

# Agricultural water poverty in Marvdasht County, Southern Iran

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## Abstract

The paper discusses the application of the Agricultural Water Poverty Index (AWPI) as an assessment tool for agricultural water in rural areas of Marvdasht County, Fars Province, Iran. Along with the global concern, water has become an increasing concern during the recent years in Iran. This paper provides an overview of the AWPI and the methodology to measure AWP by addressing the four key issues, namely practical components and indicators, sources of data, choice of formula, and choice of base period. In order to assess water scarcity at the local level, a survey was conducted using stratified random sampling to select 293 farmers working in different climates. Distinct differences were found between farmers living in different climates with regard to the AWPI score. The study revealed that all farmers were labeled as ‘agricultural water poor’. Farmers with a high score on the AWPI were characterized by having more water resources, more access to water resources, better use of available water, better abilities to manage water use and low environmental factors affecting the AWP than other farmers. Finally the study identified the hot spots, most needy places, and the reasons behind the agricultural water poverty by drawing the AWP map using a Geographic Information System (GIS).

*Keywords:* Agricultural Water Poverty Index (AWPI); GIS; Iran; Sustainable agriculture; Water scarcity

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## 1. Introduction

On a global scale, water for agriculture is by far the most important use, and as pressure on water resources increases, the need for new approaches to manage this use becomes more pressing (Sullivan, 2002). Additionally, the world society recently has put emphasis on the need for water resources planning and management (Matondo, 2002). On a national scale, over the last decade, Iran has experienced its most prolonged, extensive and severe drought in over 30 years (Keshavarz *et al.*, 2013). Iran is located in a semi-arid region of the world with a high population growth, especially through the last three decades. The occurrences of drought during recent decades combined with some political desire to achieve self-sufficiency in the production of specific crops has led farmers to extract high

doi: 10.2166/wp.2013.163