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Modeling the impact of irrigation systems on agriculture sustainability in Ardabil province

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Modeling the impact of irrigation systems on agriculture sustainability in Ardabil province, Iran

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Abstract: Irrigation system practices have various impacts on agriculture in terms of ecological, social and economic aspects. Understanding these effects may contribute to develop appropriate policies and strategies for sustainable agriculture. This research was carried out to evaluate the developmental effects of irrigation projects on agricultural sustainability in Ardabil province. In this research, 60 stakeholder's views in the field of sustainable agriculture including agricultural experts, promotion specialists, university professors associated with irrigation projects and members of nongovernmental organizations were explored using a hierarchical method. A hierarchical network was created to select the best irrigation system at two levels. The results showed that nine indicators account for more than 73% of variance in the effects of irrigation projects on sustainability of agriculture. The results revealed that Pressurised irrigation systems had the highest impacts on development of land fields, productivity and environmental impacts by 69.5 percent. Hydroflume irrigation had highest effects on indicators of intuitional trust development, mechanization and population profile by 20 percent. Also, traditional irrigation by 19.5 percent had highest effects on indicators of intuitional trust and development, population profile and improvement of quality of life. .

Keywords: Analysis Hierarchical process, traditional irrigation, pressurized irrigation, hydroflume irrigation, sustainable agriculture.