The All In-House Recycling and Reusing System of Purified Water for Cleaning Purposes

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The world is facing a growing tension of water resources. Our project states that the current concept of using drinking water for cleaning purposes is wrong. By maximizing the solubility of water by means of filtering it through a device that can be easily assembled at home, cleaning water can be recycled and reused. Our research hypothesis lies with mainly two perspectives: 1. cleaning water needs not be discharged after being used once; 2. the concept and implementation of saving water can be done with individual effort at their home, and state-of-the-art technology is not a must to achieve the goal. Our design of the research conforms to the ‘4R’ principle: it recycles utilized water to make it useable again; replaces drinking water with filtered water for cleaning; reduces use of drinking water and the production of sewage water, and, reuses bagasse, which is garbage, as filtration material. Flour sand, activated carbon and bagasse are used as filtering materials in our research. To measure the quality of the filtered water, we have tested turbidity, pH Level, electric conductivity, salinity, DO, COD and BOD5. Water samples of our research were taken from school, families and the sewage treatment plant. After the testing, it has been proved that all water samples, including the one taken from the local sewage treatment plant, become clear and reach the standard for reuse. In other words, our suggested pattern of water usage and the device are feasible. A total amount of 400 gallons of water is estimated to be saved by each family who adopts our new water usage system. In addition, the more important value of the design is it really reinforces individual awareness and participation to save water, and saving water can be done all-in-house.

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