



UNICEF/HQ89-0812/LeMoynes

Water and Sanitation for All: Bringing the Issue Home

A MIDDLE SCHOOL UNIT (GRADES 6–8)

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Unless stated otherwise, the source for all charts, figures, maps, and statistics used in this unit is: United Nations Children's Fund, (UNICEF), New York. Additional sources are noted when they are required. Website addresses (URLs) are provided throughout this unit for reference and additional research. The authors have made every effort to ensure these sites and information are up-to-date at the time of publication, but availability in the future cannot be guaranteed.

UNIT OVERVIEW

Water and Sanitation for All: Bringing the Issue Home

A Middle School Unit (Grades 6–8)

Unit Overview

Water and Sanitation for All is a unit of three lessons designed to:

1. Raise awareness of the problems facing children with inadequate access to clean water or sanitation facilities.
2. Increase students' understanding of the issue as one that affects everyone.
3. Explore how organizations, agencies, and individuals are working to address the problems.
4. Encourage students to take their own steps in addressing the local and global issues of water and sanitation.

Lesson 1: Students explore the “big picture” of water and sanitation and begin to see how vital water and sanitation is to life, health, education, and well-being. They learn about what UNICEF is doing to aid children and communities affected by lack of safe water or inadequate sanitation facilities.

Lesson 2: Students become familiar with why it is so important to have clean water and sanitation facilities and discuss some of the consequences of their absence. They read about how simple steps such as hand washing and treating water at home have helped to dramatically decrease disease.

Lesson 3: Students are presented with examples of how to take action within their community. They view a video of New Yorkers taking action to raise awareness of the importance of access to clean water and sanitation. Next they read the Paul Simon Water for the World Act of 2009, a piece of legislation related to world water issues. The class then brainstorms action ideas and each student designs their own plan of action.

Background Information¹

The conceptual gap between turning on a kitchen water faucet and walking four kilometers to fetch and lug water back home is almost too large for most adults to grasp, much less for schoolchildren. The same can be said about a household bathroom versus a distant communal latrine shared by several families. Furthermore, the notion of not having access to a toilet or a hand-washing facility at school or work is removed from many lives in the United States. Yet nearly 2.5 billion people² do not have access to improved sanitation facilities. It is a bleak reality.

¹ Statistics were updated in 2010.

² Source: <http://www.unicef.org/wash/index.html>

UNICEF Water, Sanitation and Hygiene (WASH) programs are active in over 90 of the more than 150 countries in which UNICEF works; helping to improve access to water and sanitation as well as improving critical hygiene behaviors such as hand washing with soap. In countries such as the U.S., where water is treated, piped into homes, and then carried off by efficient sewage systems, the availability of clean water, proper hygiene, and sanitation is mostly taken for granted. In areas where human waste is not carried off by sewage systems, or safely disposed of in pit latrines or other sanitation facilities, proper hygiene awareness becomes critical. UNICEF WASH programs attempt to raise awareness of these issues.

Globally, more than 125 million children under 5 live in homes without access to an improved water source, and more than 280 million live in households without improved sanitation facilities.

Source: Progress for Children: A Report Card on Water and Sanitation. UNICEF, September 2006

Currently, UNICEF monitors nations according to whether they have “improved” or “unimproved” access to water and sanitation. Improved access includes countries with water sources such as protected wells, harvested rainwater, and public standpipes, and sanitation facilities such as septic tanks and pit latrines. Currently, almost fifty percent of the developing world’s population – 2.5 billion people – lack improved sanitation facilities, and over 884 million people still use unsafe drinking water sources.³ The number of individuals without these basic services is expected to continue to grow. What is considered a dangerous situation could escalate into a global crisis as water shortages begin to appear in industrialized nations as a result of global warming, lack of conservation measures, and increased contamination of the world’s water supply. Although water covers over 70 percent of the earth’s surface, just a fraction of it is useable, the ocean holds 97 percent, the remaining 3 percent is fresh water that is found hidden in underground aquifers, frozen in glaciers or in rivers and lakes.⁴

“Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights.” — United Nations Economic and Social Council, November 2002.

