Trade of Virtual Water in the Context of Food Sustainability – A Particular Reference to Pulse Import in India

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The present study aimed to assess the Virtual Water Import of Lentil and Bengal gram in India. The growing water concerns led to the development of new concepts like 'Virtual Water'. Pulses, supplemented with cereals, provide a perfect mix of vegetarian protein and an important source of food sustainability. Sustainable food contributes to four pillars of food security: availability, access, utilization and stability. The availability of pulse is less in India due to meagre production, but the utilization is high and met through import. The productivity of pulses in India is less than half of the productivity levels in the USA and Canada. Lentil import is high among pulse, i.e.,5.6 lakh tonnes. Even though India is the second largest producer of Lentil, the consumption exceeds production and is therefore supported by imports. Canada is the largest supplier of Lentil because it leads in production, where 95 per cent is produced in the province of Saskatchewan. Virtual Water Trade had been calculated using virtual water content and quantity of import resulted the specific water demand is 1.47 kg $mm^{-1,}$ and the average yield is 1238 kg/ha. India also imports chana despite being the largest producer and having high consumption requirements. The specific water demand for chana is 1.79 kg $mm^{-1,}$ and the yield is 1547 kg ha^{-1}. This study shows that the average virtual water import for India during 2007-2021 in the case of Lentil is 1.03 billion m^3/year, and for Bengal gram, it is 9.8 million m^3/year. Since the third world war is predicted to occur because of water crisis the import form countries with less water requirement for producing pulse is recommended. India by importing Lentil and Bengal gram instead of producing it domestically, it saves about 2370 and 1790 cubic metres of real indigenous water, respectively. This water can be used for production of other agricultural commodities in India.

Keywords: Food sustainability, Indian pulse, Specific water demand, Virtual water import.