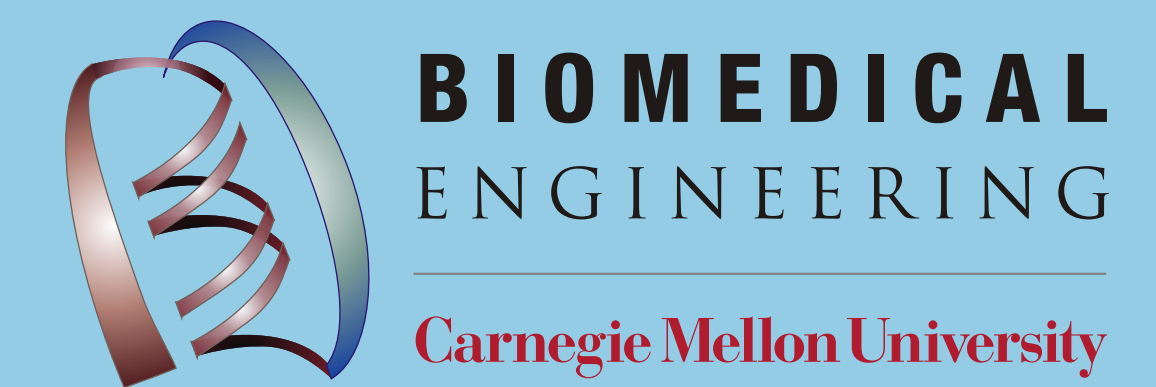


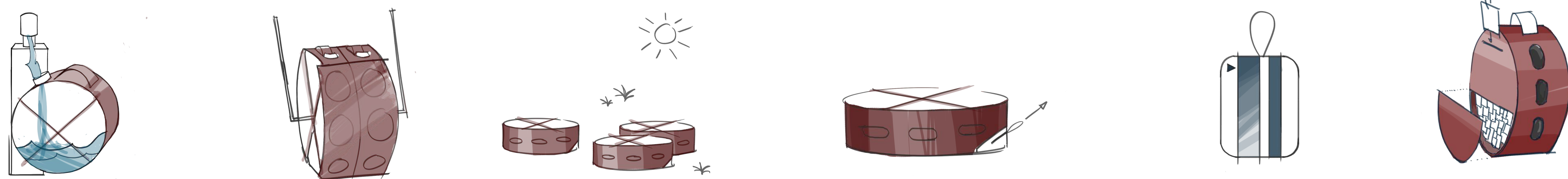


A Sustainable Indicator for Solar Water Disinfection

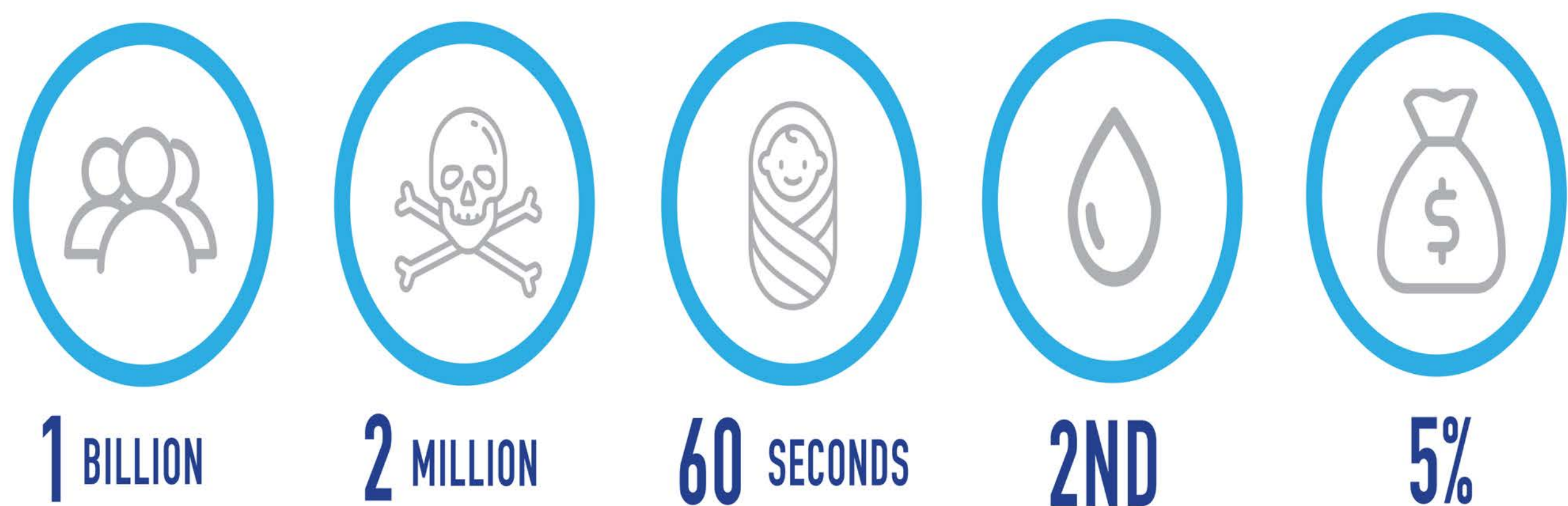


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PROCESS



IMPACT



PEOPLE DO NOT HAVE ACCESS TO CLEAN DRINKING WATER¹

