LIFE-SUSTAINING SOLUTIONS FOR DEVELOPING COUNTRIES

Greg Bixler, PhD, PE
Faculty OSU EEIC
CEO/co-founder DO
1998 – Freshman at OSU
2003 – Battelle Memorial Institute
2006 – pivotal trip to Central Asia
2007 – start of HE journey
2010 – start of Design Outreach
2011 – return to OSU
800,000,000
4,100
10
"No one made a greater mistake than he who did nothing because he could only do a little."

Edmund Burke

Together we can make a difference!
Africa Quiz

Q: How many countries are there in Africa?
A: 54
Q: How many times could you fit the state of Ohio into Africa?

A: 260
Q: How many languages are spoken in Africa?

A: about 2,000, in 6 major linguistic categories (most have a trade language, like French, Portuguese, Tigrinya, Kirundi, Berber, Arabic, English, Spanish, Sango, Swahili, Sesotho… etc)
Q: Of the 1.1 billion people who live in Africa, how many don’t have access to safe water?

A: 335 million
Africa Quiz

Q: Which kills more people: the lack of water and sanitation, or all forms of violence (including war)?

A: Lack of water and sanitation - about 30,000/week worldwide (90% of that is in children under the age of 5)
MONITORING HAND PUMP FUNCTIONALITY & EVALUATING THE true COST OF MAINTENANCE

Presented at UNC Water and Health Conference | 2013

METHODS
- Cost of water collection
  - Cost of water collection
  - Water collection
  - Water collection
  - Water collection

RESULTS
- ICD Hand Pump Maintenance Program
  - Results from 2013
  - Results from 2014
  - Results from 2015

DISCUSSION
- Challenges
  - Challenges
  - Challenges

COMMUNITY SURVEYS
- Community surveys conducted to understand the needs and challenges faced by communities
  - Survey results
  - Survey results
  - Survey results

INFRASTRUCTURE PARTNERSHIP
- Infrastructure partnership to ensure sustainable and effective water supply systems
  - Partnership details
  - Partnership details
  - Partnership details
LifePump in Malawian community
DESIGN OPTIMIZATION & VERIFICATION

Prototype 1

Prototype 2

Prototype 3
LifePump Value Proposition...

- Capability to go deeper water levels.
- Lower system cost than next best alternative.
- High reliability.

![Hand Pump Capability Chart]

Phase 1 – 100 meter
Phase 2 – 150 meter
Visual Representation
6% Per-Beneficiary Cost Saving with Blended Approach

Substantial Drilling Cost Savings from Much Higher Success Rate
Higher Material Costs for Superior Components for Deep Wells

Afridev Only  | Fixed Drilling Cost  | Variable Drilling Costs  | Pipe / Rod Costs  | Pump Costs  | Afridev + LifePump
$32.24  | ($7.18)  | ($1.38)  | $3.60  | $3.16  | $30.44

94%
70

40,000

What’s next?