

EFFECT OF RURAL GUIDE PROJECTS ON THE IMPROVEMENT OF RURAL SETTLEMENTS: EVIDENCE FROM IRAN

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Abstract

Rural guide project (RGP) is the first systemic and comprehensive national effort to spatially organize the villages. It is a major tool for the management of rural development. In this respect, the present study aimed to explore the impact of RGPs on the improvement of rural settlements in Southern Khaveh District of Delfan County, Lorestan Province, Iran. So, we applied comparative-casual methodology so that the villages where an RGP has been implemented were compared to those where no RGP has been implemented in terms of rural house indicators. The main data collection tool was a self-designed questionnaire whose validity was confirmed by a panel of academic professors in Guilan Province and the experts of Housing Foundation of Lorestan Province. The reliability of the questionnaire was estimated by Cronbach's alpha at 0.84. Data were analysed in SPSS₁₉ Software Package by descriptive statistics (tables of frequency distribution, mean, and standard deviation) and inferential statistics (Mann-Whitney U test). The results shows that RGP had a significant impact on the variables of strengthening, material quality, allocation of parking space, building beautifying, bathroom construction, inclusion of commercial space in the building, energy conservation, construction of houses with multiple floors, availability of civil engineers and experts, partitioning of building internal space, building ventilation, hygienic disposal of sewage, and internal space exposure to light. But, its effect was statistically insignificant on the use of novel material, the use of local material, and availability of hygienic drinking water. Also, it was revealed that in villages with an RGP, the highest satisfaction was found to be with the variables of village development, the transformation in village construction status, and the villagers' comfort and welfare. Also, the least satisfaction was with the variables of employment improvement and more investment on village.

Key words: rural guide project, rural development, rural housing, Delfan County

INTRODUCTION

Village is a form of settlements of human communities and is a natural and geographical unit with a set of living activities. It is directly associated with residence and housing and can fulfil all or most of its annual needs by itself. Villages are featured by their dependence on nature, water and soil so that their social, economic and structural systems are formed in a link with these factors; this is what distinguishes rural areas from urban areas [22]. Indeed, as the oldest form of human settlement, villages are the source and basis for the development of all countries. According to UN [23], over half of the world population lives in rural areas. Thus, the rural development has been prioritized to urban development because

of the importance of villages in economic, social and political development of the countries and the consequences of undeveloped rural areas including extensive poverty, increasing inequality, unemployment, immigration, urban marginalization, etc. [3](Azkia, 2004). Michael Todaro argues that the priority of rural development to urban development is not related to the fact that the majority of people in the third world live in rural areas; rather, it is required because the final solution for urban unemployment and high population density lies in the improvement of rural environment. Developing countries can take the steps towards the realization of development by establishing a balance in economic facilities between urban and rural areas and also, by

laying the ground for people's extensive participation in projects of national development and their enjoyment of their endowments [20]. Rural development schemes are a part of national development programs that are implemented to transform rural community's socio-economic structure. These schemes are fulfilled by government and its agencies in rural areas. This is of more importance in developing countries where governments afford their efforts to revive the structure of the villages to orient them with specific socio-economic goals.

A review of experience and background of various countries in rural development planning shows that diverse approaches and strategies have been applied since the 1950s. One is spatial-physical approach that emphasizes on the spatial dimensions of development planning, particularly the location, distance estimation, spatial dispersion and distribution, physical structure, and hierarchy. Overall, all geographical phenomena have two dimensions: content and physics. The former is related to socio-economic attributes and the latter refers to spatial properties and the appearance. The development in general and rural development in particular encompasses both socio-economic and spatial-physical dimensions. The socio-economic development would entail adverse consequences and would not sustain if spatial-physical development is ignored. On the other hand, mere emphasis on spatial-physical dimensions would be a waste of investment if socio-economic dimensions are overlooked [17].

Presently, an important structural element of rural settlements supporting poor villagers and alleviating the susceptibility of rural areas is to give a particular attention to physical aspects of social, economic and environmental activities of people in these areas. It means that the physical elements of rural settlements encompasses housing, secure environment, public utilities, infrastructural services and land uses. These elements consider maternal support and life quality improvement of villagers [15].

