

# Ranking the Satisfaction of Housing in Rural Settlements around Tehran Metropolitan, Iran

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## Abstract

One of the basic aspects of human welfare is living in a suitable house which is satisfying and is in harmony with the conditions of natural environment, society, culture, economy and the functional situation of the rural settlements. So, lack of attention to this condition, demand and techniques of rural residents in the policy making, planning house development in the process of rural development, will lead to challenges and formation of negative conceptions and reducing the satisfactory level of the rural residents from housing category. In order to recognize satisfaction level from housing condition, the present study intends to rank rural focuses on rural Settlements around Tehran metropolitan based on their residents' satisfaction rate of the house by using VIKOR multi-criteria decision-making model. The research methodology is descriptive-analytic on 400 families as random samples versus the size of the households in 40 random sample villages from the total desert territory villages in Tehran. The present study evaluates the components of rural residents' satisfaction from housing based on 6 indexes of hygienic, economic, installation and house internal components, physical, welfare, safety which are evaluated in the format of 23 items. Within the process of the present study after calculating the relative degree importance of each index is evaluated. The results of the study show that Talebabad Village as one of the villages of this territory owns the highest satisfaction level referred to:  $R = 0.822$ ,  $S = 0.046$ ,  $Q = 0.022$  and Mahmoudabad Village owns the lowest satisfaction level in the desert territory based on the indexes referred to:  $R = 0.585$ ,  $S = 0.045$ ,  $Q = 0.476$ .

## Keywords

Ranking, Satisfaction, Rural Housing, Tehran Area

## 1. Statement of Problem

In the last few decades, in development texts and literature, life satisfaction among the key indexes is studied in order to evaluate the welfare of the society and the developing level of it. And house is a component which is not detachable from people's life (Dittmann & Goebel, 2010). Housing is one of the effective factors in life quality. Life quality is a complex and multi-dimensional concept. Some interpret it as public welfare, social good life, happiness, satisfaction and so forth. The concept of satisfaction from house has attracted many attentions (Zanuzdana et al., 2013) among the inter field satisfaction and evaluating people's satisfaction from housing makes the custodians of this fact to prepare the development of housing projects (Preiser, 1989: p. 8). In fact, in order to evaluate house a suitable factor is satisfaction concept and this point must be paid attention to the fact that in people's satisfaction discussion knowing that why some families in comparison with other families are not satisfied with their house. This is an important matter (Adriaanse, 2007). In policies and housing planning, in order to make sure about this fact that all the people of the society have access to suitable house, paying attention to evaluating satisfaction rate of people from their house is mandatory (Hong, 2012).

House satisfaction is one of the most important main components of people's public life quality (Elsinga & Hoekstra, 2005) plus that in most cases is the most important effective factor in a person's house satisfaction (Westaway, 2006). Housing is a main need besides food, clothes and other basic needs. Housing in general is accepted as one of the key sources of health and is the most important general life quality determining factor (Baiden et al., 2011). Providing a proper house can have an important influence on a person's health and inappropriate house will have bad consequences (Zanuzdana et al., 2013) also dissatisfaction from house will lead to unsuitable consequences in life-like stress (Tomaszewski & Perales, 2014).

According to development experts, satisfaction from life is in the apex of house policies and increasing human knowledge of production mechanism helps designing effective housing programs (Tomaszewski & Perales, 2014). One of the ways of housing awareness in rural planning approach can be studying the rural residents' satisfaction condition.

Understanding the factors which lead to house satisfaction is very important in effective house policies. Also in order to reach a sustainable house, housing providers must adjust their activities according to family needs, and they must recognize the factors which lead to satisfaction or dissatisfaction of people from their house (Hong, 2012). According to the fact in all national, regional, areal and especially local levels, the village houses are different from each other. And in so doing, evaluating and ranking the villages based on village residents' satisfaction is a very important matter, and this can in fact help the planners to promote those villages which have low ranks to high-ranking levels since most of the residential specially village residential have become vastly un-livable and in

attractive for present and future village residents.

