

# WATER, SANITATION & HYGIENE

## STRATEGY OVERVIEW



Children posing in front of a latrine in Venceremos village. This village in the Gondola district is “open defecation free,” which means every household uses a functional latrine (Mozambique, 2009).

### OUR MISSION

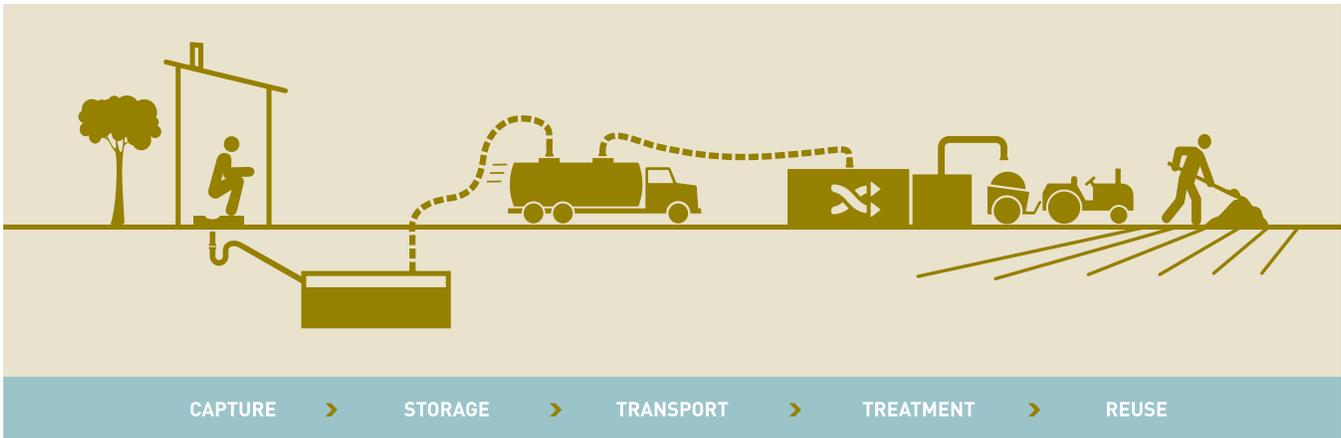
Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, we focus on improving people’s health and giving them the chance to lift themselves out of hunger and poverty.

We address problems that have a major impact on people in the developing world but get too little attention and funding. Our financial resources, while significant, represent a very small fraction of the overall funding needed to improve the lives of people living in extreme poverty. We advocate, therefore, for policies and resources to increase opportunities for people in the developing world.

### THE OPPORTUNITY FOR IMPACT

New investments in sanitation tools and technologies—including latrine design, pit emptying, sludge treatment, and the disposal or reuse of waste—have the potential to make sanitation services safe and affordable for everyone. We can make these innovations sustainable by stimulating demand for improved sanitation services among the poor and by developing safe processes for waste extraction and transport that will provide a new generation of entrepreneurs with good jobs and incomes. Historically, people have rejected sanitation solutions offered by governments, donors, and NGOs when they are too expensive, unpleasant to use, or difficult to maintain. This makes it essential to invest in affordable, attractive,

## Sanitation Value Chain



and lasting options that can be tested and evaluated, and then scaled up.

The foundation's Water, Sanitation & Hygiene program is working to promote the development of safe, effective, and affordable sanitation services that people will want to use.

The need to make sanitation accessible to the poor is clear:

- 2.5 billion people—40 percent of the world's population—use unsafe toilets or practice open defecation.
- Conventional sanitation—a flush toilet connected to a centralized sewer system—is possible for only a small fraction of people in developing nations.

The consequences of unsafe sanitation can be devastating and last a lifetime:

- Every year, food and water tainted with fecal matter cause up to 2.5 billion cases of diarrhea among children under five, resulting in 1.5 million child deaths.
- Chronic diarrhea can hinder child development by impeding the uptake of essential nutrients that are critical

to the development of children's minds, bodies, and immune systems.

The impact that clean and safe sanitation can deliver is also potentially transformational:

- No public health intervention in the past 200 years has done more to save lives and improve health in the world's wealthy nations.
- Improved sanitation can reduce child diarrhea by 30 percent and increase school attendance among girls.
- The economic benefits of improved sanitation can potentially produce \$9 for every dollar invested by increasing productivity, reducing healthcare costs, and preventing illness, disability, and early death.

