaf	48.4	10	66.7	30
Sardeh	38.5	11.7	64.6	57
Garmab	28.6	0.5	52.1	26.5
Shorvarz	41.4	5	55.6	40
Shorab	54.2	14.2	78.8	60.8
Nayerabad	48.8	26.1	65.2	60.2

Table 10. Ranking of villages based on TOPSIS

Source: Research findings, 2017

Village name	scor	Rank
Marzan	0.39	4
Taghiabad	0.99	1
Ghalibaf	0.29	6
Sardeh	0.34	5
Garmab	0	8
Shorvarz	0.14	7
Shorab	0.42	3
Nayerabad	0.78	2

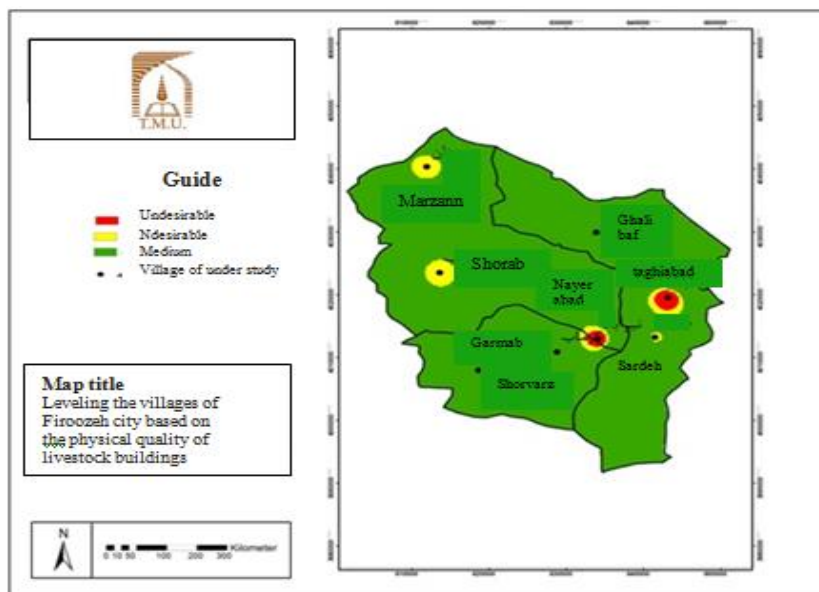


Figure 6. Leveling the villages of Firouzeh county based on the physical quality of livestock buildings

Source: Research findings, 2017

#### 4.3. Regression test

As shown in Table 11, the correlation coefficient is 0.990 with an Adjusted R Square of 0.952 between two physical quality and human health variables. Thus, based on the adjusted coefficient of determination, it can be deduced that 95% of the variations of the dependent variable are

independent of the variable. Also, according to the correlation coefficient, there is a very strong correlation between the two variables.

Based on the coefficient of determination, which is equal to 0.98, it can be said that the physical quality of the livestock building has a direct effect on the human health variable.

**Table 11. Summary of model information**

Source: Research findings, 2017

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.990	.980	.952	.04104

The results of Table 12 indicate this, since the calculated significance level is smaller than the alpha of 0.05. Therefore, it can be said that there

is a significant linear relationship between the two variables.

**Table 12. Variance analysis table**

Source: Research findings, 2017

Model	Sum of Squares	df	Mean Squares	F	Sig.
Regression	.242	4	.061	35.928	.007
Residual	.005	3	.005		
Total	.247	7			

Finally, Table 13, which explaining the linear regression test, is the second-lowest method, It expresses this point since the calculated level of significance, the previous table, is smaller than alpha 0.05 Therefore, It can be said that there is a relationship of significant linear between improvement of physical quality of the livestock building and human health

development. Also, considering the beta values, it can be said that index of the livestock building with the value of 0.897 has the highest impact, respectively, index of Establishment of livestock building, Adaptation to the environment and index of the environmental health are important.

**Table 13. Table of coefficients by the second lowest power method**

Source: Research findings, 2017

Model	Unstandardize d Coefficients		standardize d Coefficients	T	Sig.
	B	Std. ERROR	Beta		
(Constant)	3.333	.472		7.054	.006
livestock building	.020	.082	.897	4.982	.002
Establishment of livestock building	.014	.004	.814	3.433	.014
Environmental- health	.018	.006	.792	3.177	.019
Adaptation to the environment	.006.	.002	.799	3.256	.017

According to Table 14, it can be said that since the correlation coefficient is 0.883 and the adjusted coefficient of determination is 0.779, the correlation between the two variables of the physical quality of the livestock building and animal health is very strong. In fact, according to the adjusted coefficient of determination, it can be concluded that 68% of the variation of the

dependent variable (animal health development) is dependent on the independent variable (the physical quality of the livestock building). Also, based on the correlation coefficient of 0.680, we can say that the physical quality of the livestock building has a direct effect on the livestock health variable.

