

Sustainable and Energy Efficient Development in Informal Settlements in Mozambique

Abstract

Implementing the Millennium Development Goals for UNESCO World Heritage Site Ilha de Moçambique requires a change of paradigm and a departure from the current focus on conservation of historic monuments. The potential for development can only be released, if the plight of the local population is prioritized and their livelihood is placed on a sustainable foundation. Based on a previous research project and a mandate by the local City Council, a focused intervention into the urban fabric of the informal settlement area “Macuti Town” is elaborated and the impact on the relevant sub-systems of energy, water, sewage and urban structure and management are examined. The “Macuti Centre” (MC) is proposed as a centralized sewage treatment plant, recreation and market location and a hub for energy and resource management. Developing the MC brings other issues such as water management for the entire island, waste disposal, energy conservation, building technology and heritage, mobility and urban planning into focus. Here energy is understood as the potential for the use of synergy and the innovative force inherent in a multidisciplinary approach to a complex set of problems. By addressing current and pressing problems, and integrating them into ongoing development projects and strategies, the MC is more than an engineering solution. It’s an overall corporate approach including the local population.

Objectives

The main objective of the project is to allow a maximum number of people to benefit from a facility that uses locally available, environmental friendly and sustainable resources. The island is an urban area; therefore urban development standards should be applied. The result is a pre-project for a multi-functional and energy efficient Water Treatment Facility combined with a Sports & Recreation Centre (Macuti Centre). This process includes urban planning, system design and process engineering.

Innovation

The approach to the problem of Macuti Town is innovative. Instead of attempting to resolve problems at the household level first, a significant intervention into the urban fabric of the town is proposed. The Macuti Centre signifies a change of paradigm and redefines the technical, social and economic infrastructure of the town. The proposed water and sewage management system is customized to the requirements of the island and designed with high consideration of sustainability and efficiency.

Sustainability

Crucial for the sustainability of the proposed focused intervention is its integration into the existing development context and its evolution through a process of dialog and exchange with the local population. The proposed centre resolves a persistent problem of the Macuti Town (i.e. water management) and provides much-needed public space in an overcrowded urban situation. In addition, a sustainable life-cycle approach to energy and waste management forms the basis for the project development.

Implementation

The Macuti Centre concept has released energy from planners and engineers around the world, thus testifying to the catalytic potential the idea holds. The so far established relations of our Institute to the planning community in Mozambique, form a basis to establish a steering committee for the implementation of the project. Mozambique is a priority country for the Swiss Development Cooperation and the Ilha is a well-defined spot on the map of international development and heritage preservation.

