

Investing in Water, Sanitation, and Hygiene in Africa and India



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Research for People and the Planet

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Foundation

December 4, 2006

Water and Sanitation in CIFF Countries

- ◆ Our Goals
- ◆ Water Related Impacts to Children
- ◆ The Three Components to the W-S-H Challenge
 - Not just about water
- ◆ Current Focus of Funders Leaves Gap for CIFF
 - Where is funding being directed?
 - What are the gaps?
- ◆ What should CIFF invest in?
 - Specific Programs
 - Country by Country Priorities

Our Goals

- ◆ Demonstrate where water, sanitation and hygiene issues most negatively impact children in CIFF's target countries in terms of scale and severity
- ◆ How can CIFF, given its size and capacity, make the most strategic contributions (high impact, addressing gaps, achieving value for money, leverage and ideally sustainability.)



Our Methods

- ◆ Literature Review
- ◆ Compilation and analysis of statistical data on water related disease in CIFF countries
- ◆ Interviews with key organizations working on water, sanitation, hygiene; and child and maternal health in CIFF countries, including Water and Sanitation Program, CARE, Africare, UNICEF, Save the Child, Water Partners, Water Aid

Water Related Impacts to Children

Water Related Impacts to Children

- ◆ Water-related diseases kill a child every eight seconds



Impacts on Children

- ◆ Health
 - Mortality
 - Morbidity
- ◆ Education
 - Missed school
 - Time needed to fetch clean water
- ◆ Nutrition
 - Malnutrition
 - Wasting and stunting
- ◆ Safety
- ◆ Social, Cultural, Psychological
 - Privacy and dignity
 - Gender equity



Water-Related Diseases Categories

- ◆ **Water-borne disease** - cholera, typhoid, dysentery and other diarrheal diseases
- ◆ **Water-based disease** - scabies, trachoma and flea, lice and tick-borne diseases.
- ◆ **Water-washed disease** - dracunculiasis, schistosomiasis, and other helminths.
- ◆ **Water-related insect vectors** - dengue, filariasis, malaria, onchocerciasis, trypanosomiasis and yellow fever.

Major Water-Related Diseases

- ◆ Diarrhea
- ◆ Malaria
- ◆ Hookworm, Ascariasis – “roundworm”, Trichuriasis – “whipworm”
- ◆ Schistosomiasis – “bilharzia”
- ◆ Lymphatic filariasis – “elephantitis”
- ◆ Dengue Fever
- ◆ Onchocerciasis – “river blindness”
- ◆ Dracunculiasis – “guinea worm”



Child Mortality and Morbidity Impacts Disability Adjusted Life Years (DALYS)

<i>Disease</i>	<i>DALYs (x 1000) in Children – Sub-Saharan Africa</i>	<i>% Total</i>	<i>DALYs (x)1000 in Children – South Asia</i>	<i>% Total</i>
Diarrheal Diseases	10,957	11.2	11,005	13.0
Malaria	15,774	16.2	1,082	1.28
Intestinal Nematode Infections (Hookworm, Ascariasis, Trichuriasis)	423	0.433	274	0.323
Schistosomiasis	335	0.343	0	0
Lymphatic filariasis	374	0.383	597	0.704
Dengue	1	0	98	0.116
Onchocerciasis	27	0.02766	0	0
Dracunculiasis	1	0	0	0

Largest Causes of Mortality Among Children

◆ Diarrheal Disease

- Kills 1.5 million children each year, 1.2 million of whom live in South Asia and Sub-Saharan Africa



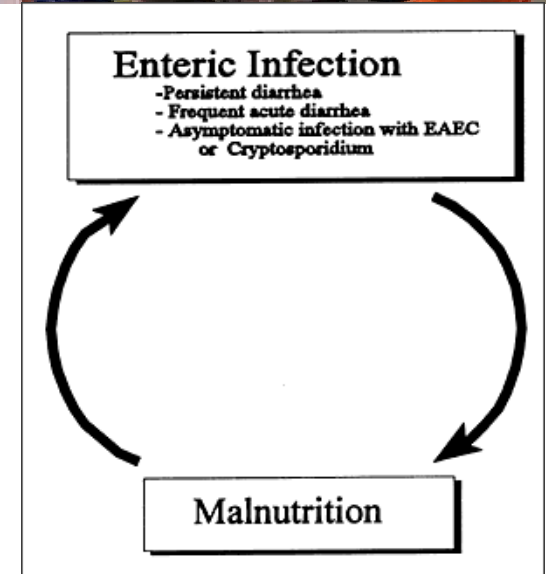
◆ Malaria

- Kills 1.1 million children each year, almost all of whom live in SA and SS Africa



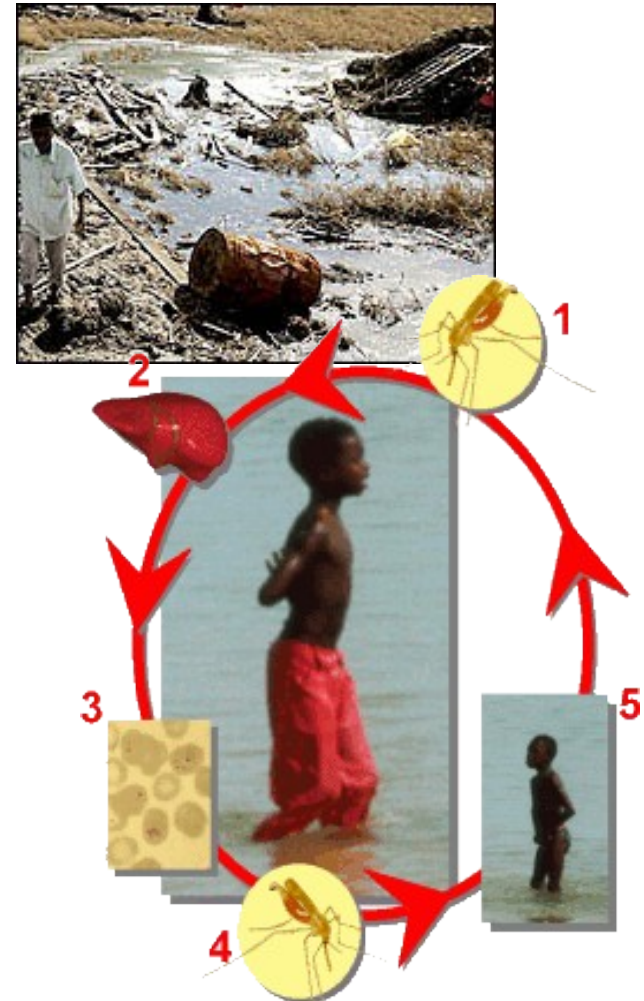
Diarrheal Disease

- ◆ Broad category that includes cholera, bacillic dysentery and typhoid
- ◆ Makes up 4.5% of the total global burden of disease
- ◆ Passed through the fecal-oral route
- ◆ A significant cause of malnutrition in children

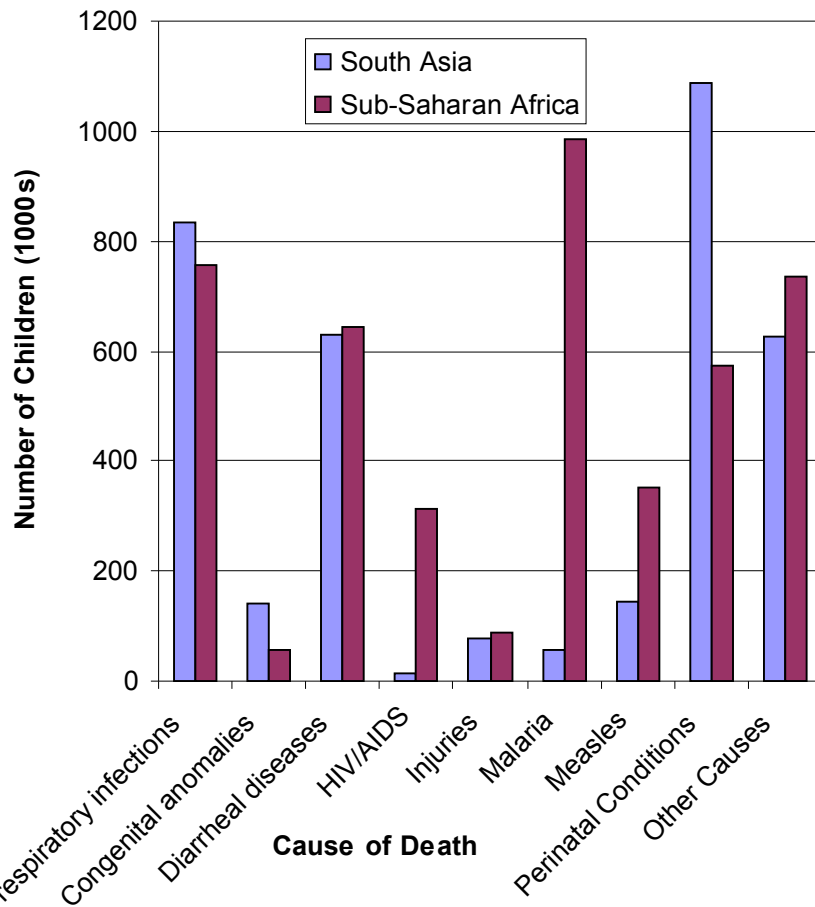


Malaria

- ◆ Parasitic disease transmitted by mosquitoes that breed in stagnant water
- ◆ Malaria kills an African child every 30 seconds
- ◆ 24 million pregnancies are threatened by malaria each year, causing low birthweight babies which affects under 5 survival rates

