

Technology Innovations for Rural Water Systems

Lessons from Peace Corps Dominican Republic

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Overview

- About the Peace Corps
- My Personal Experience
- Examples of Innovation
- Sustainability and Innovation

Peace Corps Background

- Began in 1961
- Two year commitment
- Mysterious application process
- My project: Environmental Sanitation
- *“Volunteers seek to reduce various endemic diseases by increasing access to potable water and improved waste disposal and sanitary facilities. Volunteers train community members to operate and maintain their water and sanitation systems and help private voluntary organizations improve their capacity to plan, implement, and evaluate environmental sanitation projects.”*

My Peace Corps Experience



Community Facts

- **60 homes, about 300 people**
- **Mountainous – located at 4000 ft**
- **Farming culture; beans and coffee are staple crops**
- **Difficult road access**
- **No electricity, bathrooms, services of any kind**

Where is Las Barreras?



Project Goals

- Improve access to sanitation practices and health conditions, with focus on children
- Education, training, and leadership
- Sustainability – taking problems into their own hands

Existing Infrastructure...







★ Men and women would walk up to a mile to fetch water during the dry season



Design Process: Start to Finish

1. Perform a *community diagnostic*
2. Source evaluation/site survey
3. Draft a rough system design
4. Create a Budget
5. Submit grant proposals/look for sponsorships
6. Finalize design and perform a pilot test
7. Form brigades and start digging
8. Establish formal leadership structure

Technology Innovations

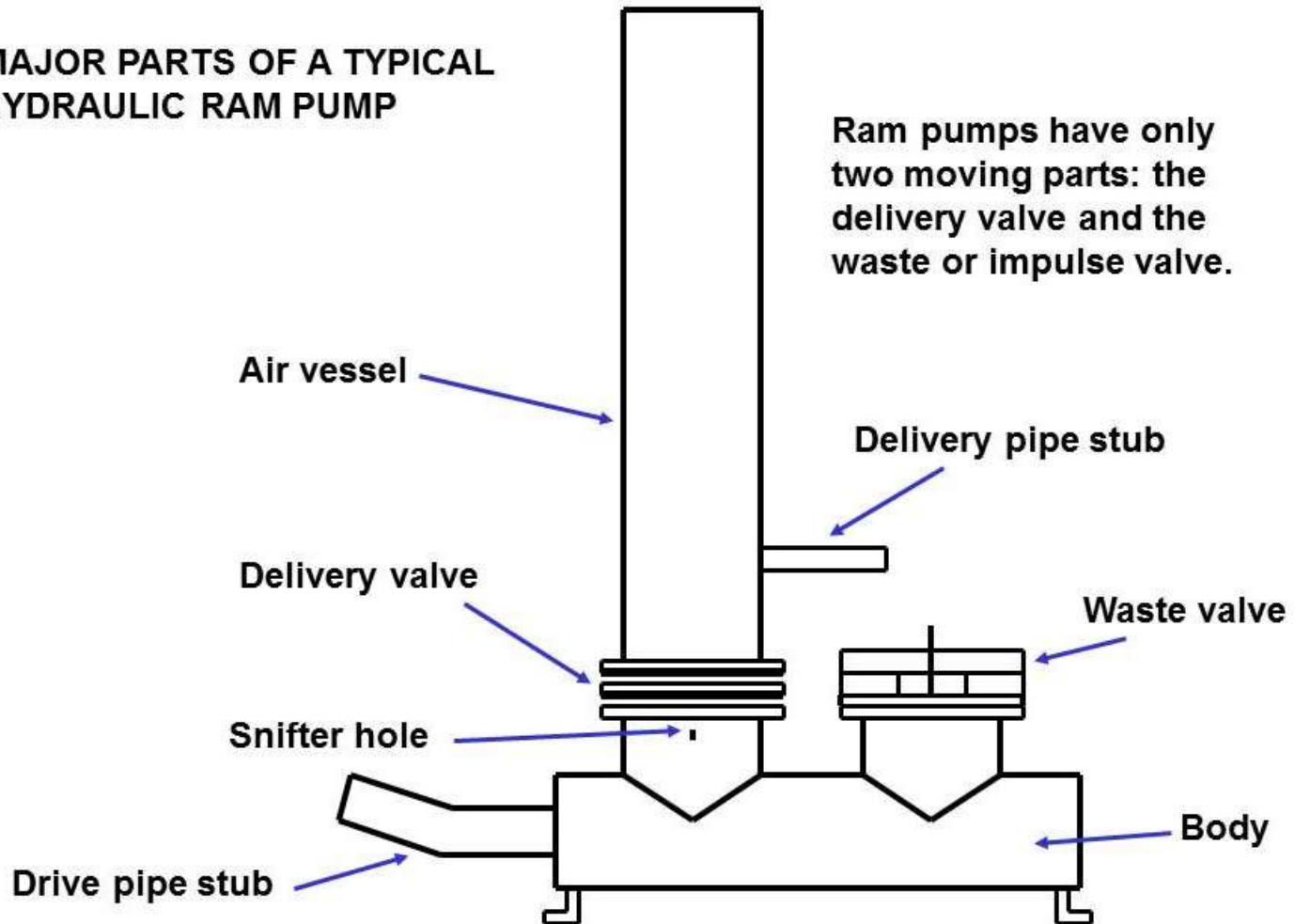
Ram Pump

- Community spread across more than 1.5 miles
- Need to reach homes ~60m higher than water source
- Uses hydraulic ram effect to pump 10% of the water up to 10x the inlet pressure
- DTU Ram Pump, Warwick University