In recent years, many credits have been devoted to Iran's villages to build houses and this fact led to a huge quantity of buildings in villages. But in some areas the built houses are not in harmony with people's needs and they could not satisfy the majority of people. The villagers' house in South of Tehran is not an exception either and in case study area, village house looks like cities and in some points does not adjust to the situation and the needs of village society. So studying the village houses and ranking them based on the rate of villagers' satisfaction is very important. Village houses unlike city houses are multi-functional. So if we consider House as a reply to the special needs of the family, village life needs houses, which can reply to different functions. In order to reach such goal, the present study tries to make an effective step in this regard by evaluating and ranking villagers satisfaction from village houses. Today, village house continuously is under the influence of urban houses. The forms of the rural houses are also changed and gradually are built with modern materials. Rural houses which once were the symbol of villagers' tradition and lifestyle, nowadays they neither look like past rural houses nor exactly look like modern urban houses.

Also this must be mentioned here that ranking techniques have been highly developed in recent years. In the present study VIKOR model is chosen as one of the multi-criteria decision-making model in order to rank the rural houses based on the villager's satisfaction from their houses so that it can give a response to this basic question during the process of the study that this model as one of the decision-making ways which is multi-criteria, how much is workable for ranking the rural houses?

## 2. Theoretical Literature

House has been always, in effect, as one of the key elements of human welfare during time and different places. Living in a satisfactory house is one of the most important aspects of human life so house is considered as a shelter with special goal (Tomaszewski & Perales, 2014). House is the main factor of individuals' sociability versus the world, and at the same time it is the main determining product in space sociable organization and plays a determining role in the formation of individual identity, social relations and group goals (Short, 2006). Based on Corbusier's theory, both the human physical and spiritual needs must be replied to with organizing the house from space point of view (Gholami et al., 2015). So house is a space which provides each individual with personal and group growth in a way that the households can find the needed space based on their own spiritual needs (Samimi et al., 2008). House has many dimensions: special, architecture, physical, economical, financial, psychological and medical (Cullingworth & Caves, 1997).

In Iran, rural houses have different styles based on the geographical and climatically variety. These houses are built with attention to geographical, earth

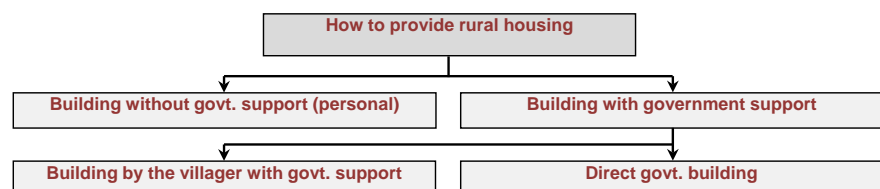
condition, type of life style specifications of each region. Following access to raw material of house (which are mainly provided by local sources), the villagers build their houses which finally the house making standards are not observed so as a result paying serious attention to quality and quantity of rural housing is highly important since suitable standard houses are counted as indexes of rural development (**Figure 1**) (Ghanbari, 2012).

Different satisfactions of the house (real house and expected house) are depended upon house condition (Mohit & Mahfoud, 2015). According to previous studies and literatures, for house satisfaction, there are 3 theories: 1) House Needs, 2) housing deficit, 3) Mental Structure (Rossi, 1955; Mohit & Mahfoud, 2015).

House Needs theory means having satisfaction or lack of it from house in life cycle (Morris & Winter, 1975; Sung-Jin et al., 2014). Housing deficit means satisfaction or lack of it from house itself and “Mental Structure” theory means providing a condition between needs and requirements for each aspect of their house (Glaeser & Sacerdote, 2000; Mohit & Zaiton, 2012). In most experimental studies in house satisfaction all 3 theories are used. In a group of these researches, individual’s social aspect and also understanding house condition is studied (Lu, 1999; Hopkin et al., 2015). Still in some of the experimental studies, lack of house is a useful theory in explaining house satisfaction behavior (Bruin & Cook, 1997; Mohit & Mahfoud, 2015).