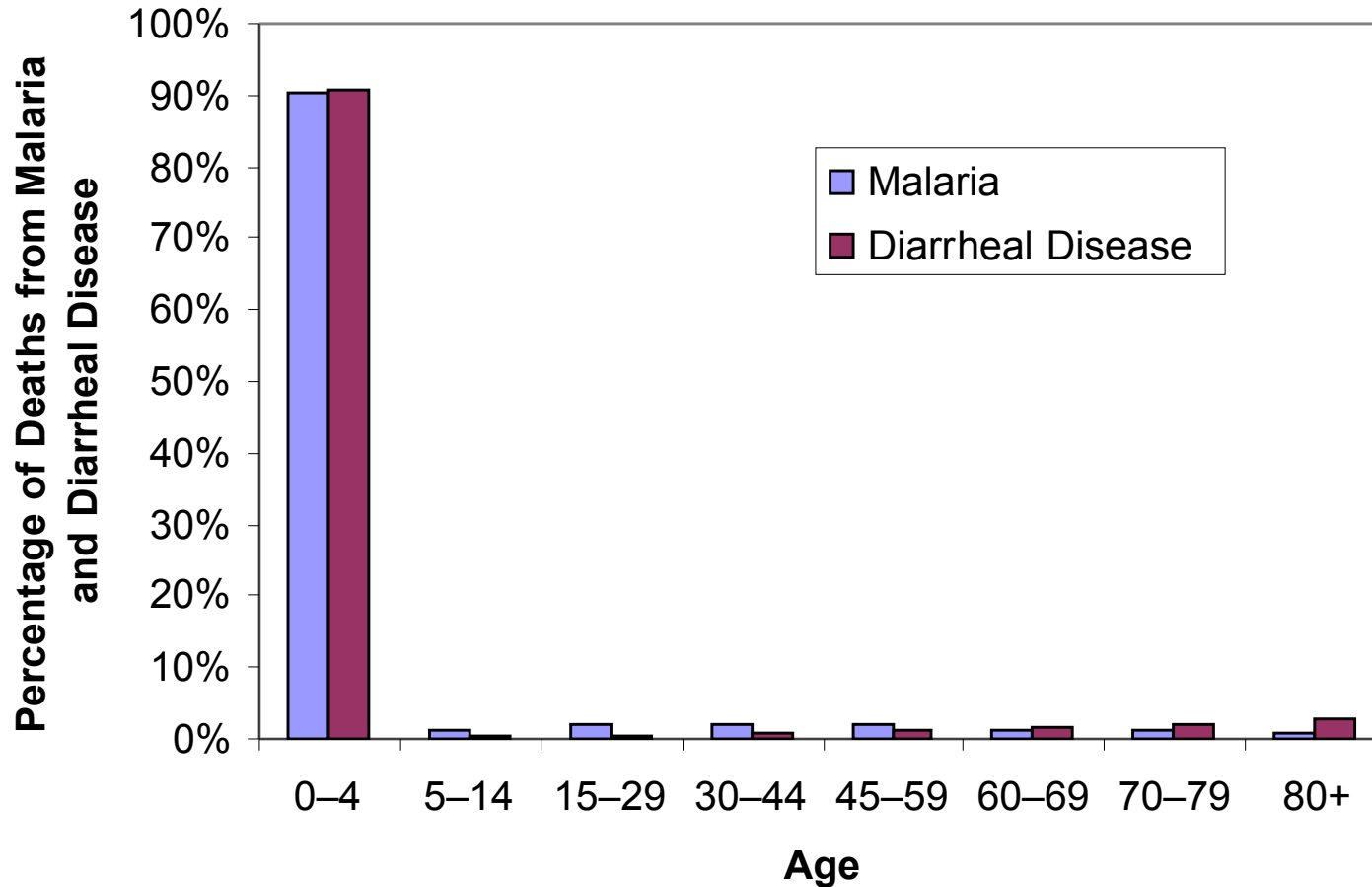


Largest Causes of Mortality in Children under Age 5 in CIFF Regions

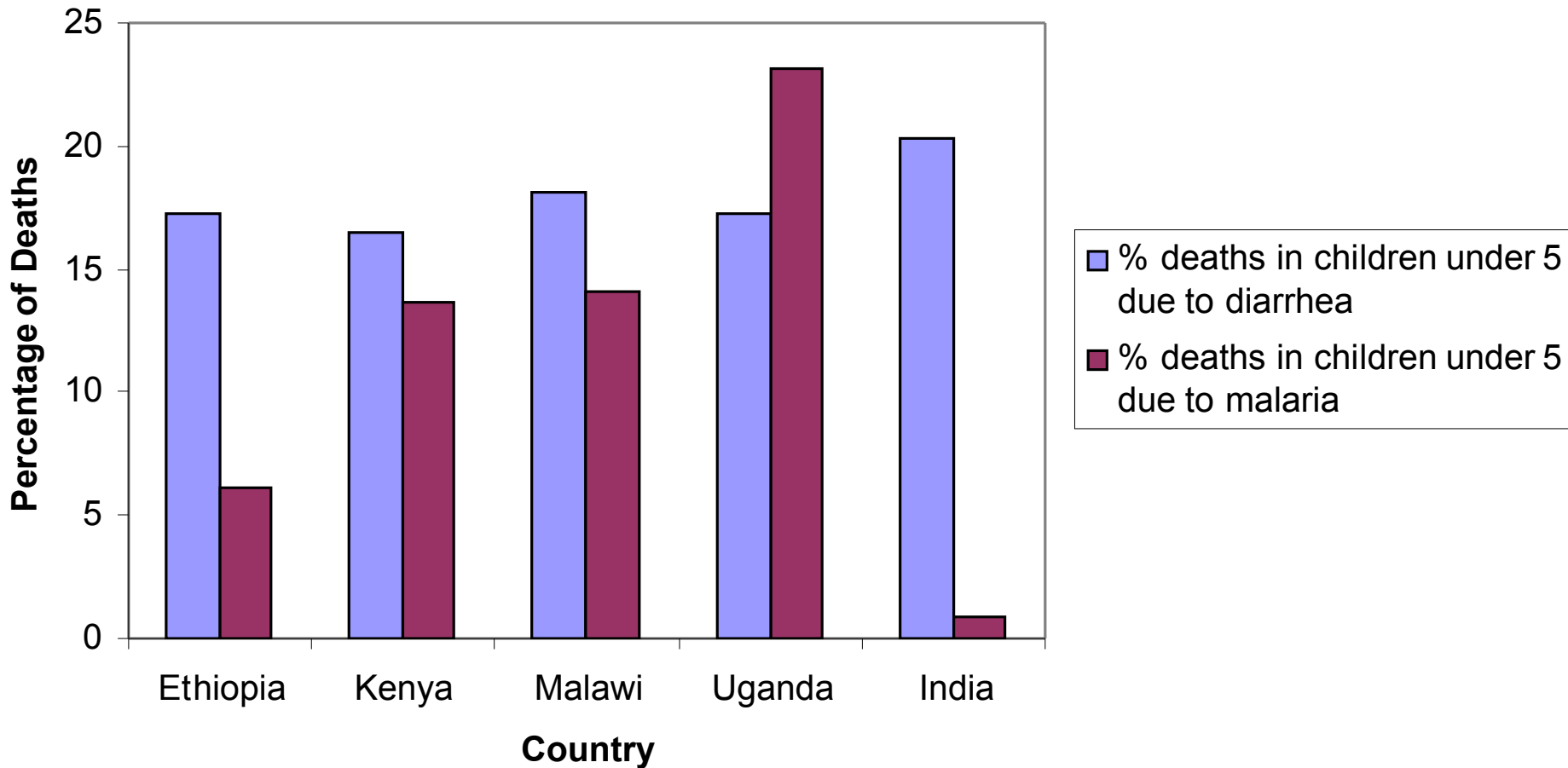


- ◆ Malaria is the biggest cause of mortality among children age 0-5 in Sub-Saharan Africa
- ◆ Diarrheal disease is the third biggest cause of mortality in South Asia and Africa

