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WATER, SANITATION, AND HYGIENE
STRATEGY OVERVIEW

Children walk by an open sewer in a slum in Accra, Ghana. January 9, 2014, Jiro Ose

OUR VISION

Enable widespread use of safely managed, sustainable sanitation services, contributing to positive health, economic, and gender equality outcomes for the world's poorest.

THE CHALLENGE

Unsafe sanitation is a massive problem that is becoming more urgent as our global population increases and trends like water scarcity and urbanization intensify. About 4.5 billion people—more than half the world's population—either practice open defecation or use unsafe sanitation facilities and services[1]. To be effective, sanitation must be carefully managed at all stages, from the point that waste is collected and contained to how it is transported and treated. If there are gaps or breaks at any stage, then harmful human waste flows into surface waters and fields where children play and people of all ages live, eat, drink and bathe.[2]

Poor sanitation, which is widely accepted as a chief contributor to waterborne diseases, is the cause of more than 1,200 deaths of children under five-years-old per day, more than AIDS, measles, and tuberculosis combined. Inadequate sanitation and hygiene were the cause of more than half a million deaths from diarrhea alone, in 2016.[3] Despite the indisputable connection between poor sanitation and human health risks, sanitation models and services

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reinvented toilet expo | 新世代厕所博览会

The foundation's Reinvent the Toilet Challenge in 2011, and subsequent investments, have attracted innovation from a broad range of technology partners who have since made significant progress in developing new technologies that could meet the sanitation needs of urban populations. The Reinvented Toilet Expo in Beijing in November, 2018 presents a unique opportunity to showcase some of these technologies and to bring a variety of stakeholders together, including the commercial and public sectors, to discuss how to bring technologies to market and increase demand for new types of sanitation technologies.

For more information, contact reinventedtoilet@gatesfoundation.org

1 WHO/UNICEF Joint Monitoring Program for Water Supply, Sanitation and Hygiene, "2017 Update and SDG Baselines," June 2017.

2 Rachel Baum, Jeanne Luh, and Jamie Bartram, "Sanitation: A Global Estimate of Sewerage Connections without Treatment and the Resulting Impact on MDG Progress", 2013, The Water Institute

3 WHO, "Global Health Observatory Data Repository", 2016, http://apps.who.int/gho/data/view.main.CM1002015WORLD-CH3?lang=en

aren't improving quickly enough. According to the World Health Organization and UNICEF, sanitation rated as "safe for people" increased by only three percent worldwide over the last five years.[4]

Creating sanitation infrastructure and public services that work for everyone and keep human waste out of the environment is difficult—and it isn't a one-size-fits-all proposition. The toilets, sewers, and wastewater treatment systems that made sense in the past aren't necessarily the best solutions for the future, especially in poor countries. These types of systems require vast amounts of land, energy, and water and are extremely expensive to build, maintain, and operate, even by western standards. They are particularly difficult to introduce, as new infrastructure, into dense urban settings and informal settlements, where the impact of unsafe sanitation on people is the greatest.

THE OPPORTUNITY

Solving the sanitation challenge in the developing world will require breakthrough innovations in technologies as well as systems that are practical, cost-effective, and replicable on a large scale. Building and proving these new models is difficult, but the potential benefits, in human health, economic growth, and dignity are enormous. These benefits include increased human productivity, improved infrastructure, new jobs, and expanded entrepreneurial opportunities.

According to estimates, the lack of proper sanitation costs the world an estimated $223 billion every year.[5] Worldwide, it has been estimated that every dollar spent on sanitation on average provides at least five dollars in economic return.[6] And market research shows that the annual market value for new, pro-poor sanitation technologies such as the reinvented toilet, could be more than $6 billion globally by 2030.