Satisfaction is called a situation of live creatures that stimulation desires have reached their goal or we can imagine it as a feeling which a person has when his wishes come true (Shoarinejad, 1997). Understood quality is a form of vision, which is related to satisfaction but they are not the same (Parasuraman et al., 1991). In general, satisfaction means a condition in which expectations of an individual are fulfilled (Dekker et al., 2007). In place theory which is mentioned in environmental psychology, resident’s satisfaction can be mentioned by happy experience from living in a special place (Bonaiuto et al., 2015). Satisfaction from living place depends on different factors like: facilities, recreation services and welfare, Cultural, Education (Pourahmad et al, 2011). In this regard researches like Speare (1974), Newman and Duncan (1979) consider house satisfaction not as a criterion but as a factor to predict the behavior. With this method, the low house satisfaction can predict the behaviors like moving house, with effort to make the situation of the house better in adjustment with the needs (Ibem & Alagbe, 2015).

Living in appropriate residential is many people wish. Upon which because of



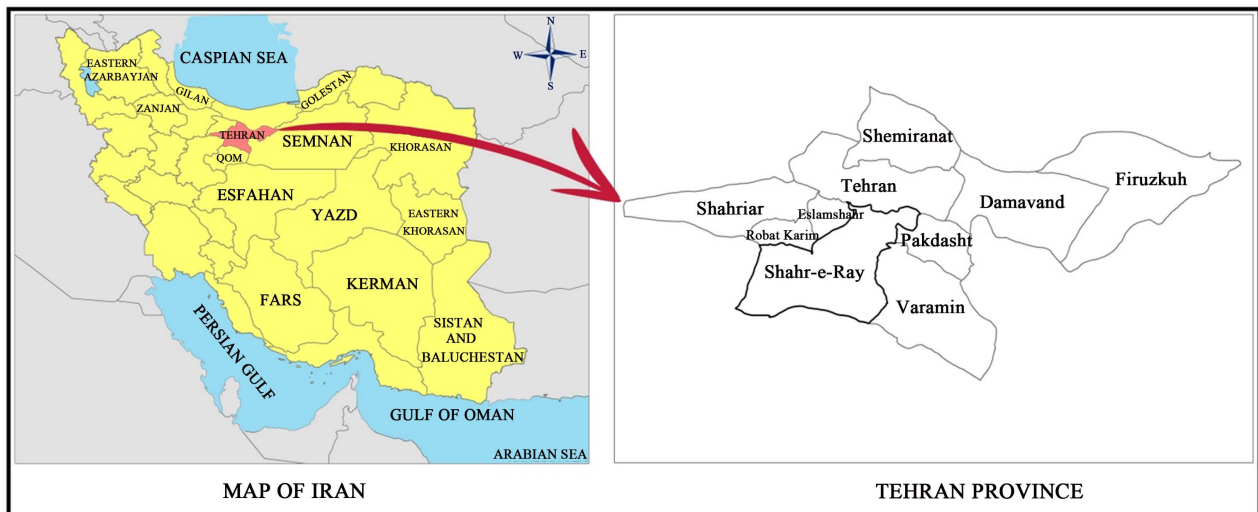
**Figure 1.** Providing Rural Housing in Iran. Source: Research findings.

different economic, cultural, social and physical reasons they are unable to choose appropriate place. This issue gradually increases the gap between wishes of a person and the reality of his life and as a result residential satisfaction decreases. Referring to the fact that satisfaction of life means bilateral satisfaction from all aspects of life so if this type of satisfaction is not built among the residential serious problem like severe conflicts, internal immigration and north of city and south of city will become a problem so recognizing effective factors on residential satisfaction in each region must be according to the needs of that region people. One of the main goals of rural and urban planners is increasing residential satisfaction.

