Water Solutions for Batipa

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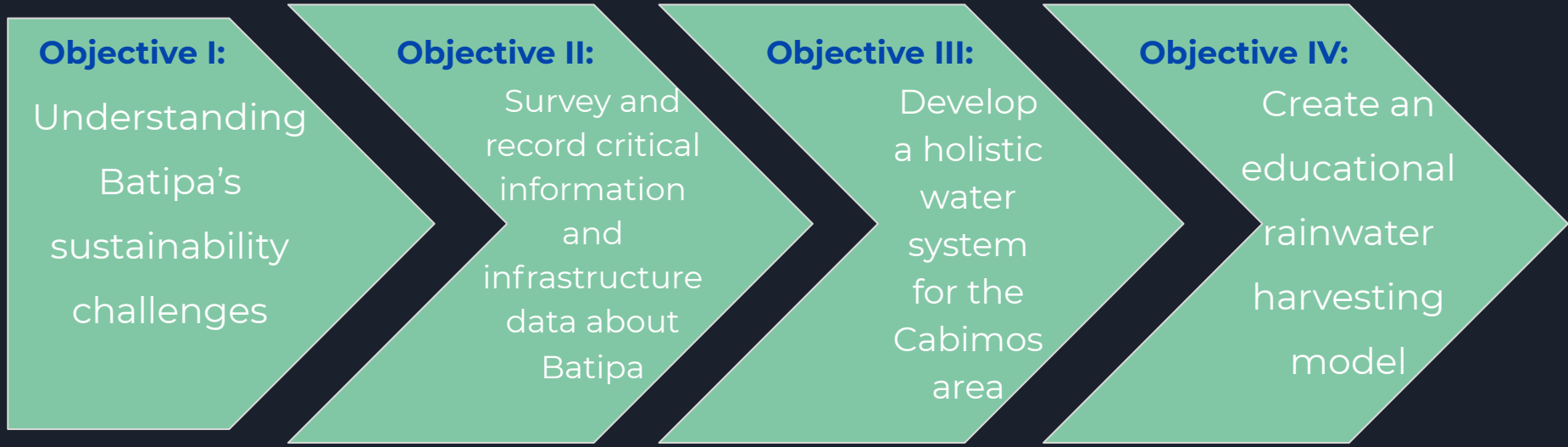
Methodology



