

Life Cycle Assessment of a Small Garden Drip Irrigation System in Bénin

Castro, Olga

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Michigan Technological University – Civil & Environmental Engineering

As in many developing countries, lack of water and food are serious problems in Bénin. In 2007, 35% of Bénin's population did not have access to improved drinking water sources while 70% did not have access to improved sanitation. Recently the rainy season in the Atakora region has been experiencing a decline in its annual rainfall amounts. Small-scale irrigation, coupled with greywater use, could be utilized during the dry season to allow families to grow their own vegetables, thus increasing their food supply and annual income, improving their diets and reducing the need to buy expensive vegetables at the market.

Here, the life cycle thinking assessment method of McConville (2006) is applied to a small scale drip irrigation system in Bénin that utilized greywater. The assessment method uses five assessment factors that cover social, economic, and environmental sustainability and applies them over five life stages of the project. The project overall score was a 61 (out of 100), scoring highest in the needs assessment stage (20/20) and lowest in the operation and maintenance stage (5/20). In terms of sustainability, the project scored highest in socio-cultural respect (18/20) and environmental sustainability (14/20). Lower scores were achieved for community participation (11/20), political cohesion (9/20) and economic sustainability (9/20).