
Spatial Analysis of the Performance of Certain Villages in Disaster Relief Neighboring Rural Areas (Case Study: Hamoon County Villages)

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1. Introduction

Villages in Sistan region are facing natural disasters due to drought and 120-day storms that have had devastating effects on their social, economic, environmental, and hydrological conditions. The occurrence of droughts and strong winds of 120 days in Sistan due to heavy dust in Hamoon area has severely affected the lives of villagers, especially farmers and ranchers. On the other hand, humanitarian hazards such as ethnic conflicts and insecurity conflicts in border areas, fires in rural crops, delinquency, and social harm in rural communities can also lead to crisis. In the event of a crisis and failure to deliver an action on time, the severity of the damage will reach a maximum level, and the vulnerability resulting from these crises will go beyond the normal range and cause death or loss of life and damage to rural residents. Therefore, designing the network of specific villages to reduce the damage caused by natural and human crises seems necessary. Certain villages can function like central villages. In this regard, the central villages are characterized by population, access to health services, access to roads, infrastructure (plumbing, electricity and telephone), construction facilities, communication and transportation facilities, and land slope. In time of crisis, priority is given to helping other neighboring villages. Therefore, certain villages can provide timely and reliable services in order to timely resolve the rural crises and reduce the resulting vulnerability. Therefore, the purpose of this study is the spatial analysis of specific villages in disaster relief in neighboring rural areas (case study of Hamoon County). In this regard, the following question arises:

What is the current situation of certain villages in disaster relief in neighboring rural areas?

2. Materials and Methods

This research is based on descriptive-survey method and is of practical purpose. The present article has two main parts, as with other researches. The first part is devoted to library and documentary studies in the field of theoretical literature on the subject and background of the research, and the second part to field research and surveying

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(questionnaire, interview) for data collection and completing the questionnaire among the experts. The statistical population of this study includes all villages of Hamoon city including 66 villages (these villages have a population of more than 50 households because villages with less than 50 households do not have the necessary facilities and services to assist neighboring villages in times of crisis). A total of 8725 individuals were selected as sample village units (Table 1). In order to achieve the research objectives in the context of field studies, a wide range of indicators has been studied in the form of expert-based questionnaires (Table 2). After data collection, AHP software and SPSS were used for data analysis. Expert Choice software was used to perform pairwise comparisons, hierarchical production, and calculation of weights in the fuzzy hierarchical process. Fuzzy paired comparisons performed by experts were used to weight the benchmarks and sub-benchmarks, and GIS software was used for spatial analysis of the villages. A paired comparison questionnaire was designed and completed by 15 experts. The validity of the questions was confirmed by expert groups and its reliability was calculated using Cronbach's alpha coefficient. This coefficient was 0.839 indicating acceptable reliability.

3. Results and Discussion

The results showed that the villages of Hamoon had an unfavorable situation when faced with natural and human crises. In fact, in this study, 4 levels (very desirable, desirable, undesirable and very undesirable) were used to rank the villages and the final result showed that out of 66 villages studied, 10 villages were in very poor condition and 56 Village in poor condition. This indicates the weakness of the facilities and services in the villages under study. The results are in line with the findings of Riahi et al. (2014), Bozgeram, Javan, and Katby (2015), where the authors stated that the current condition of providing safety services in rural areas is inappropriate and lacks a scientific model. Also, the results of Sadeghi et al. (2015) showed that based on the cynical scenario, all rural settlements in the study area have a standardized value of environmental vulnerability of more than 0.75% and are in unfavorable conditions.

4. Conclusion

Looking at the natural position of the area, one can see that the city of Hamoon is located on the river Hirmand. The presence of this river is a major cause of the massive floods from Afghanistan to Iran and can pose a serious threat to the residents of this area, especially the farmers and the villagers. On the other hand, the location below the Hamoon Lake has caused the crisis of 120-day wind to drain rural people's lives during droughts, and in addition to blocking the village's access roads, respiratory problems for local people. It is especially beneficial for the elderly and children. In this regard, suggestions are made to improve the situation in the region.

Regarding the functioning and distribution of relief agencies at the village level, it is suggested to facilitate relief by utilizing grassroots mobilization or the participation of nongovernmental departments and, thereby, to provide uniform relief at the village level of each district so as to increase and develop pre-crisis trained human resources, which can reduce vulnerability among the population in times of crisis. Besides, it is

recommended to establish local crisis management hierarchies to increase efficiency and speed up relief.

Keywords: Critical rural areas, Spatial network, Relief, Certain villages, Hamoon County.

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