Findings & Analysis

Wells

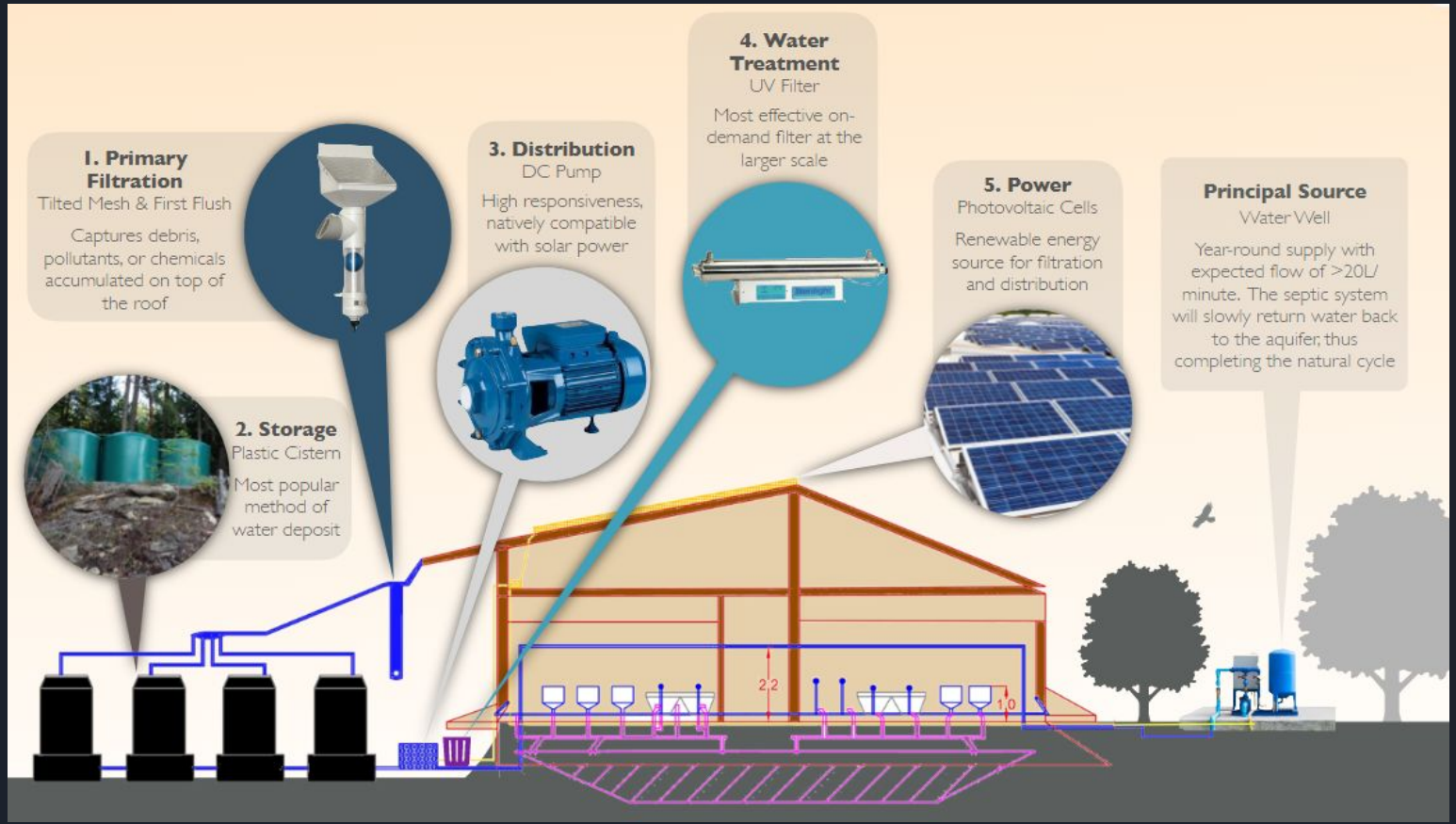
More stable/predictable than rainfall

Complement to rainwater systems

Industry proven, with 43 million people relying on wells in the US

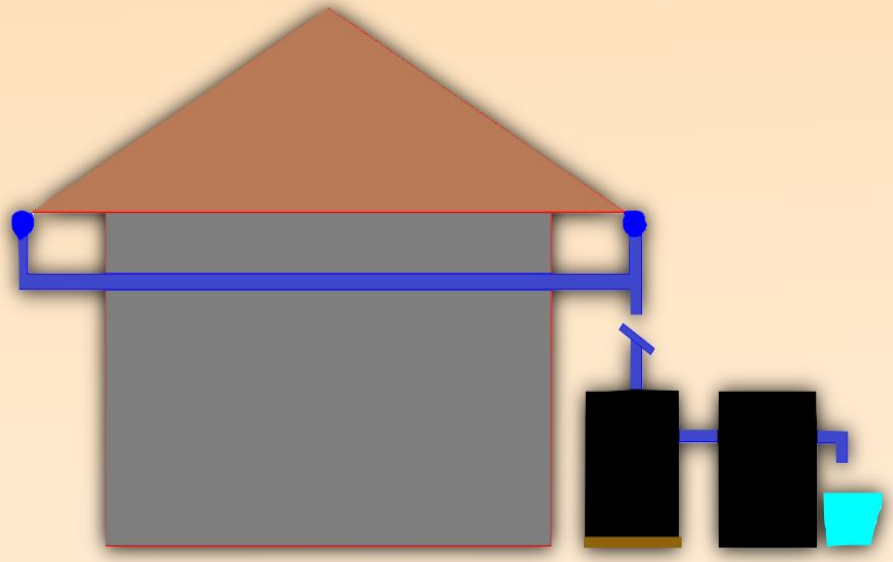
Findings & Analysis

Design Concept for Cabimos



Findings & Analysis

Basic Rainwater Harvesting Model



1. Catchment & Conveyance
PVC Piping and Gutters

An inexpensive yet effective way to collect water for small to medium scale buildings

2. Primary Filtration
Tilted Mesh

Filters out large particles, such as leaves, from the water source. In addition to its low cost, there is little maintenance needed

3. Storage & Second Filtration
Rain Barrells

An affordable and practical option for water storage

4. Water Treatment
Colloidal Silver Filter (CSF)

CSF is a silver-lined clay pot. As water travels through this porous material, pathogens in the water adhere to the walls, and thus filtering it out

Recommendations

Solar Farm for Cabimos

- 1-1.5 hectares of land
- 1MW of electricity
- 300 Panamanian homes
- $1M USD

International Renewable Energy Agency

Matahar Kencana Solar Farm

Recommendations

Implement weather station

- Measure local climate change and weather patterns
- Cost-efficient and environmentally conscious
- Raspberry Pi data collection

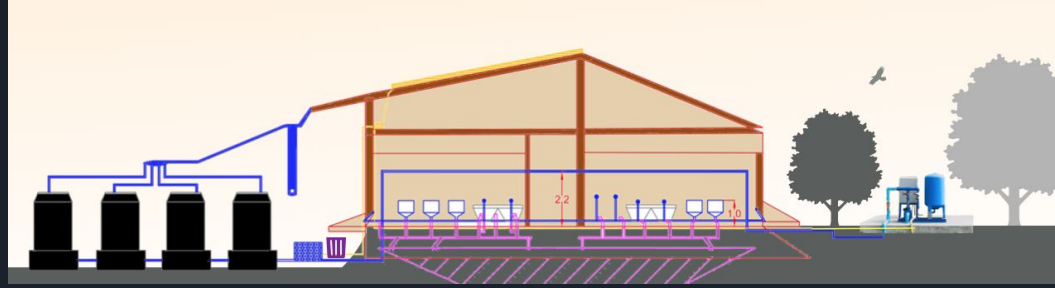
Recommendations

Increase capacity of Cerro Batipa reservoir

- Rainy season
  - Increase pumping rate
- Dry season
  - Measure salinity

Picture of pond reservoir; used for illustration purposes

Conclusions



Key Points

- BFI can support 10 people living there and 100 weekend visitors by using a combination of solar energy, rainwater harvesting and well water
  - 5,000 L/day expected consumption, 2,400 L/day RWH supply during rainy season
- By using scalable storage systems, BFI can start with lower capacity and grow as needed

Future areas of research

- Determine the expected productivity and water quality of well water at Cabimos
- Further investigate constructed wetlands as an alternative waste management method

Thank You!