Water and Children, Sanitation and Survival

The effects of not having access to clean water and adequate sanitation facilities go far beyond convenience and aesthetics. Lack of safe water and sanitation is the world’s single largest cause of illnesses, and the second highest cause of preventable childhood deaths with about 4,100 children⁵ dying daily from waterborne illnesses. The lack of adequate sanitation facilities is just as deadly — 1 gram of feces can contain viruses, bacteria, parasite cysts, and parasite eggs. Water and sanitation-related illnesses include diarrhea, which kills nearly 2.2 million children, mostly under 5 each year; malaria, a disease exacerbated by poor drainage and uncovered water; and trachoma, a disease caused by the lack of water combined with poor hygiene practices has blinded millions of people, studies have found that access to an adequate water supply could

3 Source: <http://www.unicef.org/wash/index.html>

4 Source: <http://oceanservice.noaa.gov/facts/wherewater.html>

5 Source: <http://www.unwater.org/flashindex.html>

reduce trachoma by 25%.⁶ In addition, hand washing with soap is linked to dramatic reductions in the incidence of respiratory illnesses such as pneumonia — the number one cause of child mortality globally.

For those living without access to a safe water supply, finding and carrying water can become a chore that eclipses all others and a burden that might determine a child's future. Women and children, especially girls, are most often the family water collectors. Fetching water can mean walking to a water source many miles away or waiting for hours in water lines. In about 90 countries around the world including Nicaragua, Iraq, Sudan, Colombia, Vietnam, and Uzbekistan — many girls miss school because they have to collect water or stay home to care for family members sickened by water-based illnesses, which is often caused by contaminants such as parasites. Of the children who do attend school, many are faced with the same challenges there. Lack of clean water for drinking and hand washing and the absence of private and adequate toilets compromises children's ability to learn and often causes them to leave school altogether. Girls are especially vulnerable to this; many drop out once they reach puberty due to the lack of private and safe sanitation facilities. In short, children stay in school longer, perform better, and are less susceptible to decreased mental and physical development when they have access to improved water and sanitation.

“Safe drinking water and adequate sanitation are crucial for poverty reduction, crucial for sustainable development, and crucial for achieving any and every one of the Millennium Development Goals”
– UN Secretary-General, Ban Ki-moon

Source: http://www.unicef.org/wash/index_bigpicture.html

The UN and UNICEF: Responding to the Need

In September 2000, the UN crafted a set of eight goals, the Millennium Development Goals (MDGs), that affirmed the world's “shared duty” to all people, especially children and the poor. These goals include aims such as halving extreme poverty, stemming the spread of HIV/AIDS, and providing universal primary education. The MDGs have brought together nonprofit organizations, governments, research and policy institutions, and advocacy groups on a global level in an effort to improve the living, learning, and working conditions of the world's most vulnerable. All of the MDGs are interlinked. For example, although goal #7 speaks specifically to environmental issues, it is recognized that providing water and sanitation is crucial for the success of all the MDGs. Without ensuring safe water, sanitation, and hygiene education for all, it will be impossible to meet the other goals.

UNICEF has used the MDGs, among other goals set by other international organizations, to guide its work in water and sanitation. UNICEF began its first water and sanitation program in India in 1966 and has since worked in numerous developing countries on this issue, with WASH programs that help to provide clean water, latrines, and hygiene education to children and their communities. UNICEF's strategy revolves around four elements: creating child-friendly facilities, providing training in hygiene education for teachers and children, offering outreach to communities, and contributing to policy work for the development of sustainable models.

⁶ Source: <http://www.childinfo.org/water.html>



Thanks to the work of national governments, communities, and international partners such as UNICEF, the world is currently on track to halve the number of people without access to a safe water supply by 2015.

The work to provide sanitation, on the other hand, is much further behind, though, and in recognition of this need to escalate efforts globally, 2008 was designated the International Year of Sanitation (IYS)⁷.

The IYS has five key messages:

1. Sanitation is vital for health.
2. Sanitation is social development.
3. Sanitation is a good economic investment.
4. Sanitation is good for the environment.
5. Sanitation is achievable.