Malaria and Diarrheal Disease Kill Children from Age 0-4



Variability in Child Mortality in Each CIFF Country



Defining the Problem: Key Findings

- ◆ Biggest problem is under age 5 mortality from diarrheal disease in India and Africa and from malaria in Africa



The Three Components of the Water, Sanitation, Hygiene Challenge

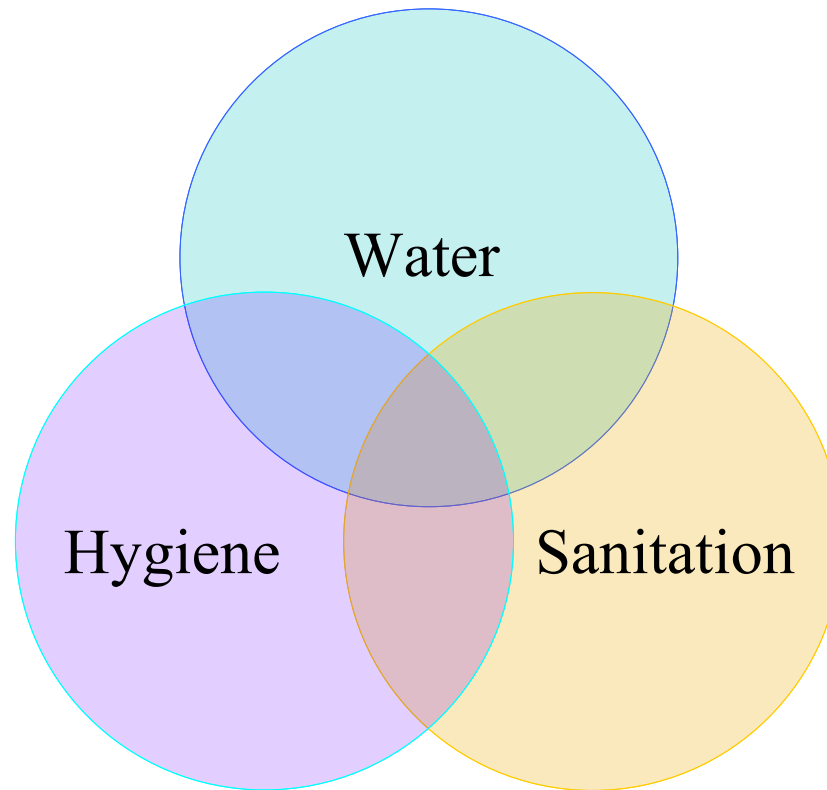
-Hint: It's Not Just a "Water"
Problem

Ongoing Water Related Challenges

A majority of water related disease and death could be prevented by the provision of safe water, sanitation, and hygiene, but:

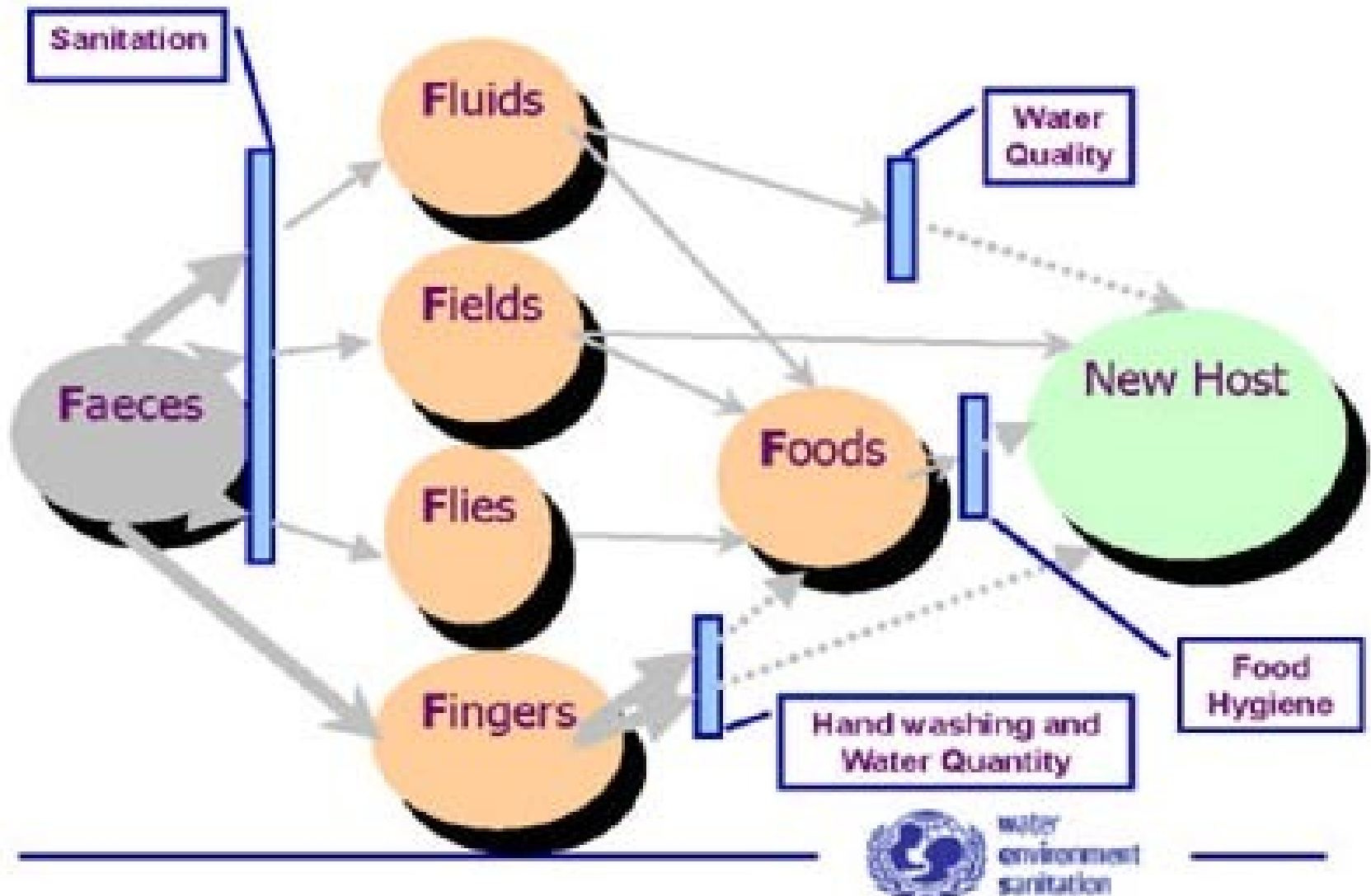
- ◆ 1.2 billion people live without access to improved water sources
- ◆ 2.5 billion people live without access to safe sanitation
- ◆ Hygiene behavior plays an important role in the prevention of diseases related to water and sanitation

Three “Components” to the Challenge



Water is too often prioritized over the other components.

Stopping Diarrhea: What Interventions Can Work?



What is Effective?

Intervention	Percent Reduction In Diarrhea Morbidity
Hygiene Education	45%
Point of Use Water Treatment	35-39%
Sanitation Improvements	32%
Water Supply Improvements	6-25%

Source: WHO 2004

How Do We Reduce Water Related Disease?

- ◆ Limit faecal contamination
- ◆ Improve household water quality
- ◆ Improve water availability
- ◆ Reduce impact of insect vectors
- ◆ Disease treatment

