

Water Filtration System

2.009 Yellow A
Sketch Model Review

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Credit: Tamar Losleben

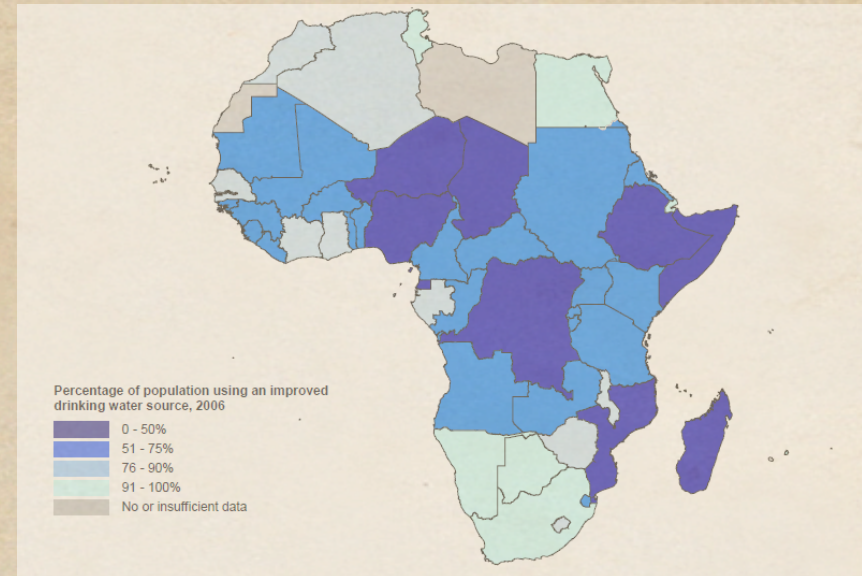


- 20% of world's population faces water scarcity

- 38% of world's population do not have access to safe water (2008)

- Nearly 2 billion people consume contaminated water

- Water-borne disease (cholera, dysentery, polio) kills 25 million people per year



SODIS (Solar Water Disinfection)

Bottles left out
for ~6 hours

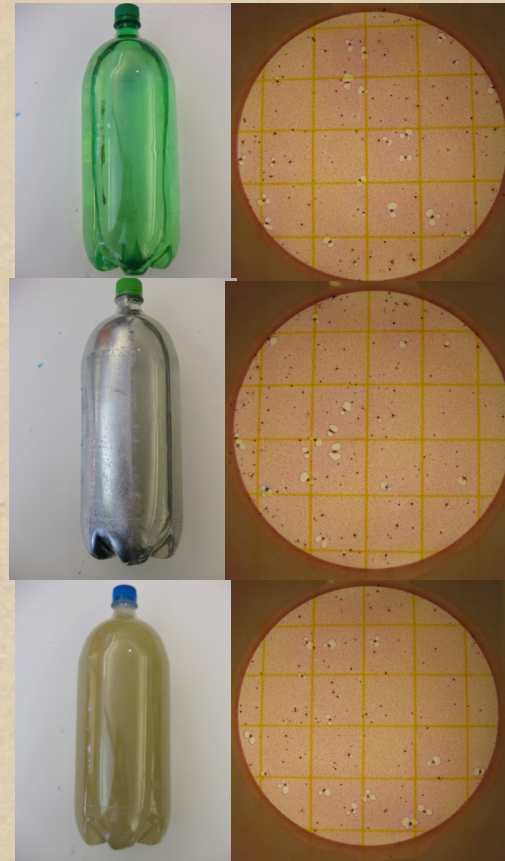
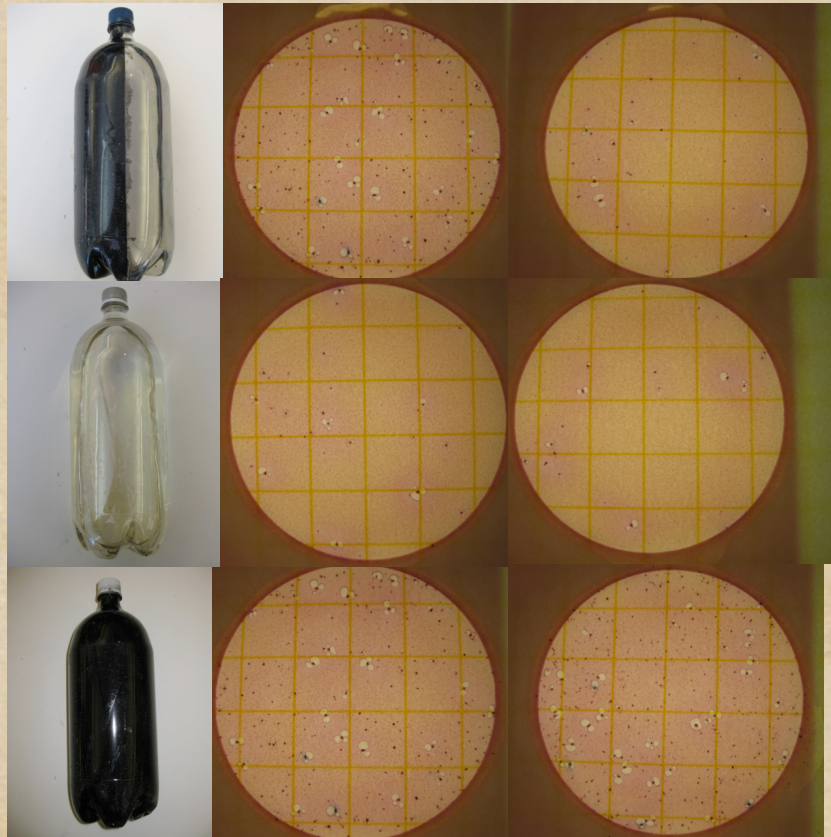
UV radiation kills bacteria
Unsuitable for turbid water



