



**USAID**  
FROM THE AMERICAN PEOPLE

**WATER AND  
DEVELOPMENT STRATEGY**  
Special Edition

# GLOBAL WATERS

VOLUME IV ISSUE II JUNE 2013





For over 50 years, USAID has brought clean water, healthy food, and productive livelihoods to hundreds of millions of people. We are constantly evaluating best practices, assessing lessons learned, and embracing cutting-edge innovations. It was in this spirit that we recently released our first-ever global Water and Development Strategy for 2013-2018. This five-year roadmap makes USAID's approach to water programs transparent and addresses global water-related development needs with increased selectivity and focus. This special edition of *Global Waters* is devoted to the themes of the Strategy.

The Water and Development Strategy steers USAID's water programs toward two straightforward, strategic objectives for survival: Water for Health and Water for Food. It is our hope that improvements in water supply, sanitation, and hygiene programs and sound management and use of water for food security will save lives and advance development.

**Water for Health:** By focusing similar levels of investments in fewer countries for greater impact, USAID hopes to reach a minimum of 10 million people with sustainable access to improved water supply and 6 million people with sustainable access to improved sanitation services over the next five years.

**Water for Food:** To achieve greater crop yields in the most effective way, USAID will align with the priorities of the Feed the Future Presidential Initiative, encourage maximizing efficiency of rainfall and moisture, and in-

crease irrigated agriculture in select countries, including expanding it in a responsible, efficient, sustainable, and climate-resilient way.

USAID will achieve these objectives by forging partnerships, embracing creativity, and creating sustainable water programs to improve health and food security. In this issue, we highlight some programs that have fostered healthy communities and improved food security. In the Gaza Strip, USAID built a wastewater network that eliminated the raw sewage that used to flow through the streets and spread diseases. In rural Cambodia where open defecation is the norm, USAID partnered with entrepreneurs to develop and market affordable toilets that are flying off the shelves. In rural Ethiopia, USAID enabled smallholder farmers to irrigate their crops for the first time, helping them feed their families despite the devastating impacts of climate change. And in Honduras, USAID trains farmers to irrigate their crops more efficiently, enabling them to grow a more nutritious variety of vegetables.

The Water and Development Strategy will pave the way for more life-changing activities like these. We hope you enjoy reading about them in this issue of *Global Waters* and that you will engage with us on the best ways to strategically and sustainably improve lives.

The Water Office  
waterteam@usaid.gov



**FLOOD-PROOF FOOD:** In flood-prone South Asia, farmers rely on "scuba rice," a special flood-tolerant rice variety developed with support from USAID.

Photo Credit: IIRI

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This publication was produced for review by the United States Agency for International Development. It was prepared by ME&A.

# WHY WATER MATTERS

On May 21, 2013, development professionals, members of Congress from both sides of the aisle, NGOs, and the private sector convened in Washington, D.C. to launch USAID's first-ever Water and Development Strategy and discuss its implications on development, women, politics, and security, among other topics. Here is what some of them had to say.



**PROTECTING THE POOR:** Senator Dick Durbin honors Senator Paul Simon's legacy by promoting water for the world.

*Photo Credit: USAID*

“The issue of water is a core part of how America expresses our moral values and our power to the farthest corners of the globe.”

**Dr. Rajiv Shah,  
USAID Administrator**

“The United States can define itself, its values, and its role in the world by standing up for things that are so basic and so fundamental [that] they are apolitical. And water is one of those things.”

**Sen. Dick Durbin  
(D-III)**

“We all know that the United States has not just a moral obligation but a self-interest to make sure that we don't have the instability, upset, and the turmoil occasioned by the lack of access to clean water, sanitation, and hygiene.”

**Rep. Earl Blumenauer  
(D-Ore)**



**FOCUSING ON WATER:** Members of Congress and USAID Administrator Rajiv Shah mingled with a crowd of 300 at the Water Strategy launch on Capitol Hill.

*Photo Credit: USAID*



**MEETING THE CHALLENGE:** USAID Administrator Shah has put food security at the forefront of USAID's water agenda.

*Photo Credit: USAID*

“It’s shocking to most Americans that a third of the world at least don’t have clean water for sanitation, for drinking, for any purpose.”

**Rep. Ted Poe (R-Tex)**

“Water is a development issue, it's an economic issue, it's a security issue, it is a health issue, and it is a food security issue. Water is essential for life, and water is the highway on which everything can be generated.”

**Sen. Chris Coons (D-Del)**

“This [Strategy] demonstrates that the United States is a moral leader in addressing an issue that is of extreme concern and a life and death matter for many people in many countries.”

**Robert Hormats, Under Secretary of State for Economic Growth, Energy, and the Environment**

“With this Strategy that has been so many years in the making, USAID’s very powerful voice is focused on sustainability and not just the fancy words, but on the slow, messy process of community engagement.”

**Lisa Nash, CEO, Blue Planet Network**

“With the kind of investment that we can make in women, I’m certain that we can see... these kinds of initiatives ripple out and impact the entire community and in fact, the world.”

**Gemma Bulos, Director, Global Women’s Water Initiative**

“In keeping with the legacy of the Paul Simon Water for the Poor Act, we believe that the Strategy that we’re launching today will do a great deal to benefit the lives of millions of people throughout the developing world.”

**Christian Holmes, USAID Global Water Coordinator**

**SMART TOILETS:** In Cambodia, USAID partnered with local entrepreneurs to develop and market simple toilets designed to appeal to customers in rural areas where open defecation is common.

*Photo Credit: WaterSHED*

ON THE WATERFRONT



**PRECIOUS WATER:** The Millennium Water Alliance (MWA) is implementing WASH programs to help residents harness their intermittent rains to improve health.

*Photo Credit: MWA*

# WATER

## For Health



**DRINKING TO HEALTH:** A family in Khan Younis, Gaza, where USAID built a wastewater network that eliminated disease-causing raw sewage.

*Photo Credit: Rania El-Helou*

**H**ana, a Palestinian mother of eight, lives in Khan Younis, a city in Gaza with mostly dirt roads that wind around small family homes and shops. For the past 30 years, the town has lacked an operational sewage system. When rain fell heavily in the winter, homemade cesspits overflowed and sewage streamed down the dirt roads.