As a physical intervention, rural guide projects (RGPs) target the various economic, social, cultural, managerial, and institutional aspects. The approach governing RGPs emphasize the fact that the quality enhancement of physical structure would improve the socio-economic structure of the villages and would lay the ground for rural development [4]. Since RGPs are the most local plans that are directly associated with the villages and the rural communities, they are at present the most significant strategy to address rural problems. However, despite the extensive effort on the preparation and fulfilment of these schemes in Iran and the allocated funds, few studies have focused on the assessment of their impacts and consequences [6], which points out the need for their systematic exploration.

The historical background of guide plans show that after the Islamic Revolution of Iran, a significant attention was paid to villages and their self-sufficiency in agricultural production. Along with this policy, the physical transformation of rural areas was included in the agenda [10]. In this respect, a scheme – called 'Improvement Plan of Villages' – that was influenced by urban development model was implemented in one of the villages in Shahr-e Kord County by the Ministry of Roads & Urban Development in 1983. It was welcomed by policy-makers and officials [10] and was changed to a comprehensive scheme named *Rural Guide Plan* (under the responsibility of Islamic Revolution Housing Foundation) and *Rural Improvement Plan* (under the responsibility of former Jihad-e Sanazdegi Organization) with a regular budget allocated every year [17].

Human residential areas are characterized with evolvability and dynamics, so that the settlements have their own specific morphological according to their economic, social, political and cultural conditions. The physiography of rural areas has been evolved by specific cultural, social, economic and geographical conditions over the centuries. Formed through a gradual movement under the influence of socio-economic systems, the physical structure of villagers has been left unchanged with no essential transformations in

recent decades because of the immobility of these systems [14]. Since the villages in Iran are the home for over one-third of population (REF) who plays a significant role in economic, social and political development of the country, it is imperative to fulfil schemes for the physical development of rural areas in order to keep rural population in their own living and production space [9].

Villages are mostly deployed and extended spontaneously with no previous plan or map. The rural textures are suffering from some challenges rising from the inconsistency of socio-economic changes and physical structure. Most villages in Iran are old with old physical structure or at least there is old structure next to the new structure. The old structure of the villages is tailored with their prior economic, social, cultural and technological conditions and is not obviously consistent with the evolutions of rural life and conditions and the present lifestyle in rural areas [17].

The rural construction activities are among the major actions of the Islamic Republic Housing Foundation about the physical affairs of the villages in Iran. These activities are aimed to pave the way for the development of the rural areas and the just distribution of physical facilities in order to improve the environmental conditions of rural areas. Thus, these are coordinated with the goals of 20-Year Development Perspective of Iran as a national development document.

Anabestani [1] evaluated the impacts of rural guide schemes on the rural settlements in Western Razavi Khorasan Province. He showed that the schemes improved villagers' hope to reside in villages. But, although they were assessed to be successful in service supply, they have not been so successful in environmental aspect and attracting people's cooperation so that public people and officials have called for their revision due to the shortcomings in their preparation and fulfilment.

In an assessment of social consequences of rural improvement plans in Isfahan Province, Mousavi Ghahdarijani [11] concluded that the plans failed to supply new facilities and

services to the villages and that the villages were generally enjoying the pre-improvement facilities and services. Also, villagers were found to cooperate weakly with different dimensions of improvement plans and this cooperation was even weaker with decision-making and financial aspects. Although 70.8% of respondents stated their objection with orientation of the improvement plans, 86.9% expressed high satisfaction with them.

Azimi and Faroughi [2] reported that rural families who had been granted with rural housing loan were highly satisfied with the quality of their new houses. The satisfaction with the new house included such aspects as higher physical quality and resistance against natural disasters, more beautiful appearance, better materials and facilities inside the houses, better protection against natural factors, welfare facilities, and higher comfort.

Jamshidi and Jamini [7] explored the villagers' satisfaction with rural houses in Ravansar County. They reported that most villagers' satisfaction was lower than moderate. In addition, they found that six factors including hygienic, physical, economic, infrastructural, welfare and strength factors accounted for 80.8% of total variance of the variables (factors influencing villagers' satisfaction with their houses). According to Rafieian et al. [16](2010)'s study on the assessment of people's satisfaction with houses in Tehran, they were moderately satisfied with their houses. In a study on villagers' satisfaction with settlement in Komijan County, Shayan et al. [19] found that the satisfaction was lower than expected among 71% of people. Also, the satisfaction was not uniformly distributed and no village showed high or very high satisfaction. As educational level was increased, satisfaction was decreased and the physical, natural and economic aspects were the most effective factors on the dependent variable.

