

MIT OpenCourseWare
<http://ocw.mit.edu>

2.500 Desalination and Water Purification
Spring 2009

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.

2.500 Desalination

Amanda Adams

Ray Ginther

Amy Smith

April 23, 2009

Overview

- Introduction to Mercy and Sharing
- Description of Paulette and Phaeton
- Availability of materials in Cap Haitien
- Questions



























Phaeton feeding program



Phaeton feeding program



Paulette and Phaeton



Courtesy of the CIA Factbook.

Paulette

- Population: 1750 (~350 families)
- 12 sources of water:
 - 1 pumped freshwater system
 - 3 community wells with (broken) hand pumps
 - 8 hand dug bucket wells

Pumped water system



Pumped water system



Community well



Broken hand pump



Hand dug bucket wells (private)



Hand dug bucket wells (private)



Broken rainwater system



Broken rainwater system



Phaeton

- Population: 2450 (~500 families)
- 9 sources of water:
 - 1 pumped freshwater system
 - 1 community wells with (broken) hand pumps
 - 7 hand dug bucket wells
- Sisal plantation, now closed, used to employ the majority of the residents.

Pumped water system



Community well



Community well



Community well



Hand dug bucket well (private)



Main Street, Phaeton



Main Street, Phaeton



Abandoned Sisal factory



Boat building



Salinity field data

	Paulette	Phaeton
Pumped system	450 ppm	650 ppm
Community wells	3,000 ppm	1,200 ppm
Private bucket wells	2,300 ppm	3,500 ppm

Some economics

- “Sweet” water is 1 gourde per bucket
- Each family uses about 5 buckets per day
- Which is about 10% of their income

Some economics

- 350 families x 5 buckets per family x 1 gourde per bucket = ~\$45/day
- Diesel price:
 - Current price: \$2.25/gallon
 - “Normal” price: \$3.00/gallon

Cap Haïtien

Available materials

Metellec Hardware



Hinges and handles



Paint and glue



Tools



Wire and plastic sheeting



Windows



Pumps



Batteries



Pipe, extrusions and flat bar



More PVC (when it's there)



Electronics shop



Bike parts and supplies



Hole in the wall welding shop



The forge



Questions???