D-Lab: Design Team Chlorine Dispenser presents…

Problem Statement and Design Specifications

Tylor Hess , Christine Lee, Christopher Ohlmacher, Rebecca Smith

Problem Statement

- Our objective is to design a chlorine dispenser that will allow community members in rural villages in Kenya to treat individual water containers at the water source. The device should be easy to use, sturdy, inexpensive, and it should accommodate various container sizes. Although not necessary, it would also be of interest for the design to be tamper proof, and have the flexibility to be used in other locations.

Our design needs…

- Ease of Use
  - Easily turned valve, no spillage, variable height off the ground, easy to refill
- Variability in dosing
  - Correct amount of chlorine dispensed no matter what size container, chlorine purifies water but does not leave bad taste
- Tamper Proof
  - Designed so that no one can siphon off large quantities of chlorine or dilute the chlorine content.
- Cost
  - Reduce cost of valve, PVC tank and adapter, and housing/stand.

Not to mention….

- A way to signal when it must be refilled
- Sturdy stand
- Flexibility for use in urban areas or in places with more turbid water
- A way to prevent theft
- Safety

Key Quantitative Goals *(Ideal)*

- Dosing = 1.875 mg Cl/L water
- Process of getting chlorine: < 1 minute
- Time to refill Cl container: < 5 minutes
- Time between refills: 2 weeks < x < 1 month
- Total cost: < $50
- Range of user's container sizes: 5 L to 20 L
- Range of chlorine dispenser container sizes: 1 L to 10 L

Questions?