

# 3<sup>RD</sup> GLOBAL FOOD SECURITY, FOOD SAFETY & SUSTAINABILITY CONFERENCE

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## Impact assessment of water supply technologies for sustainable rice production in Ghana

**Charles Yamoah**  
Tsukuba University, Japan

At the center of food security is water security. Agriculture production accounts for about 70% of water use in developing countries. It competes with domestic, industrial and ecosystem water demand. The water demand/scarcity is estimated to increase with the growing population. Therefore, there is intense pressure to manage water on agriculture fields (particularly rice fields) to increase efficiencies and reduce water stress. For sustainable water management, there is need to educate Ghanaian rice farmers on the economic, social and environmental impact of the water supply technology they have been using. The aim of this research, therefore, is to evaluate water supply technologies in Ghana to promote sustainable and water efficient rice production. We used cost-benefit analysis based on impact assessment of water supply technologies. We found that the cost-benefit ratios of the technologies are positive. Gravity Irrigation (pipe system) has the highest incremental benefit for sustainability, because of its reliability and efficient on-field management. Our study proposed a reliable tool to measure and assess the performance of water supply technologies for sustainable rice production. It is expected that it will lead to better water allocation and better decision making for water management authorities.

### Biography

Charles Yamoah has his expertise in Irrigation Design and Project Supervision. He has worked with Ghana Irrigation Development Authority for four years. He then moved from Ghana to pursue Master's Degree in Environmental Sciences at Tsukuba University in Japan. He studied Civil Engineering at Kwame Nkrumah University of Science and Technology in Ghana. He was passionate about the environment; his bias towards the environment is a natural shift. With support from colleges and management, he had the privilege to supervise construction of irrigation and water conservation projects across Ghana. Further, a passion for improving the lives of farmers through extension services has motivated him to undertake this study. The goal of his current academic pursuit of environmental sciences is to add environmental concepts to the design of irrigation infrastructure.

yamoahcharlesay@gmail.com

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