“We Are All Downstream”: Water Connects Us

It is impossible to overstate the impact of water and sanitation in our lives. Far from being a source merely for drinking and bathing, water is needed by all types of industries: agriculture, power production, household use, ore and mineral extraction, livestock husbandry, and other commercial uses. The amount of water used in everyday products is vastly larger than most people realize. It takes 1000 to 3000 liters of water to produce a kilogram of rice and 13,000 to 15,000 liters to produce a kilogram of grain-fed beef⁸.

It takes over 400 gallons of water to cultivate the cotton for just one T-shirt. This doesn't even take into account the manufacturing process, which uses over 600 gallons more.

Source: Chapagain, A.K. and Hoekstra, A.Y.: Water Footprints of Nations. Value of Water Research Report Series No.16. UNESCO-Institute for Water Education, November 2004.

We all draw water from the same global “well,” and we need increasingly more of it with increased demand from agriculture, industry, and municipal use. Instead of having access to more, however, we are faced with the prospect of making do with less as pressure on our water sources intensifies. In the U.S., the impact is that we are becoming more conservative in water usage patterns and regulating more stringently industry and effluent standards. In developing countries, however, this situation is decidedly more acute because the “common well” is often used for multiple purposes ranging from bathing to cooking, to running small businesses. Water sources are often untreated and unregulated—leading to precarious levels of pollution that threaten public health and safety. For this reason, a heightened priority is placed on basic hygiene and sanitation in developing countries (while more structural changes in water treatment and regulation can be put in place), while “more developed” countries are at the stage of regulating consumption patterns and industrial effluents.

The world's freshwater resources are becoming increasingly contaminated by pesticides, industrial runoff, and human waste. Global warming is wreaking havoc on weather patterns,

⁷ Source: <http://esa.un.org/iys/>

⁸ Source: http://www.unwater.org/statistics_sec.html

leading to droughts, floods, and other extreme climatic changes that can affect water supplies. Communal water sources such as glaciers are melting, decreasing the amount of runoff that fills rivers and lakes, and, additionally, more precipitation is coming as rain rather than as snow, leaving snow packs insufficient to supply reservoirs during the summer months. Around the world, countries are dealing with water scarcity in various ways: rationing/ regulation (U.S.), wastewater reuse (global but largely in the Middle East and North Africa), water recycling (France), and ecosanitation (a way of recuperating the nutrients in wastewater and returning them to productive uses), among others.

The connections between domestic consumption, use of water and sanitation, and global water management, though deeply evident to many, remains an abstract notion to most of us in the United States. Because most of our water supply is clean, cheap, and easily accessible, we believe it to be limitless. For some, however, the fragility of our own water system is becoming painfully evident. In 2007, Georgia officials warned that Lake Lanier, a reservoir in northern Georgia that supplies over 3 million residents with water, was on the verge of depletion, with smaller regional reservoirs in even worse condition.⁹ Water rationing is a reality in many places in the West and South, and it will become increasingly common throughout the United States. Likely we will look to new and innovative ways of managing our resources more responsibly in the future, borrowing from the examples of countries that are already managing scarce water resources. We are all connected to this finite resource, and we must connect ourselves to those who struggle for it so that we can work to find long-lasting, global solutions.

For the most up-to-date statistics and information, please visit:

<http://www.childinfo.org>

<http://www.unicef.org/wash>

<http://www.unesco.org/water>

<http://www.unwater.org>

Unit Expansion Ideas

Water Maps

Ask students if they think that people in the U.S. use more water than people in other countries, or less. Show or distribute the National Geographic map, “Water Footprint Per Capita” and/or the Worldmapper “Water Use” map. Ask students:

- Which region of the world appears to use the most amount of water? And the least?
- How does the water use of the U.S. compare to other countries?
- Why do you think some countries use more water than others?
- Does having access to water impact a countries economy?

The maps for this activity are located at:

- National Geographic: “Water Footprint Per Capita”
<http://earthpulse.nationalgeographic.com/earthpulse/earthpulse-map>
- Worldmapper: “Water Use”
<http://www.worldmapper.org/display.php?selected=104>

⁹ Source: <http://www.msnbc.msn.com/id/21393296/>

What Do You Know About Water?