Residential satisfaction includes a part of life satisfaction in general sense and is one of the most studied issues in residential environment (Ge & Hokao, 2006). Residential satisfaction is the result of personal perception is a rate to calculate whether residential environment would give response to the needs of the families and individual resident or not (Becker, 2000) and individual in so doing initial studies referring to satisfaction mostly is followed based in mono-dimensional outlooks. Some of the researches have described the steps of personal perception only with a perceptive outlook. As a result people evaluate the condition of his resident according to a collection of needs and wishes for instance residential satisfaction according to Galster definition means the visible gap between needs and wishes of the resident and reality of the residents (Galster & Hesser, 1981). In another definition residential satisfaction equals to personal satisfaction experience member of the family from his present situation (McCray & Day, 1977). So the needs and wishes of the person is a collection of both personal specifications (like social place, step of life and etc.) and cultural factors which effect individual (Rafiean et al., 2009).

### 3. The Study Area

The region under study is rural settlements in South East of Tehran metropolitan (Figure 2). Villages in this area are located in a flat and rich plain and Because of their proximity to Tehran they have different situation compared to other villages. Pre-urban villages which are located in city and village conjunctions because of special nearness and physical nearness of the cities to facilities may face many different opportunities which are not seen in other villages. Villages around Tehran metropolitan have access to: appropriate relation network, using construction in cities, job vacancies in service department and etc. So these villages are known as suburbs and a group of these villages have become dormitories. Locating near Tehran metropolitan have given special function situation to rural settlements of the region under study and major changes in natural resources like pressure and different kinds of pollutions of environment and changing production method and increasing economy as a result of increasing incomes.



**Figure 2.** The geographical position of the study area. Source: Iran national statistical center (2012).

#### 4. Methodology

In general approach the present study from gathering data point of view is based on library-documentary information and field survey. As a descriptive-analytical study, it was conducted in 14 rural settlements of Tehran Province located in South East of Tehran. 377 households were selected randomly by cluster and simple random sampling for large statistical population. They were selected based on the Cochran formula (Saraei, 1996) with the confidence level of 95% and the ideal accuracy of 5% and variance estimation of 25%. People were questioned directly in this study. Finally based on “probability proportional to size the random sample in each of the sample villages was calculated and in them the questionnaires were completed.

One of the main sources of reaching rural house factors is the documents of a country which the most important of them is basic rules, 4<sup>th</sup> and 5<sup>th</sup> development plan, and Islamic Republic Housing Foundation and house making ministry. Based on this, 23 factors like Figure 3 are identified and the relevant info of the factors is gathered.

In geographical sciences and environmental planning, because of the complexity of urban and rural systems, usually a variety of criteria’s must come into action, which in itself talks about multi-criterion decision making which help planners in decision making. Multi-criterion models are a group of ways which let the decision makers to choose and rank the alternatives in decision making. All of the multi-criterion models have 3 steps: 1-providing the suitable alternatives 2-measuring the relative importance rate 3-calculating figures for determining the rank of the alternatives (Kaklauskas et al., 2004).

In most of the cases of multi-criterion decision making issues, it is needed to know and have the relative importance of the indexes in a way that their sum up equals to the unit. One of the ways to evaluate the weights of the indexes is decision making Shannon Entropy technique. Entropy is a general concept in physics,

<b>Hygienic</b>	<ul style="list-style-type: none"> <li>A1- The suitability of the bathroom</li> <li>A2- The suitability of the WC</li> <li>A3- The suitability of water wastage</li> <li>A4- The suitability of rubbish gathering</li> </ul>
<b>Structure</b>	<ul style="list-style-type: none"> <li>A5- Satisfaction of the kitchen</li> <li>A6- Satisfaction of the warming system</li> <li>A7- Suitability of the number of doors and windows</li> <li>A8- The doors and windows to be standard</li> </ul>
<b>Welfare</b>	<ul style="list-style-type: none"> <li>A9- Satisfaction of access to shopping center</li> <li>A10- Satisfaction of access to public transportation</li> <li>A11- Satisfaction of access to educational center</li> <li>A12- Satisfaction of access to hygienic centers</li> </ul>
<b>Economic</b>	<ul style="list-style-type: none"> <li>A13- Using owns house for living activities</li> <li>A14- Satisfaction of using owns house for living activities</li> <li>A15- Satisfaction of building expenses</li> <li>A16- Satisfaction of repairing expenses</li> <li>A17- Satisfaction of the bills</li> </ul>
<b>Physical</b>	<ul style="list-style-type: none"> <li>A18- Satisfaction of the plan of the house</li> <li>A19- Satisfaction of the size of the house</li> <li>A20- Satisfaction of the number of the rooms</li> <li>A21- Suitability of the number of residents with the size of the house</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>A22- Satisfaction of the material of the building</li> <li>A23- Satisfaction of the house toward earthquake</li> </ul>

