At the root of the Cholera problem in Haiti is water. People do not have access to safe water nor do they have a place to dispose of waste and waste water. If provided with these things the Haitian people would greatly decrease their chances of getting Cholera. This design is a mobile waste and water purifier in addition to facilities to treat Cholera.

47% of world cholera is diagnosed in Haiti.

689,448 people sickened
8,448 people dead since 2010

[deploy] in a day
6 units per truck
moved by 2 people
placed on jackpad foundation
unpack
separate pieces from base
erect pieces on base

TREAT PEOPLE TREAT WATER
A LONG TERM SOLUTION FOR CHOLERA IN HAITI

[context]

At the root of the Cholera problem in Haiti is water. People do not have access to safe water nor do they have a place to dispose of waste and waste water. If provided with these things the Haitian people would greatly decrease their chances of getting Cholera. This design is a mobile waste and water purifier in addition to facilities to treat Cholera.
The patient is isolated and treated. Water from a local source is pumped in and cleaned. The water is then purified by solar rays in the roof. Treated safe water is stored and used for drinking and cleaning.

### Coverage Plan
- **Layer 7**: Roof panels, sun blinds, solar panels, solar water purification
- **Layer 6**: Sectioned bamboo panel
- **Layer 5**: Roof structure outside floor
- **Layer 4**: Wattle door panel
- **Layer 3**: Bamboo structure bamboo slat panel
- **Layer 2**: Floor
- **Layer 1**: Natural water filter, waste water root zone treat.

### Different Scenarios of Intervention
- Water flow
- Along the river
- Along the stream
- Next to a well

### Different Layouts
- Housing for the earthquake
- Mobile hospitals
- Community center
- School

### Flexibility and Organization Diagrams
- Linear form
- Square form
- Irregular form

### Floor Plan
- **Unit**: A=9m²
- **Circulation**: A=4.5m²
- **[Bamboo panel] type 2**
- **[Sunblind]**
- **[Benches or kitchen garden]**
- **[Waste water root zones treat]**

### Foundation Plan
- **[Roof]**
- **[Energy]**
- **[Solar water purification system]**
- **[Rain water]**

### Layer Details
- **Layer 7**: Roof panels, sun blinds, solar panels, solar water purification
- **Layer 6**: Sectioned bamboo panel
- **Layer 5**: Roof structure outside floor
- **Layer 4**: Wattle door panel
- **Layer 3**: Bamboo structure bamboo slat panel
- **Layer 2**: Floor
- **Layer 1**: Natural water filter, waste water root zone treat.

### Box Contents
- 6 boxes per truck
- 64 boxes per truck

### Energy
- Solar panel, roof polyethylene
- Sun blind

### Water Storage
- PVC A=0.56m² V=0.17 m³
- PVC A=1.68m² V=0.50 m³

### Foundation
- Jack pack
- Connection between the units

### Water Storage
- PVC A=2.25m² V=0.675 m³
- PVC A=2.25m² V=0.675 m³
- PVC A=2.25m² V=0.675 m³

### Natural Filter
- PVC A=1.68m² V=0.50 m³
The long-term self-sufficient water treatment unit after cholera is designed to provide safe water and proper disposal of waste water and waste, preventing future outbreaks of cholera.

Key components include:

2. Pump Controller takes solar energy and Powers Pumps
3. A Pump Takes Water Out of Local Water Source & Deposits Into The Rock Filtration System
4. The Rock Filtration System purifies the local water taking out the Dirt But Not the Cholera
5. A second pump moves the “Clean” water to The Solar Purification
6. The Solar Purification Kills the Cholera bacteria with UV rays
7. Clean Cholera free water is now Ready to Drink

8. EcoSan Toilets are provided. Solid Waste is covered with Sod and Liquid Waste is separated
9. Remove buckets of Waste and Sod every week
10. SOIL Truck picks up containers and Transports them to the SOIL Waste Facility
11. SOIL Waste Facility Processes Waste & turns it into Cholera Free Fertilizer over 5 months.
12. Fertilizer is then used to Improve Haiti’s Soil for Growing Food

Unsafe water sources are of unknown water quality. This water is contaminated with cholera. The process includes:

- Type 1: Unsafe water is pumped into the natural water filter where it is processed and cleaned but not purified.
- Type 2: Cleaned but still unsafe water is pumped up to solar water purification.
- Type 3: Piped purified safe cholera-free water to storage area.

The system uses UV rays and heat supplied by the sun to purify and kill microbes, viruses, and bacteria. The process takes about six hours.

For ventilation, cool air from the river enters and warm air leaves, cooling patients and wet areas for cleaning.

Bamboo is a long-term resource:
- Low cost
- Sustainable
- Locally sourced
- Earthquake safety material
- Flexible
- Encourages local bamboo plantation jobs
- Benefits the environment
- Resolves some big problems in Haiti, such as erosion, deforestation
- Encourages local bamboo plantation jobs
- Benefits the environment
- Resolves some big problems in Haiti, such as erosion, deforestation
- Flexible

The natural filter contains stones, sand, and coal layers, responsible for removing trash and chemical components such as smell, color, and taste. After this process, the water is carried to the purification system.

The bamboo structure is made of bamboo pieces (5cm diameter) of different types:
- Type 1: Sectioned bamboo. This panel can make possible the daylighting and natural ventilation.
- Type 2: Panel made with treated bamboo slats.

Self-sufficient water treatment unit after cholera 135 L/day.