Optimized Homemade Water Purification System: The Solution to the Worldwide Potable Crisis

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Globally, 844 million people lack access to clean water and having potable water is fundamental for a civilization to survive. During the crisis of Hurricane Maria at Puerto Rico, made necessary to search alternatives to produce water suitable for consume and a homemade system to purify water was created. In order to produce water of better quality in shorter amount of time, this homemade system was optimized. A new version out-performs the original one in terms of water quality and production time thanks to the modifications made to each part of the system, including but not limited to changing the energy source to a system based on electromagnetic induction, powerful water pump and a retainer cell in the filter. The water produces by this modify homemade water purification system was analyzed for pH, residual chlorine, turbidity, alkalinity, bacterial and coliform and then compared to the water parameter stablish by Authorities. When this parameters were analyzed for potability purposes, the optimized version was superior in quality, for it showed a decrease in turbidity(from 0.27 to 0.12), neutralization of pH(from 7.46 to 7.53), balance of the chlorine(from 1.77 to 2.01) and alkalinity levels(from 80 to 77), decreased the TOC amount(from 0.31 to 0.05) and showed absence of bacteria and coliforms within the water. Therefore, this optimized home system can be the solution to a global water crisis. In the future, it is intended to market this homemade system in order to solve the water crisis globally with accessible materials and low cost.

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