**Figure 3.** Selected Indicators Research. Source: Research findings.

social sciences which shows the lack of sureness from the content of a message. After the matrix is formed, first of all weighting the factors must be done. In the present study Shannon Entropy model is used and then by using VIKOR model, the indexes are ranked.

## 5. Research Findings

The word “VIKOR” comes from a Serbian word meaning “multi-criterion Optimization and agreed solutions (Chatterjee et al., 2009). VIKOR way is used to rank different alternatives and mainly it is used for solving expanded issues. These agreed solutions are based on opposite standards. In this model always there are some different alternatives which are evaluated based on some criterions independently and finally the alternatives are ranked based on value. The main difference of this model with other hierarchical or network decision making models is that unlike them, in these models couple differences between criterions and alternatives are not done and each alternative is independently evaluated by an alternative (Shojaeian et al., 2015: p. 132). VIKOR method started with the following LP Metric formula:

$$L_{PJ} = \left\{ \sum_{i=1}^n [w_i (f_i^* - f_{ij})] \right\} \frac{1}{p} 1 (p (\infty, j = 1, 2, \dots, j) \quad (1)$$

The metric distance in LP methods is used as an ideal solution. This (Standard

Deviation Surveying) will be as a (compatible Function).  $L_{pj}$  is introduced by Oprcovic Duckstein in 1980 and shows the distance of the  $A_j$  alternative till the ideal solution. Usually criteria are evaluated and ranked based on (Multi-function). The emphasis on this method is on ranking and choosing a group of alternatives and determining agreed solutions for the issue with opposite criterions (Chen & Wang, 2009). Agreed Solution is an alternative which is closer to the ideal as you can see it in **Figure 4**.

The process of VIKOR model is as following:

A) Imagine we have  $m$  alternatives and  $n$  criterions. Different alternatives of  $i$  are shown as  $X_i$ . For  $X_j$  alternative the  $j$  rank is shown as  $X_{ij}$  and this is true for the rest of the alternatives.  $X_{ij}$  is the  $j$ 's value and quantity. To normalize the digits, where  $X_{ij}$  is the real amount of  $i$  and  $j$ :

$$f_{ij} = x_{ij} / \sqrt{\sum_{j=1}^n x_{ij}^2}, \quad i = 1, 2, \dots, m; \quad j = 1, 2, \dots, n \quad (2)$$

In which  $X_{ij}$  is the initial quantity and  $F_{ij}$  is the normalized quantity of  $i$  alternative and subsequently the  $j$  alternative.

B) Determining the best and the worst quantity for the entire standard (Functions):

In the second step, we will recognize the best and the worst of each quantity in each criterion and we call them  $f_j^*$  and  $f_j^-$ .

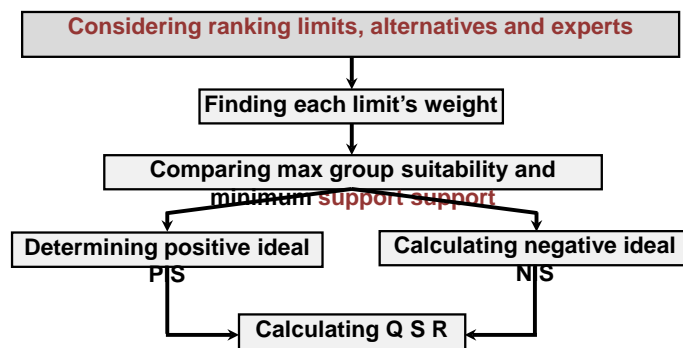
$$\begin{aligned} f_j^* &= \max f_{ij}, \quad i = 1, 2, \dots, m \\ f_j^- &= \min f_{ij}, \quad i = 1, 2, \dots, n \end{aligned} \quad (3)$$

where  $f_j^*$  is the best positive solution for  $j$  criterion and  $f_j^-$  is the worst negative ideal solution for  $j$  criterion.

