

ABSTRACT

Lack of adequate sanitation affects approximately one-sixth of the global population, causing major environmental and public health problems (UNDESA, 2013). Many of those affected live in informal settlements where traditional sanitation systems are not feasible (Shouten & Mathenge, 2010). This case study investigates a new type of structure, called a "bio-center," developed by Umande Trust, which provides ecological sanitation (Umande, 2013). Situated as a hybrid between a productive landscape and an architectural topology, bio-centers provide a paradigmatic example of ways in which landscape architecture can redefine the problematics it addresses and the criteria under which solutions are judged, thereby allowing the discipline to increase its contribution to the monumental challenges facing informal settlements. A variety of case study methods were utilized including site visits, site analysis, interviews, and archival material analysis (Francis, 2001). This case study provides a unique example of an ecological sanitation model that embodies an integrated view of social-ecological systems and offers crucial lessons for sustainable infrastructure design. This research finds that by layering multiple community-service and income-generating functions into a shared facility, bio-centers become anchor-buildings or nodes within communities, with the potential to facilitate positive social and ecological change. The bio-center model addresses the most acute problems informal settlements face, and the benefits land squarely amid the overlapping economic, social, ecological, and energy challenges present in such settlements.