

Kale Heywet Household Water Project: Mid-term Evaluation



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Samaritan's Purse International Relief Water Programs

- Trainer, implementer and donor agency for Biosand Filter (BSF) projects.
- 60,000 BSFs installed in 23 countries since 1997.
- Largest projects in Cambodia and Ethiopia (19,000 & 7,500 BSFs)



Background on Ethiopia

Human Development Index	170/177
Rural access to improved water coverage	11%
Rural access to improved sanitation coverage	4%
% of population undernourished	46%
Under 5 child mortality:	169/1000

References: WHO, UNICEF, 2002. UN, 2005

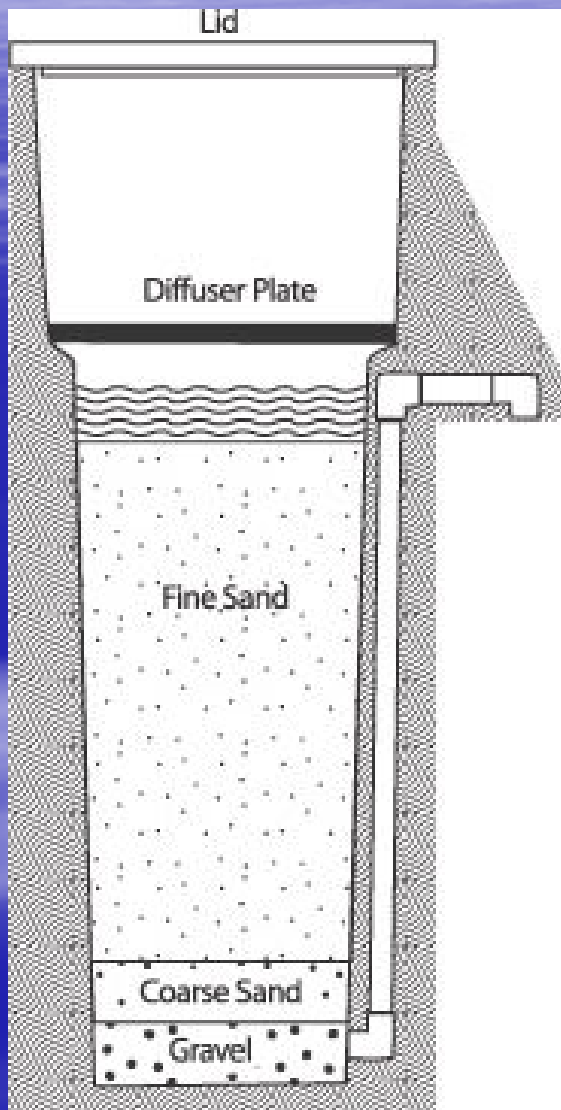
Kale Heywet Household Water Project

To improve water quality at the household level and hygiene and sanitation practices leading to an improvement in health in 6,600 rural Ethiopian households

Activities:

- Install 6,600 BSFs over three years
- BSF usage and maintenance education
- Health and hygiene education
- Sanitation
- Provision of water storage containers
- Community participation

Biosand Water Filter



- Appropriateness for rural Ethiopia:
 - Reliance on contaminated surface water
 - No ongoing operating costs
 - Robust, durable construction
 - Community development aspect

Mid-Term Evaluation Objectives

- Measure achievement of Project targets:
 - Water quality
 - Sanitation
 - Hygiene
 - Water-related diseases and health
- Assess aspects of BSF performance and user compliance
- Recommendations to improve the Project

Description of Evaluation

- Sample size
 - 50 Project households (BSF) – minimum 1 yr
 - 50 non-Project households (control)
- Survey instrument
 - Health, hygiene, water management, BSF
- Water quality testing
 - Total coliform and *E.coli* indicators
 - Membrane filtration
 - Turbidity

Baseline Characteristics

		Project Households (n=50)	non-Project Households (n=50)
Average Family Size		6.5	5.4
Primary Water Source	river	56%	2%
	pond	28%	96%
	canal	14%	0%
Water consumption (L/c/day)		13.7	16.8
Collection time (min)		44	46