The present study aimed to explore the impact of rural guide projects (RGPs) on improvement of rural settlements in Southern Khavveh District, Delfan County, in Iran.

MATERIALS AND METHODS

The present study was a quantitative research based on comparative-casual methodology in terms of nature, an applied research in terms of objective, and a descriptive analysis in terms of variable control. The statistical population was composed of 39 villages in Southern Khaveh District in Lorestan Province, Iran, of which eight villages had guide schemes and 31 did not. Using Bartlett et al. [5]’s table of least sample size at the 95% confidence level, 112 people were sampled in villages with guide scheme and 110 individuals were sampled in villages without guide schemes. Geographically talking, the research was conducted in Southern Khaveh District of Delfan County located in Lorestan Province, Iran. Delfan County lies between the longitudes of 37°26' and 28°19' E. and the latitudes of 32°28' and 23°22' N. It covers an area of 254,623 ha in south-western Iran. According to the census of 2011, Delfan County has two districts, 10 rural centers and over 400 villages. Its population is 144,161 individuals in 35,598 families, of which 73,872 are male and 70,289 are female. Southern Khaveh District in this county is the home to

12,977 individuals in 3,456 families, of which 6,693 are male and 6,284 are female.

The main data collection tool was a self-designed questionnaire whose content validity was confirmed by a panel of academic professors and experts after its adjustment according to their advice. The questionnaire was found to be reliable by estimating Cronbach’s alpha (using SPSS₁₉ Software Package) at 0.84. It was composed of two sections. The first section was related to respondent’s demographic data and the second section included the main questions about house improvement indicators in which the items were weighted in five-point Likert type scale (1 = unimportant through 5 = very important). Data were analysed by descriptive statistics (table of frequency distribution, mean, and standard deviation) and inferential statistics (non-parametric Mann-Whitney U test).

RESULTS AND DISCUSSIONS

Descriptive section

The results showed that in villages with RGP, 73.2 percent of 112 respondents were male and in villages without RGP, 78.2 percent of 110 respondents were male (Table 1).

Table 1. Respondents’ demographic information

| Variable | Groups | With RGP | | Without RGP | | Mean (SD) | |
|-------------------------------|---------------------|-----------|---------|-------------|---------|------------------|------------------|
| | | Frequency | Percent | Frequency | Percent | With RGP | Without RGP |
| Gender | Male | 82 | 73.2 | 86 | 78.2 | | |
| | Female | 30 | 26.8 | 24 | 21.8 | | |
| Age | 16-25 | 19 | 17 | 33 | 20.9 | 37.29 (10.59) | 38.43 (15.12) |
| | 26-36 | 33 | 29.5 | 36 | 32.7 | | |
| | 37-47 | 34 | 30.4 | 33 | 30 | | |
| | 48-58 | 17 | 15.2 | 9 | 8.2 | | |
| | 59-73 | 9 | 8 | 9 | 8.2 | | |
| Family size | 2-5 | 82 | 73.2 | 80 | 72.7 | 4.45 (0.44) | 5.25 (0.49) |
| | 6-9 | 30 | 26.8 | 28 | 25.5 | | |
| | 10-12 | 0 | 0 | 2 | 1.8 | | |
| Marital status | Single | 24 | 21.4 | 22 | 20 | | |
| | Married | 88 | 78.6 | 88 | 80 | | |
| Education | Illiterate | 29 | 25.9 | 27 | 24.5 | | |
| | Elementary school | 13 | 11.6 | 20 | 18.2 | | |
| | Intermediate school | 19 | 17 | 16 | 14.5 | | |
| | High school | 25 | 22.3 | 25 | 22.7 | | |
| | Academic degree | 26 | 23.2 | 22 | 20 | | |
| Familiarity with RGP | Yes | 83 | 74.1 | 50 | 45.5 | | |
| | No | 29 | 25.9 | 60 | 54.5 | | |
| | Total | 112 | 100 | 110 | 100 | | |
| House destruction | Yes | 20 | 9 | 0 | 0 | | |
| | No | 92 | 91 | 110 | 110 | | |
| Proximity to main road | Yes | 76 | 67.9 | 40 | 36.4 | | |
| | No | 36 | 32.1 | 70 | 63.6 | | |

Source: Survey 2015.

The highest frequency in these two village groups was found to be in age groups of 37-47 years (34.2 percent) and 26-36 years (32.7 percent), respectively.