- As a way to gauge your students' knowledge about water and sanitation, have them take the UNICEF Voices of Youth online quiz, and develop further lessons based on their answers: http://www.unicef.org/voy/explore/wes/explore_2195.html.

What's Your Water Use?

- Help students gauge their own water use with the New York City Department of Environmental Protection water use report card and water use math quiz: <http://www.nyc.gov/html/dep/pdf/workbook/page7.pdf> and <http://www.nyc.gov/html/dep/pdf/workbook/page8.pdf>.

Interdisciplinary Connections

Since *Water and Sanitation for All* aligns with national standards in History, Geography, Science, Social Studies, Language Arts, Mathematics and Technology, you may want to team teach the unit with colleagues in those disciplines. Additional interdisciplinary connections include:

American History

- Research the history of water supply and demand in different parts of the country.
- Study the relationship between Native American peoples and water.
- Study the development of infrastructures for bringing water to growing municipalities during different time periods.

Language Arts

- Write articles for student and community newspapers about the issue of water and sanitation both locally and globally.
- Join "e-pal" organizations like iEARN (www.iearn.org) to connect with youth across the world about the issue.
- Read stories, articles, myths, folktales, and essays about water.

Biology and Earth Science

- Study the water cycle.
- Study the relationship among glaciers, aquifers, oceans, and other water bodies and their effect on the worldwide water supply.
- Research droughts across the world and different scientific approaches to addressing them.
- Look at the effects of climate changes on global ecosystems and their effect on the water supply.
- Trace the flow (via animals, food, fingers, feet, etc.) or map out possible routes of transmission of bacteria and viruses from feces in the environment to people.
- Read about John Snow's "discovery" of the transmission of cholera in Soho, England, via contaminated water.

Math

- Research water usage in different countries and create charts to compare and contrast use.
- Keep track of individual, family, and community water use over time and multiply out to predict long-term trends.
- Create graphs that compare health and nutrition data for different countries with access to water and sanitation as variables.
- Discuss Joint Monitoring Programme (JMP) monitoring data (www.wssinfo.org) and discuss progress toward the MDGs for water and sanitation.

Technology

- Research how technology is being used to help bring safe water and adequate sanitation facilities to desert and other landlocked nations.
- Use the Internet to connect with other young people (join online discussion groups or participate in interactive websites such as UNICEF's Voices of Youth, <http://www.unicef.org/wes/>).
- Discuss basic models of water pumps (rope, treadle) and latrines (pit, flush, ecosan) and how and where they are used.

National Standards

The TeachUNICEF lesson plans are designed in line with National Content Standards. Using the National Content Standards as a guide, these lessons can be aligned with State Standards.

	Lesson		
	1	2	3
National Organization			
National Council for the Social Studies (K-12) Source: Expectations of Excellence — Curriculum Standards for Social Studies			
People, Places, and Environments Social studies programs should include experiences that provide for the study of people, places, and environments.	✓	✓	✓
Global Connections Social studies programs should include experiences that provide for the study of global connections and interdependence.	✓	✓	✓
National Council of Teachers of English & International Reading Association (K-12) Source: Standards for the English Language Arts			
Standard 1: Students read a wide range of print and nonprint texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace.	✓	✓	✓
Standard 5: Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.	✓	✓	✓
National Academy of Sciences (5-8) Source: National Science Education Standards			
Content Standard F: Science in Personal and Social Perspectives As a result of activities in grades 5-8, all students should develop understanding of <ul style="list-style-type: none"> • Personal health • Populations, resources, and environments • Natural hazards • Risks and benefits • Science and technology in society 	✓	✓	✓

Glossary

bacteria a class of microscopic organisms (that is, living things that are so small they cannot be seen without a microscope), many of which cause diseases.

borehole/borewell a well that has been drilled or bored by a machine to reach a source of underground freshwater.

contaminant something that makes water or other substances impure or unfit for use.

dehydration a condition in which your body loses water. Serious dehydration can be fatal.

development growth and change that improves standards of living and quality of life. “Sustainable” development is doing this without causing social or environmental damage, or depleting resources.

excreta feces and urine.

filter a device or material that allows liquid through but stops solids and particles of a certain size, so the fluid is cleaned.