**SUSTAINABLE SANITATION:** In Southeast Asia, the WaterSHED project worked to create demand for sanitation and hygiene through marketing latrines.

Photo Credit: WaterSHED

“The situation was bad,” Hana said, “It hurt us a lot when the cesspits flooded; they caused a huge problem. I was always worried about my children. I was afraid that they would walk in the sewage and get infected by parasites.”

Hana and her children, along with 26,316 other residents of the Al-Amal neighborhood in western Khan Younis, no longer have to be concerned about their children being infected from raw sewage in the mud. Thanks to the Emergency Water and Sanitation and Other Infrastructure (EWAS) II Program, which is funded by USAID and implemented by American Near East Refugee Aid (ANERA) and provides essential water and sanitation infrastructure throughout the West Bank and Gaza Strip, Hana and her neighbors now have a wastewater network. With more than 5,230 linear meters of pipes that connect the area to a new drainage system, Khan Younis’ homes are now linked to a sewage treatment plant.

## Borne in the Water

Interventions like these targeting water, sanitation, and hygiene (WASH) are the best hope for creating

and sustaining healthy, thriving societies. Drinking dirty water leads to waterborne diseases such as diarrhea, typhoid, intestinal worms, and cholera. And when feces are improperly disposed of, they can contaminate streams, aquifers, and other water sources that people rely on for cooking, drinking, and bathing. Diarrheal diseases are the second leading cause of death among children under 5.

Approximately 88 percent of diarrheal diseases are caused by drinking unsafe water, using inadequate sanitation, and practicing poor hygiene. With over a third of the world’s population still lacking access to improved sanitation, open defecation and use of inadequate latrines and toilets are pervasive.

USAID released its first-ever Water and Development Strategy to more effectively reach the millions without improved access to water and sanitation. One of the strategy’s two strategic objectives is to “improve health outcomes through the provi-

sion of sustainable WASH.” The strategy sets a goal to provide a minimum of 10 million people with sustainable access to improved water and a minimum of 6 million people with sustainable access to improved sanitation by 2018. It sets out to achieve these goals by simultaneously targeting water and sanitation infrastructure, promoting behavior change, and supporting an enabling policy and institutional environment.

The principles in the Strategy build upon the United Nations Millennium Development Goals. The Millennium Development Goals pledged to halve the proportion of the world without sustainable access to improved drinking water and basic sanitation by 2015. While the water target has been met, the sanitation target remains elusive. Furthermore, in certain areas, like rural parts of Africa,

communities are far from meeting these targets. USAID's work focuses on transformative change and puts special emphasis on targeting the lack of access to sanitation.

The impacts of improved WASH reverberate throughout communities. Insufficient WASH affects education and hampers livelihoods. Adults suffering from diarrhea and other waterborne diseases are unable to work productively and provide for their children. And children often miss school because they have to walk long distances to collect water or because they are stuck at home with diarrhea. Lack of sanitation in schools is particularly harmful to girls as they begin to menstruate and often feel the need to skip school because of the lack of private toilets. "We are learning more and more about how cross-cutting WASH programs are and how dependent other sectors are on successful WASH programs to reach their outcomes," said Jesse Shapiro, WASH Advisor and Sanitation Focal Point for USAID.

## Marketing Among Neighbors

In rural Cambodia, one USAID partnership, the Water, Sanitation, and Hygiene Enterprise Development program, or WaterSHED, is improving health and increasing the demand for sanitation while enlivening rural economies and supporting local enterprise.

Over three quarters of people in rural Cambodia do not own toilets so open defecation is common. USAID's WaterSHED program is successfully using a "hands-off" marketing approach to enable Cambodians to change their sanitation behaviors for improved health.

"We learned from experience that people are more likely to embrace something new if they consider it desirable," said Geoff Revell, program manager for WaterSHED, which also targets communities in Laos and Vietnam. The Cambodian team collab-

orated with local stakeholders to understand which design elements appeal to rural consumers—in this case a ceramic pan that is flushed with water—and then cultivated local entrepreneurs to produce the latrines at a lower cost. Recognizing the important role of community leadership in eliminating open defecation, the team engaged the local government in the project.

The product is demonstrated at promotional events and door-to-door, and people in the crowd are encouraged to tell their story to the salesperson, also a community member. Suppliers have sold well over 50,000 latrines at full cost to the consumer, without subsidies, and will remove an estimated 25,000 tons of human feces from the open environment every year.

"I think selling latrines is much better than providing them for free to villagers because some just leave it unused or do not know how to install it," noted Min Hi, a toilet sales agent in Battambang Province.

WaterSHED's overarching goal is to reduce waterborne illnesses in the region—for the long term. WaterSHED is now an NGO that carries out the work started by the program. "We want to fall back and let the local entrepreneurs and the local government



carry it forward themselves," Mr. Revell said.

## Building Sustainability

Extreme climate events like droughts and floods can take an additional toll on health. In arid and semi-arid parts of Kenya, where recurring droughts and flash floods have battered communities and killed scores of livestock that most families depend upon for food and income, a USAID-funded program combines disaster risk

reduction with WASH for increased health benefits.

The Millennium Water Alliance (MWA), a consortium of U.S.-based NGOs working in water and sanitation, is implementing USAID's Kenya Arid Lands Disaster Risk Reduction (KALDRR) WASH program, which helps residents harness their intermittent rains to improve health.

“  
Water, hygiene,  
and sanitation  
are some of  
our biggest  
challenges as  
a community  
today.”

Abdi Sheikh, Sub Chief of the Eldere Location in Garissa County, Kenya

KALDRR is targeting rural communities in Garrisa, Turkana, Marsabit (including Moyale District), Isiolo, and Wajir and plans to help communities build low-cost technologies to capture, store, and reuse one of

the area's most valuable resources: rainwater. KALDRR will develop or rehabilitate over 60 community ground and rainwater schemes and install rainwater tanks in 23 schools.

Community leaders in the five areas have seen firsthand the need for improving WASH. "Water, hygiene, and sanitation are some of our biggest challenges as a community today," said Abdi Sheikh, Sub Chief of the Eldere Location in Garissa County.

Key to KALDRR's success is targeting 78 of the emergency nutrition and health centers supported by USAID's APHIA Plus program. The team will help communities build water supply and storage structures at these clinics and install or upgrade latrines while providing education about the link between improved sanitation and hygiene and good health.