**Table 14. Summary of model information**

Source: Research findings, 2017

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883	.779	.680	.20990

According to the output of [table 15](#), based on variance analysis, it can be said that since the significance level is less than alpha 0.05, then the zero assumption (H<sub>0</sub>) is rejected. It can be said

that there is a significant relationship between the two variables of the increase physical quality of the livestock building and livestock health development.

**Table 15. Variance analysis table**

Source: Research findings, 2017

Model	Sum of Squares	DF	Mean Squares	F	Sig.
Regression	.435	4	.453	15.864	.007
Residual	.164	3	.027		
Total	.599	7			

[Table 16](#) shows that since significance level in [this table](#) is as before, smaller than alpha 0.05. Therefore, increasing the physical quality of the livestock building can lead to animal health development. Also should be noted that, considering that the beta value in the livestock

building index is 0.852, it is the most effective index, and, respectively, health and environmental indicators, adaptation to the natural environment and livestock building location are in the next category.

**Table 16. Table of coefficients by the second lowest power method**

Source: Research findings, 2017

Model	Unstandardize d Coefficients		standardize d Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.052	.100		30.649	.000
livestock building	.764	.192	.852	3.983	.007
Establishment of livestock building	.022	.006	.828	3.619	.011
Environmental- health	.026	.007.	.838	3.762	.009
Adaptation to the environment	.010	.003	.832	3.672	0.10

## 5. Discussion and Conclusion

Based on what was discussed, it can be said that the condition of having status of the physical quality of the livestock building in the studied areas, this is that all villages in index of the physical quality be desirable and acceptable. However, as indicated in the binomial distribution test results, the significance level of all indices is smaller than alpha-0.05, thus indicating an undesirability of physical quality condition. Therefore, it can be said that the zero assumption

(H<sub>0</sub>) is rejected and the first hypothesis, which is based on the undesirability of the physical quality of livestock building in the studied areas, is confirmed. considering that the level of significance in both hypothesis sections is smaller than alpha 0.05, it can be said that variable of the physical quality of the livestock building affects the development of human health and livestock health. Also, considering R Square in both sections of the hypothesis, the physical quality of the livestock building has a direct impact on

human health and livestock, which means that increasing the physical quality of the livestock building leads to the development of human health and livestock health. Therefore, can be said that the second hypothesis, which is based on the effectiveness of raising the physical quality of the livestock building on development of human health and livestock health is confirmed. With the theoretical studies, it can be concluded that the health of humans on a global scale is influenced by the environment in which it lives and one of the most effective spaces in promoting human health is the physical environment. Thus, on the one hand, the physical environment is effective on the health of humans, and, on the other hand, reflects the physical environment in the quality of the environment in which humans live. Therefore, there is an objective relationship between human health, physical environment and quality of life. Considering all these, it can be said that in rural areas, most villagers tend to build livestock buildings along with their own housing.

Therefore, as it is necessary to observe standards in housing construction, it is necessary which to consider standards and criteria in order to improve the quality of the environment and the health of humans and livestock. The results of the research conform with the findings of researchers such as Morteza Karami, Elwing, Dawson, and others. The findings of this study, however, emphasized the impact of the physical quality of livestock buildings on the health of humans and livestock, while other studies generally focused on the impact of environmental quality on human health or on the impact of livestock building on livestock health. Human health has not been taken into consideration.

Suggestions have been made to improve the physical condition of livestock buildings in the studied areas in the form of Table 17 based on short-term and long-term plans and tasks that can be done by people and government institutions.

**Table 17. Suggestions**  
Source: Research findings, 2017

	<b>People and local institutions</b>	<b>government institutions</b>	
<b>short-term plans</b>	Use of new techniques (ventilation, milking, scavenging, etc.) in livestock buildings	Creating a suitable platform for the preparation of these new techniques	
	Use of hygiene products (washing, gloves, etc.) for work in livestock husbandry environments		
	Make changes in the old buildings holding the livestock according to the standards of physical quality of the livestock building		Establishing suitable financial and credit facilities for livestock husbandry in order to improve the quality of livestock building
			Provide Low interest and long term loans to ranchers
			Supervising and controlling loan provider organizations to use loans to improve the physical quality of livestock buildings
	Have regular planning to Washing and period cleaning of livestock building	More systematic monitoring of health centers by gathering livestock excrements and preventing the accumulation of waste in public places	
	Direct transfer of livestock products to an environment outside the village and not accumulate in public places		
	Separation of the place of entry and exit of humans and livestock		

Table 17.