hygiene the science of keeping healthy, particularly by means of sanitary practices such as washing hands after using a toilet or latrine and before handling food.

improved water sources defined in the Millennium Development Goals as a household connection to the main water supply, a public standpipe, a borehole, a protected dug well, a protected spring, or rainwater collection.

improved sanitation facilities defined in the Millennium Development Goals as connection to a public sewer, connection to a septic system, a pour-flush latrine, or a pit latrine.

latrine a site or structure (not connected to a main water supply and sewer) designed to receive and dispose of excreta. A pit latrine is a simple pit covered by a slab of wood or concrete with a drop-hole. A “pour-flush” latrine uses water to flush away the excreta into a pit.

parasite (adj. **parasitic**) an animal or plant that lives in or on another “host” animal or plant, taking nourishment from the host without giving anything in return.

safe water water that is free of contaminants. It often comes from improved water sources.

sanitation measures to promote good health, especially those involving safe disposal of excreta and maintaining a clean environment.

sewage waste material and water carried off by sewers or drains.

trachoma an eye disease caused by an infectious agent similar to bacteria. Trachoma may eventually lead to blindness. Face washing with clean water and soap can prevent the transmission of the disease, especially among children.

typhoid fever a disease caused by bacteria that usually enter the body through the mouth in contaminated food or water. Typhoid causes a high fever that lasts for three weeks or more and can be fatal. Typhoid can be treated with medications and prevented by use of clean water.

wastewater used water—including sewage—from homes, communities, or industries.

waterborne disease a disease that spreads through water containing human or animal feces and urine, either when people drink such water directly or they eat food that has been cleaned with it. Waterborne diseases include cholera and other diarrheal disease, typhoid fever, polio, roundworm, and whipworm.

LESSON 1

Water and Sanitation for All: Bringing the Issue Home

A Middle School Unit (Grades 6–8)

THE BIG PICTURE

TOTAL TIME: 45 MINUTES

Objectives

Students will:

- Become aware of the centrality of water and sanitation in our daily lives.
- Become familiar with the challenges facing people without ready access to safe water and sanitation.
- Discuss and better understand the work UNICEF is doing to bring water, sanitation, and hygiene to children.

Vocabulary

The following words may not be daily occurrences in a student’s vocabulary. Feel free to use this list as a resource for students to expand their working vocabulary as they encounter these words in this unit.

- Change agent
- Conservation
- Contaminant
- Feces
- Hygiene
- Latrine
- Sanitation
- Sari

Materials Needed/Setup

- Computer(s) with Internet access, connected to the UNICEF photo essay, *Children and Water*: <http://www.unicef.org/photoessays/31695.html>.
- Handout #1, “The Big Picture”
- Handouts #2A, “Real Lives: Nicaragua,” and #2B, “Real Lives: Angola”

Directions

1. **(10 minutes)** Explain to the class that the next three lessons will focus on the state of water and sanitation around the world and how it affects everyone, especially children. Ask students to volunteer ideas about what a “water and sanitation crisis” might mean. Ask students if they know of countries or situations where people don’t have access to clean water or flush toilets. How might it affect someone’s life to be without those things?

2. **(15 minutes)** Distribute Handout #1, “The Big Picture,” and tell students that they are going to read an article written by young people about water and sanitation around the world. While reading, they should keep a pen or pencil in their hands and underline anything that they don’t understand or that stands out as most important. Read through the article one time out loud, clarify needed vocabulary, and then let students read it a second time on their own.
3. **(10 minutes)** Tell students that they are going to view a series of photos about this global situation. View the *Children and Water* photo essay with your students and read the accompanying captions so that students can focus on the images, then discuss.
4. **(10 minutes)** Ask students to write a brief response to the article and the photo essay. How did it make them feel? What questions do they have?
5. **Homework:** Distribute Handout #2A to half the class and #2B to the other half. Explain to the students that these are two cases studies about Maria from Nicaragua and Fatima from Angola. Ask student to read their assigned case study and complete the following tasks.
 - Before reading locate the country where your case study takes place.
 - What do you notice?
 - What’s the geography like? Are there a lot of water sources? What’s the topography like?
 - Is it a heavily populated country?
 - After reading the text write a short summary.
 - List 3 to 5 things you learned from reading this case study.