"The main idea of this program is to transition away from emergency response programs that respond to crisis conditions over the short term to more long-term development-oriented thinking. That includes building infrastructure and training people who can sustain the development," said Daniel Smith, program officer for MWA.

By using sustainable approaches that target infrastructure hardware, behavior change, and the policy environment, USAID has been able to boost the health of millions. Hana of Khan Younis, Gaza is one of many who have seen the benefits of these efforts. "I thank USAID and ANERA for this project. I wish the project had been implemented years ago," she said.

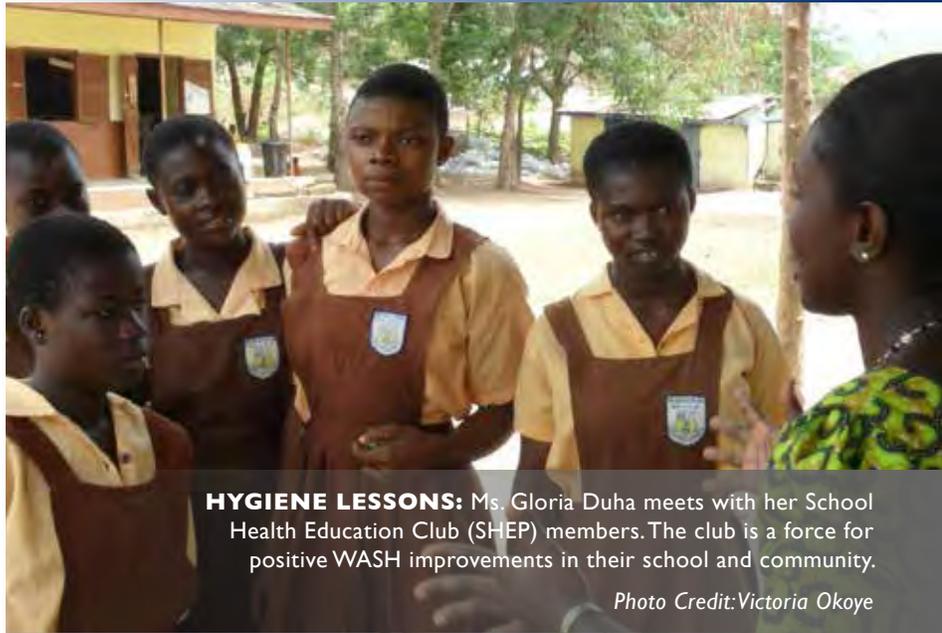
*C. Cooney*

### More Information

**USAID Water and Development Strategy 2013-2018**

**WaterSHED website**

**Millennium Water Alliance website**



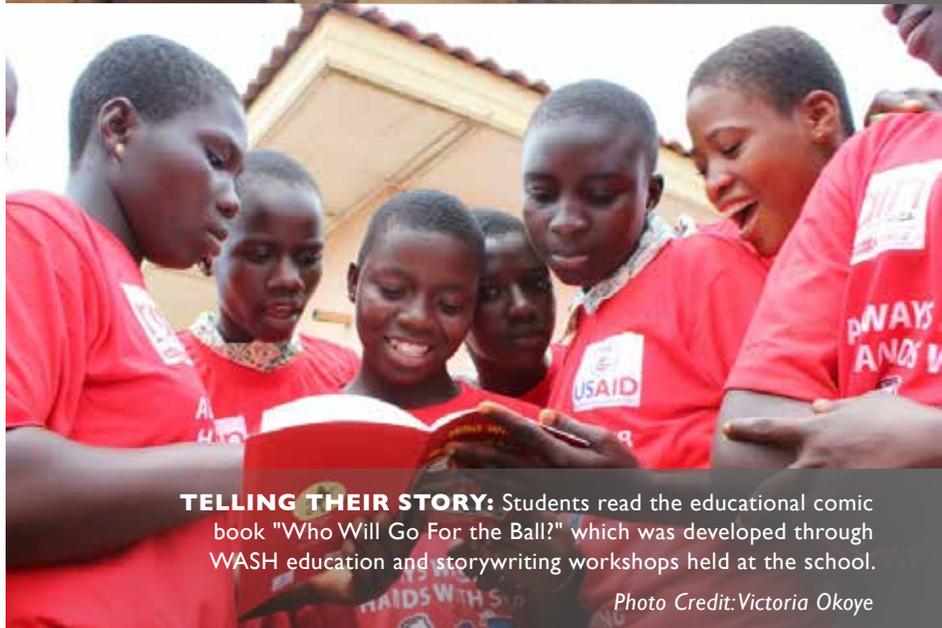
**HYGIENE LESSONS:** Ms. Gloria Duha meets with her School Health Education Club (SHEP) members. The club is a force for positive WASH improvements in their school and community.

*Photo Credit: Victoria Okoye*



**SAFE SPACE:** Ghana's Assin Kumasi school's new latrine provides the sanitation and much needed privacy for them to thrive.

*Photo Credit: Victoria Okoye*



**TELLING THEIR STORY:** Students read the educational comic book "Who Will Go For the Ball?" which was developed through WASH education and storywriting workshops held at the school.

*Photo Credit: Victoria Okoye*

# WASHING AWAY SCHOOL ABSENCES

Clad in their orange shirts and brown jumpers, Maybelle and Comfort are two bright-eyed young girls who have been given a chance at better health, better education, and increased lifetime earnings. Thanks to the USAID Ghana WASH project, Assin Kumasi Kindergarten, Primary, and Junior High School in the rural community of Beposo, Ghana got access to improved sanitation for the first time in the form of a four-seater institutional latrine. This new facility has made going to school a safer, more comfortable experience, especially for junior high school girls like Maybelle and Comfort.

Despite educating more than 400 students, the school only had one latrine that had two seats. Maybelle said that she and her friends were forced to resort to open defecation in the nearby bush, sometimes taking as long as ten minutes to find a private place to go. “We would have to search to find a place to go [in the bush],” she said. “If you want to use the toilet, there were kindergarten and primary [students] there and it was so full you didn’t have any privacy.”

