Measuring the Degree of the Impacts of
Kurdistan Iron Smelting Factory on
the Development of Surrounding Rural Areas

Karimi F.
M.Sc. Student of Rural Development Management, Faculty of Agriculture, Yasouj University
Ahmadvand M. [1]
Assistant Prof., Dep. of Rural Development Management, Faculty of Agriculture, Yasouj University
Karimi F.
M.Sc. Student Faculty of Earth Science, Shahid Beheshti University, Tehran

Extended Abstract

Introduction

The historical experience of development process in developed countries revealed that rural development is a basic requirement for national development and that it should be considered and given high priority. Accordingly in Iran, the government also paid more attention to rural development in recent years. In this regard, different methods and approaches were implemented due to social and economic development of rural regions. A large number of these strategies and industrial projects focus on the development of rural areas. One of the main strategies for development is industrialization and establishment of industry in rural regions. These industrial projects have been initiated to alleviate poverty and unemployment, and to deal with the insufficient food supply. Although these projects were assumed to be beneficial for rural people, they often had unintended negative impacts on the environment and local communities. Evidence suggests that while sustainability is a crucial and independent dimension of development, it has most often been neglected when planning these industrial projects. These projects have been faced with numerous challenges such as a growing sense of rural households' dissatisfaction, negative attitudes, and conflicts with the industrial projects, un-sustainability and in many instances complete failure.

Therefore, in recent years, industrial rural development projects in Iran and in many developing countries have been criticized for their detrimental effects on various aspects, and on sustainability at large. Therefore, there is a widespread consensus about the importance of the assessment of the impact of industrial projects on rural areas. Subsequently, in line with the triple bottom line approach for sustainable development, the impact assessment is of particular importance in considering the sustainability of industrial rural development projects. In this regard, the Kurdistan Iron Smelting Factory, as a great industry in Kurdestan province, was established in 2003 in a high-potential agricultural region. Establishing the factory would potentially cause many social, economic and environmental changes in surrounding rural areas. Measurement of the degree of these impacts would help policy makers and project planners to better understand the projects' impacts. Therefore, the objects of this study were:

• To display the impacts of Kurdistan Iron Smelting Factory on the development of surrounding rural areas;
• To determine the scope of the impacts of Kurdistan Iron Smelting Factory on the development of surrounding rural areas; and
• To model the range and levels of the impacts of Kurdistan Iron Smelting Factory.

Methodology

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[1]. Responsible Author: mahmadvand@yu.ac.ir

The study followed exploratory quantitative research methodology. Also the research method was descriptive-analytic in the form of comparative approach. The comparative design is an accepted research technique for exploring impacts that cannot be manipulated experimentally. The statistical population of the study was the rural people who lived in the villages surrounding the factory. The villages were categorized in three group distances of 5, 10, and 15 kilometers from the factory, using Arc-GIS software. Fifty four villages were affected by the factory and using snowball sampling, seven villages from the first, nine from the second, and four from the third layer were selected and investigated. The sample size of the rural people was determined using the sampling size table given by Patten. The final sample included 230 rural people selected from villages surrounding the factory. Accordingly, 15% of the rural people in each village participated in this study. Face-to-face interviews were conducted to collect data using a questionnaire containing open and closed questions. In order to make the questionnaire, a complete list of the items regarding the impacts was developed. The impact items were categorized in 11 impact criteria by a panel of experts. The criteria include: demographic characteristics, structure, perceived wellbeing, social capital, social participation, social structure development, quality of life, agriculture, economic conditions, conservation of community resources, and life pattern and model. In Total, 86 sub-impacts were investigated using environmental impact assessment (EIA). A panel of experts confirmed the face validity of the questionnaire.

Results

In order to determine the reliability of the questionnaire, internal contingency by Cronbach's Alpha value was implemented and the KMO coefficient (0.510 to 0.690) and Cronbach's Alpha coefficient (0.610 to 0.864) also confirmed the questionnaire. All statistical analyses were performed using SPSS statistical package (version 17.5 for Windows). In order to determine the degree of the impacts of the Iron Smelting Factory on surrounding villages, descriptive analysis and entropy method in combination with TOPSIS were used. For modeling the degree of the impacts, Arc-GIS software was used. Results showed that the range of factory's impacts include eight surrounding villages. The factory has decreased some of the criteria such as agriculture, conservation of community resources, social participation, social structure development, and social capital among which the greatest decrease pertained to the rural people's social participation. On the other hand, life pattern and model, quality of life, economic conditions, structure, perceived wellbeing, and demographic condition were improved by the Kurdistan Iron Smelting Factory.

Conclusion

The most increasing effect of the factory was on the structural condition. The coefficient of variation showed the profound imbalance between the impacts. Findings from TOPSIS and entropy also revealed that the factory had no significant influence on surrounding rural areas. Finally, the factory had the greatest impact only on the village of Karim-Abad Aliverdi and Yalghuoz-Aghaj.

Keywords: Rural development, TOPSIS, Entropy, Industrialization, Iron smelting factory, Ghorveh.

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