Comparative Analysis of the Effect of Resettlement Patterns after Natural Hazards on the Quality of Life of Villagers (Case Study: 1997 Earthquake in Zirkuh County)

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1. Introduction

Natural hazards, especially earthquakes, often result in heavy corporal and financial losses to human settlements. Therefore, all communities are vulnerable to natural disasters, which can change the quality of life of communities; Iran has always suffered a lot from natural disasters due to its spatial structures and has been one of the most vulnerable parts of the world in terms of environmental hazards, including earthquakes. Rural textures of residential spaces in the nature bed are highly vulnerable for the following reasons: inappropriate infrastructure and existing socioeconomic inequalities, low housing quality, low level of use of technology, non-compliance with location criteria, etc. These face a high level of vulnerability.

Nowadays, considering the vulnerability of villages in different spatial dimensions, the resettlement policy in the form of three redevelopment (reconstruction), relocation and aggregation approaches, is one of the types of management approaches in rural settlement planning which in order to develop rural districts and specifically to organize the optimal distribution of rural areas and the provision of facilities and services for villagers and, ultimately, the protection of villagers against all kinds of hazards have been proposed. These policies focus on two issues of welfare and quality of life. In fact, one of the new approaches to resettlement is the introduction of indicators of quality of life.

In this study, evaluating the effect of resettlement policies after the earthquake on the improvement of economic, socio-cultural and spatial-physical quality of life of villagers was investigated using 11 indicators. The purpose of this study was to investigate the effects of relocation, integration and aggregation of villages damaged by the 1997 earthquake in Zirkooh county on the quality of life of local residents through studying mental indices. The research question is: How have post-earthquake enforcement policies (integration, aggregation, relocation) affected life quality of villagers?

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2. Study Area

Zirkuh county is located in the northeast of South Khorasan province and its center is Hajiabad city. This county is bordered by Khorasan Razavi province to the north, Darmian county to the south, Ghaen county to the west, and Afghanistan to the east. Zirkuh city includes three districts, six villages, and two cities named Zahan and Hajiabad. The total number of settlements in this city is 138, of which 103 are inhabited and 35 are uninhabited (Deputy Planning of South Khorasan Governorate, 2014). The study area is the villages affected by the earthquake in May 1997. Among them, six villages of Pardan, Payhan, Afin, Mehmanshahr, Ardakol, Darj Olya in which three resettlement strategies (consolidation, relocation and relocation or reconstruction) have been implemented, were selected as a sample.

3. Materials and Methods

The method of research according to the nature of work is descriptive-analytic. In the first section, to determine the appropriate criteria by studying library documents, theories about quality of life and resettlement were examined. Then, by merging them, the criteria for assessing the quality of life of relocated or integrated rural settlements were detremined. In the second part, using the observation tools and questionnaire, the required data were collected. The population of the research of the villagers affected by the earthquake in 1976 in Zirkuh district in six sample villages is 903 households. According to Cochran's formula (95% confidence level and 0.05 error), 144 households were randomly selected to complete the questionnaire. The data were collected and analyzed. The questionnaires were basically closed questions with answers in five-point Likert scale (very (5) to very low (1)). Reliability of the questionnaire was confirmed by Cronbach's alpha method, and alpha value of 0.855. Data analysis was done in two sections: descriptive and inferential statistics, by SPSS software and Kolmogorov-Smirnov tests, single sample T and analysis of variance (ANOVA).

4. Results and Discussion

In this study, the effects of resettlement strategy on the quality of life of residents of displaced villages were studied. Comparison of three patterns of reconstruction, displacement and aggregation of villages in the study area showed that each of the studied patterns has advantages and disadvantages and none of the patterns was able to improve the quality of life of the studied communities in all areas. The results of respondents' survey on the quality of life dimensions in the sample villages showed that in the socio-cultural dimension with the mean of 2.717, is the highest and the economic dimension with an average of 2.15 is the lowest satisfaction level that exists. The quality of life is also moderate with an average of 2.576.

The results of one-sample T test confirmed the above results. The results showed that one of important indicators in increasing the quality of life of the rural community is social solidarity. In the social cohesion index, the value of the statistic is 16.14 and the level of significance is equal to 0.000 which is less than 0.05. It should be noted that the

value of T statistics on the quality indices of infrastructure, health and safety, participation and housing was also recognized important by the villagers.
Moreover, results showed that the Mihmanshahr village with an average of 2.69 had the highest and the Payhan village with an average of 2.47 had the lowest level of quality of life, which proves that coherent policy is better than the policy of displacement at the level of sample villages. The results of analysis of variance show that there is no significant difference between the quality of life of a resettlement pattern in the sample villages but significant level in 7 indicators of quality of employment, income quality, quality of education, participation quality, quality of social cohesion, quality of infrastructure and ambient quality is less than 0.05. Thus, at the 95% confidence level, there is a significant difference between the three resettlement policies in terms of quality of life. Respondents' level of satisfaction with quality of life is not the same in all three resettlement patterns, but in other indicators, there is no significant difference between respondents' satisfaction with quality of life.

5. Conclusion

It can be concluded that resettlement policies should not only be considered as financial compensation or the provision of means of life. But it should also cover all aspects of life (financial, occupational, educational, social, cultural, environmental and physical, etc.) to reduce the hardship of individuals during the process of implementing the plan. It should be noted that regardless of the choice of any model for resettlement, it is most important to pay attention to the living conditions in the new place to enjoy the working and living conditions of people in a livable settlement and planners should provide a good quality of life in the new settlement - with any pattern of resettlement. Training villagers to have skilled and technical jobs, especially the youth, creating job diversity and creating low-cost job insurance for the villagers to increase job security coefficient are among the suggestions that can be offered to improve this area in the study area.

Keywords: Earthquake, Reconstruction, Relocation, Aggregation, Quality of Life, Zirkuh County

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