The highest frequency of family size was 73.2 percent in the class of 2-5 people in villages with RGP and 72.7 percent in the same class in villages without RGP. Among the respondents, the majority were married. The highest frequency was 78.6 percent in villages with RGP and 79.3 percent in those without RGP. According to the findings, it can be said that both groups were similar in terms of the educational level. Among respondents in

villages with and without RGP, 25.9 and 24.5 percent were illiterate, respectively (Table 1).

We found that among all respondents in villages with RGP, 64 individuals' houses were 60-100 m² as the highest frequency and one individual's house was 220-250 m² as the lowest frequency. The highest and lowest frequencies of house area in villages lacking RGP were related to the classes of 60-100 m² (75 individuals) and 250-300 m² (1 individual), respectively. Other background factors for both village groups are summarized in Table 2.

Table 2. Respondents' economic status and house features

| Variable | Groups | With RGP | | Without RGP | | Mean (SD) | |
|---|-------------------------------------|-----------|---------|-------------|---------|-------------------|-------------------|
| | | Frequency | Percent | Frequency | Percent | With RGP | Without RGP |
| House area (m ²) | 60-100 | 64 | 57.1 | 75 | 68.2 | 107.84 (0.582) | 104.04 (0.402) |
| | 100-150 | 45 | 40.2 | 24 | 21.8 | | |
| | 150-200 | 2 | 1.8 | 9 | 8.2 | | |
| | 200-250 | 1 | 0.9 | 1 | 0.9 | | |
| | 250-300 | 0 | 0 | 1 | 0.9 | | |
| Non-farming income (× 10 ⁷ IRR) | 0-10 | 94 | 83.9 | 99 | 90 | 62533 (0.369) | 55538 (0.497) |
| | 11-20 | 18 | 16.1 | 9 | 8.2 | | |
| | 21-30 | 0 | 0 | 1 | 0.9 | | |
| | 41-50 | 0 | 0 | 1 | 0.9 | | |
| | Total | 112 | 100 | 110 | 100 | | |
| Farming income (× 10 ⁷ IRR) | 0-10 | 107 | 95.5 | 101 | 91.8 | 38736 (0.207) | 56898 (0.391) |
| | 11-20 | 5 | 4.5 | 6 | 5.5 | | |
| | 21-30 | 0 | 0 | 3 | 2.7 | | |
| | Total | 112 | 100 | 110 | 100 | | |
| | House price (× 10 ⁷ IRR) | 0-40 | 57 | 50.9 | 82 | | |
| 40-80 | | 20 | 17.9 | 20 | 18.2 | | |
| 80-120 | | 19 | 17 | 6 | 5.5 | | |
| 120-160 | | 9 | 8 | 2 | 1.8 | | |
| 160-200 | | 7 | 6.3 | 0 | 0 | | |
| Privately owned land price (× 10 ⁷ IRR) | 0-40 | 103 | 92 | 106 | 96.4 | 6090 (0.838) | 35146 (0.245) |
| | 40-80 | 1 | 0.9 | 3 | 2.7 | | |
| | 80-120 | 2 | 1.8 | 1 | 0.9 | | |
| | 120-160 | 3 | 2.7 | 0 | 0 | | |
| | 160-200 | 3 | 2.7 | 0 | 0 | | |
| Privately owned shop price (× 10 ⁷ IRR) | 0-70 | 105 | 93.8 | 108 | 98.2 | 20827 (0.515) | 2471 (0.212) |
| | 70-140 | 3 | 2.7 | 1 | 0.9 | | |
| | 140-280 | 3 | 2.7 | 1 | 0.2 | | |
| | 280-350 | 1 | 0.9 | 0 | 0.2 | | |
| Number of residing years in village | 5-15 | 8 | 1.7 | 8 | 7.3 | 36.26 (1.021) | 35.39 (0.938) |
| | 15-30 | 35 | 31.3 | 42 | 38.2 | | |
| | 30-45 | 42 | 37.5 | 42 | 38.2 | | |
| | 45-60 | 19 | 17 | 13 | 11.8 | | |
| | 60-73 | 8 | 7.1 | 5 | 4.5 | | |

Source: Survey 2015

\$1≈32000IRR

House improvement indicators

According to Table 3, the villagers in villages with RGP are more interested in the application of house improvement indicators related to the quality of construction material, the use of novel materials (iron, cement), and compliance

with energy (heating/cooling) conservation. Also, the least interest was found to be directed to the variables of inclusion of a commercial space in the house, the use of local materials (stone and wood), and availability of civil engineers and experts.

