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# Evolution of the Global Virtual Water Trade Network

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**Description / Abstract**

Global freshwater resources are under increasing pressure from economic development, population growth, and climate change. The international trade of water-intensive products (e.g., agricultural commodities) or virtual water trade has been suggested as a way to save water globally. We focus on the virtual water trade network associated with international food trade built with annual trade data and annual modeled virtual water content. The evolution of this network from 1986 to 2007 is analyzed and linked to trade policies, socioeconomic circumstances, and agricultural efficiency. We find that the number of trade connections and the volume of water associated with global food trade more than doubled in 22 years. Despite this growth, constant organizational features were observed in the network. However, both regional and national virtual water trade patterns significantly changed. Indeed, Asia increased its virtual water imports by more than 170%, switching from North America to South America as its main partner, whereas North America oriented to a growing intraregional trade. A dramatic rise in China's virtual water imports is associated with its increased soy imports after a domestic policy shift in 2000. Significantly, this shift has led the global soy market to save water on a global scale, but it also relies on expanding soy production in Brazil, which contributes to deforestation in the Amazon. We find that the international food trade has led to enhanced savings in global water resources over time, indicating its growing efficiency in terms of global water use.

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