Project area water source

Project area water source

Non-Project area water source

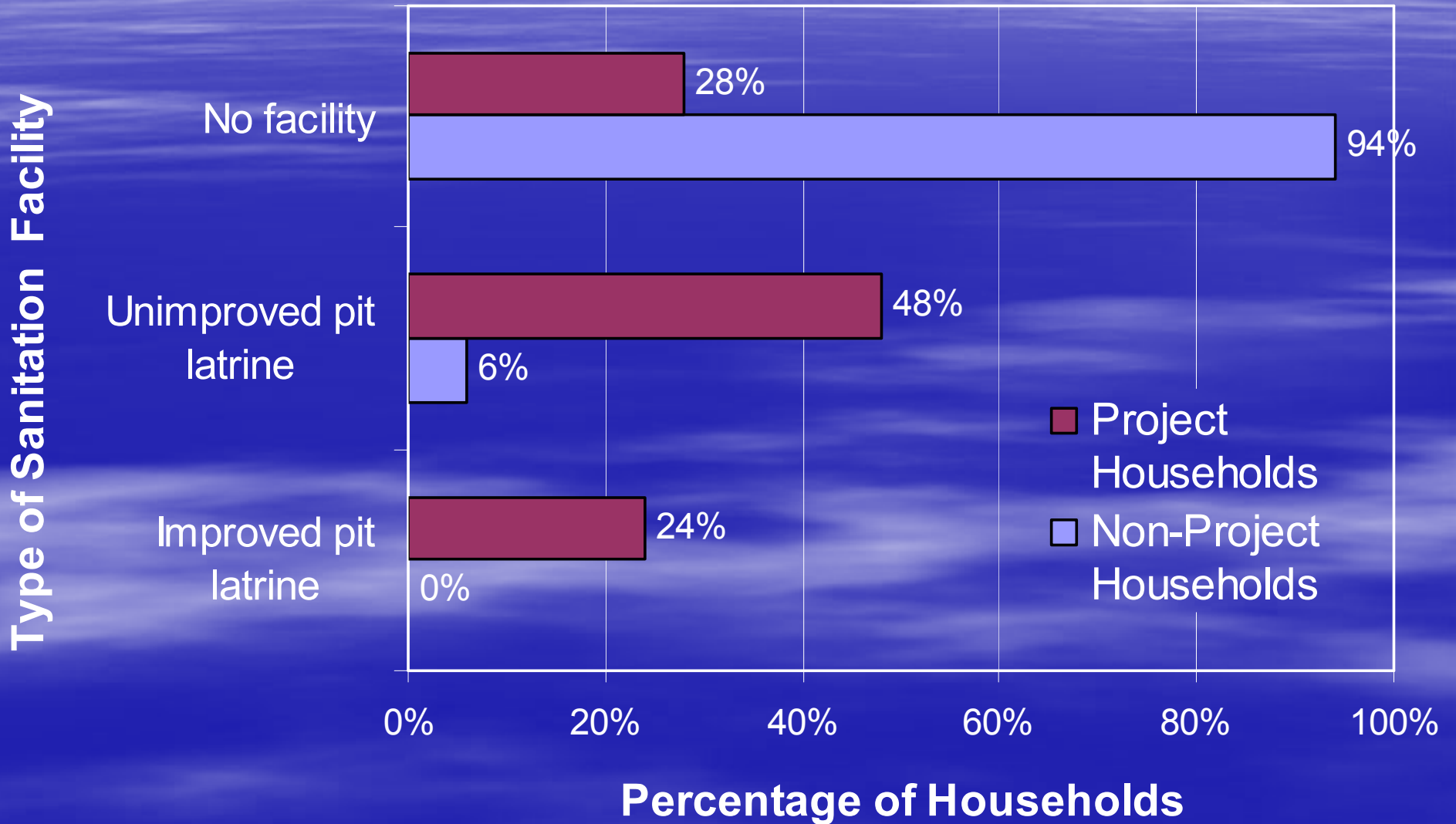
Project Household Water Quality

	Raw Water Sample (n=50)	BSF Effluent Sample (n=50)	Log ₁₀ Reduction
Average Total Coliform (cfu/100mL)	132 000	2 800	1.9 (98.6%)
Average <i>E.coli</i> (cfu/100mL)	28 000	400	1.6 (97.3%)
Average Turbidity (NTU)	240	48	85%

