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Enhancing Agricultural Production with Rainwater-Harvesting in Expanding Cities: Success and Potential in Burkina-Faso and Ghana

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Abstract

More than 93% of agricultural activity in West Africa is dependent on erratic rainfall and thus, vulnerable to climate variability and impacts of climate change. Climate change is expected to increase crop failures and livestock deaths. It results in increasing vulnerability of almost 65% of the population living in rural area and depending mostly on agriculture for their livelihood. They migrate to urban areas causing an expansion of the urban population which is directly linked to an increased demand for food. It is predicted that, by 2030, almost half (48.3%) of Sub-Saharan Africa's population will be urban and most of these people will be living, without access to adequate food, water or sanitation. Urban agriculture is a spontaneous response to this population growth. However, urban agriculture faces issues of legislation and land availability. Additionally, water resources are expected to become more scarce and vulnerable due to climate change and rapid urbanisation. In many areas of the world, water reuse, rainwater harvesting (RWH) and improved on-farm water management provide valuable additional water, rise agricultural yields and improve food security in urban areas. In West Africa, macro-catchment RWH methods like small or micro dams, artificial ponds and rainwater tanks are already used to reduce water scarcity. For instance, the use of water reservoirs for home garden by the farmers of Ouagadougou in Burkina-Faso has reduced the vulnerability of the home gardeners' household, since their yearly activity is usually limited to April by the amount of water available for irrigation. In Ghana, rooftop water harvesting is well developed and the water stocked in tanks is mostly used for cooking, washing and bathing. Promoting RWH practices can help increasing agricultural productivity and mitigate impacts of climate change. Hence, the food security in urban and peri-urban areas can be improved. The study analyses potential impacts of RWH, especially water reservoirs on agricultural productivity and small-scale farmers in urban and peri-urban areas of Ghana and Burkina-Faso based on literature research and reports.

Keywords: Burkina-Faso, climate change, Ghana, rainwater harvesting, small scale urban agriculture