C) Determining weight and the importance of qualifications:

In the third step the weights of the criterions must be calculated for the importance of the relations and in this research Shannon Entropy method is used. Following is the explanation of the approach step by step:

Step 1: in this step by using the following formula we will determine the  $P_{ij}$  quantity for all the indexes.



**Figure 4.** How VIKOR model works. Source: Research findings.



$$P_{ij} = \frac{a_{ij}}{\sum_{i=1}^n a_{ji}} \tag{4}$$

Step 2: By using the following formula we calculate the assurance quantity.

$$E_j = -k \sum [p_{ij} \ln p_{ij}]$$

$$K = \frac{1}{\ln(m)} \tag{5}$$

Step 3: In this step the quantity of lack of assurance is calculated.

$$d_j = 1 - E_j \tag{6}$$

Step 4: Now we have to determine the weights of the indexes (Table 1).

$$W_j = \frac{d_j}{\sum d_j} \tag{7}$$

**Table 1.** Normalized geographical matrix.

	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
A1	0.152	0.326	0.130	0.086	0.152	0.152	0.130	0.108	0.543	0.173	0.587	0.195	0.152	0.195
A2	0.283	0.188	0.480	0.062	0.157	0.188	0.251	0.188	0.031	0.251	0.220	0.597	0.220	0.188
A3	0.346	0.173	0.024	0.198	0.594	0.123	0.173	0.346	0.074	0.148	0.173	0.421	0.198	0.123
A4	0.320	0.068	0.183	0.137	0.205	0.091	0.549	0.160	0.137	0.160	0.137	0.160	0.137	0.595
A5	0.064	0.042	0.021	0.064	0.042	0.558	0.021	0.494	0.365	0.365	0.107	0.343	0.128	0.128
A6	0.037	0.280	0.093	0.093	0.093	0.093	0.429	0.458	0.056	0.130	0.466	0.466	0.074	0.0560
A7	0.522	0.062	0.062	0.125	0.146	0.146	0.104	0.146	0.250	0.334	0.543	0.355	0.104	0.146
A8	0.328	0.058	0.077	0.038	0.154	0.154	0.464	0.154	0.251	0.541	0.154	0.348	0.135	0.154
A9	0.156	0.134	0.514	0.156	0.022	0.022	0.067	0.357	0.536	0.156	0.156	0.131	0.357	0.201
A10	0.122	0.142	0.570	0.244	0.122	0.122	0.122	0.224	0.061	0.285	0.509	0.326	0.163	0.081
A11	0.168	0.120	0.289	0.120	0.120	0.120	0.313	0.193	0.168	0.651	0.144	0.193	0.410	0.120
A12	0.179	0.215	0.394	0.179	0.251	0.251	0.502	0.035	0.107	0.215	0.251	0.322	0.286	0.251
A13	0.113	0.481	0.113	0.340	0.170	0.198	0.623	0.085	0.113	0.170	0.113	0.198	0.198	0.170
A14	0.178	0.250	0.214	0.071	0.286	0.143	0.536	0.143	0.250	0.464	0.071	0.178	0.214	0.286
A15	0.202	0.405	0.086	0.340	0.173	0.057	0.434	0.144	0.202	0.202	0.173	0.463	0.144	0.086
A16	0.080	0.141	0.560	0.071	0.640	0.503	0.060	0.060	0.282	0.120	0.503	0.080	0.141	0.100
A17	0.186	0.217	0.062	0.434	0.186	0.527	0.093	0.124	0.186	0.496	0.186	0.155	0.434	0.124
A18	0.156	0.134	0.355	0.080	0.111	0.156	0.134	0.513	0.268	0.044	0.513	0.178	0.067	0.357
A19	0.132	0.088	0.506	0.186	0.088	0.132	0.154	0.616	0.374	0.066	0.088	0.132	0.308	0.088
A20	0.313	0.104	0.156	0.156	0.653	0.156	0.183	0.183	0.444	0.209	0.130	0.156	0.183	0.156
A21	0.086	0.150	0.279	0.132	0.344	0.132	0.129	0.129	0.150	0.129	0.559	0.559	0.559	0.150
A22	0.286	0.358	0.095	0.078	0.597	0.157	0.071	0.071	0.382	0.143	0.143	0.119	0.119	0.143
A23	0.416	0.072	0.271	0.108	0.470	0.129	0.452	0.452	0.452	0.072	0.054	0.090	0.253	0.108