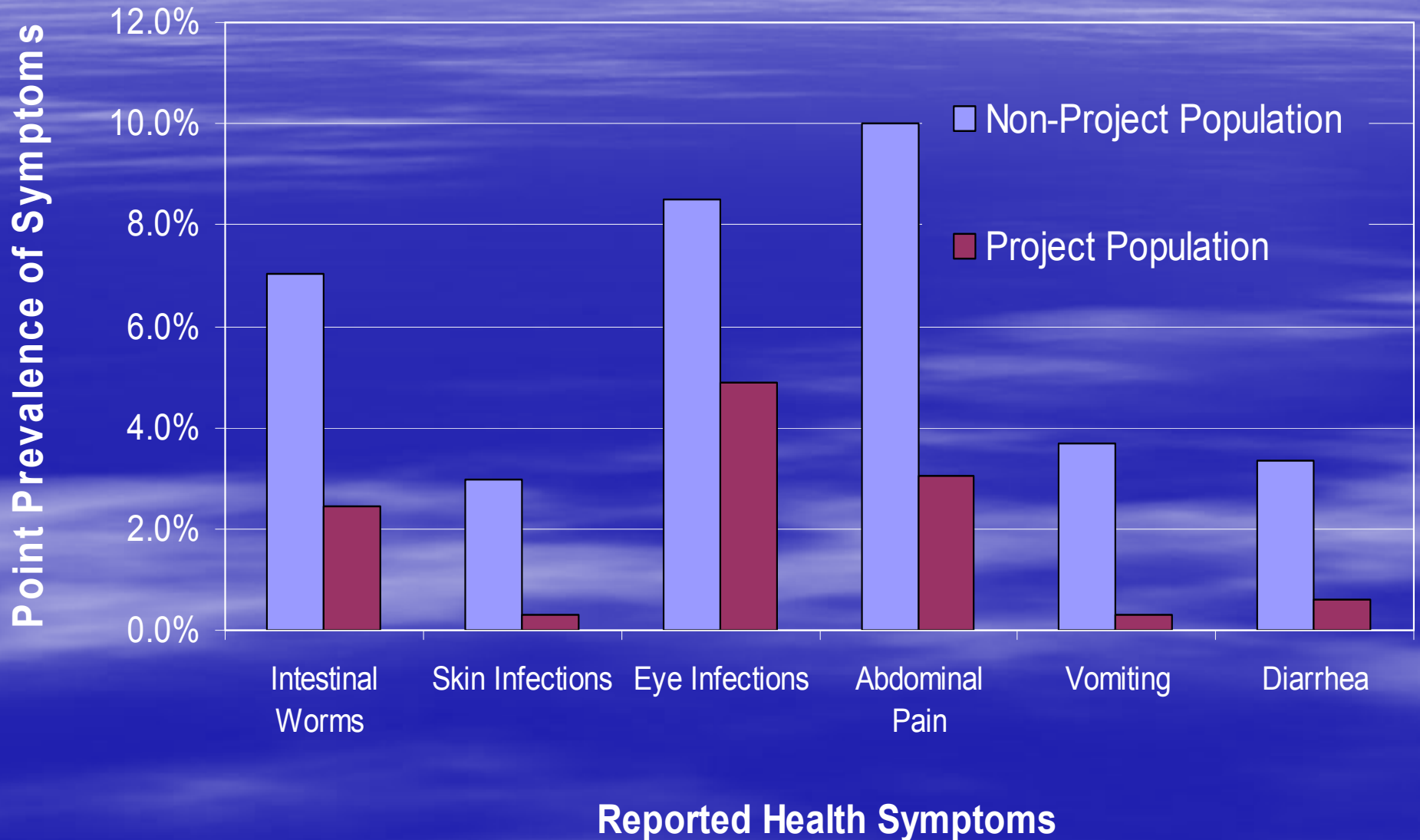
Hand Washing Indicators

Indicator	Project Households (n=50)	Non-Project Households (n=50)
% of households with soap at time of survey	72%	82%
% of caretakers using soap in previous 24 hours	66%	54%
% of caretakers washing hands with soap and at two appropriate times	22%	0%

Access to Sanitation



Reported Health Indicators



Conclusions

- BSF is improving water quality
- Trends in Project villages
- Programmatic improvements:
 - Improve education on hand washing
 - Incentives for improved latrine construction
 - BSF user compliance

Issues for Policy Development

- Need for more health impact studies for household water treatment technologies
- Policy should reflect both water quality *and* health impact
- Partnerships between implementers and researchers

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The End