People who have access to clean, safe, and convenient sanitation services also experience greater dignity, privacy, and security. This is especially important for women and girls, who no longer have to miss work or school when they are menstruating, or risk sexual assault when they have to defecate in the open or use public facilities.



Portable toilets in the Pitampura locality, which are provided by the Municipal Corporation of Delhi (New Delhi, India, 2011).

## OUR STRATEGY

**Providing people with safe and sustainable sanitation services must go beyond simply giving them a latrine or toilet.**

Instead, we must understand the contexts in which poor people, local companies, and government agencies all operate. With this knowledge, it is possible to find lasting solutions that stimulate household demand for safe sanitation, encourage businesses to provide affordable-yet-durable sanitation products and services, and motivate governments to establish effective sanitation policies. To accomplish this, we are working with a wide range of partners, including governments, civil society, the private sector, and other donors.

While the Water, Sanitation & Hygiene program has a number of existing grants that support sustainable approaches to clean water and hygiene, our funding now focuses primarily on sanitation, particularly in sub-Saharan Africa and South Asia, where the burden of unsafe sanitation is greatest.

We focus our grantmaking in three areas:

- 1 Sanitation Science and Technology
- 2 Delivery Models at Scale
- 3 Policy and Advocacy

## AREAS OF FOCUS

### 1. Sanitation Science and Technology

We are working to help develop, and bring to scale, innovative approaches to dealing with human waste that are affordable, safe, sustainable, and centered on the needs of the user. The Reinvent the Toilet Challenge (RTTC) is a key part of this effort because it encourages the development of waterless, hygienic toilets that do not require piped water or a sewer connection. The research funded by this initiative explores innovations in toilet technology based on chemical engineering processes for energy and resource recovery from human waste. The goal is to develop clean, safe, durable, and affordable toilets for the poor that cost less than five cents per user, per day and do not need to be connected to a sewer.

We are also investing in projects that focus on the treatment and collection of waste. For example, one grantee is working to develop building blocks made of a biodegradable material that would replace conventional brick or cement constructions for pit latrines. The goal is to create a latrine that would decompose once the pits are filled, allowing for the eventual conversion of the land into farming and other uses.

Another grantee is developing an algae-based water treatment system that would use bacteria to treat a community's waste while producing renewable resources: a nutrient-rich fertilizer for agricultural use and bio-methane to power the sanitation facility as well as the neighboring community.

### 2. Delivery Models at Scale

This initiative supports the wide-scale implementation of an effective approach to rural sanitation that can end open defecation and upgrade unsafe latrines. The core of this

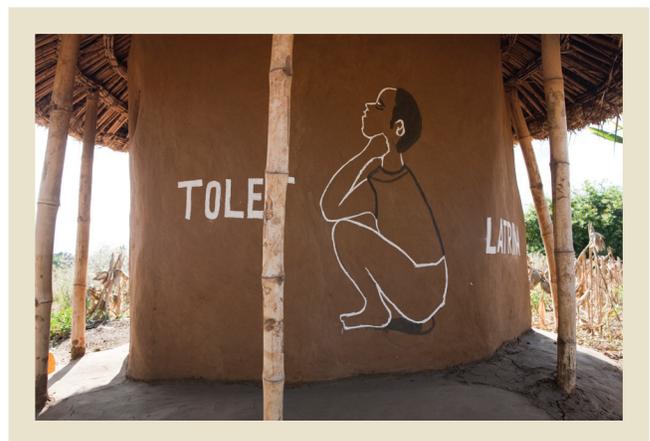
approach involves stimulating both demand for, and supply of, improved sanitation in rural communities. Achieving a high rate of adoption, and sustaining it over time, will require a deeper understanding of what people want, what they will keep using, and the policies and practices needed to support those changes at scale.

The emerging consensus in the sanitation field suggests that community-led sanitation approaches are effective at reducing unsanitary practices and achieving open-defecation-free (ODF) status. By supporting a range of approaches to demand-driven rural sanitation through a number of partners, we will help to improve the models for triggering and sustaining demand for safe sanitation. In addition to triggering demand, these programs encourage local entrepreneurs to offer a range of affordable, desirable sanitation products and build the capacity of local government to support improved sanitation.