When the young girls started menstruating, the school’s lack of sanitation and privacy began to threaten their education. In Ghana and much of the developing world, it is common for pubescent girls to stop attending school when they lack proper sanitation and privacy during their periods. So the USAID Ghana WASH project constructed a new institutional latrine that provided the proper sanitation and privacy to enable all students to thrive.

The new institutional latrine is divided into two sides by a cement wall and includes a changing room. The existing latrine is now for the kindergarten and primary school students.

Now, Maybelle and Comfort say they do not have to worry about missing class time to take care of their

needs. “We have more privacy now,” Comfort said. She said nearly everyone uses the latrine now because there are enough stalls. And the benefits spread across the entire community by reducing the risk of diseases that result from open defecation.

The school has become the center of efforts to build demand for sanitation and hygiene throughout the community. “In [students’] homes, out of 10 households, just one may have a household latrine,” said Ms. Gloria Duha, a teacher and the School Health Education Program (SHEP) club leader. Ms. Duha teaches her students how to keep their hands, bodies, and surroundings clean to protect their health. Most of these students are learning about sanitation and hygiene for the first time. By observing the students that she works with – almost half of whom are girls – Ms. Duha sees the teachings having a ripple effect: As she passes these lessons onto her students, the students in turn educate and influence their classmates at school and families at home.

Ms. Duha and her students further build demand for sanitation and hygiene in the community by developing and performing educational dramas about hygiene issues at the school’s regular Parent Teacher Association meetings. Their first drama focused on the importance of washing your hands with soap at critical times, including after using the toilet and before cooking and eating. The students applied the lessons they learned in the SHEP club and made them relevant to community members through the shows – reaching adults in a new way.

“With our school-based initiatives, it is remarkable how young leaders step to the forefront and take an active role in the health clubs,” said Sean Cantella, Chief of Party of the USAID Ghana WASH Project. “When you see them in action, it reconfirms that we’re making a difference in these kids’ lives.”

*V. Okoye*



Photo Credit: USAID

## U.S. Water and Development Strategy Launched

On May 21, 2013, members of Congress from both sides of the aisle joined USAID Administrator Rajiv Shah in the Kennedy Caucus Room of the Russell Senate Office Building in Washington, D.C. to launch the U.S. Government's first Water and Development Strategy. The Strategy places an increased priority on water issues within USAID's development agenda, calls for water programming to focus on promoting health and food security, and emphasizes the importance of partnerships, innovations, and sustainability. About 300 people attended the standing-room only event, in which speakers discussed topics including water and gender, the importance of water cooperation, and water's relationship to national security. Speakers included Senator Dick Durbin, Senator Chris Coons, Representative Earl Blumenauer, Representative Ted Poe, USAID Administrator Rajiv Shah, and USAID Global Water Coordinator Christian Holmes.

## WASH For Life Winners Announced

On May 21, 2013, seven winners were announced in the USAID Development Innovation Ventures and the Bill & Melinda Gates Foundation partnership WASH For Life's open competition for development ideas. These grantees are testing sustainable, cost-saving water and sanitation solutions around the developing world. The winners are The Dispensers for Safe Water Program, which will bring treated drinking water to over 5 million people for approximately \$0.50 per person per year; the Rand Corporation, which will make water filters accessible to low income groups through mobile payments; Sanergy, which is converting human waste into high-quality organic fertilizer; IDEO.org, which is using open source mapping to raise support for improved sanitation; Bear Valley Ventures Ltd.,

which is developing anti-microbial hand sanitizers for poor urban communities; WaterSHED, which is introducing an affordable and attractive hand-washing device in Vietnam; and Kickstarter International, which is testing financing models to make shallow water irrigation pumps more accessible.

## USAID Joins G-8 International Conference on Open Data for Agriculture

On April 29-30, 2013, USAID participated in the G-8 International Conference on Open Data for Agriculture. The conference brought together food security experts, data scientists, and policymakers from around the world to discuss the connection between open agricultural data and food security. At the conference, the U.S. Government and its private sector partners unveiled new data sets. This new information will be accessible to the public in order to sustainably increase food security. The conference attracted agricultural leaders to discuss the role of open data and its implications on agricultural production increases,



Photo Credit: Sue Hoye, ME&A

improving private sector growth, and ensuring global food security. The event featured a panel on the theme “Agricultural Open Data: Implications for Developing Countries” and attracted attendees from Japan, Uganda, Mozambique, and the United States. This event builds upon a previous commitment made at the 2012 Summit, which launched the New Alliance for Food Security and Nutrition, and focuses on helping 50 million people in sub-Saharan Africa lift themselves out of poverty by 2022 through agricultural growth.

## USAID and India Work Together To End Preventable Child Deaths

On March 6, 2013, USAID renewed its work with the Government of India to end preventable deaths of children under 5 by further strengthening India’s Call to Action on Child Survival and Development. This commitment includes a campaign targeted at urban and rural communities in all states. The campaign will integrate and leverage partners’ efforts by increasing opportunities for private sector engagement and targeting high priority states and districts with low health indicators. USAID Administrator Rajiv Shah said, “I applaud the Government of India’s commitment to saving children’s lives by establishing an integrated approach to address reproductive, maternal, and newborn, child, and adolescent health. The launch of the roadmap, the dashboard, and the scorecard are very significant. They will help India to effectively plan, monitor, and track the progress to end preventable child death.” Administrator Shah granted extensions to the Integrated Maternal and Child Health Project, which helps targeted states establish quick response teams to accelerate child survival efforts and the Health of the Urban Poor Project, which implements health programs in urban areas.



Photo Credit: Living Water International

## IHA World Congress on Advancing Sustainable Hydropower

The International Hydropower Association (IHA) World Congress on Advancing Sustainable Hydropower convened for its biennial conference from May 21-24, 2013 in Kuching, Malaysia. The conference brought

together officials from governments, NGOs, international organizations, and financial institutions to discuss hydropower policy, experiences from the field, and solutions to climate, water, and energy challenges. Topics discussed include financing models, hydropower development, sustainability, energy policy, water policy, and climate change.



Photo Credit: Musadeq Sadeq, U.S. Department of State

# THE ESSENTIAL INGREDIENT

## WATER'S ROLE IN NUTRITION



**COOKING UP HEALTHY FUTURES:** A mother and son make a chutney in Sri Lanka. A variety of nutritious food is key to ensuring that parents have the energy to provide for their children and children get the education they need to prosper.