PEOPLE DIE EVERY YEAR FROM WATER BORNE ILLNESSES²

EVERY 60 SECONDS A CHILD DIES FROM WATER RELATED DISEASE³

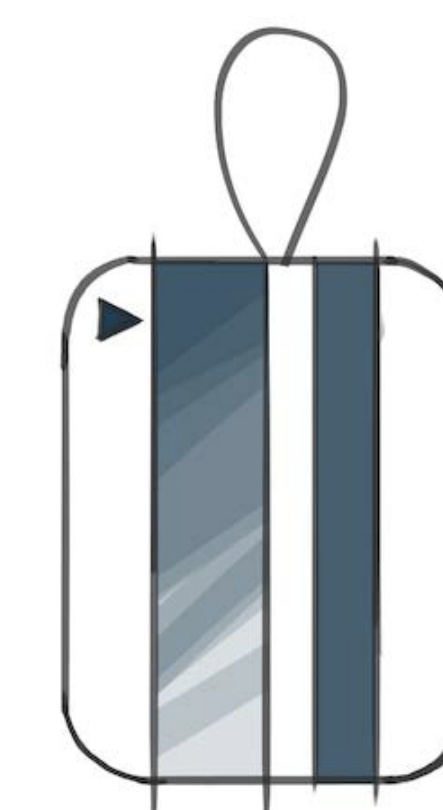
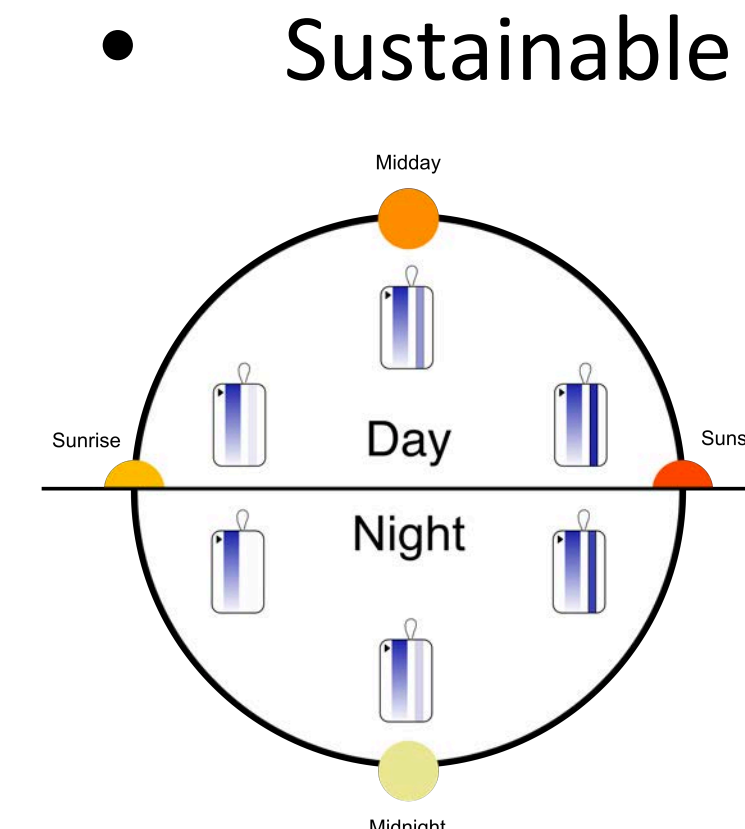
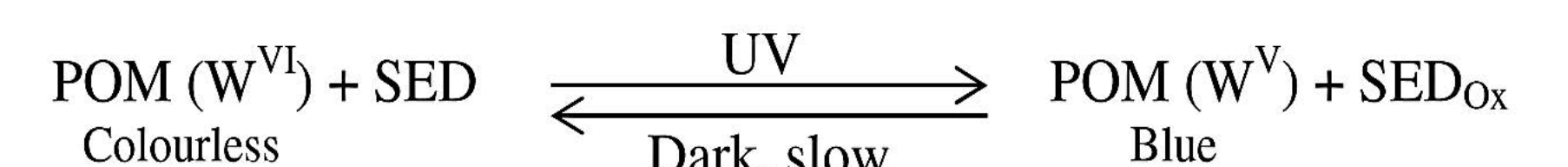
LEADING CAUSE OF DEATH AMONG CHILDREN IS DIARRHEA²

