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Assessment and Ranking Appropriate Agriculture Land: Kermanshah Township

F. Maram
M.A., University of Razi, Kermanshah, Iran
K. Zarafsan
Assistant Proffesor, University of Razi, Kermanshah, Iran
A.A. Mirakzadeh
Assistant Proffesor, University of Razi, Kermanshah, Iran
M. Malaki
Associate Proffesor, University of Razi, Kermanshah, Iran

Extended abstract

Introduction

The importance of environmental capabilities has made rural practitioners to study the potentials of each and every location. Some researchers have come to believe that agriculture is the main player in rural development (Koutsouris, 2000). Therefore, identifying appropriate agricultural lands using scientific methods such feasibility study can enhance effective land use policy and thus improve environmental resources. In other words, efficient use of agricultural lands depends on identifying farm lands that are most suitable for cultivation. Recently, Kermanshah Township with rich water resources and highly fertile soil has attracted rural development practitioners. Since agricultural site selection has a major role in agricultural development, the main purpose of this investigation was to conduct a location study in order to identify the most appropriate location for agricultural activities in Kermanshah Township.

Methodology

Generally, location studies require that researchers search for criteria that influences agricultural potentials. Therefore, using agricultural experts as well as library search, these criteria were identified. Knowing the weight of each index is important for rural development practitioners. Therefore, Analytic Hierarchy Process (AHP) were used to weigh each criteria perceived as important by experts and review of literature. Expert Choice (EC) software was used to analyze AHP data. Finally, Geographical Information System (GIS) was used to explain characteristics of selected sites.

Results

Agricultural experts as well as review of literature revealed that four criteria are important in assessing potential sites for agricultural activities in Kermanshah Township. Namely, climate, water resources, soil condition, and land use. These criteria were prioritized on the basis of their importance in site selection studies using AHP. The ranking of these criteria revealed that water resources ranked highest (0.539) whereas land use (0.042) ranked lowest in terms of site selection. Other criteria such as soil condition (0.316) and climate (0.103) ranked second and third. Pair-wise comparison for water resource criteria indicated that surface water (0.885) perceived as most important compared to underground water (0.115) when selecting agricultural sites. Moreover, sub-criteria under water resources showed that well (0.759) was perceived more valuable than spring (0.068) and khanat water (0.173). Soil

condition was another criteria mentioned by experts and derived through literature review. Pair-wise comparison for soil condition sub-criteria indicated that water plains (0.469) were more suitable than flat plains (0.04) for agricultural productions. Climate was also identified as one of the major potential for considering agricultural location for farm activities. Pair-wise comparison across sub-criteria for climate revealed that precipitation (0.884) ranked higher than temperature (0.116). Precipitation had its sub-criteria so that 800-900 mm (0.457) rain was most preferred in compare to lower rates. In addition, temperature at 10-12.5°C (0.575) was more preferred than temperatures of 15-17.5°C (0.062). Land use was also considered as an important factor in selecting agricultural lands for farming practices. The pair-wise comparison for sub-criteria revealed that irrigated lands (0.614) were more important than range lands (0.046). Finally, GIS analysis categorized 13 site specific locations as: 1) completely suitable, 2) suitable, 3) somewhat suitable, 4) somewhat unsuitable, 5) completely unsuitable. Miandarband region was identified as completely suitable. Mahidasht region was identified as suitable location for agricultural productions. Sarfirouzabad, Gharasoo, Doroodfaraman, Baladarband, Jaghanarges, and Sanjabi were considered as somewhat suitable for farming activities. Razavar and Haftashian were considered as somewhat unsuitable. Finally, Poshtdarband, Jalalvand, and Osmanvand were identified as unsuitable for agricultural productions.

Conclusion, discussion, and recommendations

This study shed light on potential of Kermanshah Township in term of agricultural production. Results clearly indicated that Miandarband has a major potential in compare to other regions for agricultural activities. This location was further verified using focus group discussion among agricultural experts in Kermanshah Township. The result of this study may have implications for rural development practitioners in Kermanshah Province. For example, knowing site specific locations for more effective production can help agricultural policy-makers design a site specific crop pattern for the region. This in turn would make better use of land potential and thus enhance agricultural production in the area.

Keyword: planing, Agricultural Development, Agricultural land potential, AHP, Kermanshah township