### 3. Policy and Advocacy

Our policy and advocacy work is designed to encourage and support sanitation policies that work for the poor. Part of our strategy to reach scale and sustain momentum involves working to improve the policy and regulatory environment. We are also interested in building the capacity of local governments to support improved sanitation. We fund advocacy work that informs governments about successful sanitation approaches and encourages a policy environment that will accelerate access to sustainable sanitation.

We also advocate to support and prioritize innovative and sustainable sanitation solutions. The goal is to encourage other donors and the private sector to invest in scaling up successful approaches. We also support efforts to educate target populations, mostly the rural and urban poor in Africa and Asia, about safe sanitation and hygiene.



*A latrine in Macua village where each household has a functional latrine, earning the village ODF status (Buzi, Mozambique, 2009).*

We believe that the foundation has a catalytic role to play in developing and disseminating new technologies and delivery models for sustainable sanitation.

## MONITORING, LEARNING, AND EVALUATION

We also support our three areas of focus with grants that can deepen our understanding of the impacts of sanitation and measure which approaches work most effectively. The rigorous measurement techniques supported by these grants will help us evaluate the health and other impacts of different sanitation approaches and identify cost-effective innovations that people actually want to use.

## GRANT HIGHLIGHTS:

### SANITATION SCIENCE AND TECHNOLOGY

GRANTEE	DESCRIPTION	GRANT AMOUNT (U.S.)
Grand Challenges Explorations (Rounds 6 & 7)	Creating the next generation of sanitation technologies	Round 6 – 26 grants of \$100,000 awarded April 2011 Round 7 – additional grants of \$100,000 to be awarded November 2011
Reinvent the Toilet Challenge	Concept development, design, and prototyping of a waterless, hygienic toilet that costs less than \$0.05 per user per day.	Eight grants awarded to universities totaling \$3 million
London School of Hygiene and Tropical Medicine	New concepts for on-site sanitation based on bio-additives and pit design	\$4,798,496
Quicksand Design Studio	User-centered research in the area of communal sanitation	\$427,550
Kenya Water Services Trust Fund	Access to basic sanitation for the urban poor in Kenya	\$7,130,699

### SANITATION DELIVERY MODELS

GRANTEE	DESCRIPTION	GRANT AMOUNT (U.S.)
IBRD Water and Sanitation Program (WSP)	Community-led approaches to stimulating and scaling up sanitation demand and supply	\$17,357,000 \$10,566,855

### POLICY AND ADVOCACY

GRANTEE	DESCRIPTION	GRANT AMOUNT (U.S.)
International Water and Sanitation Centre (IRC)	WASHCost Project: Developing ways to determine the business costs of water and sanitation service delivery to inform business models and technology choices	\$14,481,635

### MONITORING, LEARNING, AND EVALUATION

GRANTEE	DESCRIPTION	GRANT AMOUNT (U.S.)
University of California at Berkeley; International Centre for Diarrhoeal Disease Research, Bangladesh; Innovations for Poverty Action	WASH Benefits Project: To determine which individual or combined WS&H interventions are effective at achieving health, social, and economic impacts, and to assess impacts on objective measures of health including stunting, cognition, and nutritional absorptive capacity	\$11,024,262
Innovations for Poverty Action	Bolstering demand for improved sanitation in contexts where more than one household is involved	\$1,618,047

## Communities Lead Successful Sanitation Solutions

Traditionally, providing safe, effective sanitation services to the poor has focused on the construction of latrines through government-sponsored programs, with little input from the community and scant regard for what users really want and need. So once latrines are installed, they are often not used or maintained.

The Bill & Melinda Gates Foundation is supporting a different approach that builds on the Community-Led Total Sanitation method. This approach starts by motivating whole communities to stop the practice of open defecation and to install, and actually use, household sanitation. It also works to encourage local entrepreneurs to offer a range of affordable sanitation products and services to the people who need them. And to reach very large scale, it engages actively with governments to develop a supportive policy environment and to build the capacity of local officials.

The project, which is being implemented by the Water and Sanitation Program (WSP) of the World Bank, initially focused on achieving 100 percent ODF status for 4.5 million people across locations in three countries—Himachal Pradesh and Madhya Pradesh in India, East Java in Indonesia, and various provinces in Tanzania. As of December 2010, the project had contributed to 3 million people verified as living in ODF communities.

