

**ChemTech****International Journal of ChemTech Research**CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.9, No.12 pp 28-50, 2016**Estimation of Water Footprint and Virtual Water for Rice in Egypt****Eman Abd Elghafour Ahmed****Department of Economics, National Research Center, Egypt**

Abstract : This study aimed to Estimation of Water Footprint and Virtual Water for Rice in Egypt. This study adopted in to achieve its objectives in economic analysis represented in the economic equations used to Estimation Water Footprint, Virtual Water and coefficient of Food Security, in addition to the binomial probability distribution and standard errors at 95% confidence level.

The study results can be summarized as follows; (1) Estimate the average total Water Footprint decreased of rice crop in Egypt around 6.5 billion m³ during the period 1995- 2014. (2) Estimate the average ratio of water import dependency of rice 15.2% and thus the average ratio self-sufficiency for water 115.2% during the study period. (3) Egypt has achieved remarkable progress in food security for rice, as the volume of strategic stocks 1.92 million tons, and in light of average domestic consumption of 5.02 million tons, coefficient of food security for rice is 0.382 during the period 1995- 2014. (4) Contribution ranged of local agriculture in achieving relative food security for rice (coefficient of food security is equal to 0.382) between a minimum of 37.1% and a maximum of 39.1% at 95% confidence level during the period 1995-2014. (5) In the light of achieving the full level of food security for wheat ranging the relative importance of Contribution of the local production between a minimum of 37.1 and a maximum of 39.1%, while ranging the relative importance of Contribution of imports between a minimum of mines value and a maximum of 1.1%, and ranging the relative importance of Contribution of foreign agricultural investment between a minimum of 40.5% and a maximum of 83.1% at 95% confidence level. (6) The total of amount virtual water Gained from Imports and Foreign Agricultural Investment to achieve the full level of food Security for rice ranging between a minimum of zero m³ valued at zero pound, and a maximum of 2.98 billion m³ valued at 6.66 billion pounds at 95% confidence level.

This study recommends the need economic integration between local agriculture, imports and Foreign Agricultural Investment to Achieve Food Security and the introduction of the concept of virtual water when developing future strategy for the Agricultural sector to ensure the adoption of agricultural production systems used less water and focus on the import of agricultural products that needs of high water, especially in the light of escalating water.

Key Words water foot print, virtual water, inland water footprint, agricultural investment abroad, Estimate the average total Water Footprint, imported water quantity.