Milestone 4: specifications

The purpose of this paper is to provide brief summary of the specifications of a water purification device. The water purification device helps in neutralizing contaminants of biological nature. The objective would be to specify the design structure that can be used to create a simple, inexpensive and purposeful household device. Charcoal is the primary material that would be used during the implementation phase. The basic redesign would be able to serve 2. 5 liters of pure drinking water to a person in day. Also, it has been assumed that the absorption capacity of charcoal is 10 mg DOC/g, the DOC concentration in the natural surface water is 50 mg DOC/l, it can be concluded that 5 gm of charcoal would be required to purify one liter of water. With the ratio, a person would require roughly 10lbs of water in a year. The above diagram explains a system which is gravity-fed and would also employ sand pre-filter that would be followed by bed of gravel. The energy of the Sun would be utilized to nullify the biological contaminants. A photovoltaic panel is used provide electricity current to the UV lamp. The layer of the sand should be approximately 50 cm thick. Also, the thickness of the layer would also be contingent on the number of users in a single day as the duration of the sunlight is limited. The objective of the diffused plate would be to prevent the formation of channels and the turbulence of the influents. The gravel layer is to prevent clogging of the perforated pipe which can be formed by carbon granules. The approximate thickness would be 20 cm.