The Community-Led Total Sanitation approach originated in Bangladesh 10 years ago, and it has contributed to strong national progress on sanitation. Our grant to WSP has worked to build on this learning; to add elements that improve the supply side, the policy environment, and local capacity building; and to test these approaches at significant scale in multiple locations. We continue to learn from this grant about how to deliver sustainable sanitation at scale. We are working with WSP and other partners that use variations of the community-led approach to improve the uptake, sustainability, and cost-effectiveness of these models.



*A woman standing outside a makeshift toilet built in a public area on the bank of the Yamuna river (Batla House locality, New Delhi, India, 2011).*

## FREQUENTLY ASKED QUESTIONS

**Q: How does the new Water, Sanitation & Hygiene strategy fit with the foundation's other priorities?**

**A:** At the foundation, we work on addressing the problems that cause the greatest harm yet receive inadequate attention. Research shows that poor sanitation affects billions of people throughout the developing world, and that properly addressing it would have a profound impact on their lives. Our focus on sanitation will also complement many aspects of our Global Health and Global Development work, such as family health, nutrition, and agricultural development.

**Q: Why are you focusing primarily on sanitation rather than water?**

**A:** At the foundation, we focus on issues with the potential for long-term impact, particularly those that are neglected by other funders. While problems related to sanitation and water are closely linked, today more than twice as many people lack safe sanitation as safe water. Nonetheless, the problem of poor sanitation has not received the same level

## Tiger Toilets Help Solve the Problem of Overflowing Pit Latrines

Piped sewage systems and wastewater treatment plants serve only a small fraction of those in developing countries, leaving the poor with on-site systems, such as pit latrines, to collect and store their waste. However, waste does not decompose fast enough or completely, so the pits fill up, leading to flies, odors, and unpleasant conditions. Because replacing or emptying full pits is difficult and expensive, many people resort to defecating outdoors, which poses serious health risks and is socially demeaning.

The foundation has given a \$4.8 million grant to the London School of Hygiene and Tropical Medicine (LSHTM) to support Sanitation Ventures, a three-year project aimed at finding ways to speed up the decomposition process in pit latrines. The project's primary focus is on biofilter technology, which is currently the most effective, commercially viable approach to solving the problems associated with pit latrines.

Biofilters are contained units that have an active layer near the surface where worms such as tiger worms, along with other organisms, digest solid waste as it enters the system. Beneath this layer is a filtration bed where the liquid waste is further treated by aerobic bacteria, resulting in highly treated sewage that can be safely discharged into the environment.

The advantages of this system are that it produces low residual waste, uses a small amount of water, takes up less space than a septic tank, and is affordable to purchase and maintain. These types of systems have already been studied extensively and are being produced commercially in developed countries. Because the Tiger Toilet is both affordable and easy to use, it will meet the needs of people in developing countries without access to sanitation, be adopted by a large number of people, and make a dramatic difference in their lives.

of attention and funding as water. Our new strategy in the water, sanitation, and hygiene sector will enable the foundation to play a catalytic role in sanitation, while also supporting efforts to solve water problems.

### **Q: Are you saying that the investments of donors and governments in standard sanitation systems are not needed?**

**A:** Our resources are small compared to the scope of the challenges that we are trying to address. Sanitation projects and waste water treatment are critical investments for all donors. However, we need to find ways to help the seven out of 10 people in developing countries who are not connected to sewers and cannot capture, extract, transport, treat, or reuse waste in a safe way. Without access to these services, human waste remains in the environment, negatively impacting human health.

## **TO LEARN MORE**

### **About the Global Development Program:**

*[www.gatesfoundation.org/global-development](http://www.gatesfoundation.org/global-development)*

### **About the Water, Sanitation & Hygiene Program:**

*[www.gatesfoundation.org/water-sanitation-hygiene](http://www.gatesfoundation.org/water-sanitation-hygiene)*

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Jeff Raikes and Co-chair William H. Gates Sr., under the direction of Bill and Melinda Gates and Warren Buffett.

**For additional information on the Bill & Melinda Gates Foundation, please visit our website: [www.gatesfoundation.org](http://www.gatesfoundation.org).**

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