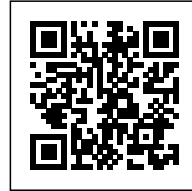




Warka Water
Arturo Vittori

WARKA WATER

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Warka Water

<https://urbannext.net/warka-water/>

Warka Water is an alternative water source for rural populations in Africa that face difficulties accessing drinking water. With the objective of providing an average of 100 litres of drinking water every day, Warka Water collects rain and harvests fog and dew. The Warka's water harvesting technique and construction system are inspired by biomimicry, which engages the imitation of natural phenomena for the purpose of solving complex human problems. Many plants and animals have developed unique micro- and nano-scale structural features on their surfaces that enable them to collect water from the air and survive in hostile environments.

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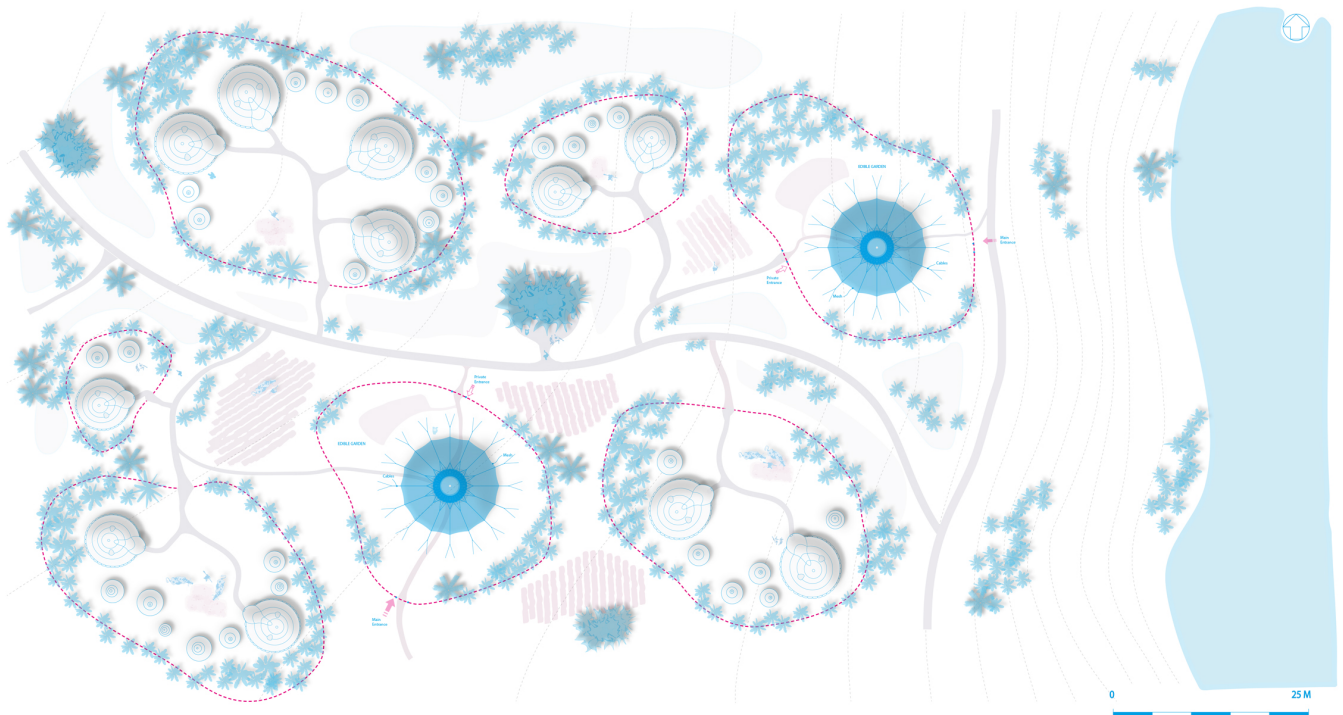


