SAFE VEGETABLE PRODUCTION WITH WASTEWATER IN DEVELOPING COUNTRIES: DEMYSTIFYING THE NEGATIVE NOTIONS

JP Gweyi-onyango, M Osei-Kwarteng

Abstract

The unplanned shift from rural to urban cities in developing countries have continually put burden on planners, policy makers and the residents. The productive use of wastewater has increased alongside increased rural-urban shift, as millions of small-scale farmers in urban and peri-urban areas of developing countries increasingly depend on wastewater sources to irrigate high-value edible crops for urban markets. Despite the good motive, undesirable constituents in wastewater can harm human health and the environment. The heavy metals such as Lead, Chromium, Zinc, Nickel and Cadmium have been detected in vegetables and may get biomagnified in food chain if the contaminated irrigated products are continually consumed. This can be fatal in the long run. There has been brewing unspoken skepticism regarding the vegetable products derived through this avenue. Apart from the consumers, government agencies in horticultural industries and those involved in quality standard regulations have, through design or default, failed to offer support to farmers’ initiative and resolve to safely utilize wastewater for vegetable production. In this paper we review the key initiatives and compelling reasons that motivate farmers to utilize the wastewater; health risks not withstanding. The review dissects an array of crop choice interventions that lead to soil health mitigation with minimal human health implications. We single out and place emphasis on vegetable crops with hyperaccumulator traits for the purpose of soil remediation, but with a higher biomass as this leads to metal dilution within the plant. We also give a distilled analysis on the policy and social-cultural implications in regard to wastewater use and further appreciate the challenges the policy makers face in attempt to implement the blueprint on wastewater use.

Keywords

Crop choice, Health risk, Hyperaccumulators, Policy interventions, Vegetable, wastewater