*Photo Credit: Kannan Arunasalam, IWMI*



"THERE IS **NO QUESTION**  
THAT **NUTRITION** IS  
FUNDAMENTAL TO A NATION'S  
**HEALTH, EDUCATIONAL,**  
**AND ECONOMIC**  
**DEVELOPMENT"**

Dr. Rajiv Shah



**1,000 DAYS AND BEYOND:** In Kenya, a mother feeds her young child a nutritious traditional porridge. USAID and its partners pay particular attention to the 1,000 day window between a woman's pregnancy and her child's second birthday because this window is essential for the long-term development of the child.

Photo Credit: Biodiversity International



**GROWING STRONG:** Community health workers measure a child's height as part of a study on malnutrition in Madagascar.

*Photo Credit: Teena Curry, Peace Corps*



**FRUITS OF PROSPERITY:** Water is necessary to grow the fruits, vegetables, and grains that power societies.

*Photo Credit: Kannan Arunasalam, IWMI*

Food is the fuel that powers children, adults, and societies. But food itself is not enough—nutritious food makes all the difference.

“There is no question that nutrition is fundamental to a nation’s health, educational, and economic development,” said USAID Administrator Dr. Rajiv Shah for the Global Child Nutrition Dinner in March 2013. Indeed, the impact of nutrition on individuals and societies is tremendous. People who are undernourished receive less education and earn less income. Countries with undernourished citizens struggle to thrive.

A nutritious diet is a diet that provides the energy, protein, and micronutrients needed to advance the growth of children and the lives of adults. The World Health Organization recommends an increased intake of fruits, vegetables, legumes, whole grains, and nuts to be well nourished—all things that can be grown in even the poorest countries with the right technical assistance.

Chronic undernutrition robs 165 million children of opportunities for advancement and contributes to 2.6 million child deaths per year.

Many of the root causes of undernutrition are water-related. Water is necessary to grow the fruits, vegetables, and grains that fuel societies. And water sustains the livestock that produce the milk that strengthens bones and the meat that builds muscles. Growing one kilogram of wheat requires 1,500 liters of water and producing one kilogram of beef requires 15,000 liters of water. Ensuring that farmers have the water to produce the food that drives societies is an urgent issue. USAID sponsors a number of programs around the world to help farmers make better use of their water so they can efficiently produce the right balance of food to nourish billions.

Plentiful water supply is not enough, though—there also has to be safe water for drinking. Water, sanitation, and hygiene (WASH) are the key to preventing waterborne diseases like diarrhea, which is the second leading cause of child death and a leading cause of undernutrition in children under 5. When children suffer from diarrheal disease, they are unable to absorb essential nutrients, regardless of the food they eat. For decades, USAID has been working around the world to provide improved sources of water and sanitation and to educate people about hygiene.



**GREENS FOR GROWTH:** Women from Bhasa village in Sunderbans Delta, India, gather at a wholesale market. Their farm products yield a better price than from the suburban traders that buy low direct from the field and sell the same goods much higher in the city. Not only are vegetables like these an essential source of nutrients, but they also provide incomes for millions of men and women around the world.

*Photo Credit: Tushar Sharma, Courtesy of Photoshare*



MANY OF THE ROOT CAUSES  
OF UNDERNUTRITION  
ARE WATER-RELATED.

Because of the breadth of issues contributing to undernutrition, partnerships can be a powerful way to eradicate it. USAID has, in support of the President's Feed the Future and Global Health Initiatives, joined forces with over 100 partners including governments, donors, civil society, businesses, and researchers to improve the nutrition of millions through the global Scaling Up Nutrition Movement, or SUN. Water and sanitation are among SUN's top priorities, and it has worked with the Governments of Guatemala, Nepal, Ethiopia, Kenya, and other countries to better target WASH issues in order to improve nutrition.

SUN pays particular attention to child nutrition, especially the 1,000-day window between the start of a woman's pregnancy and her child's second birthday. When children are undernourished during this critical window, stunting—irreversible damage to a child's brain and body—can occur. Globally, about one quarter of children under 5 years old are stunted.

The U.S. Government's global food and health initiatives, coupled with coordinated international efforts like SUN, are already increasing nutrition and reducing stunting. By 2015, undernutrition will be slashed by 20 percent in 18 priority Feed the Future and Global Health Initiative countries due to U.S. Government nutrition programs. Good news for fathers, mothers, children, and societies – and their futures.

*C. Zeilberger*

## More Information

[Scaling Up Nutrition](#)

[Feed the Future](#)

[Global Health Initiative](#)

# FROM SEED

Explor



**INNOVATIVE IRRIGATION:** In Pakistan, a farmer uses a cattle-driven water pump. USAID is working with its partners to come up with the most innovative and water-efficient irrigation techniques.

*Photo Credit: Faseeh Shams, IWMI*

# S TO SATELLITES:

## ring the Cutting Edge of Agricultural Research

**D**ipali Biswas is part of a women's farming group in Shovna, Bangladesh. These female farmers struggle to earn an income during Bangladesh's dry season, when water is scarce and soil is dry and salty.

The women discovered that by ending the rice harvest earlier, they could bypass salt damage. "If the rice crop is harvested earlier, there is still water in the soil. Wheat and maize will benefit from this. Salt will come up less...Our crops will grow well," said Dipali.

But this would require some technical assistance. The USAID-funded Cereal Systems Initiative for South Asia (CSISA)—a program that harnesses innovation to make cereal farming more efficient—introduced the women to a shorter-duration rice crop and taught them resource-saving farming techniques. Shovna's women learned they could help soil retain moisture while saving time, money, and water by not fully plowing their land, leaving some straw to shield soil from the drying rays of the sun. This method, called strip tillage, has helped men and women in Shovna to provide for their families. The CSISA program is part of Feed the Future, the U.S. Government's global hunger and food security initiative, which is spearheaded by USAID's Bureau for Food Security.

### Focusing on Food

Never has there been a more urgent need for simple water-saving agricultural solutions. Over 70 percent of all freshwater is used for agriculture and this amount could increase by up to 19 percent by 2050. Every day, nearly 870 million people go to bed hungry. Meanwhile, water resources are dwindling and by 2025, two thirds of the world could be living in water-stressed conditions.