For more information on these stories, go to the UNICEF Voices of Youth website at www.unicef.org/voy.

The Big Picture: Basic Needs, Basic Rights*



LIBERIA: A young boy fetches water from a UNICEF-provided water pump

© UNICEF/HQ07-0630/Giacomo Pirozzi

Clean water is a necessity for life. Also, everyone needs basic sanitation. These things are essential to health and human dignity, and they are your right.

But ...

More than a billion people do not have access to safe drinking water. More than 2.5 billion people do not have a sanitary way of getting rid of urine and feces. Up to one-third of disease globally is thought to be caused by environmental factors such as polluted water and air.

Children are very vulnerable to disease. This is because children's bodies are not fully developed, so they have less resistance to illness. Also, in proportion to their weight, young children breathe more air, drink more water, and eat more food than adults do, so they take in bigger doses of any contaminants.

Environment, Education, and Poverty

Water and sanitation problems can disrupt your education and stop you from reaching your full potential. When you are sick from contaminated water, you cannot go to school or learn well. Many children—particularly girls—miss or stop attending school because they have to spend so much time and energy collecting water at home or caring for sick relatives, or because they have their period and their school does not have clean water or sanitation facilities. One in four girls does not complete school compared with one in seven boys.

It is the world's poorest people who have no sanitation and safe water, so it is the poor who are most at risk from water-related diseases. Illness may prevent people from working, making families even poorer. It may also disrupt children's education, so they have fewer chances to learn, lower performance, and fewer opportunities for employment.

Some Good News

But there is good news. Improved sanitation and water sources, combined with information about hygiene and how to prevent infection, can dramatically improve the health of communities.

Another piece of good news is that although children are at greater risk from water and sanitation hazards, they can also be a powerful voice against them!

*Source: UNICEF Voices of Youth http://www.unicef.org/voy/explore/wes/explore_1847.html

Real Lives: Nicaragua, Central America*



After Hurricane Mitch in 1998, parts of Nicaragua had no clean water. With no other options, these children wash themselves in a muddy pool in the street.

© UNICEF/HQ98-0452/Mia Brandt

The river used to be the only source of water for the people of Piedras Grandes, Nicaragua. As a result, waterborne illnesses affected many children and their families. But now, partly through the efforts of 16-year-old María and other young people, the village is a much healthier place to live.

In February 2002, the community decided something had to be done. They formed a Drinking Water and Sanitation Committee, representing 60 villagers from 15 households. With UNICEF's support, the committee oversaw the installation of a well and set out to improve hygiene by tapping into the enthusiasm and inventiveness of young people.

María was one of those who volunteered to be a health representative. "I make door-to-door visits every two weeks to see that the households are keeping their backyards clean, using their latrines well, burning and burying their trash, and eliminating pools of water where mosquitoes might breed," explains María. Her 14-year-old assistant Liset completes the list: "We also check that receptacles containing water are covered to avoid contamination and that empty ones are cleaned out."

This is a partnership between young people and adults; older village residents know what services they need, can afford to build, and are able to maintain. But the state water company has made child participation the key to its water and sanitation projects—not a bad idea in a country in which just over half the population is under 18. And young people like María are developing the leadership skills future water managers will need.

The well in Piedras Grandes is already transforming people's lives. Today, the villagers use clean water rather than river water and maintain hygienic conditions in their homes. Illnesses caused by unhygienic conditions no longer run through families. The children and young people are building a healthier future for themselves and their own children.

*Source: UNICEF Voices of Youth http://www.unicef.org/voy/explore/wes/explore_1879.html

Real Lives: Angola, Africa*

Growing up in the Angolan village of Mabuia, one hour north of the capital, Luanda, Fatima had to spend up to four hours each day collecting water from the river. It was a dangerous trek. One year, seven of Fatima's friends were attacked by crocodiles.

But the girls carried a much bigger danger back with them to the village. The water was polluted and spread disease. As a result, when Fatima herself was not sick, she had to spend many hours each week caring for sick brothers and sisters, and when she grew older, for her own sick children.