Source: Research findings.

In next step the best and the worst rate for all factors in diagram 3 which are called  $f_j^+$  and  $f_j^-$  about appropriateness of the house bath index the biggest quantity 0.135 and the smallest quantity is 0.002 so  $f_j^+$  and  $f_j^-$ . Regarding goodness of the house water closet index the biggest quantity from diagram is 0.0179 and the smallest quantity is 0.0094. About goodness of Sewage disposal system the biggest quantity from diagram is 0.019 and the smallest quantity is 0.008. Referring to goodness of gathering the wastes the biggest quantity is 0.021 and the smallest quantity is 0.0024. Other quantities for other indexes are mentioned in **Table 2**.

D) Calculating alternatives' distance from the ideal solution and finally adding them up for final value as following:

$$S_i = \sum_{j=1}^n W_j (f_j^* - f_{ij}) / (f_j^* - f_j^-)$$

$$R_i = \max [w_j (f_j^* - f_{ij}) / (f_j^* - f_j^-)] \tag{8}$$

where  $S_i$  shows the  $i$  alternative from the distance of the positive ideal solution (the best mixture) and  $R_i$  shows the  $i$  alternative distance from the negative ideal solution (the worst mixture). Then the best rank based on  $S_i$  and the worst rank based on  $R_i$  will be reached.

E) Calculating VIKOR quantity  $Q_i$

This quantity is defined for each  $i$  as following:

$$Q_i = v \left[ \frac{S_i - S^*}{S^- - S^*} \right] + (1-v) \left[ \frac{R_i - R^*}{R^- - R^*} \right] \tag{9}$$

where:  $S^- = \max_i S^i$ ,  $S^* = \min_i S^i$ ,  $R^- = \max_i R^i$ ,  $R^* = \min_i R^i$  and  $v$  is the weight and the strategy of the majority of agreed criterion or is the maximum group suitability.

$\left[ \frac{S_i - S^*}{S^- - S^*} \right]$  Shows the distance from the negative ideal solution for  $i$  alternative or let us put it this way it is the agreed majority for  $i$ .

$\left[ \frac{R_i - R^*}{R^- - R^*} \right]$  Shows the distance from the ideal solution of the  $i$  alternative and means disagreement with  $i$  alternative.

So when  $v$  is bigger than 0/5,  $Q_i$  indexed will lead to agreed majority and when it is smaller than 0/5,  $Q_i$  index shows the negative majority vision. In general when  $v$  equals to 0/5, it shows the agreementary vision of the evaluating experts (**Table 3**).

**Table 2.** The best and the Worst value for all benchmark functions.

A23	A22	A21	A20	A19	A18	A17	A16	A15	A14	A13	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	A1	Index
0.0214	0.0255	0.0240	0.0275	0.0220	0.022	0.027	0.0194	0.0218	0.0265	0.0199	0.0272	0.0245	0.0235	0.0237	0.0233	0.0237	0.023	0.0280	0.0256	0.0255	0.0247	0.0249	F MAX
0.0049	0.0061	0.0064	0.0066	0.004	0.0153	0.0052	0.0048	0.0036	0.0116	0.007	0.0099	0.005	0.0035	0.0088	0.006	0.0064	0.002	0.006	0.025	0.005	0.0078	0.0083	F MIN

Source: Research findings.