5% OF SUB-SAHARAN AFRICA'S GDP LOST TO UNCLEAN WATER⁴

METHODS

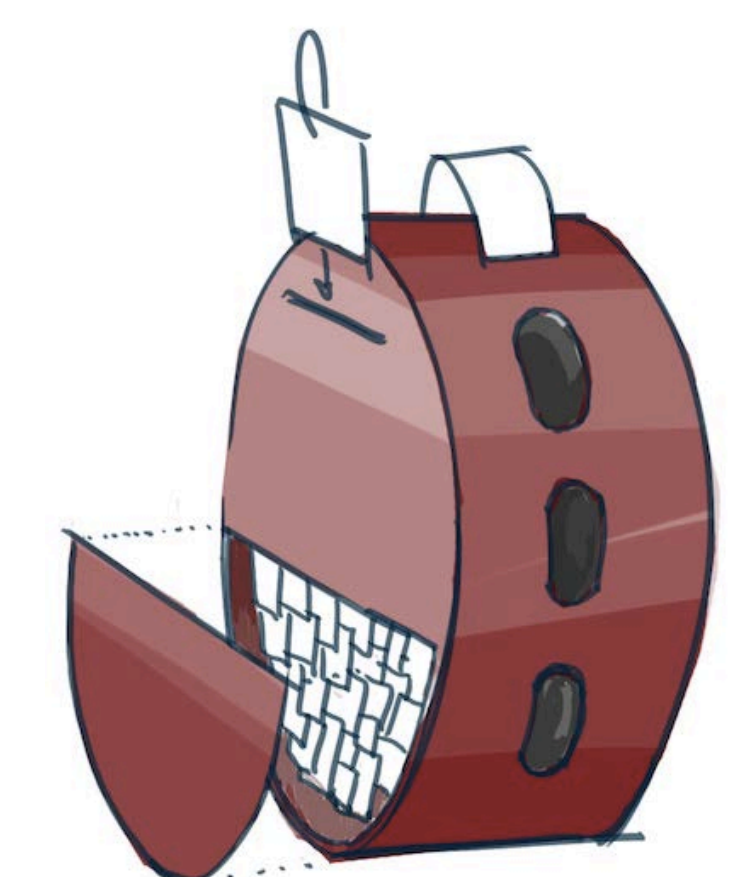
UV Responsive Dye

- Polyoxometalate (POM)
- Colorless to Indigo
- Reversible
- Sustainable



Cartridge

- Casing tinted to change color at 950 kJ/m²
- Overnight recovery
- Color checker uses Indigo gradient



Can Integration

- Dye enclosed in secure cartridge
- Cartridge secured to can via holder
- Disposal site for used cartridges

BACKGROUND

Solar Disinfection (SODIS) Method

- *What is it?*
 - Simple, portable & inexpensive water purification⁵
 - Uses solar energy
 - Kills bacteria, viruses, and protozoa in 6 hrs.
- *Where is it used?*



Kopo Can

- KOPO, LLC created the Kopo Can, a 2.6 gallon plastic jug with a design lifetime of over 1 year
- Glycol-modified polyethylene terephthalate (PETG)

CONCLUSION

Needs Criteria	Design Feature
Sustainable	•Dye recovers overnight •Available for multiple uses
Eco-Friendly	•Jerry can will have built-in disposal site •Dye will be used in minimal amounts per indicator
Low Cost	•Reusability allows for conservation •Inexpensive materials •Small amount of dye needed per jerry can
Universal Indicator	•Simple, visual color change •Changes color at dosage needed for purified water

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PROBLEM

Purification time depends on:

- Weather
- Altitude
- Clouding
- Season
- Latitude

NEED

Visual indicator for purified water

- Change at 950 kJ/m²⁶
- Low cost
- Intuitive
- Sustainable

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