Table 3. House improvement indicators in villages with an RGP

| Rank | Indicator | Very low (%) | Low (%) | Moderate (%) | High (%) | Very high (%) | M | SD |
|------|---|--------------|---------|--------------|----------|---------------|------|-------|
| 1 | Material quality | 0 | 0.9 | 12.7 | 57.1 | 31.3 | 4.19 | 0.651 |
| 2 | Use of novel material | 0 | 3.7 | 8.9 | 58.9 | 29.5 | 4.15 | 0.687 |
| 3 | Energy conservation | 4.5 | 5.4 | 12.5 | 29.5 | 48.2 | 4.12 | 1.105 |
| 4 | Light exposure of internal space | 0 | 4.5 | 23.2 | 39.3 | 33 | 4.01 | 0.865 |
| 5 | Strengthening regulation | 0 | 2.7 | 25 | 50.9 | 21.4 | 3.91 | 0.754 |
| 6 | Bathroom construction | 0.9 | 5.4 | 31.3 | 27.7 | 34.8 | 3.90 | 0.977 |
| 7 | Hygienic drinking water availability | 0.9 | 0.9 | 39.3 | 43.8 | 15.2 | 3.71 | 0.464 |
| 8 | Hygienic disposal of sewage | 3.6 | 7.1 | 24.1 | 45.5 | 19.6 | 3.71 | 0.983 |
| 9 | Internal space partitioning | 0.9 | 7.1 | 38.4 | 43.8 | 9.8 | 3.54 | 0.804 |
| 10 | House ventilation | 1.8 | 10.7 | 36.6 | 34.8 | 16.1 | 3.53 | 0.949 |
| 11 | House beautifying | 0 | 8 | 52.7 | 26.8 | 12.5 | 3.44 | 0.814 |
| 12 | Parking space | 1.8 | 12.5 | 42 | 32.1 | 11.6 | 3.39 | 0.914 |
| 13 | Construction of houses with multiple floors | 4.5 | 34.8 | 27.7 | 27.7 | 5.4 | 2.95 | 1.012 |
| 14 | Inclusion of commercial space | 24.1 | 41.1 | 9.8 | 12.5 | 12.5 | 2.48 | 1.322 |
| 15 | Availability of experts | 25 | 33.9 | 24.1 | 10.7 | 6.3 | 2.39 | 1.157 |
| 16 | Use of local materials | 23.2 | 58 | 15.2 | 2.7 | 0.9 | 2.00 | 0.759 |

Source: Survey 2015

As can be seen in Table 4, the parameters most interested in villages without RGP were the compliance with strengthening regulations (building safety), the quality of construction materials, the use of novel materials (iron, cement), and availability of hygiene drinking water. Also, the least interested parameters included the inclusion of a commercial space in the building, the use of local materials (stone, wood), availability of civil engineers and experts, construction of houses with multiple floors (Table 4).

According to data presented in Table 5, the respondents in the villages with RGP are most satisfied with the variables of village development and construction, the change in village construction status, and villagers' welfare and well-being, among all variables related to the satisfaction with rural transformation. Also, they expressed their least satisfaction with the variables of employment improvement and more investment in the village.