"Water is very, very central to our work to feed the hungry," said Dr. Moffatt Ngugi, Program Analyst for Climate Change and Agriculture at the USAID Bureau of Food Security. "We are looking to increase productivity with sound water management, focusing on smallholder farmers and small-scale infrastructure."

USAID elaborated on this link between water and food in its first-ever Water and Development Strategy, which sets the agenda for its water programming from 2013 to 2018. One of the two strategic objectives emphasized in the Strategy is to "manage water for agriculture sustainably and more productively to enhance food security."

The Strategy's food security goals complement the goals of Feed the Future. Two areas are spotlighted for more focus: rainfed and irrigated agriculture.

Research will be a key component to the success of water for food programs. The Consultative Group on International Agricultural Research, or CGIAR, is a partner in devel-



**WATER FOR FOOD:** Diara Mané, a Senegalese farmer, gained access to water for her crops through a USAID-supported well. She expanded her plot to include onion, okra, and eggplant to help feed her family and supplement her income.

*Photo Credit: Zack Taylor, USAID/Senegal*

oping solutions to food insecurity. The CGIAR is a global agricultural research consortium funded collectively by a group of partners, including USAID. By working with the CGIAR, USAID, through Feed the Future, harnesses scientific research to feed the world's hungry.

## Rainfed Solutions

Rainfed agriculture—farming that relies on naturally occurring rainfall to water crops—has been widely practiced for generations. But new innovations can help farmers deal with 21st century problems caused by climate change such as increased rainfall variability, increased soil desiccation, and run-off.

Globally, nearly 80 percent of agricultural land is rainfed, and these rainfed production systems provide 62 percent of the food in the world. In sub-Saharan Africa almost 95 percent of cultivated land is rainfed.

Unfortunately, climate change's strong toll is only expected to escalate. Rainfed yields are expected to decline by up to 50 percent by 2020. "In many places we work, particularly South Asia and sub-Saharan Africa, rainfall is expected to become much

more erratic," said Dr. Tracy Powell, International Agricultural Research Advisor at the USAID Bureau for Food Security.

For farmers relying on rain, reliable, up-to-date information about upcoming climate events is a game-changer because it enables them to knowledgeably plan their harvests. Unfortunately, the farmers in remote rural areas who stand to benefit most from this information have the least access to it.

But USAID is changing that. Originally launched in 1997 by the African Center of Meteorological Applications for Development with support from USAID's Office of U.S. Foreign Disaster Assistance and the National Oceanic and Atmospheric Administration, RANET (Radio and Internet Technologies for the Communication of Weather and Climate Information for Rural Development) provides farmers with the information needed for them to adapt to the effects of climate change. RANET, which was initiated in Africa and is now expanding to Asia and the Pacific, works with national weather stations to get information about growing conditions to farmers in remote and rural areas. RANET produces a constantly

streaming digital radio satellite broadcast that provides reports and observations on climate issues along with hydro-meteorological satellite data. In addition, RANET provides training about climate and weather and improves the Internet connectivity of African meteorological services. Now, even illiterate farmers in rural villages can make decisions based on advanced climate research.

But information alone is no match against extreme climate events like droughts and floods. Rashid Said Mpinga of Morogoro, Tanzania, who has been a maize farmer for more than 50 years, was one of many who watched helplessly as rainfall became more irregular and his soil became more infertile. The seeds he was using simply could not flourish in the increasingly inhospitable climate. "We needed varieties that [could] cope with these changes," he said. "Without good quality maize seed, you cannot earn enough. You cannot have life!"

Under Feed the Future, USAID and the CGIAR work together to develop new crops that can flourish in even the most extreme circumstances. They developed "scuba rice," flood-tolerant rice that has boosted yields

in flood-prone South Asia. And in drought-prone sub-Saharan Africa, the USAID-funded CGIAR Drought Tolerant Maize for Africa Initiative used conventional breeding to develop over 100 drought-tolerant maize varieties and hybrids. Each variety is tailored toward local needs and boasts traits including superior cooking quality, superior flour milling quality, and resistance to local diseases. In addition to producing these new crops, the project held capacity building events and seed policy workshops for maize breeders, technicians, seed company owners and employees, extension workers, non-governmental organizations, and farmer groups.

Over 2 million smallholder farmers have already benefitted from the award-winning maize. Rashid, for one, is happy with his increased yields and income. He and his neighbor even anticipate a surplus this season. “We’ll be assured of food and an income when we sell the extra maize, and will be able to send our children to school,” said Rashid’s neighbor Pangras Tairo.

## Irrigation Innovations

While rainfed agriculture is the most common form of farming, irrigated agriculture—agriculture that relies on man-made systems such as reservoirs, canals, pumps, and pipes to bring water to crops—can be two

to four times more productive than rainfed agriculture.

AgWater Solutions is a CGIAR and Bill & Melinda Gates Foundation project that researches sustainable ways to spread irrigation. “We identify innovative opportunities in agricultural water management that have a high potential to improve food security and the livelihoods of smallholder farmers,” said Dr. Meredith Giordano, Co-Project Manager of AgWater Solutions.

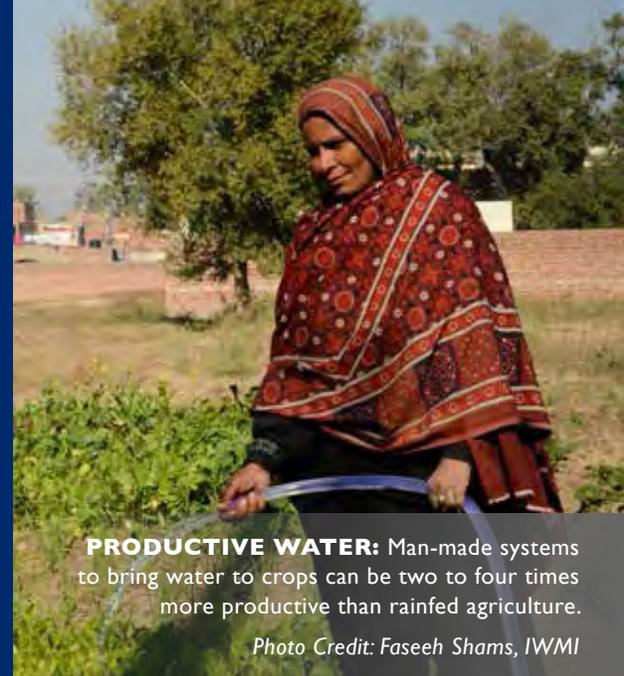
“  
**Water is very, very central to our work to feed the hungry.**  
”

Dr. Moffatt Ngugi, USAID Bureau for Food Security

Through its research, AgWater Solutions found that simple irrigation schemes like motor pumps and rainwater harvesting could impact over 1 billion people in sub-Saharan Africa and Southeast Asia alone, generating about \$80 billion dollars of household income per year for them.