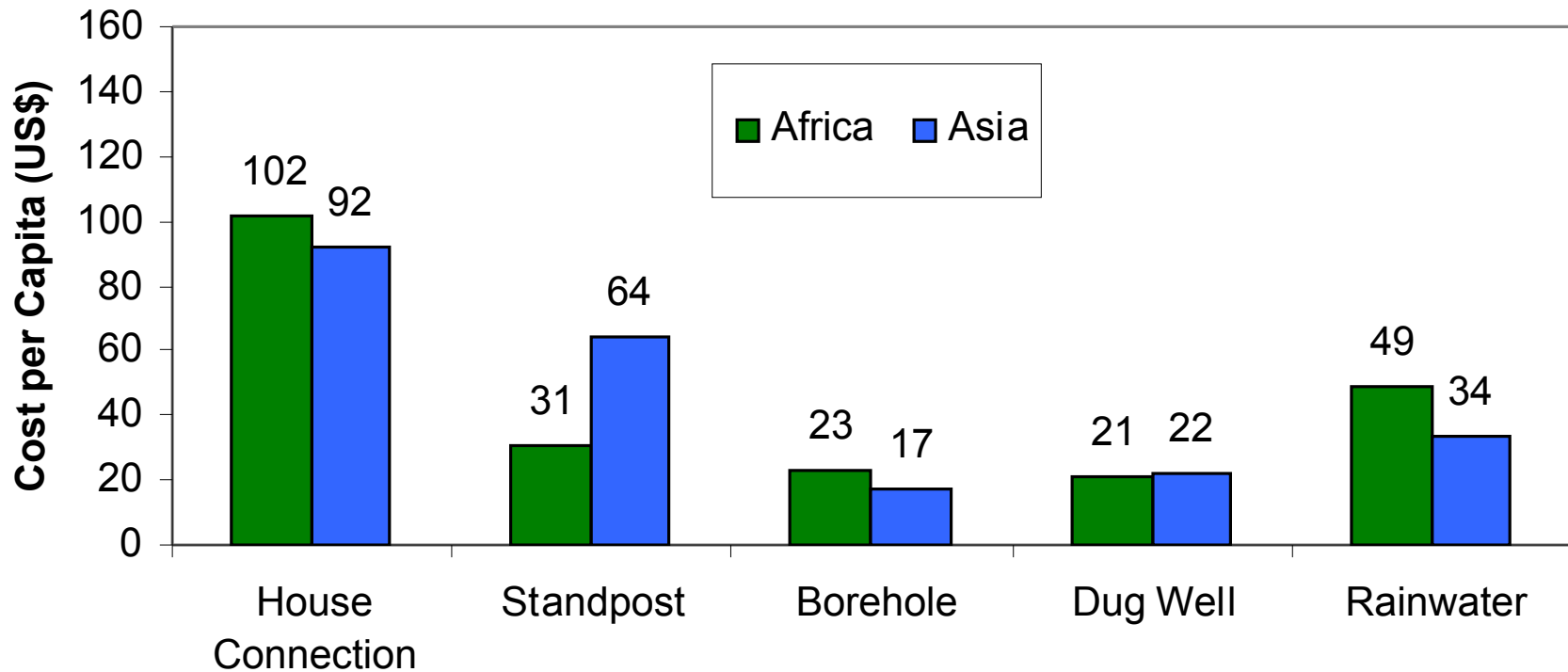


Where Do We Intervene?

- ◆ In-home interventions
- ◆ Institution scale interventions
- ◆ Public water supply and sanitation
- ◆ Policy changes to promote better water and wastewater services

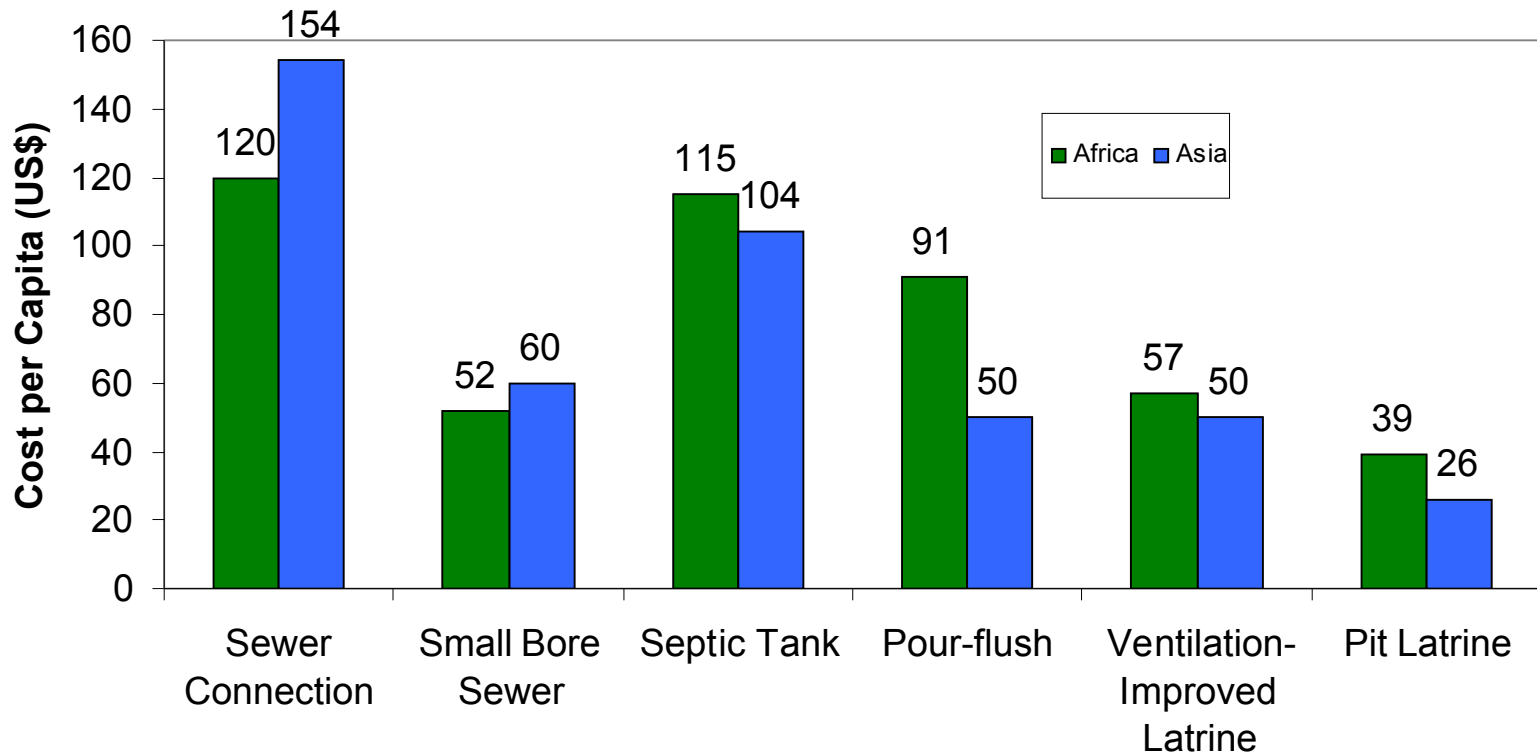


Median Construction Costs of Water Supply Types (\$/cap)



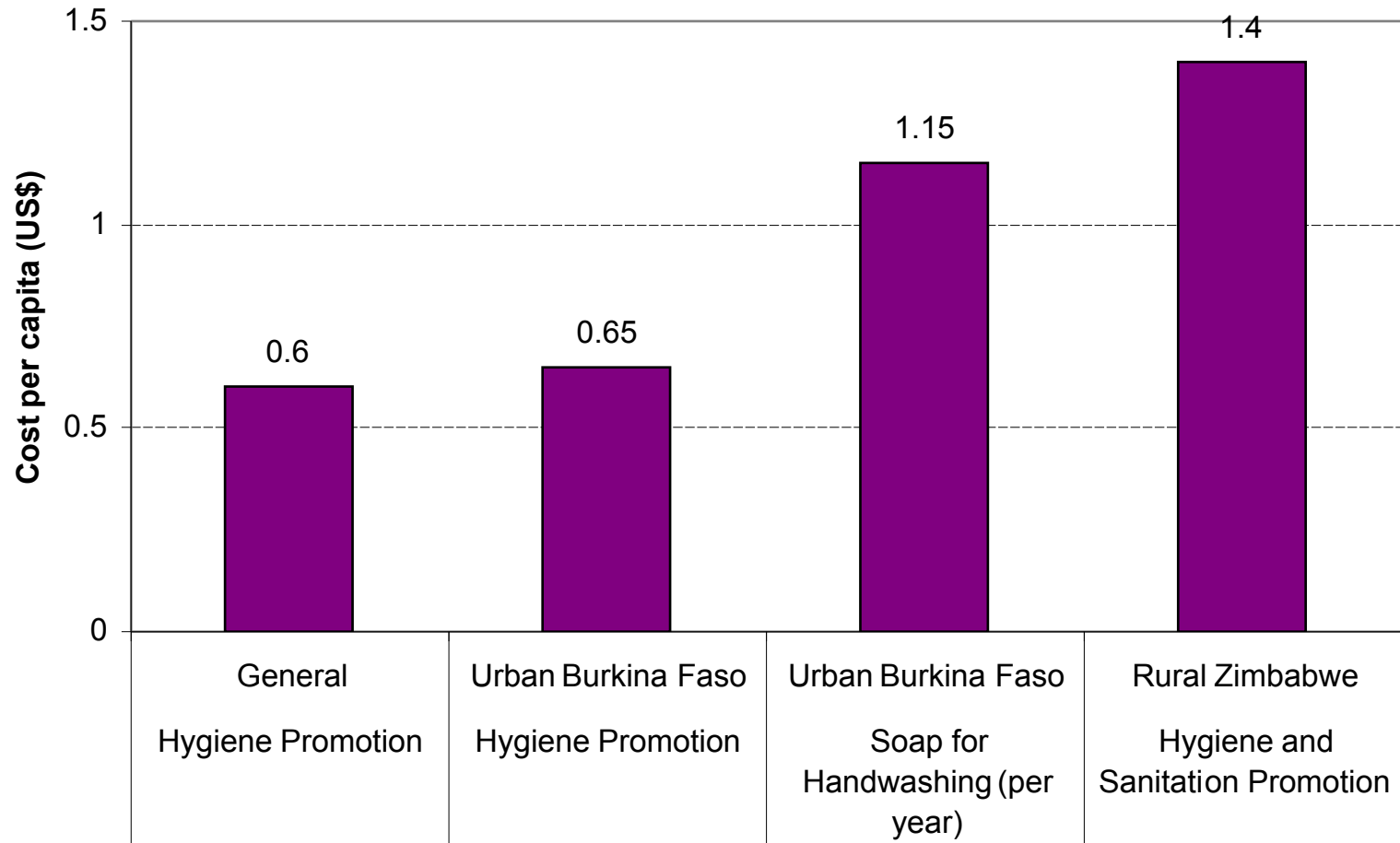
Source: WHO, UNICEF 2004

Median Construction Costs of Sanitation Technologies (\$/cap)



