

Water footprint estimation of selected crops in Laguna province, Philippines

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Abstract

In 2013, the Asian Development Bank classified the Philippines among the countries facing high food security risks. Evidence has suggested that climate change has affected agricultural productivity, and the effect of extreme climatic events notably drought has worsened each year. This had resulted in serious hydrological repercussions by limiting the timely water availability for the agriculture sector. Laguna is the 3rd most populated province in the country, and it serves as one of the food baskets that feed the region and nearby provinces. In addition to climate change, population growth, rapid industrialization, and urban encroachment are also straining the delicate balance between water demand and supply. Studies have projected that the province will experience less rainfall and an increase in temperature, which could simultaneously affect water availability and crop yield. Hence, understanding the composite threat of climate change for crop yield and water consumption is imperative to devise mitigation plans and judicious use of water resources. The water footprint concept elaborates the water used per unit of crop yield production and it can approximate the dual impacts of climate change on water and agricultural production. In this study, the water footprint (WF) of six main crops produced in Laguna were estimated during 2010–2020 by following the methodology proposed by the Water Footprint Network. The result of this work gives importance to WF studies in a local setting which can be used as a comparison between different provinces as well as a piece of vital information to guide policy makers to adopt plans for crop-related use of water and food security in the Philippines.

Keywords : Water footprint, Climate change, Green and blue water, Philippines

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