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## Assessment of Wastewater-Irrigated Urban Vegetable Production and Market Systems in Ethiopia: the Case of Akaki River in Addis Ababa

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### Abstract

Ethiopia, urban vegetable production using wastewater from Akaki River in the capital city Addis Ababa is a common practice. In a wider sense, the potential of urban agriculture in the area has not been realised due to subsistence agriculture, insufficient land, underdeveloped marketing structure and the state of water used for irrigation. Apart from these, little is known about the production system, opportunities, and challenges. In cognizant of the fact, the study attempts to comprehensively address the issues of production, marketing value chain, challenges and health related implications of urban vegetable production through wastewater irrigation. The study was based on a household survey of 115 respondents (75 producers and 40 consumers) around Akaki River while review of secondary documents supplements the study with evidences. Mixed approaches of quantitative and qualitative data analysis methodologies including descriptive statistics with simple tests coupled with narrative of qualitative findings were employed. In this study, the production system and the perception of the people about the system has been analyzed. The results indicated that this vegetable production system produce mainly cabbage, lettuce, cucumber, and green pepper while the average frequency of production per year is about five cycles. The irrigation practice using wastewater from Akaki River is dominated by furrow irrigation and traditional features which impact the efficiency of water use as manifested in the dry seasons. Moreover, industrial and household wastes released into the river increase health risks as result of contamination added to the low level of safety standards followed by producers. Despite the problems, the wastewater irrigation practice resulted in higher vegetable productivity as compared to the national average. This makes producers profitable although marketing of products directly on the farm could also have a significant impact. Apart from the negative implications, vegetable production using wastewater from Akaki River found to improve plant growth, household vegetable consumption, and create job opportunities. Hence, synergy between local authorities, NGOs, Universities and Research centres for multidimensional interventions is expected to enhance the safe production system with increased benefit from the practice.

**Keywords:** Akaki River, irrigation, urban agriculture, vegetable, wastewater

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