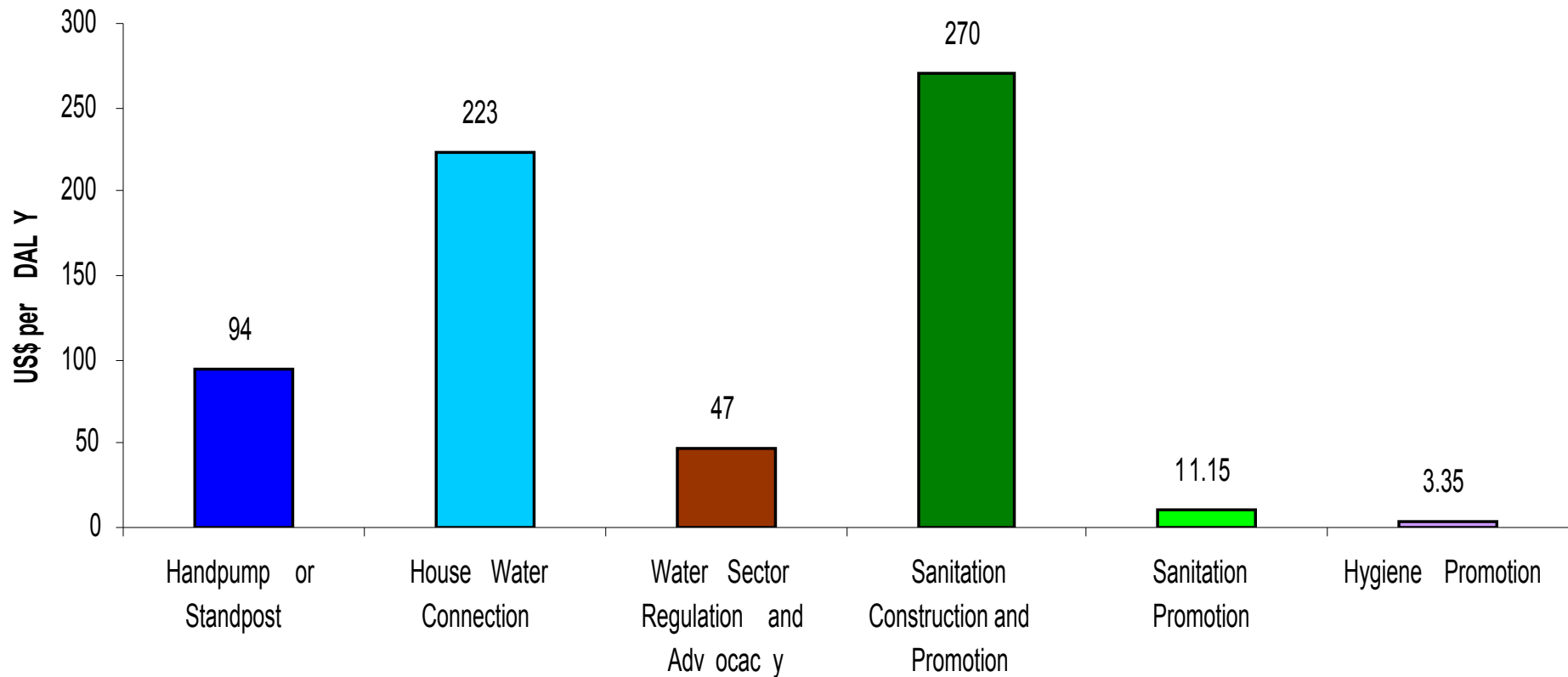
Source: WHO, UNICEF 2004

Hygiene Education Costs (\$/cap)



Source: WHO, UNICEF 2004

Cost-Effectiveness of Interventions (US\$/DALY averted)



Source: Cairncross and Valdmanis, 2006

But... Hardware and Software are Both Important

- ◆ Hygiene education is the most cost effective option, but good hygiene requires access to safe sanitation and water.
- ◆ Where hardware (toilets, water access) exists, software (hygiene education) is tremendously effective in reducing disease.
- ◆ Where hardware is lacking, safe sanitation, water access, and education need to be provided together.

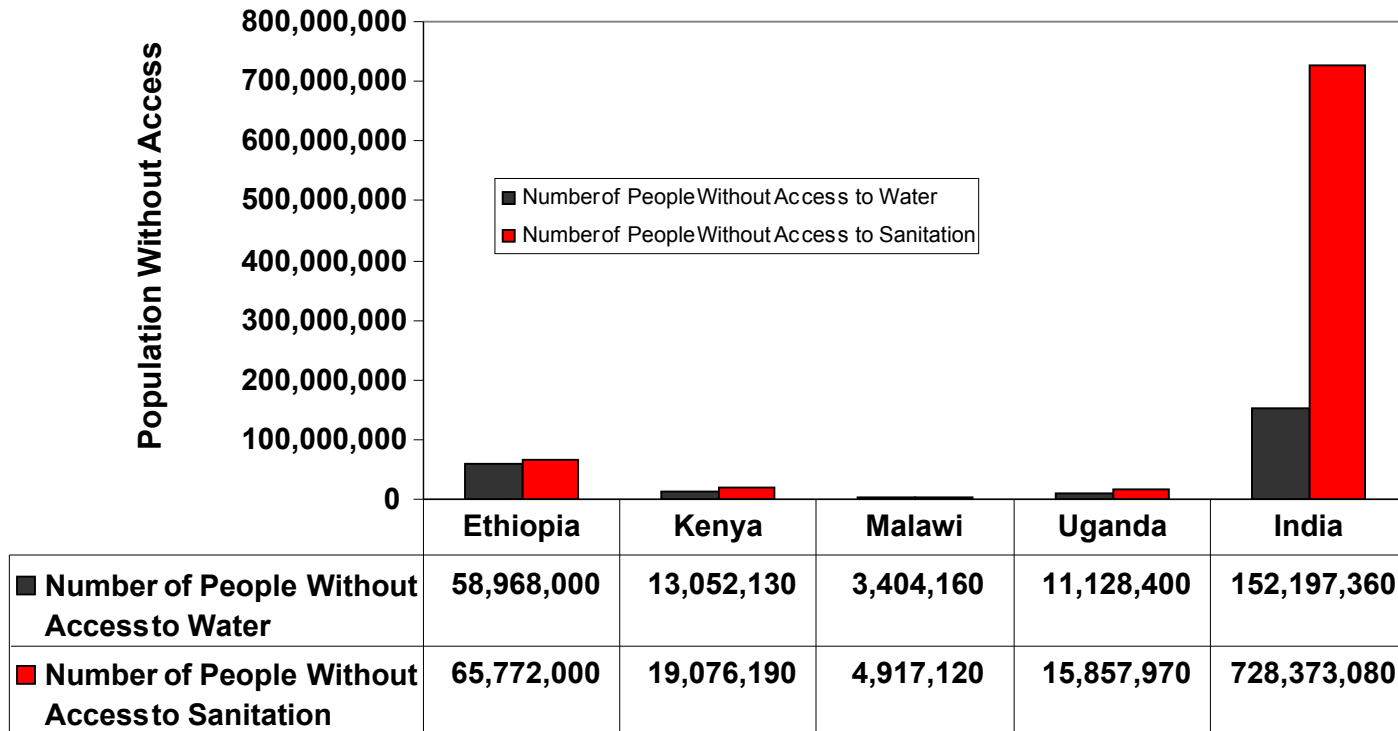
Current Focus of Funders Leaves Gap for CIFF

-Where is funding currently being
directed?