OUR STRATEGY

We collaborate with government leaders, the private sector, and technologists to advance promising new toilet and waste treatment technologies, service delivery models, and policies with the greatest potential to revolutionize sanitation standards and practices, at the local and national level. Our core initiatives include:

- Promoting policies and practical steps that governments can take now to establish safer sanitation through Fecal Sludge Management (FSM)—a sanitation strategy that does not require sewers;
- Investing, alongside governments in our priority geographies, in city-wide inclusive sanitation to accelerate the adoption of safely managed sanitation at the city level, particularly focused on slums and informal settlements that are typically underserved;
- Investing in technologies, such as the reinvented toilet and the omni-processor, that can radically change the way municipalities and households manage human waste affordably, at scale, and with little or no need for water and electricity; and
- Conducting research to help the sanitation sector develop data and evidence about what works.
- The burden of inadequate sanitation—and, therefore, the potential for progress—is greatest in Sub-Saharan Africa and South Asia, so that is where we have focused our efforts to date.
- Sub-Saharan Africa – As African cities and towns continue to grow, especially within informal settlements, governments are acknowledging the need for innovative sanitation solutions that are less expensive and faster to deploy than building and operating sewer systems and wastewater treatment plants.
- South Asia – Sanitation is a significant challenge for most South Asian countries, but many are now aggressively driving inclusive national sanitation strategies that prioritize safe sanitation. India, in particular, provides a global model for sanitation reform through the government's Swachh Bharat Mission and a growing network of sanitation operators and utilities practicing Fecal Sludge Management.
- China – The Chinese government's Toilet Revolution, promising the rapid scaling of safe sanitation approaches for the country, presents a strong opportunity for the adoption of new technologies within the rural and public toilet markets in China, particularly in areas facing water scarcity issues.

4 WHO/UNICEF Joint Monitoring Program for Water Supply, Sanitation and Hygiene, "2017 Update and SDG Baselines," June 2017.

5 LIXIL, "The True Cost of Poor Sanitation", 2016, http://www.lixil.com/en/sustainability/pdf/the_true_cost_of_poor_sanitation_e.pdf

6 WHO, "Global Costs and Benefits of Drinking-water Supply and Sanitation Interventions to Reach the MDG Target and Universal Coverage," 2012, http://www.who.int/water_sanitation_health/publications/2012/globalcosts.pdf

Accelerating the development of safe non-sewered sanitation systems and technologies is our top priority within the water, sanitation, and hygiene continuum, because it is where we believe we catalyze the biggest change, by making investments that other partners are unlikely to. We acknowledge the critical role of clean water and hygiene initiatives, and efforts to end open defecation, in improving global health outcomes. We applaud the efforts of other organizations focused on these areas.

AREAS OF FOCUS

We focus our grantmaking in four complementary areas: developing and commercializing transformative sanitation technologies; transforming how cities can provide sanitation as a reliable, inclusive service; policy and advocacy; and measurement, evidence, and dissemination, for scale.

TRANSFORMATIVE TECHNOLOGIES & COMMERCIALIZATION

The flush toilet and central sewer systems are considered by many consumers and governments around the world to be the gold standard for safe sanitation. However, decentralized sanitation systems incorporating technologies like the reinvented toilet present alternatives that can be safer, more resilient, more cost-effective, and environmentally-friendly.

Since 2011, the Gates Foundation's Reinvent the Toilet Challenge has worked with leading engineers and scientists to design low-cost toilets that do not require connections to the electrical grid, water supply, or sewers. These toilets work using internal combustion and chemical treatment systems, and they can be set up in areas that are hard to reach with traditional infrastructure. They can deliver the same benefits as toilets connected to sewers, plus wholly new benefits, including the removal of human pathogens and the generation of useable water and electricity. Some reinvented toilet models provide sanitation for single homes, and others are designed for public or shared toilet facilities serving communities. The foundation has also pioneered new fecal sludge treatment technologies and funded new types of pit latrine emptying solutions so that communities can make existing sanitation systems safer for people and more affordable for private companies, public utilities, and municipalities.

URBAN SANITATION MARKETS

Providing city-wide, inclusive sanitation requires new service models and market structures, as well as different approaches and technologies to serve different community needs and settings. We are working with local governments, service providers, and community-based organizations in select cities to foster environments that support the use of community-responsive, non-sewered sanitation products, delivery methods, and business models. We see particular promise in models that rely on public sector agencies to provide regulation and oversight, and that allow private sector providers to deliver sanitation services and profit from byproducts that have market value, including energy and fertilizer. This is a sustainable partnership model that offers natural incentives for innovation and long-term delivery of safe sanitation to communities.

We also support initiatives that help stimulate market and community demand for improved sanitation in order to accelerate development of productive sanitation market conditions. Part of this effort involves working with sanitation providers and partners to help them adopt more evidence-based practices so they can deliver sanitation services that meet people's needs, especially the needs of women and girls. For example, in India, our work includes support for a national campaign to promote incremental shifts in social norms around toilet use that will lead to higher demand for better sanitation products and services as they become available.