Table 4. House improvement indicators in villages lacking a RGP

| Rank | Indicator | Very low (%) | Low (%) | Moderate (%) | High (%) | Very high (%) | M | SD |
|------|---|--------------|---------|--------------|----------|---------------|-------|-------|
| 1 | Use of novel material | 3.6 | 4.5 | 22.6 | 33.6 | 34.5 | 3.91 | 1.045 |
| 2 | Material quality | 0.9 | 6.4 | 22.7 | 5 | 20 | 3.82 | 0.859 |
| 3 | Hygienic drinking water availability | 1.8 | 7.3 | 29.1 | 35.5 | 26.4 | 3.77 | 0.983 |
| 4 | Strengthening regulation | 2.7 | 6.4 | 31.8 | 43.6 | 15.5 | 3.63 | 0.917 |
| 5 | Energy conservation | 6.4 | 13.6 | 19.1 | 44.9 | 16.4 | 3.51 | 1.115 |
| 6 | Light exposure of internal space | 2.7 | 11.8 | 37.3 | 30.9 | 17.3 | 3.48 | 1.002 |
| 7 | Hygienic disposal of sewage | 8.2 | 11.8 | 24.5 | 44.5 | 10.5 | 3.38 | 1.092 |
| 8 | Bathroom construction | 7.3 | 13.6 | 45.5 | 18.2 | 15.5 | 3.213 | 1.093 |
| 9 | Internal space partitioning | 3.6 | 20 | 45.5 | 22.7 | 8.2 | 3.54 | 0.804 |
| 10 | House ventilation | 6.4 | 16.4 | 43.6 | 27.3 | 6.4 | 3.11 | 0.971 |
| 11 | Parking space | 7.3 | 11.8 | 49.1 | 26.4 | 5.5 | 3.11 | 0.942 |
| 12 | House beautifying | 5.5 | 22.7 | 40 | 26.4 | 5.5 | 3.04 | 0.967 |
| 13 | Construction of houses with multiple floors | 8.2 | 47.3 | 28.2 | 13.6 | 2.7 | 22.5 | 0.925 |
| 14 | Use of local materials | 30.9 | 45.5 | 19.1 | 4.5 | 0 | 1.97 | 0.829 |
| 15 | Availability of experts | 40 | 36.4 | 16.4 | 4.5 | 2.7 | 1.94 | 0.998 |
| 16 | Inclusion of commercial space | 48.2 | 26.4 | 17.3 | 4.5 | 3.6 | 1.89 | 1.078 |

Source: Survey 2015

Table 5. Post-RGP satisfaction and changes in villages with a RGP

| | Very low (%) | Low (%) | Moderate (%) | High (%) | Very high (%) | M | SD |
|-------------------------------|--------------|---------|--------------|----------|---------------|------|-------|
| Development and construction | 11.6 | 30.4 | 42.9 | 13.4 | 1.8 | 2.63 | 0.920 |
| Credit availability | 20.5 | 33 | 39.3 | 5.4 | 1.8 | 2.35 | 0.927 |
| Change in construction status | 4.5 | 18.7 | 58 | 12.5 | 6.3 | 2.97 | 0.864 |
| Informing | 36.6 | 42 | 14.3 | 4.5 | 2.7 | 1.95 | 0.966 |
| Cooperation | 30.4 | 32.1 | 27.7 | 6.3 | 3.6 | 2.21 | 1.058 |
| Reduced immigration | 17.9 | 57.1 | 19.6 | 1.8 | 3.6 | 2.16 | 0.865 |
| Reverse immigration | 19.6 | 53.6 | 23.2 | 3.6 | 0 | 2.11 | 0.752 |
| Comfort and welfare | 8.9 | 31.5 | 42 | 13.4 | 4.5 | 2.73 | 0.952 |
| Improved employment | 48.2 | 39.2 | 11.6 | 0.9 | 0 | 1.65 | 0.719 |
| Higher investment | 37.5 | 41.1 | 16.1 | 4.5 | 0.9 | 1.90 | 0.890 |

Source: Survey 2015

Table 6. Kolmogorov-Smirnov (K-S) test to check normality

| | Kolmogorov-Smirnov test | | | Shapiro-Wilk test | | |
|------------------------------|-------------------------|-----|---------|-------------------|-----|---------|
| | Test statistic | df | p-value | Test statistic | df | p-value |
| House improvement indicators | 0.072 | 222 | 0.007 | 0.976 | 222 | 0.001 |

Source: Survey 2015

Overall, we can conclude that the villagers living in villages where an RGP has been implemented are not fully satisfied with how it has been fulfilled (Table 5).

To decide on how to test house improvement parameters, we used the Kolmogorov-Smirnov (K-S) test and the Shapiro-Wilk test.

Results in Table 6 revealed that the significance level of the data did not have a normal distribution. Thus, we applied non-parameter Mann-Whitney U test for the hypotheses (Table 6).

