Virtual Water - Does Indian Agriculture Really Need It?
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Abstract

Agriculture is the major employment provider in India. But if the current food export policy continues, India could fail to meet its water requirement in less than 300 years and could run out of available water in less than 500 years. India is amongst the world’s largest unconscious exporters of Virtual Water which is the fresh water embedded in commodities. A country that exports water intensive crops or products, is in effect exporting the water needed to grow it. India needs to consider the export of virtual water through trade of water-intensive agricultural products. This is essential to safeguard the indispensable resource like water.

Introduction

If the current food export policy continues, India is perched to lose its entire available water supply less than 1000 years shown by virtual water trade, the new method of export of water in end product [1]. India is amongst the world’s largest unconscious exporters of Virtual Water; however the time has come when the nation needs water security. This situation needs to be implicit by the fact that the Indian government could possibly step in and create an accounting system for water usage across all states. The country’s population is increasing and it is important to safeguard the resources like water. Agriculture which is the major employment provider in India is also the major share holder of nation’s annual water consumption. But many of the country’s water resources are drying up. In case of food supply chain, farmers manage the water aided by the government. Farmers who are cultivating water consuming plants such as paddy, sugarcane have been threatened by declining water table. Innovative methods like Sustainable Sugarcane Initiative (SSI) and System Rice Intensification (SRI) are being in practice. Beside innovative methods, other aspects related to agriculture needs to be considered. We need to look at the manner in which water is used and how it impacts the environment. This situation is to be seen as an opportunity for positive initiation and we need to see water as “virtual water” in terms of space, timing and quality. Virtual water needs to be effectively operative in terms of livelihood and economics.

What is Virtual Water?

Virtual water is defined as the freshwater (from this point on simply “water”) required for the production of goods or service delivery. While virtual water is actually required for production, it can be said to be non-existent in the final product (apart from a negligibly small residual amount). Virtual water can be defined as the water that is required for manufacturing a product or for rendering a service.
water also contains the actual amount of water that exists in a certain product, particularly since this water was also necessary for the production of this good. In 1994, Tony Allan was the first to introduce the concept of virtual water in London. It was based upon analyses by Israeli water experts who found that it seemed to make more sense for their arid country to import water-intensive goods than to cultivate (or even export) them themselves [2]. Import mainly refers to commodities such as cereals. High-quality and thus costly agricultural raw materials may be produced at home as long as proportionate water costs remain sufficiently low.

**Why is This Important?**

Since countries are working towards attaining sufficiency in food, water and other resources needed for livelihood, economic development and people’s wellbeing, most countries depend on imports and exports of goods and services. A nation may depend on good produced within its territory to attain self sufficiency or a country may reduce the burden on its natural resources by importing water intensive produce. For water-scarce countries, importing virtual water through import of water intensive produces will relieve the pressure on its water resources. A country that exports water intensive crops or products, is in effect exporting the water needed to grow it. However, some countries import virtual water not due to the water scarcity but as a result of the desire to protect their nation’s water resources, land availability [3].

There are many water poor countries that save their national water by importing water intensive goods. For example Mexico saves its domestic water resources by 12 billion cubic meters per year through importing water-intensive good.

**Indian Agriculture and Virtual Water Trade**

A nation’s virtual water export is a measure of its exports of water intensive products as agriculture or farm produce. India’s domestic water usage accounts for less than 5% while the share of agriculture is 90% of the total annual consumption of water. Water intensive crops such as cereals, coffee, tea, sugar are India’s main exports. Through this trade of agricultural products, the country became the net exporter of virtual water. This food exports are running India dry. India, through its food exports has been sending virtual water to other countries. During 2014-15, India exported 37.2 lakhs tonnes of basmati rice and to export this India used approximately 10 trillion litres of water. This means India exported 10 trillion litres of water. From India, highest virtual water trade is to Asian countries.

According to the Water Foot Print Networks database, India ranks least and had the lowest virtual imports of water in the world. India is the major exporter of virtual water.

Studies concluded that the net virtual water export alone can adversely affect a nation’s long term sustainability of water and also stated that India could fail to meet its water requirement in less than 300 years and could run out of available water in less than 500 years [1]. India is a net exporter of water through agricultural products. India’s water import through food grains is virtually nil. This can lead to a slow but irreversible loss of water sustainability.

India, the US, and China are known to be the world’s leading virtual water users. China has maintained a positive trade balance (more import than export) in virtual water trade and it is supplementing its water reserves. India’s water import through food grains is virtually nil. From an import-intensive paradigm during 1960-70, India had moved to an export-intensive regime in virtual water trade. India will lose its “entire available water in less than 1,000 years.” A sustainable food or agricultural policy must be based on zero trade deficit or positive trade balance in virtual water.

**Conclusion**

Nations should export products in which they possess a relative or comparative advantage in production, while they should import products in which they possess a comparative disadvantage. Produce the water-intensive products demanded in this world in those places where water is most abundantly available. Virtual water trade between nations needs to be promoted. A clear policy on export pricing and cultivation of water rich products is the need of the hour. Aiding the production and marketing of crops which are less water-intensive would help the Indian farmers in coping with the crop failure results from varying climatic conditions.

**References**

virtual-water-through-food-exports-115041900217_1.html