The United Nations Millennium Development Goals Driving Investment in the Water and Sanitation Sector

- ◆ MDG 7: Halve by 2015 the proportion of people without access to drinking water and basic sanitation

But... There is a Divide Between Water and Sanitation



The greatest number of people without access to water and sanitation live in India

The biggest divide in access to sanitation versus water is also in India

Most of the Funding is Supporting Water at the Expense of Sanitation and Hygiene

◆ India

- 11 times more spent on water supply than on sanitation

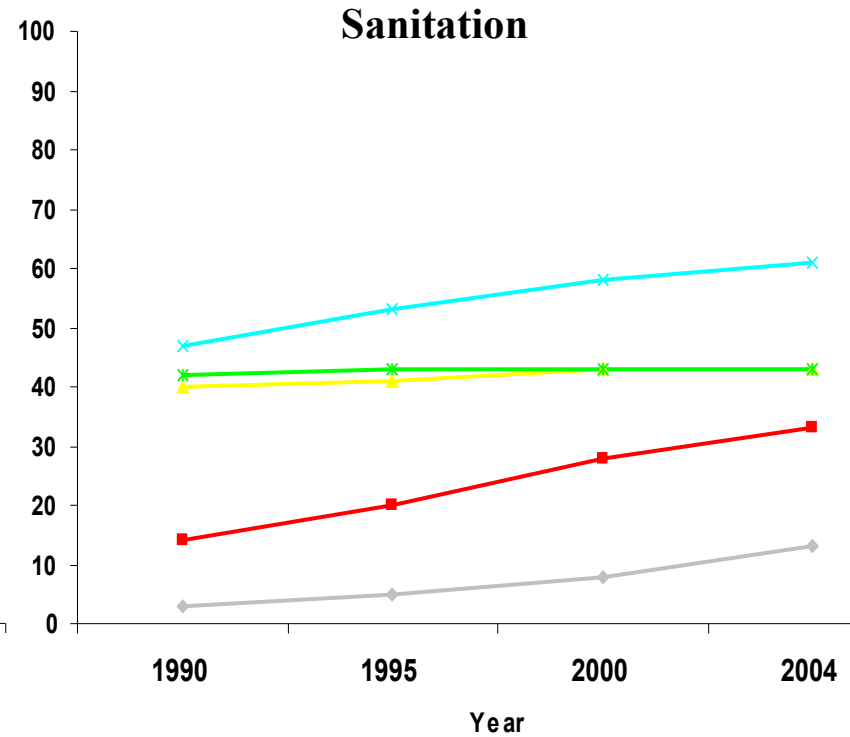
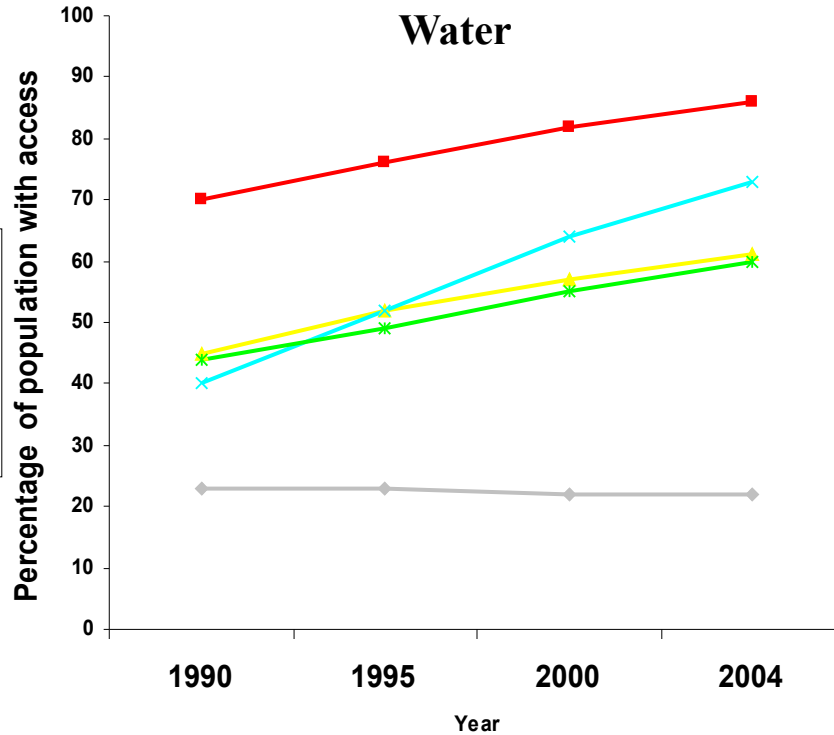
◆ Ethiopia

- Budget for rural water is 7 times as large as rural sanitation

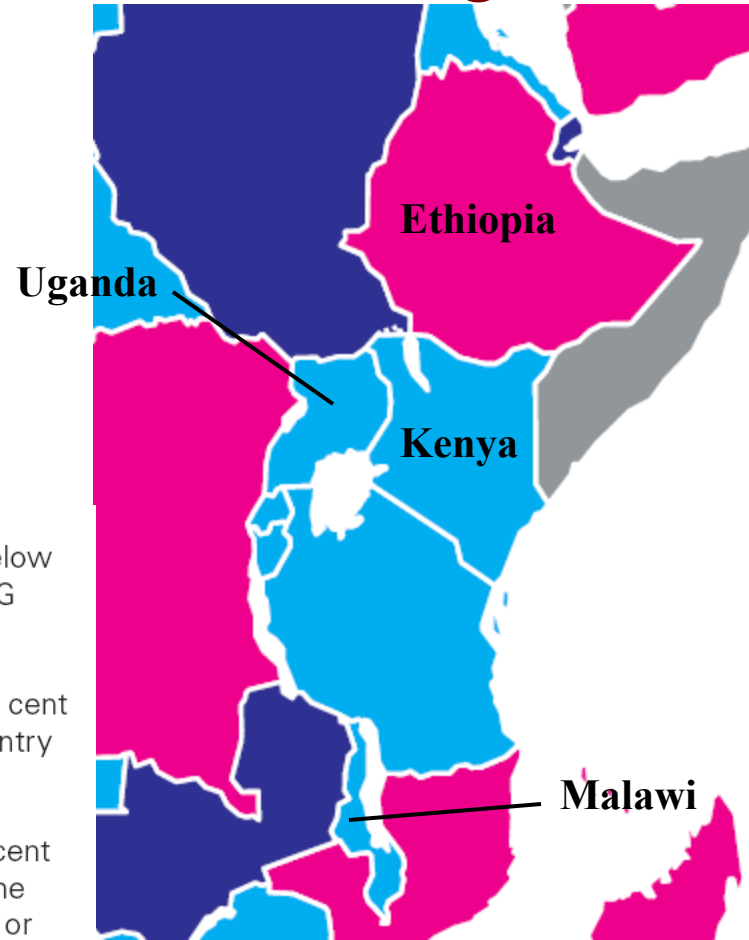
◆ Malawi

- 97.5% of the National Water and Sanitation Budget is allocated to water; 2.5% to sanitation (according to one local expert)

Water Progress Faster than Sanitation Progress in CIFF Countries



CIFF Countries: Mostly on Track to meet the MDG Water Target



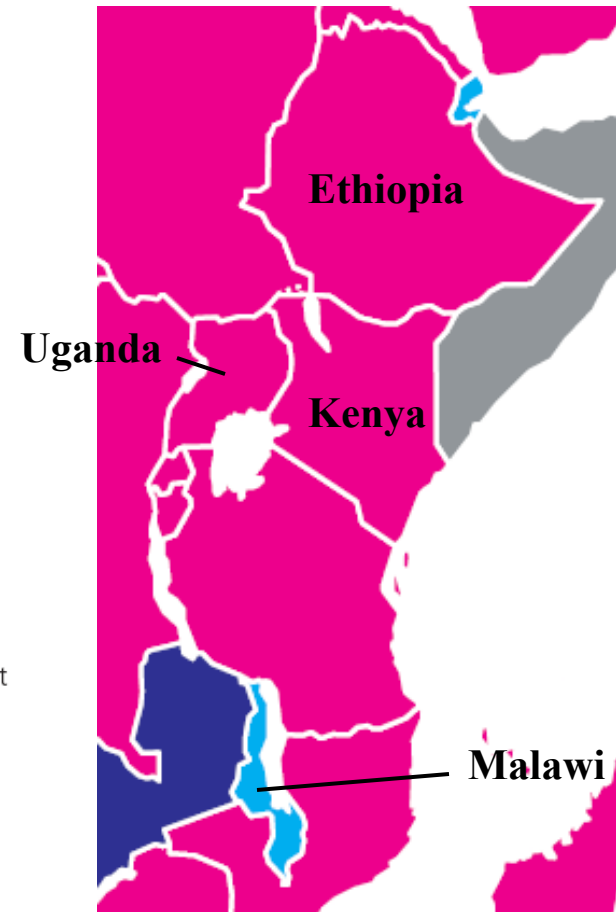
On track: Coverage in 2004 was less than 5 per cent below the rate it needed to be for the country to reach the MDG target, or coverage was 95 per cent or higher.