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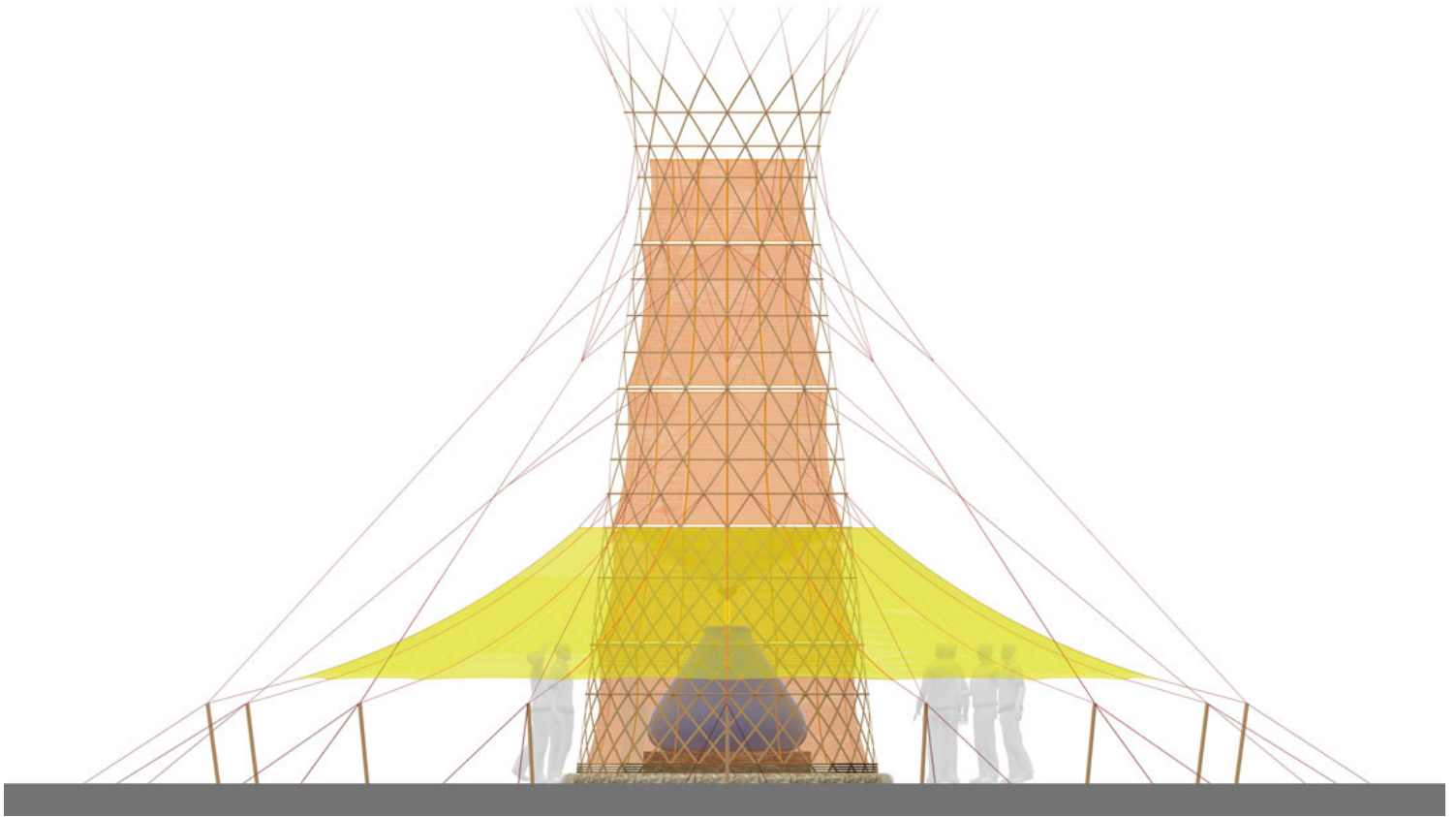
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Warka Water Site Master Plan

Warka Water identified specific materials and coatings that enhance dew condensation, water flow, and storage capabilities by studying the Namib beetle's shell, lotus flower leaves, spider silk, and the integrated fog collection system in a cactus. Termite hives influenced the design of Warka's outer shell, its shape and geometry, while Ethiopian basket-weaving and vernacular architecture served as an additional source of inspiration.