	People and local institutions	government institutions
		Designing training courses to raise awareness of livestock husbandry about common diseases of humans and livestock
		Strengthening and raising the awareness of livestock husbandry in improving the physical quality of livestock building through training classes
		Strengthening the linkages between government organizations and institutions, NGOs and rural livestock husbandry
		Designing educational programs to raise awareness of livestock husbandry about the health of carcasses of livestock
long-term plans		Create awareness of the benefits of removing livestock buildings from rural tissue
		Creating a suitable platform, such as providing low interest loans and locating suitable sites for removing livestock buildings from rural tissue
		Investigating about soil in areas where livestock husbandry is incomplete
		Creating suitable environments for the proper recycling of livestock excrements
		Preventing the construction of livestock buildings in the vicinity of rivers

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Faculty of Letters & Humanities, Tarbiat Modarres, Tehran, Iran.

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## ارزیابی نقش کیفیت کالبدی بهداشت محیط دام بر توسعه سلامتی انسان و دام در مناطق روستایی (مطالعه موردی: مناطق روستایی شهرستان فیروزه)

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### چکیده مبسوط

#### ۱. مقدمه

واکای بیماری‌های مشترک انسان و دام از ابتدای زندگی بشر بر کره خاکی وجود داشته‌اند، اما در دهه‌های اخیر اهمیت دو چندان پیدا کرده و امروزه نه تنها از لحاظ بهداشت و سلامت، بلکه از نظر اقتصادی و سیاست بین‌الملل نیز جایگاه خاصی دارند. برابر آمارهای موجود، در دهه‌های اخیر تقریباً تمام بیماری‌های نو ظهور و جنجالی جامعه بشری در این گروه قرار گرفته‌اند و اعلام حضور هر یک از آن‌ها در یک کشور مشکلات بسیاری را ایجاد کرده که عواقب و تبعات بسیاری نیز بر جای گذاشته و خواهد گذاشت. بسخن دیگر، هر کجا که انسان‌ها در مجاورت دام‌ها زندگی کرده‌اند به علت رعایت نکردن مسائل بهداشتی سبب تشدید بروز بیماری‌های مشترک انسان و دام شده است که این بیماری‌های خطرناک چندان قابل پیش بینی نیست و می‌تواند ظرف مدت کوتاهی خسارت‌های اقتصادی سنگینی ایجاد کند. در واقع، سلامتی انسان‌ها در مقیاس جهانی تحت تأثیر محیطی است که در آن زندگی می‌کند و یکی از فضاها موثر در ارتقای سلامتی انسان‌ها محیط کالبدی است. لذا از آنجایی که در نواحی روستایی ساختمان دام‌ها در داخل بافت روستا و در کنار واحدهای مسکونی است ضروری می‌باشد که در مورد کاهش بیماری‌های مشترک انسان و دام به ویژه در مناطق روستایی اقدامات علمی صورت گیرد که از جمله این اقدامات می‌توان به پژوهش درمورد افزایش کیفیت کالبدی ساختمان دام براساس ضوابط و استانداردهای موجود اشاره کرد. واکای پژوهش‌های

پیشین نشان می‌دهد که مطالعات انجام گرفته در خصوص تأثیر افزایش کیفیت کالبدی ساختمان دام بر توسعه سلامتی انسان و دام محدود هستند. لذا این ضرورت باعث انجام این پژوهش گردید. در این چارچوب، هدف اصلی پژوهش حاضر ارزیابی تأثیر افزایش کیفیت کالبدی ساختمان دام بر توسعه سلامتی انسان و دام در نواحی روستایی است.

#### ۲. مبانی نظری تحقیق

برابر اسناد، نگهداری متراکم دام به خصوص در سیستم‌های بسته، مسایل تازه‌ای را به دنبال آورده و چهره بیماری‌های دامی را دگرگون کرده است. از این لحاظ، در کنترل این شرایط، تکرار برنامه‌های کلیشه‌ای و ثابت واکسیناسیون، ضد عفونی و درمان کافی نبوده و نیاز به تخصص، مشاوره و توجه به موارد بهداشتی در ساختمان دارد. به طور کلی می‌توان گفت از جمله عواملی که می‌تواند در افزایش کیفیت کالبدی ساختمان دام نقش داشته باشد شامل توپوگرافی، جهت وزش باد، تهویه، رطوبت، نور، خاک، آب، فاصله از سایر سکونتگاه‌های روستایی، بستر دام، زایشگاه، آخور، آبشخور، بیمارستان، کف، دیوار، انبار علوفه، سقف و مدیریت فضولات دامی می‌باشد.