Through AgWater Solutions, the USAID Mission in Ethiopia introduced irrigation to rural Ethiopia, where droughts and dry spells are common but only six percent of land is irrigated. Researchers there found that manual well drilling, which enables farmers to use simple inexpensive pumps to access groundwater, would be a great boon to Ethiopia’s smallholder farmers.

Through the project, farmers invest in the cost of drilling the well (about \$156) and unemployed laborers and farmers are paid to drill the wells,



**PRODUCTIVE WATER:** Man-made systems to bring water to crops can be two to four times more productive than rainfed agriculture.

Photo Credit: Faseeh Shams, IWMI

which are up to 28 meters deep. In the first year, the farmers who invested made back more than twice their initial stake. Over 450 wells have been drilled in Ethiopia, and demand shows no sign of slowing. The Government of Ethiopia supports the initiative, which it sees as an effective and scalable way to boost the incomes of smallholder farmers.

While revitalizing irrigation promotes food security and increases incomes, there are downsides to it. Irrigation is costlier and can lead to the depletion of groundwater and other environmental costs. These costs can be reduced by adopting water-efficient irrigation systems, improving the governance of water resources, and using more water-efficient crops. In fact, half of the increased projected water demand could be met by 2025 by increasing the efficiency of irrigation.

In South Asia, CSISA, the project that helped Dipali, works to increase the efficiency of cereal irrigation in Nepal, India, Bangladesh, and Pakistan. CSISA is a CGIAR project funded by USAID through Feed the Future as well as the Bill & Melinda Gates Foundation.

CSISA researches water-saving, productivity-enhancing techniques like laser land leveling—precisely leveling land using laser systems—that facilitate better water coverage and reduce



**MIRACLE MAIZE:** Women sort drought-tolerant maize in Zambia.

Photo Credit: P. Setimela, CIMMYT

water and nitrogen requirements. CSISA researchers also develop higher-yielding, stress-tolerant, and disease-, heat-, and insect-resistant varieties of rice, wheat, and maize. Finally, CSISA nurtures a new generation of scientists and agronomists to ensure irrigation technology remains on the cutting-edge for generations.

But it doesn't stop at research and development. CSISA works with farmers to ensure they have access to—and the knowledge to use—the technologies it develops. The project also fosters an improved policy environment by engaging policymakers in field visits, seminars, workshops, and dialogues about water use in agriculture. CSISA is slated to help over six million smallholder farmers produce at least five million tons of food and add \$1.5 billion to the economy per year.

Now, more and more farmers around the globe are investing in life-changing water-saving technologies. Farmer and CSISA beneficiary Saranjeet Singh of Matiala village in India recounted, “We used to spend so much time and resources irrigating the high points of the field.” After some initial trepidation, Saranjeet and his neighbors invested in new technology and happily report increased yields. “Even I was not convinced at first,” he recalled. “Why should I spend so much money? Then I did [laser land leveling] on my field. It is very profitable... The best method to save water.”

*C. Zeilberger*

## More Information

**USAID Water and Development Strategy 2013-2018**

**CGIAR website**

**Feed the Future**



**EVERY BIT COUNTS:** A woman walks through her recently planted carrot field holding wild mustard leaves used to improve the nutrient content of traditional tortillas. Use of plastic mulch for carrot seeding increases germination, density, and plant stand—key determinants of improved productivity.

*Photo Credit: USAID/Honduras*



# ACCESSING NATURE'S BOUNTY IN HONDURAS

**T**ucked away in the remote village of El Prado, near the city of San Marcos de Ocotepeque in mountainous western Honduras, Ovidio Escalón and his 11 children lived on his crops of corn and beans, leaving very little money for other purchases. Ovidio never imagined that his family's path out of subsistence agriculture would be lined with carrots.

But starting in 2012, Ovidio began working with USAID's ACCESO project, which trained him on raised bed preparation, proper fertilizer use, and drip irrigation. Drip irrigation helps save precious water by delivering it directly to the roots of each plant, rather than to the plants' leaves or to the empty spaces between them. Greatly minimizing the water loss from runoff and evaporation that occurs with flood and traditional overhead irrigation, he was able to grow more diverse crops.

In Honduras, the second poorest country in the Western Hemisphere, 66 percent of people live below the poverty line and 45 percent live in extreme poverty. Almost three quarters of the extremely poor live in rural areas. Chronic malnutrition affects nearly half of all people in rural areas. ACCESO, a four-year USAID project in western Honduras that began in April 2011, lifts rural households out of poverty and promotes improved nutrition through access to economic development opportunities, modern farming techniques, and improved health and nutrition practices.

The project increases incomes by encouraging straight-forward production practices and introducing market-driven programs for high-value cash crops, as well as expanding off-farm microenterprise and employment opportunities. So far the project has helped more than 2,000 farmers install drip irrigation systems on their plots. About 30,000 households have invested more

than \$320,000 in irrigation infrastructure, leveraging \$250,000 from ACCESO and other partners.

A direct line can be drawn between the income created by technologies like drip irrigation and the health and nutrition of farmers and their families. According to Andy Medlicott, director of the ACCESO program, "If we don't have the technologies in place, we can't respond to the market demands, and the growers won't make money. If they don't make money, our activities on the health and nutrition side are short-lived."