Table 7. Means comparison test for house improvement parameters between two groups

| Rank | Indicator | Mean ranks | | Mann-Whitney U | p-value |
|-------|---|------------|-------------|----------------|---------|
| | | With RGP | Without RGP | | |
| 1 | Strengthening regulation | 120.42 | 102.42 | 5161.50* | 0.025 |
| 2 | Material quality | 124.25 | 98.52 | 4732.50** | 0.001 |
| 3 | Parking space | 119.71 | 103.14 | 5240.00* | 0.040 |
| 4 | House beautifying | 123.25 | 99.53 | 4843.50** | 0.003 |
| 5 | Bathroom construction | 130.68 | 91.97 | 4011.50** | 0.000 |
| 6 | Use of novel material | 116.98 | 105.92 | 5546.50 | 0.168 |
| 7 | Inclusion of commercial space | 126.04 | 96.70 | 4532.00** | 0.000 |
| 8 | Use of local materials | 112.98 | 110.08 | 6004.00 | 0.721 |
| 9 | Energy conservation | 130.08 | 95.58 | 4079.00** | 0.000 |
| 10 | Construction of houses with multiple floors | 123.42 | 99.37 | 4825.50** | 0.003 |
| 11 | Availability of experts | 124.11 | 98.66 | 4747.50** | 0.002 |
| 12 | Internal space partitioning | 126.25 | 96.48 | 4508.00** | 0.000 |
| 13 | House ventilation | 123.93 | 98.80 | 4763.00** | 0.002 |
| 14 | Hygienic disposal of sewage | 120.22 | 102.62 | 5183.00* | 0.030 |
| 15 | Light exposure of internal space | 127.67 | 95.04 | 4349.00** | 0.000 |
| 16 | Hygienic drinking water availability | 108.18 | 114.88 | 5788.00 | 0.410 |
| Total | House improvement indicators | 134.19 | 88.40 | 3618.50** | 0.000 |

* p < 0.05 ** p < 0.01

Source: Survey 2015

According to Table 7 presenting the results of Mann-Whitney U to test the hypotheses, it was found that among house improvement parameters including the variables of strengthening regulations, material quality, inclusion of parking space, building beautifying, bathroom construction, inclusion of commercial space in building, energy conservation, construction of houses with multiple floors, availability of civil engineers and experts, internal space partitioning, building ventilation, hygienic disposal of sewage, and the light exposure of internal space, the hypothesis H_1 regarding the significant difference between villages with RGP and those without RGP is confirmed and the null hypothesis, H_0 , regarding the lack of such difference is rejected. Also, H_1 is accepted and H_0 is rejected for the variables of the use of novel material, the use of local material, and availability of hygienic drinking water. Overall, it can be stated that as a symbol of rural development and mechanization, the implementation of RGPs can significantly influence house improvement indicators.

CONCLUSIONS

The results imply that RGPs have not been completely implemented in any of the studied villages and they have been halted at the level of square and road construction. Only *Barkhordar* Village has enjoyed a relatively complete implementation of the project since it is located near the main road. Unfortunately, in constructional projects including RGPs, all villages are assumed to be identical, so similar actions are taken for all of them. Guide projects are limited merely to physical dimension and the improvement of the roads whose only eminent consequence is the facilitation of commute. This road improvement has failed to lead to successful development because development is mainly related to proper economic ground, whereas the studied rural guide projects have only been limited to the improvement of structures in physical aspect. The increase in land price has been another consequence of rural guide projects which can be both positive and negative. Since the price

difference between lands around main road and those in other parts of the village is deepened, people's socio-economic base is transformed which may foment the old conflicts and disputes. Also, dissatisfaction with damage compensation is another result of RGPs in the studied villages. Although the Islamic Revolution Housing Foundation has developed some policies to offset the damages to people (e.g. rehabilitation loan, material supply, etc.), they have been gradually neutralized and/or the damage does not match the compensation. This is clearly visible in the studied villages. In total, we can conclude that RGPs have been significantly effective on most physical variables and house improvement parameters of the study and they have been quite successful in the improvement of settlements and their physical status. These results are confirmed by most relevant studies (e.g. [2, 8, 12, 13, 18, 21]).

According to the results, the following recommendations can be drawn:

(i) The consideration of local consultants. People's attitudes towards the project would be useful because the complete implementation of the project and its facilitation require such an attitude in local community. This would contribute to public people's more serious, informed and constructive cooperation in the project.

(ii) Rural guide project coordination with rural community's features. The copying of urban guide plans and the use of a single project without including the specific economic, social and cultural attributes of the village would fail to succeed. It is imperative to get villagers involved in the development and implementation of guide projects which should be considered by the officials of villages in Nurabad County.

We also need to examine the mechanism of rural guide project development and implementation and to recognize their drawbacks.

Also, it is necessary to examine if rural guide projects can be considered as base schemes in the development of long-term development plan of the villages.

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