

Virtual Water Trade as a Strategy to Water Resource Management in Iran

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ABSTRACT

Agriculture has historically played a central role in the economy, life and culture of the Iranian population. Nowadays, this sector is facing the reality that its natural fresh water resources become fully utilized. Considering the climate conditions and limitation of using new water resources and the necessity of increasing agricultural product as a result of population growth, there is a general doubt about Iran's ability to maintain this level of production amid the mounting water challenges, among other obstacles. Therefore, the evaluation of virtual water and water footprint can provide new indicators for informing water policy decisions. So, in order to study the situation at the national level, we estimated virtual water consumption in term of virtual water theory as well water footprint in agriculture sector of Iran. Data from 2001-2008 were used to account for yearly. The results of this study show that Iran has water import dependency and also net water import is 12.7 billion m³ averages. So Iran country saved 12.7 billion m³ from their domestic water resource for utilization in other sectors. Finally, it should be concluded that virtual water trade as a policy measure to water resources management will be provided to a great extent in order to reach both significant water saving and environmental sustainability.

KEYWORDS

Virtual Water; Footprint; Water Resource Management; Environmental; Iran

1. Introduction

There are many studies concerning the increasing threat of water scarcity and vulnerability of water resources at regional and global scales [1-3]. With no significant room to expand cultivation areas in water scarce regions, increased demand for food will have to be met through sustainable agricultural production, which entails improved management of the available resources and development of crop production strategies [4], as well as import from outside [5,6]. Since in water scarce countries, agriculture sector has the highest rate of consumption water among the various sectors, the main focus of most water scarcity studies is on the impact on agricultural and food security.

Iran is located in dry area, large parts of which are characterized as arid and semi-arid environment. Accord-

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ing to predictions, Iran's population will reach 100 million by 2021 and this will result in a drastic drop in the water per capita. Self-sufficiency in wheat production, self-reliance in the production of some strategic goods, and great investment in the implementation of infrastructural water projects are needed to meet this population's water and food demands. On the other hand, the need for industrial development, eradication of poverty, the creation of job opportunities and the construction of economic infrastructure in order to achieve the minimum economic and social indices, and a move in coordination with the world economy, have created problems as far as meeting financial demands is concerned. Issues such as high water consumption in the agricultural sector (more than 90% of clean water) and the low output of irrigation clearly show that these two sectors have to be strengthened in the country. However, there is a general doubt