#### ۳. روش شناسی

در پژوهش حاضر به منظور بررسی مسئله تحقیق ۴ روستای سرده، گرماب، تقی‌آباد و مرزان واقع در شهرستان فیروزه انتخاب شده است و افراد نمونه دامداران روستایی می‌باشند. به منظور جمع‌آوری اطلاعات و انجام پژوهش حاضر ضمن آن که برای مطالعات نظری از منابع و اسناد کتابخانه‌ای و مقالات استفاده شده است، در بعد عملی نیز از طریق عملیات پیمایشی و تنظیم پرسشنامه به جمع‌آوری داده‌ها

سلامتی انسان‌ها و دام‌ها استانداردها و معیارهایی که در پژوهش مورد بررسی قرار گرفت نیز مدنظر قرار گیرد. به منظور بهتر شدن وضعیت کالبدی ساختمان دام در مناطق مورد مطالعه پیشنهادهایی در قالب برنامه‌های بلند مدت و کوتاه مدت ارائه شده است. مواردی که در قالب برنامه‌های بلند مدت آورده شده شامل ایجاد آگاهی از مزایای خارج نمودن ساختمان‌های دام از بافت روستایی، ایجاد بستر مناسب مثل دادن وام‌های با بهره کم و مکان‌یابی محل مناسب جهت خارج نمودن ساختمان‌های دام از بافت روستا، تحقیق در مورد خاک موجود در مناطقی که دامداری ناقص است، ایجاد محیط‌های مناسب به منظور بازیافت صحیح و بهداشتی فضولات دامی و جلوگیری از ساخت ساختمان‌های دام در حریم رودخانه‌ها است و از جمله برنامه‌های کوتاه مدت می‌توان به استفاده از فنون جدید (تهویه مناسب، شیردوشی، پشم‌چینی و...) در ساختمان‌های نگهداری دام، ایجاد تغییراتی در ساختمان‌های قدیمی نگهداری دام مطابق با استانداردهای کیفیت کالبدی ساختمان دام، داشتن برنامه منظم جهت شست‌وشو و نظافت دوره‌ای ساختمان دام، نظارت منظم‌تر مراکز بهداشت جمع‌آوری فضولات دامی و جلوگیری از انباشت فضولات در معابر عمومی، طراحی دوره‌های آموزشی به منظور افزایش آگاهی دامداران در مورد بیماری‌های مشترک انسان و دام اشاره کرد.

**کلیدواژه:** کیفیت کالبدی، ساختمان دام، توسعه سلامت انسان، توسعه سلامت دام، شهرستان فیروزه.

#### تشکر و قدرانی

پژوهش حاضر برگرفته از پایان‌نامه کارشناسی ارشد زهرا سلیمانی، گروه جغرافیا، دانشکده ادبیات و علوم انسانی، دانشگاه تربیت مدرس، تهران است.

و اطلاعات مورد نظر پرداخته شده است. در این چارچوب پرسشنامه‌ای به منظور سنجش متغیر مستقل (کیفیت کالبدی ساختمان دام) طراحی شده است که شامل ابعاد بنای دامداری، مکان‌گزینی و استقرار بنای دامداری، بهداشتی- محیطی و سازگاری با محیط طبیعی می‌باشد و پرسشنامه‌ای برای سنجش متغیر وابسته (سلامتی انسان و سلامتی دام) طراحی شده که شامل ابعاد سلامت دام و سلامت انسان می‌باشد. به منظور سنجش فرضیه‌های پژوهش در چارچوب هدف از آزمون‌های توزیع دوجمله‌ای و رگرسیون خطی استفاده شده است. از این روش تحقیق توصیفی و تحلیلی است.

#### ۴. یافته‌های تحقیق

نتایج تحقیق نشان می‌دهد که براساس آزمون توزیع دوجمله‌ای در روستاهای مورد مطالعه سطح معناداری (Sig) تمامی گویه‌ها کم‌تر از ۰,۰۵ است لذا می‌توان گفت که در تمامی گویه‌های مورد ارزیابی کیفیت کالبدی ساختمان دام از وضعیت نامطلوبی برخوردارند. بطوری‌که در تمامی گویه‌ها درصد نابرورداری بسیار کم‌تر از ۵۰ درصد بوده است و نتایج آزمون رگرسیون نشان داد که سطح معناداری کوچک‌تر از آلفا ۰,۰۵ است و با توجه به ضریب تعیین ( $R^2$ ) در رگرسیون می‌توان گفت که کیفیت کالبدی ساختمان دام بر توسعه سلامت انسان و دام اثر مستقیم دارد. به این معنی که افزایش کیفیت کالبدی ساختمان دام منجر به توسعه سلامت انسان و دام می‌شود.

#### ۵. نتیجه‌گیری

با توجه به این موارد می‌توان گفت از آنجایی که در نواحی روستایی اغلب روستاییان تمایل دارند که ساختمان دام را در کنار محل سکونت خود بسازند لذا ضروری می‌باشد همان‌طور که در ساخت‌وساز مسکن استانداردهایی رعایت می‌شود به منظور ارتقای کیفیت محیط و

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