

Socioeconomic Evaluation of Drought Impacts on Hirmand Border City's Villages

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Extended Abstract

Introduction

Rural areas account for a large part of Iranian population and natural areas and play a fundamental role on its economic and social life. These areas swept up by recent decade's trends and policies have undergone massive changes, indicating that villages are moving toward instability, especially social and economic instability. Among which, one of the factors contributing to instability in rural communities is drought and its generating challenges. Due to the geographical isolation caused by relative position and locating at the endorheic environment, Sistan has been a part of Iranian less developed and deprived areas of exposing its inhabitants, both urban and rural, not only to many socioeconomic problems, but also to environmental phenomena such as air dryness, periodic droughts, water scarcity and often large floods. In the meantime, Hirmand city, locating at northwestern Sistan region with an area of 1009 km², a population of 73254 downtown people (Doust Mohammed) and 300 villages, has subjected to more problems. This research aims at identifying and comparing the socioeconomic status of Hirmand border city's villages before and after the drought and attempting to evaluate its socio-economic effects on the villages. Considering the role of drought on Hirmand city's desertification of villages, the theoretical foundations pertained to drought, instability, sustainable and unsustainable rural development impacts have been addressed in this study and the effects of drought have been considered in two direct and indirect types.

Materials and Methods

The present study is an applied one benefiting from descriptive-analytic research methods as well as statistical methods for data analysis. Data gathering was accomplished using documentary methods and field studies in 13 sample villages, while main portion of the gathered information in the sample population was completed as questionnaire. The collected data were analyzed using SPSS and GIS software, as well as Morris model was employed to determine sustainability level of the villages studied. The analysis of social and economic dimensions before and after the drought was carried out by Mann-Whitney test. To determine the sample size of households living in villages with a population of 150 households and greater, Cochran formula was used that sample size (n) was obtained 260. Additionally, an appropriate allocation method was used to determine the sample size separated by the village. As well as, to measure social indices, the situation-matching method has been used for two periods, conducted by interview and checklist.

Discussion and Results

Results derived from the matrix of socioeconomic indices prior to the drought (sustainability level) revealed that cultivation-area increase index of crops with significantly low sustainability, access to health centers, access to recreational facilities, job security, investment willingness, participation rate, access to training centers, security satisfaction, low sustainability, variety of agricultural products, road quality satisfaction, income security, village belonging, purchasing

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power, average sustainability and purchasing power index, satisfaction with village's living conditions, performance of high-sustainability institutions and the index of satisfaction with housing and land use change have been very stable before the drought.

Results obtained from the matrix of socioeconomic post-drought indices (sustainability level) showed that those of access to health centers and satisfaction with institutions performance had too low sustainability; as well as the indices pertained to participation across the village, village living satisfaction, village belonging level, purchasing power had low sustainability and those for land use change, educational centers, income security gave moderate sustainability. Furthermore, indices for security, investment willingness in the village, place quality satisfaction, road quality satisfaction, and satisfaction with housing quality resulted with a high degree of sustainability and those for recreational facilities, job security, and variety of agricultural products are of great sustainability.

Statistical test results showed that Mann-Whitney value for social dimension equals to 5.132 and it is 589.000 for economic dimension, which significant difference on 0.095 level is seen regarding the significance level less than 0.05. This means that social indices including access to health care home, recreational facilities, road quality satisfaction, place quality satisfaction, performance satisfaction with local institutions, overall village-living satisfaction, and economic indices including job security, income security, investment willingness in the village, land use change, cultivation area increase, variety of agricultural products between the years before and after drought have significant differences.

Conclusions

Spatial distribution of villages across Sistan region indicates that settlement of population and villages confronts problems in Sistan different parts. Thereby, due often to the presence of natural and human constraints, a kind of displacement, instability and evacuation is observed, which would have a negative impact on the growth and development of these settlements. Analysis of the results shows that a significant difference existing between the socioeconomic status of Hirmand city's villages before and after the drought originates from the direct impact of drought and factors such as distance from the city as well as regional level of service and infrastructure. It is worth considering that this issue has not been explicitly addressed in previous studies, and for the first time this issue is being dealt with. Developing and strengthening needed infrastructures for the survival and employment of Hirmand city's villagers, controlling and deterring droughts using indigenous knowledge and new technologies, strengthening institutional networks in order to partially integrate villagers' socio-economic activities, adopting supportive mechanisms and utilizing the participation of villagers in regional planning are among the measures that can help usefully improve socio-economic social status of villagers.

Keywords: Socio-economic instability, drought, Morris Davis Model, village, Hirmand.

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