Clear Bottles and Bags Performed Best

Soda Bottle

Ziploc bag



Slow Sand Filtration

Flow Rate : ~ 20 mL/s

Initial Turbidity ~ 300 NTU

Final Turbidity: 3-5 NTU

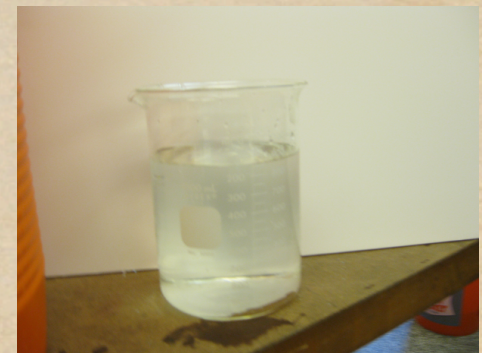
To filter bacteria properly needs
1-2 weeks of use to construct a
Biolayer above the filter.



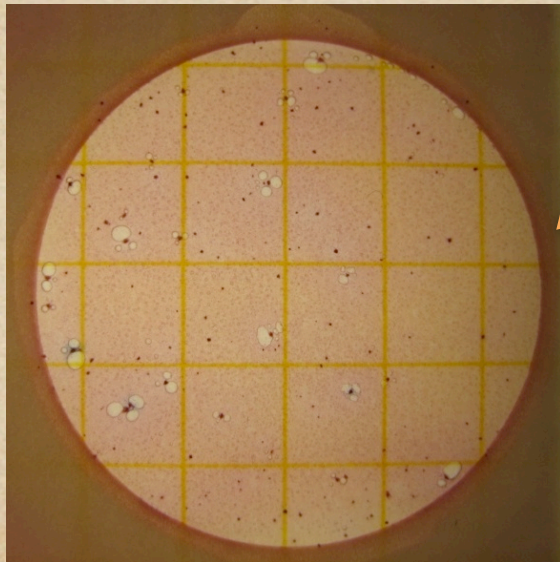
Before



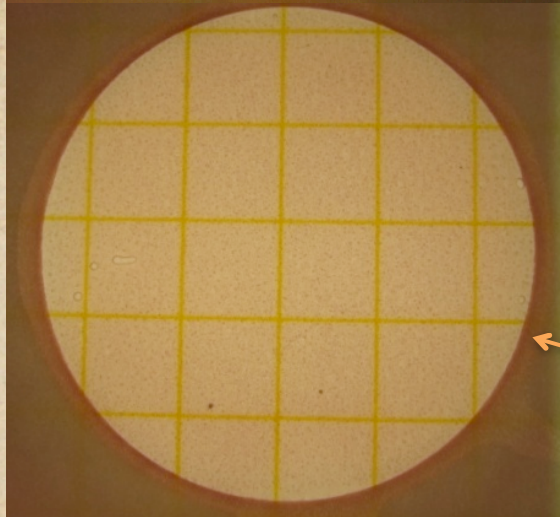
After



Slow Sand Effective at Removing Bacteria



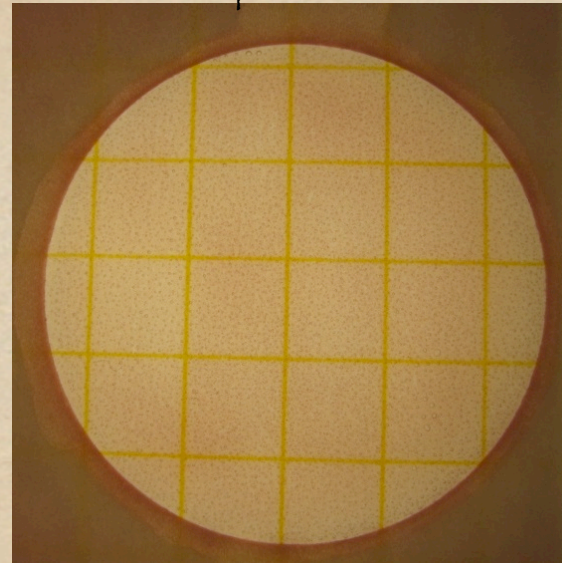
Before



After



Tap Water



* After 16.5 hrs of incubation at 37°C

Ceramic Filtration

Flow Rate: ~ 0.85 mL/s

Initial Turbidity: ~ 300 NTU

Final Turbidity: 2-3 NTU

Susan Murcott H2O-1B

12% Break Rate