Progress but insufficient: Coverage in 2004 was 5 per cent to 10 per cent below the rate it needed to be for the country to reach the MDG target.

Not on track: Coverage in 2004 was more than 10 per cent below the rate it needed to be for the country to reach the MDG target, or the 1990–2004 trend shows unchanged or decreasing coverage.

Source: UNICEF 2006

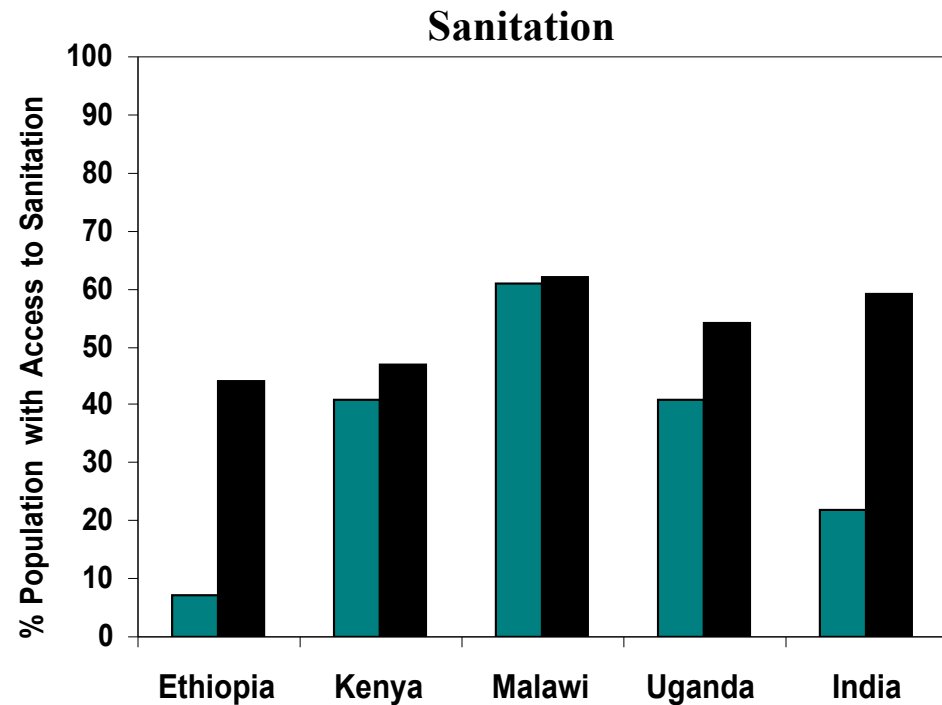
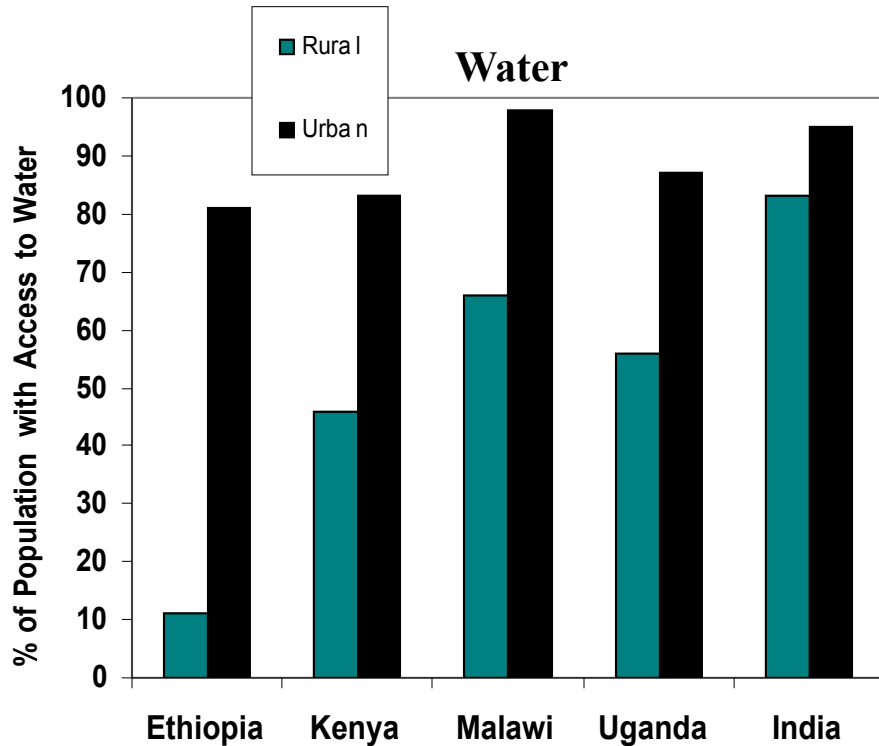
CIFF Countries Are Not Meeting the MDG Sanitation Target



- On track:** Coverage in 2004 was less than 5 per cent below the rate it needed to be for the country to reach the MDG target, or coverage was 95 per cent or higher.
- Progress but insufficient:** Coverage in 2004 was 5 per cent to 10 per cent below the rate it needed to be for the country to reach the MDG target.
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Source: UNICEF 2006

Divide in Access to Water and Sanitation in Urban and Rural Areas



Where are the Biggest Gaps?

Where are the Biggest Gaps and Opportunities?

Intervention	Percent Reduction In Diarrhea Morbidity	Cost Of Intervention	How much Attention is Already Focused Here?
Hygiene Education	45%	Low	Low
Point of Use Water Treatment	35-39%	Med	Low
Sanitation Improvements	32%	High	Low
Water Supply Improvements	6-25%	High	High

Need to Focus on Hygiene, Point of Use, and Sanitation

Intervention	Percent Reduction In Diarrhea Morbidity	Cost Of Intervention	How much Attention is Already Focused Here?
Hygiene Education	45%	Low	Low
Point of Use Water Treatment	35-39%	Med	Low
Sanitation Improvements	32%	High	Low
Water Supply Improvements	6-25%	High	High

Gap: Lack of Attention to Water and Sanitation and 0-5 Children

- ◆ Maternal and Children's Health Programs don't introduce prevention in the home
- ◆ Water NGOs and programs focus on building new infrastructure, doing hygiene education in schools and at the community level, but do not target new mothers



Gap: Lack of Focus on Vulnerable Children

- ◆ Very few programs focus water and sanitation interventions on vulnerable children
- ◆ Improved water supply, sanitation and hygiene education linked to better child outcomes with HIV/AIDS
 - Protects HIV positive infants from waterborne illnesses affecting their immune system
 - Protects babies born to HIV positive mothers from contracting the virus through breast milk and breastfeeding, so safe water is needed

Source: WELL Briefing Note 5, 2004

Where are the Biggest Gaps?

Key Findings

- ◆ Move beyond **treatment to prevention**
- ◆ Focus on sanitation, hygiene, and point of use or in-home treatment
- ◆ Focus on 0-5 mortality
- ◆ Focus on vulnerable children

What Should CIFF Invest In?

Possible Programs: What Should CIFF Fund?

- ◆ Integration with CIFF work
- ◆ Focus on interventions that improve 0-5 mortality
 - Expand Maternal and Children’s Health Programs
 - Expand Community Malaria Programs
 - Promote policy changes to focus on strategies effective for under age 5 children
- ◆ Scale up existing interventions that invest in sanitation and hygiene
 - School Sanitation and Hygiene Education
 - Total Sanitation Campaign (India) and Participatory Hygiene and Sanitation Transformation

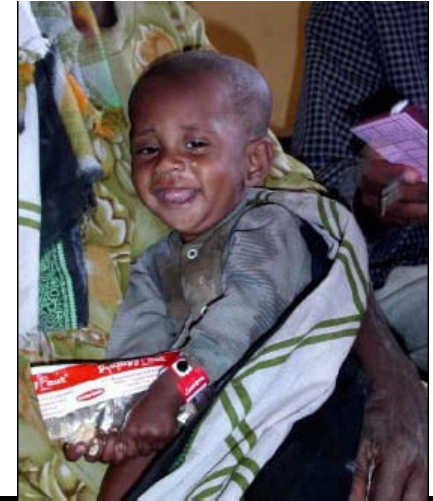
A Draft Tool to Evaluate Each Program Using CIFF's Funding Criteria

	Prevents 0-5 Mortality	Children- focused	Sustain- ability	Scalability / Replic- ability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Integrate with CIFF work								



Integration with Other CIFF Work

- ◆ In-Home (e.g., through Kenya Speak for the Child Program)
 - Hygiene Education
 - Bed nets, soap, zinc, ORT
 - Program to build safe sanitation facilities
- ◆ Community Center and Health Clinic Programs (e.g., Clinton Foundation Initiative)
 - Trainings and education
 - Bed nets, ORT, zinc, soap, antivirals
 - Rapid diagnosis for malaria
 - Community/Institutional infrastructure for sanitation and waste treatment
- ◆ Emergency Aid



Integration with Other CIFF Work

- ◆ Pros:
 - Extends work of effective partner
 - Addresses emergency situations and vulnerable children
- ◆ Cons:
 - Will partner be able to effectively disseminate new program?