POLICY AND ADVOCACY

We work to improve the policy and regulatory environment for sanitation through partnerships across all levels of governments, multilateral organizations, community-based nongovernmental organizations, service providers, and others. With our network of partners, we advocate for policies and international standards that set guidelines for safe sanitation services at the local and national levels, as well as how to adequately fund these systems to ensure healthy outcomes for people.

As a part of this work, we support initiatives that can help accelerate gender equality for women and girls. We invest in initiatives that can generate gender-disaggregated data to inform the development of programs and products that increase women's participation in sanitation decision-making, at the household and policy level.

MEASUREMENT, EVIDENCE, AND DISSEMINATION, FOR SCALE

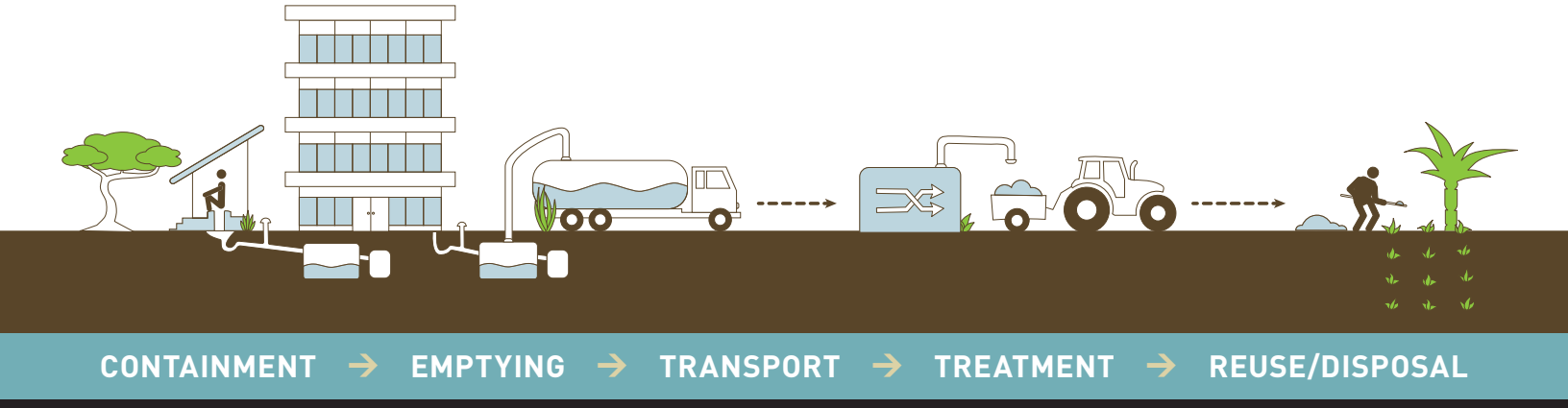
We invest in research and evaluation to understand the effectiveness of various sanitation approaches. We use this information to report on our progress, assess the impact of our grantmaking, and share lessons that we learn with our partners. This information is vital for helping national governments meet the Sustainable Development Goals, including goal 6.2, which calls for ending open defecation and providing adequate, equitable, and safely managed sanitation for all people by 2030.

AT A GLANCE

Mother and child look over the city of Mumbai, India. January 29, 2017, Mansi Midha

- In the developing world, an estimated 4.5 billion people practice open defecation or use facilities that do not safely dispose of human waste.
- Inadequate sanitation and hygiene are estimated to have caused more than half a million deaths from diarrhea alone in 2016.
- Safe sanitation is essential to a healthy and sustainable future for developing economies.
- The foundation focuses on accelerating innovations in non-sewered sanitation technology and service delivery, particularly in densely populated areas of South Asia and Sub-Saharan Africa.
- Our Water, Sanitation & Hygiene strategy is led by Brian Arbogast and is part of the foundation's Global Growth & Opportunity Division.

The Bill & Melinda Gates Foundation is working to enable the widespread use of safely managed, sustainable sanitation services, which will contribute to positive health, economic, and gender equality outcomes for the world's poorest. Safely managed sanitation for all means that human waste is contained safely and effectively through all stages of the sanitation value chain.



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