**Table 3.** Calculation of  $R$ ,  $S$ ,  $Q$ .

Village Name	$S$	$R$	$Q$	Rank
Talebabad	0.822	0.046	0.022	1
Ghaniabad	0.772	0.045	0.083	2
Eslamabad	0.748	0.048	0.134	3
Zamanabad	0.729	0.041	0.171	4
Abbasabad	0.698	0.047	0.239	5
Karimabad	0.684	0.043	0.266	6
Goltape	0.671	0.048	0.296	7
Ghaleno	0.643	0.050	0.355	8
Ghomiabad	0.639	0.045	0.361	9
Moghimabad	0.633	0.047	0.376	10
Chaletarkhan	0.616	0.045	0.411	11
Moghimabad	0.615	0.045	0.413	12
Ghsemabad	0.602	0.050	0.442	13
Mahmoudabad	0.585	0.045	0.476	14

Source: Research findings.

## 6. Conclusion

Housing is one of the most basic and sensitive parts in economic, social and physical development planning and having access to that for all urban and rural stakeholders especially for effective and weak level of society which many of them live in villages. One of the most challenges of government and position specially in under development countries and because of many reasons like fast rise of population, internal immigration, enough economics sources, problem referring to landing and providing structural material and lack of human power who is expert and the most important lack of policy and appropriate plans in regard with land and house and etc. This problem has become crisis (Poormohammadi, 2009). As a result housing problem in two ways quality and quantity have always faced many problem all over the world but mostly in rural housing which is more affected by geography and place an important role in their people and each change in it in all aspects of life of rural people is effective. So this is important according to recent statistics in the year 2011 about 28.5 percent of population of 75 million people including 5.7 stakeholders about 5 million rural people live and by calculating natural rise of population 1.14 stakeholders needs new housing which is an important issue. In desert territory of Iran, the Residential units are different from the indigenous pattern and they are more look like urban pattern rather than rural pattern and rural houses are not made like indigenous patterns and in their structure, new patterns are used, plus the fact that they do not pay attention to the rural people desire, so it will lead to lack of their harmony with living needs of the villagers in the studied area. And this will

affect the form and the architecture of the studied villages and this can be seen as cities as soon as one enters. According to  $Q$  quantities which in villages are almost equal to each other one can say the villagers' satisfaction level from house in this town does not differ in various villages. The ideal is the satisfaction from access to a good quality and suitable house since house is a need and is considered as one of the real events of the initial issues which obsessed humans. In the present study in order to determine and rank the town, different criteria and alternatives are used. According to this fact that these criteria and alternatives are not equally valuable, in the present study by using VIKOR method and by using Entropy model, at the first step the weight of the indexes were calculated. According to the calculations in which  $S$  is the distance of  $i$  versus the ideal solution (the worst mixture) and  $R$  is the distance from the negative ideal solution (the worst mixture). The result of ranking shows that highest rank is Talebabad based on the indexes  $R = 0.822$ ,  $S = 0.046$ ,  $Q = 0.022$  and the lowest rank is Mahmoudabad village with  $R = 0.585$ ,  $S = 0.045$ ,  $Q = 0.476$ . Therefore, since the aim of this study was to assess the ranking of rural satisfaction, implementation of housing projects to improve the satisfaction of rural residents, optimal distribution of resources and services, and ultimately improve the quality life of villagers in the region under study area, following actions based on the findings and results are recommended to improve villages:

- 1) Special and expert outlook of planners and politicians to promote rural housing;
- 2) Providing general housing plans for developing the quality of rural housing with priority of low rank villages;
- 3) Increasing supervision from responsible institutions for constructions in rural housing;
- 4) Paying attention to modern patterns of rural housing according to its different functions and not only housing pattern which is copied from cities;
- 5) Quality and quantity development of all types of settlements and access to facilities;
- 6) Keeping in mind the appropriate facilities for better construction and renewing rural housing;
- 7) Using designing patterns which is appropriate for rural housing together with applying modern technology for construction.

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