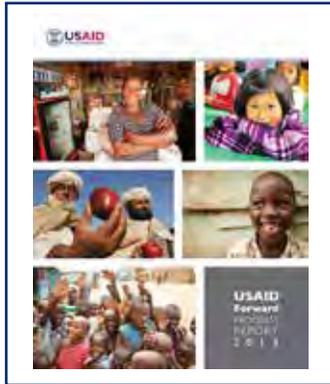
Farmers in Honduras have greatly benefited from the new irrigation methods. Efficient use of water coupled with reliable access to it allows farmers to diversify into high-value crops including tomatoes, onions, lettuce, cabbage, and carrots and improves the productivity of traditional crops such as maize, beans, and coffee. The higher incomes that crop diversification generates enable families to purchase food to supplement their subsistence diet of basic grains.

ACCESO has achieved some dramatic changes through surprisingly small investments. Ovidio spent just \$31 to plant and drip-irrigate carrots on 629 square meters of previously uncultivated land. His investment of time and money resulted in a first harvest of 1,200 kilograms of carrots, which, with help from ACCESO's marketing specialist, fetched \$360 from a national supermarket distributor. He plans to use much of his newly increased income to invest in quality fertilizer and other inputs. Ovidio said drip irrigation and access to markets has changed his life in ways he would never have dared imagine. "Not even in my wildest dreams had I thought of planting carrots, let alone selling them," he said.

*A. Gambrill*

## IN PRINT

## USAID'S FORWARD PROGRESS REPORT 2013

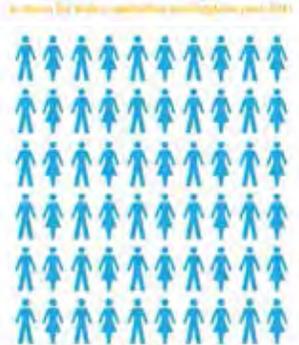


Three years ago, President Obama called for a national push to raise the global profile of development as a key vehicle for advancing America's national security and foreign policy. At this critical moment, USAID was able to establish a vision to strengthen its global capacity to find solutions to the world's most challenging development issues. USAID recently released its Forward Progress Report, which supports this vision. In this progress report, USAID measures its development milestones and sheds light on its new reformative model in approaching development work. These reforms are critical to identifying innovative solutions that can alleviate suffering around the world. USAID Forward examines all areas of development and focuses on attracting new, sustainable partnerships and harnessing science and technology for change. USAID explores ways of increasing investment from high-impact partnerships and growing its partner base.

## EVERYONE, EVERYWHERE: A VISION FOR WATER, SANITATION, AND HYGIENE POST-2015

To honor the 20th Anniversary of World Water Day, WaterAid published a report that presents its vision of a world of universal access to safe water and sanitation and describes progress made toward eliminating water poverty. The report asserts that universal access to WASH services can be reached by 2030. It outlines the measures needed to make the vision a reality. The report claims that preventative measures could save nearly 2.5 million people and generate an excess of \$220 billion of wealth a year. WaterAid's CEO stated, "U.S. leadership is critical for seeing that these issues figure prominently in the new post-2015 global development agenda, and that poor and marginalized families and communities are able to enjoy the full, life-changing benefits that safe water, effective sanitation and improved hygiene provide."

## Everyone, everywhere



## ONLINE

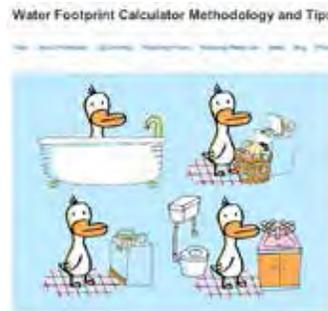
## ELIMINATING OPEN DEFECATION IN GHANA



More than half of Ghana's population lacks access to private latrines. Shared latrine sites are dangerous breeding grounds for diseases, to which women and children are particularly susceptible. USAID's Water and Sanitation for the Urban Poor (WSUP) has teamed up with IDEO.org to develop Clean Kumasi, an innovative tool that takes the proven success of the community-led total sanitation (CLTS) approach and adapts it to Ghana's urban environments in efforts to prevent open defecation. It utilizes a digital mobile platform to advance CLTS-supported activities and mobilize action from offline community members. The tool builds upon the popularity of mobile phones among Kumasi residents. Through Clean Kumasi, residents are kept aware of community meetings and stay-up-to date on CLTS-inspired activities.

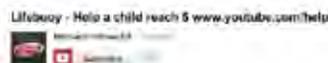
## WATER FOOTPRINT CALCULATOR

Do you know your water footprint? Now, it is easy to calculate through the use of National Geographic's new tool: The water footprint calculator. The calculator helps people keep track of how much water they use on a daily basis. It provides information on the many ways we use water in the United States, such as toilets, taps, hoses, and water use in food production. The water footprint calculator establishes guidelines on how to efficiently track water and its multiple uses, and demonstrates how much water is used in everyday functions while reminding us to conserve water. The tool suggests users take a water tour through their homes and discuss with their families how to make smarter water-usage choices. Now we can all commit to reducing our water footprint by pledging to reduce our individual water use.



## ON VIDEO

### LIFEBUOY: HELP A CHILD REACH 5



Two million children under the age of 5 die from preventable infections like diarrhea and pneumonia each year. The basic act of washing your hands with soap can prevent many of these deaths. In this Lifebuooy-supported video, the residents of a small village in Thesgora, India, rejoice as one of their youngest residents just reached his 5th birthday. A celebration is definitely in order, as this is not the norm in Thesgora, a village with one of the highest rates of diarrhea. Lifebuooy has educated 130 million people about hygiene issues. The organization is taking its healthy lifestyle messages on the road to educate mothers on this life-saving action, so that millions of children can reach their 5th birthday.

### MWA & COCA-COLA: ETHIOPIA'S RAIN PROGRAM

Every year, unsafe water and poor sanitation lead to the preventable deaths of over 230,000 Ethiopian children. This Millennium Water Alliance video details plans for Ethiopia's Replenish Africa Initiative's (RAIN) Multiple Use Water Improvements project. Project activities will be driven by a new strategy that incorporates multiple uses of water. The new strategy will address water uses for both domestic and productive needs. Instead of focusing on the development of water systems that yield limited water for consumption only, RAIN will now support water use for communities, households, and income-generating activities. Additionally, the project will work to improve WASH conditions in schools and health facilities. The RAIN Program is supported by the Coca-Cola Africa Foundation and is expected to impact over 70,000 rural residents, including 22,000 schoolchildren.



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