Main view front

Built with simple tools, Warka Water is designed to be owned and operated by the villagers, a key factor that will facilitate the success of the project. Warka Water is realised with local and biodegradable materials such as bamboo, fibre ropes, and bio-plastic. The latest prototype is 36 feet tall and weighs only 176 pounds. The triangulated frame structure is optimised for lightness and strength and offers both stability and robustness. It is also modular and foldable, making it easy to transport. There are 16 fixation points placed radially around the tower's base, where a network of ropes are attached and fastened to stabilise the tower and allow it to withstand very strong winds. Inside the bamboo structure hangs a plastic mesh that collects droplets of water from high humidity in the air, as well as the collector for dew and rainwater.

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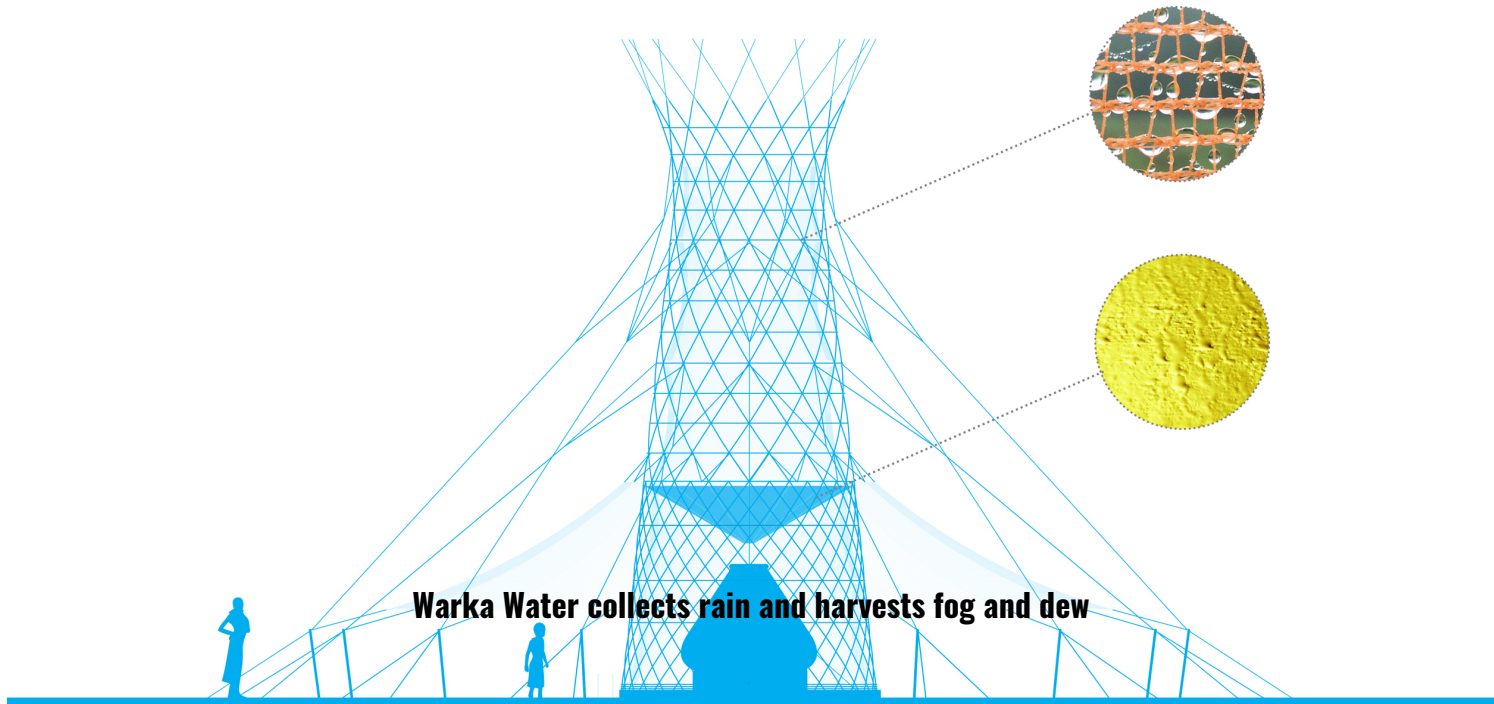
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Warka Water relies only on natural phenomena such as gravity, condensation, and evaporation and does not require electrical power. The tower not only provides a fundamental resource for life, but also creates a social place for the community, where people can gather under the shade of its canopy for education and public meetings.

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