Ram Pump

MAJOR PARTS OF A TYPICAL HYDRAULIC RAM PUMP



Ram Pump



Ram Pump



Ferrocement Tank





































Newport Department



Newport Elementary School

Partnering together
and building a better
future





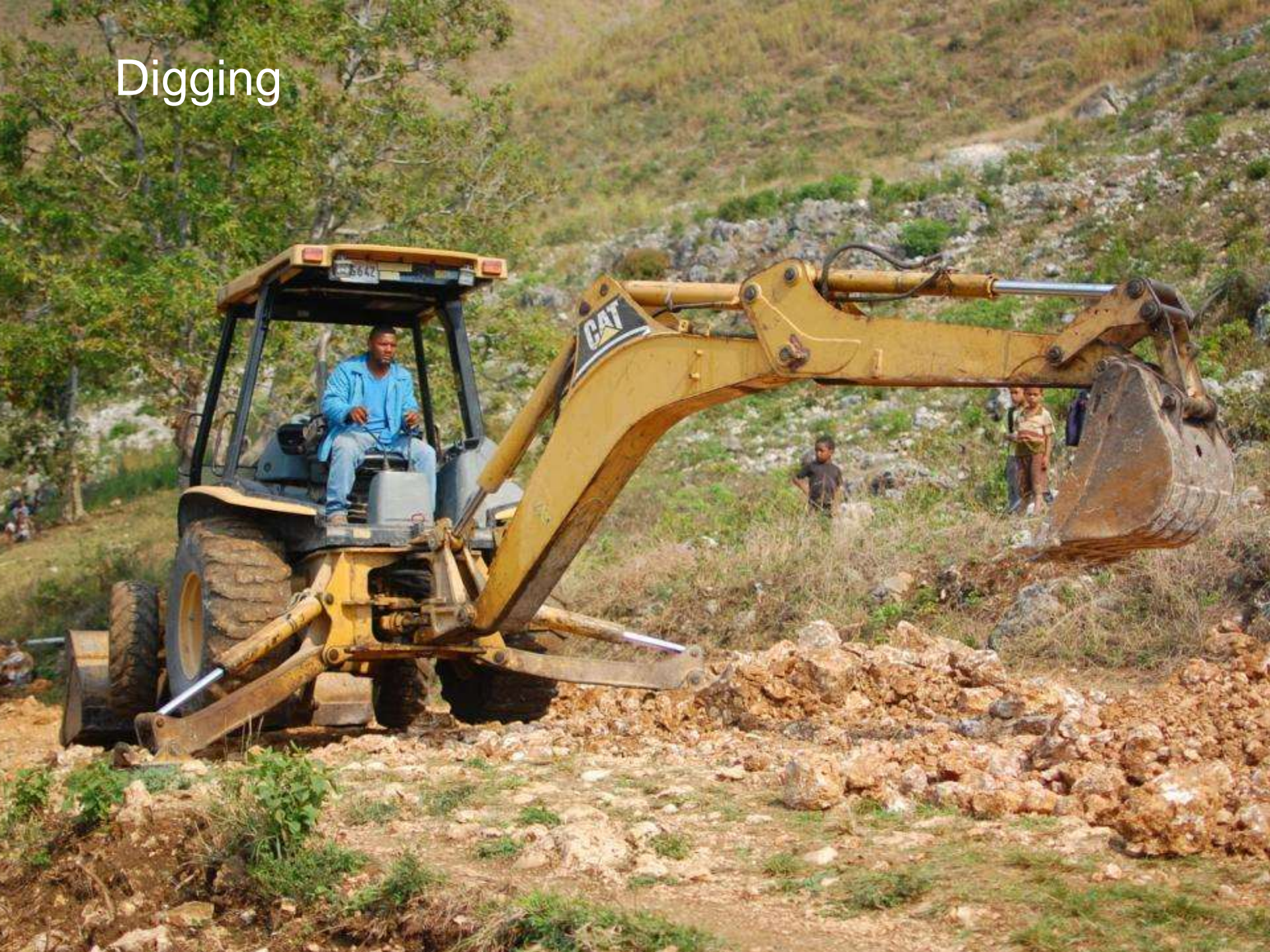




Digging



Digging



Sustainability and Innovation

Can Innovation be Sustainable?

- Discussion – 5 min

Can Innovation be Sustainable?

- Ownership
- Leadership and Organization
- Short-term benefits
- Long-term support
- Supply Chain

Thanks for Listening!

