

CLEAN WATER TO PREVENT PANDEMICS IN RHUMSIKI, CAMEROON

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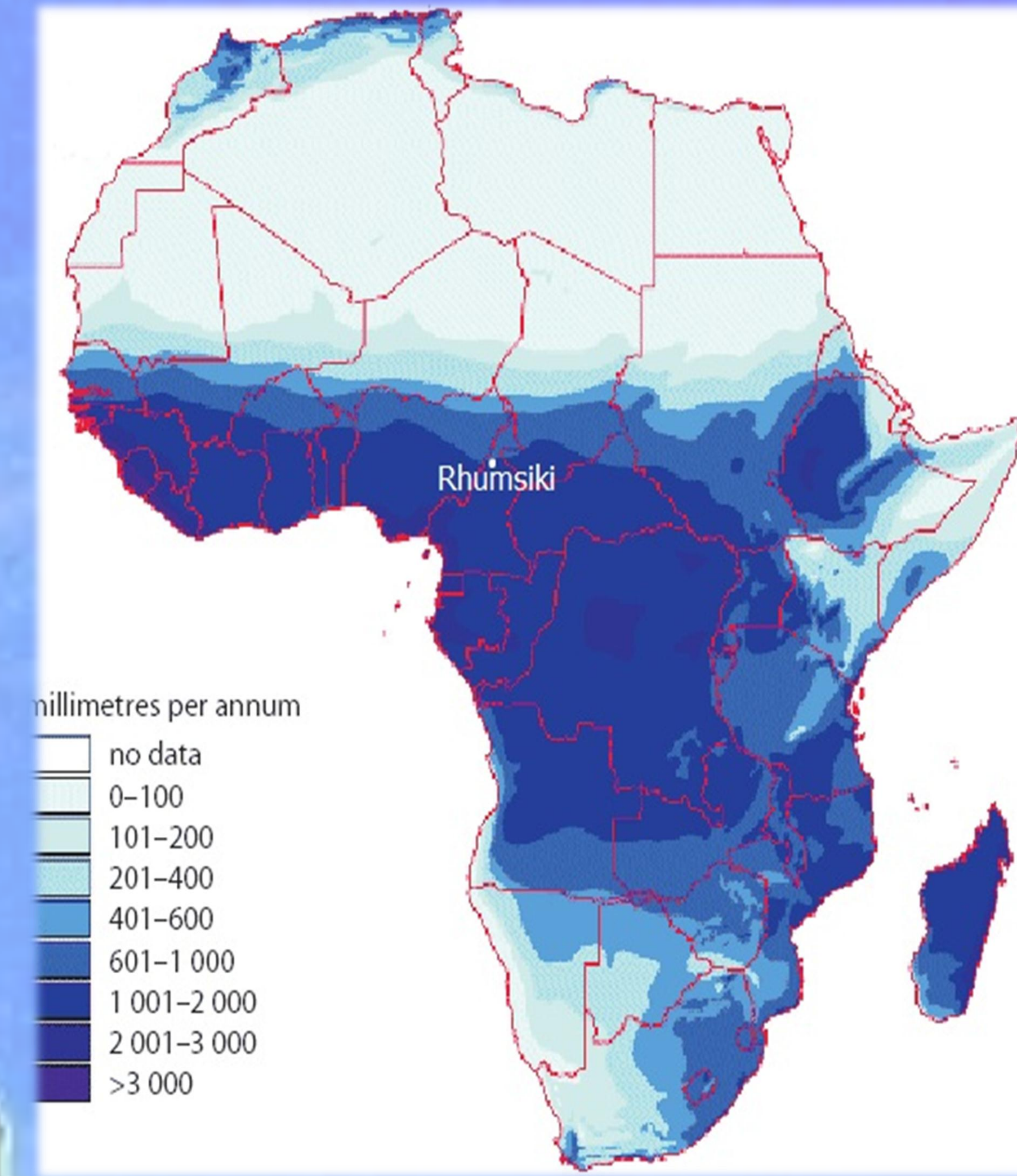
Abstract

Residents in Rhumsiki, Cameroon have water problems. Seasonal rainfall provides inconsistent amounts of water. But of even greater concern is the danger of water-borne diseases. Our project focused on providing a steadier supply of water, and cleaning the dirty water from all of the sources to prevent people in Rhumsiki from getting fatal infectious diseases like cholera. After researching we came up with three possible solutions for cleaning the water: Lifestraw, Lifesaver bottle, and SODIS (SOLar water DISinfection); and one possible solution for extracting water from existing wells: The solar water pump. The least expensive of the filtration technologies is SODIS, so our recommendation for Rhumsiki is to implement this process.



Background

- Rhumsiki is located in the Northern part of Cameroon.
- 5000 inhabitants in total and with hundreds of tourists yearly.
- Rhumsiki has a lack of water because the current water system has collapsed.
- Sanitation problem exists because many houses have no toilets.



Solar Water Pump

- It is a submersible water pump powered by a 195Watt solar array .
- 3 Water storage tanks is used to hold approximately 36000 gallons of water.
- It has high initial installation cost but big savings over the long run compared to diesel power.

LifeStraw

- Life straw is a personal device that can be carried around for easy access to safe and clean drinking water.
- It uses textile pre-filter to remove micro organisms, which causes diarrhea, dysentery, and Cholera.
- It costs less than US \$20 per person per year.



SODIS

- SODIS is a simple yet effective method to disinfect water by exposing the water in the bottle for more than 6 hours.
- The cost of these bottles is less than 50 cents and these bottles are easily accessible.
- This process is very simple, effective and cheap which makes it the best solutions in many situations and environments.



LifeSaver Bottle

- The LIFESAVER bottle removes all microbiological waterborne pathogens without the aid of any chemicals like iodine.
- Lifesaver bottle's 15nm membrane allows only pure water to pass while constraining pathogens in the membrane.
- Cost per year per family (5 people): US\$76.55 for one year.



Recommendations

- Out of the 3 filtration systems Life Straw and Life saver bottle run on a similar textile pre filter system that allows only very tiny particles such as a water molecule to pass through, while particles such E-coli bacteria cannot pass through.
- SODIS uses the sun to disinfect the water. It uses a renewable resource that requires no technical expertise.
- The equipment for SODIS is a plastic bottle which is easy to come by, and if one needs to buy it, it costs only \$.50.
- The cost, simplicity and the location makes SODIS the best option for water disinfection in Rhumsiki.

Impacts

- We hope that our proposed systems will serve to end the spread and contraction of water-borne diseases, such as cholera, that are widespread in Rhumsiki community.
- Perhaps, this method can be used in other parts of the world with similar problem and it will eradicate water borne diseases overall.



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