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Rural energy development in Iran: Non-renewable and renewable resources

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Abstract

Rural areas in Iran are necessarily linked to agriculture with very little diversification. These communities are solely dependent upon the fortunes of one or two primary enterprises. This is an extremely tenuous situation and these communities must diversify to insure economic and social viability. The objectives of this study are to (1) identify problems and difficulties encountered in the social–economic infrastructure as related to rural energy development and (2) present the non-renewable and renewable energy resources and assess the current energy generation and consumption rates. The analysis show that while there are numerous non-renewable and renewable energy resources available, problems such as cultural barriers and lack of appropriate mentality about energy impede the much-needed development in the rural areas of country. To fulfill rural energy needs, renewable energy plants must be developed locally all across the country: hydro and geothermal in the northern and western areas, wind in the eastern and the southern planes, and solar energy in the central desert plateaus. In conclusion, proper distribution of subsidies and adaptation of new efficiency laws are identified as areas for improvements.

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Keywords: Rural; Energy; Development; Renewable; Non-renewable

1. Introduction

Nearly, half of the world's population lives in the rural areas of the developing countries [1]. Rural areas in Iran include vast geographical areas with small towns and villages of one thousand or less in population dotting the landscape. These small

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communities are necessarily linked to agriculture with very little diversification. These communities are solely dependent upon the fortunes of one or two primary enterprises that are in many cases controlled by actions a thousand kilometers away. This is an extremely tenuous situation and these communities must diversify to insure economic and social viability. The advantages of diversification or rural development have long been recognized and the newest role of the government has been to encourage and whenever possible assist in these endeavors. For that purpose, several electrification and piped-water projects and supporting programs have been undertaken by the Ministries of Energy (MOE). The programs, which attempt to address problems aggravated by the recent war, distance, and low population densities, depend upon the will and determination of the people involved as well as the wise and effective use of energy conversion and distribution technology for success [2]. There are many social and economic benefits that are gained from the use of needed technology for rural energy development in Iran. To realize some of these benefits is an ongoing and changing process that must be sensitive to the specific technology itself and its potential for effective change or improvement.

The objectives of this study are to (1) identify problems and difficulties encountered in the social–economic infrastructure as related to rural energy development and (2) present the non-renewable and renewable energy resources and assess the current energy generation and consumption rates.

2. Energy development obstacles

The shift in population from rural communities to large urban areas has been responsible for social–economic changes in Iran. The attraction to urban areas is mostly due to lack of civil services such as educational and health care services as well as adequate job market in the rural areas. Culturally, the issue of urbanization of rural areas has always been looked upon in a negative way because people tend to think that it interferes, implicitly, with the peaceful environment in villages and rural areas would turn into large congested industrial cities. In addition, there are inherent reasons within

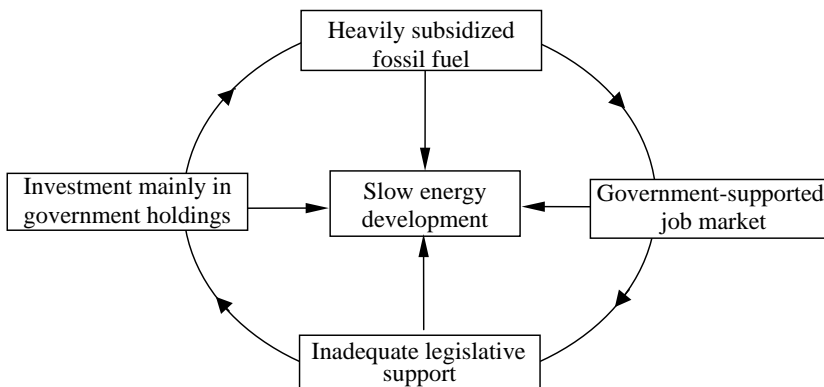


Fig. 1. Cyclic problems influencing each other and energy development.

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