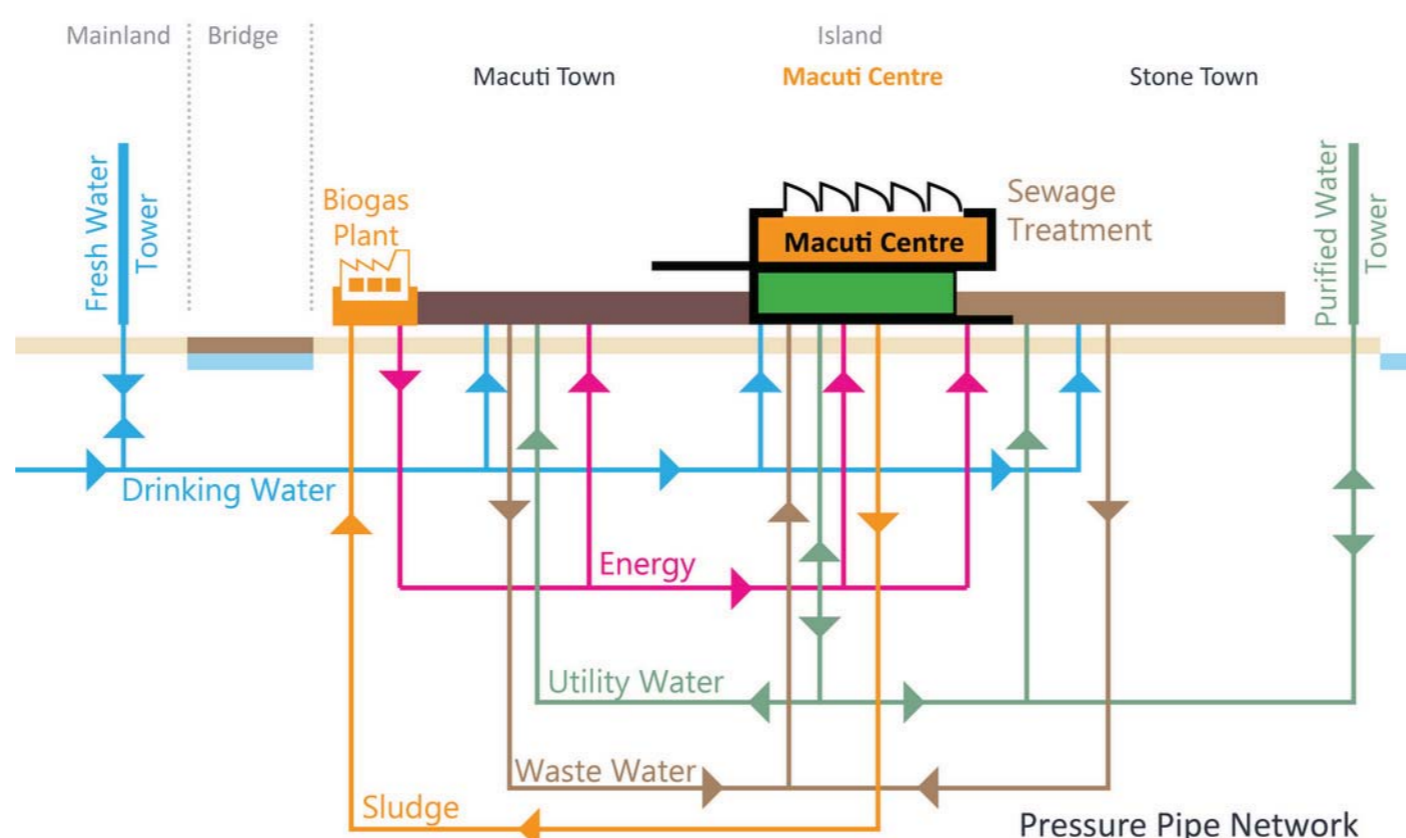
Repeatability

The Macuti Centre is a unique proposal for a unique situation. Nevertheless, the planning context for the project is common to many sites in the developing world. We are convinced that the principles of participation, energy efficiency and sustainability are valid for addressing the problems of any informal settlement situation. In addition some of the technologies devised for the water management system and the roof structure are true innovations and form a body of transferable knowledge.



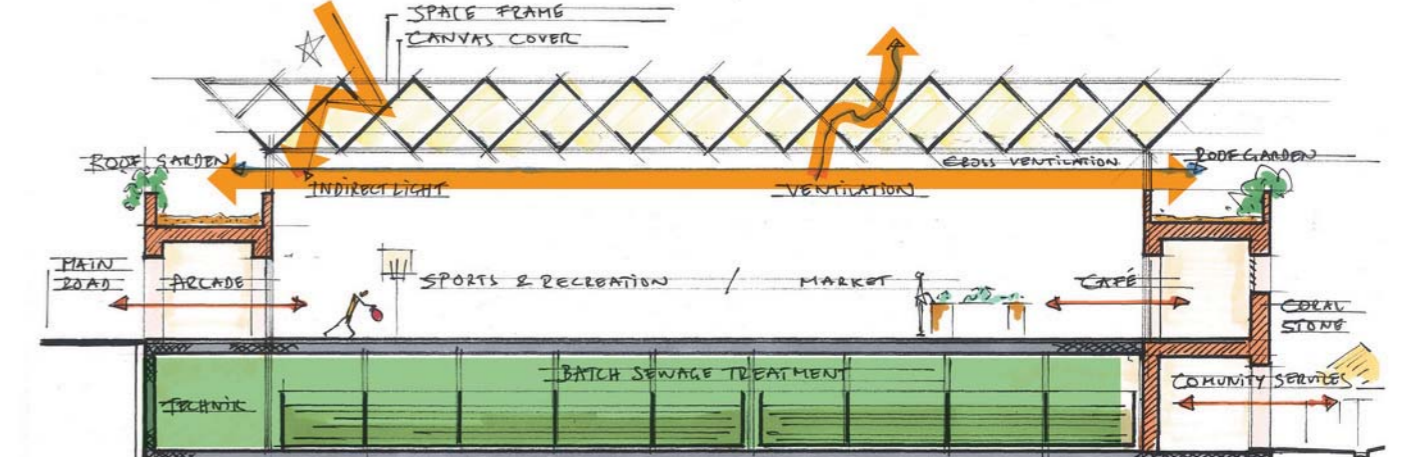
Ilha de Moçambique, is an island located in the northern part of Mozambique: the island is about 3 km long, less than ½ a km wide

«Energy Efficient Water Management System»



Solving the Water Management System for the island is the single most crucial issue defining the future of the island

«Energy Efficient Architecture and Engineering»



- » Passive Cooling
- » Passive Heating
- » Maximization of Natural Lighting during the Day



«Multifunctional Centre»

- » Hub of Water Management
- » Sports & Recreation Centre
- » Market & Meeting Place
- » Sanitation Facility
- » Exemplary Energy Management
- » Urban Facilitator

The Macuti Centre is a meeting place, a centre for community activities: It serves as an inspiration for energy conservation and efficiency

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