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Integrate with CIFF work	■	↑	↑	■	↑	■	↑	↑

Maternal and Children's Health Programs

- ◆ Incorporate water, sanitation and hygiene education into new or existing maternal and children's health programs
- ◆ Targeting new mothers with in-home or community based trainings on water handling, storage, and treatment, safe sanitation, and hygiene
- ◆ Provision of ORT, zinc, and treated bednets through clinics



Maternal and Children's Health Programs

- ◆ Africare's Integrated Community Health Program cost \$10M over 5 years:
 - reactivated 32 clinics
 - distributed 11,000 treated bed-nets.
- ◆ Health Extension Package, Ethiopia Ministry of Health
 - Planned: 26,000 community health workers.
- ◆ *Organizations:* Africare, Save the Children, Ministries of Health, government and NGO health clinics









Maternal and Children's Health Programs

◆ Pros

- Can be effective at targeting care at the most critical time for child survival, ages 0-5
- Maternal care and education has numerous ancillary benefits, including better health status and care for children and families over time

◆ Cons

- Not one integrated program that covers numerous countries or has a standard approach

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Maternal and Children's Health Programs								









Malaria Programs

- ◆ Provision of Insecticide treated bed nets
- ◆ Training of health workers in rapid diagnosis
- ◆ Artemisinin-based combination therapy (ACT) drug treatments.



Malaria Programs

- ◆ Pros:
 - ITNs reduce disease incidence by 20%
- ◆ Cons
 - One organization controlling funding is a pro and con
 - Retreatment of bednets may be an issue in the future

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Malaria Programs								

Malaria Programs

◆ The **Global Fund for Malaria**

- Total approved funding is US\$1.6 billion. Funds 117 programs in 72 countries. 109 million bed nets, 264 million ACT drug treatments for resistant malaria
- *Example:* Ethiopia Ministry of Health National Malaria Program
 - Five-year, \$125 million dollar program; Approx 50% funded.

◆ **Population Services International (PSI)**

- malaria programs in 24 African countries, 4 in Asia, and 3 in Latin America; 8.4 million treated mosquito nets, 10 million insecticide treatment kits, 3.6 million malaria treatments

Policy Changes at the National Level

- ◆ Elevate children's rights in legal terms and national programs
- ◆ Increase funding for in-home water treatment and education on water handling practices
- ◆ Increase funding for sanitation
- ◆ Ensure Ministries of Health and community clinics are disseminating needed education and hygiene tools
- ◆ Through in-country policy maker meetings; and multi-country learning conferences; introduce children's interest groups to water issues

Policy Changes at the National Level

- ◆ *Organizations:* WSP, UNICEF, WHO, WaterAid, WaterPartners, and in-country children's organizations

- ◆ *Example WSP*
 - *India:* improving services in urban slums; participatory planning; exposure visits for officials to observe successful strategies
 - *Kenya:* preparing the national environmental sanitation and hygiene policy; conducting an assessment

Policy Changes at the National Level

◆ Pros

- Potential for deep and lasting changes
- Facilitates partnership building and sector coordination

◆ Cons

- Resource intensive
- High level of uncertainty

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Policy Changes	■	↑	■	↓	■	↓	↓	↑

School Sanitation and Hygiene Education

- ◆ Hygiene education incorporated in school curriculum
- ◆ Construction of toilet and hand-washing facilities at schools
- ◆ Multiple benefits: improves school environment, improves attendance and performance, spreads to home and community, improves enrollment of girls.



School Sanitation and Hygiene Education

- ◆ *Funding and scope*
 - UNICEF has programs in 30 countries
 - At least 80 countries have school sanitation and hygiene education programs
 - Kenya: Global Water Challenge involves new corporate donors and NGOs.
- ◆ *Organizations:* UNICEF, WHO, World Bank, UNESCO, Care International (among other intl. NGOs), UN Foundation, Ministries of Education and Health











School Sanitation and Hygiene Education

◆ Pros

- Has improved school performance, attendance of girls, and use of toilet facilities in several small studies
- Long-term potential to change behavior
- Successful in building infrastructure at schools and addressing a key need in countries

◆ Cons

- Coordination challenges remain among institutions

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
SSHE								

Total Sanitation Campaign (India)

- ◆ Creates demand for sanitation in rural areas through education, promotes hygiene
- ◆ Trains masons to build toilets, creates infrastructure
- ◆ Uses lower subsidies than previous programs
- ◆ Includes school-based hygiene education and construction of school sanitation facilities



Total Sanitation Campaign (India)

- ◆ *Funding and Scope:* US\$ 1.39 billion for 559 rural districts from inception in 1999.
- ◆ Of 140 million rural households, nearly 24 million have constructed household toilets with support from the TSC. 250,000 school toilets, 69,000 Anganwadi toilets, 7,400 community complexes, and 6,925 production centers/ rural sanitary marts (RSMs) have been set up.
- ◆ *Organizations:* National Government, Zilla Panchayats, District Water and Sanitation Mission, Gram Panchayats, NGOs and CBOs









Total Sanitation Campaign (India)

◆ Pros

- Has increased rural sanitation rates
- Scalable/replicable in many rural districts
- 61.5% households in the TSC projects had toilet facilities.

◆ Cons

- Financial constraints by villagers
- State to State variability in success.

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Total Sanitation								

Participatory Hygiene and Sanitation Transformation (PHAST)

- ◆ National ministries of health design hygiene and sanitation education programs based on 7 key principles that are the main focus of the PHAST framework.
- ◆ Training materials and specific behavior-change recommendations are regionally varied.
- ◆ Trained community facilitators involve men, women and children in collectively learning and making decisions about how to improve health and sanitation.



Participatory Hygiene and Sanitation Transformation (PHAST)

- ◆ *Funding and scope:* A conservative estimate is that more than 30 countries in Africa, Asia, and Latin America have used the PHAST approach to develop sanitation and health education campaigns.
- ◆ *Organizations:* The WHO, WSP, Ministries of Health and Education, NGOs (national and international in the implementing countries), UNDP and World Bank, DANIDA. Projects in Africa, Latin America.
- ◆ Uganda is currently taking the lead on revising the PHAST framework to reflect current best practices and knowledge, including streamlining the training focus to a few key principles









Participatory Hygiene and Sanitation Transformation (PHAST)

◆ Pros




- Can be custom designed for local context
- Successful and widely used in some countries, such as Uganda
- Demystifies technology

◆ Cons

- Not effective at transforming behavior
- Expensive and resource intensive
- Dependent on village facilitators and many health educators
- Criticized for focusing on too many behaviors

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
PHAST								

Tools to Evaluate Interventions

	Prevents 0-5 Mortality	Children-focused	Sustainability	Scalability / Replicability	Availability of Good Partners	Ease of New Program Initiation	Low Cost per Impact	Requires CIFF Funding to be Successful
Integrate with CIFF work								
Maternal and Children's Health								
Malaria Programs								
School Sanitation and Hygiene								
Total Sanitation								
PHAST								
Policy Advocacy								

Country by Country Strategies

	Progress toward Water MDG	Progress toward Sanitation MDG	Malaria Problem	Diarrheal Disease Problem	Potential Priorities
India	↑	↓	No	Yes	<ul style="list-style-type: none"> ◆ Connect to existing CIFF work in TN and AP ◆ Maternal and Children's Health Programs
Ethiopia	↓	↓	Yes	Yes	<ul style="list-style-type: none"> ◆ Maternal and Children's Health Programs ◆ Malaria Programs
Kenya	↑	↓	Yes	Yes	<ul style="list-style-type: none"> ◆ In home interventions through AED SFC ◆ Maternal and Children's Health Programs
Malawi	↑	↑	Yes	Yes	<ul style="list-style-type: none"> ◆ In home and community interventions CIFF ◆ Maternal and Children's Health Programs
Uganda	↑	↓	Yes	Yes	<ul style="list-style-type: none"> ◆ Maternal and Children's Health Programs ◆ Community Malaria Programs

In Conclusion: Some Key Principles for Funding in the WSH sector

- ◆ Ensure project is community driven and involves the community in key decisions
- ◆ Focus on sanitation and wastewater and hygiene
- ◆ Move beyond treatment to prevention
- ◆ Ensure long term and ongoing maintenance of infrastructure/projects
- ◆ Build the capacity of local organizations and agencies to carry project forward
- ◆ Carry out comprehensive monitoring and evaluation to ID successful strategies and pitfalls

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