In 2000 the Angolan Government and UNICEF teamed up to lay a pipeline from the river to the community at Mabuia. Latrines, washbasins, taps and showers were then built, together with a filtering system to ensure every drop of water was drinkable. As a result, diarrhea rates dropped almost to zero, child deaths plummeted, and many girls (who no longer had to spend hours every day carrying water) entered school for the first time. A community water and sanitation committee now maintains the system and teaches hygiene to the rest of the community.

A neighbor of Fatima's, 13-year-old Celina, is one of those who has started going to school because of the pipeline. Previously, Celina's life had been dominated by collecting water. She had to walk to the river and back three times a day. Now she can do her chores in a fraction of the time. And her younger brothers and sisters are healthy, so she does not have to care for them.

Unfortunately, Mabuia remains the exception rather than the rule in Angola. Almost three decades of war have left millions of people without clean water or basic sanitation. A huge task remains: drilling boreholes across the country, constructing major pipelines, establishing a national sanitation education campaign, and providing water to schools.

Fatima may be one of the lucky ones, but the facilities she, her children and Celina now have are not a luxury, but a necessity and a right. "A mother must take care of her children," Fatima says, "but we cannot do that when we have only dirty water."

*Source: UNICEF Voices of Youth http://www.unicef.org/voy/explore/wes/explore_1875.html

LESSON 2

Water and Sanitation for All: Bringing the Issue Home

A Middle School Unit (Grades 6–8)

CLEAN WATER, GOOD SANITATION — A RECIPE FOR HEALTH

TOTAL TIME: 45 MINUTES

Objectives

Students will:

- Become aware of the human, economic, and environmental risks of unclean water and inadequate sanitation.
- Discuss how simple steps such as hand washing and water treatment can dramatically decrease disease.

Materials Needed/Setup

- Handouts #2A, “Real Lives: Nicaragua,” and #2B, “Real Lives: Angola” (from Lesson 1)
- Handout #3, “Water, Sanitation, and Hygiene: I Didn’t Know That!”
- Handouts #4A, “Mozambique: Children Lead the Way”
- Handouts #4B, “Indonesia: Water and Sanitation and the ‘Little Doctors’”

Directions

1. **(5 minutes)** Ask students to share their homework with a classmate who read a different case study. Call on a few students to share a question or a point they heard from their partner that they thought was particularly important and to explain why they thought it was important.
2. **(15 minutes)** Refer students to María’s and Fatima’s stories. Ask the class to name some consequences that can come from drinking unclean water or not having sanitation facilities: a consequence for an individual, a consequence for the economy of a country, and a consequence for the environment. Then divide the class into pairs and instruct them to develop their own

Students can pool their answers to create a “consequence chart” of all the individual, economic, and environmental results they have listed. The chart might also be used as the basis for further research projects.

- lists. Encourage them to include an individual, economic, and environmental consequence. Students can refer to the texts and/or background knowledge for ideas. Ask a few pairs to read their lists aloud. Encourage students to discuss the lists, and ask any questions they may have.
3. **(10 minutes)** Tell students that these are very complex problems, and it might surprise them that there are some very simple strategies that really help. Write on the board the following: *soap, sari, students*. Ask students for ideas about how these three things can be important factors in addressing the problems brought by unclean water and inadequate sanitation.
 4. **(15 minutes)** Distribute Handout #3, “Water, Sanitation, and Hygiene: I Didn’t Know That!” If necessary, clarify unfamiliar vocabulary words for students. Discuss each strategy and what makes it powerful. Do they know any other complicated problems that can often have simple solutions?
 5. **Homework (2 parts):**
 - a. Distribute handouts #4A to half the class and #4B to the other half. Explain to the students they are going to read about young people who are taking action in their communities. Have the students locate key action points in their story which allowed the youth to make a difference in their community.
 - b. Explain that the second part of their homework is to locate an article (on-line or print) which highlights youth taking action on water and/or sanitation issues in the United States. If students do not have access to the Internet, print a few examples for distribution. Some possible website and/or news sources might be:
 - Chesapeake Bay Foundation: <http://www.cbf.org/Page.aspx?pid=1000>
 - National Public Radio: <http://www.npr.org/>
 - National Science Foundation: <http://www.nsf.gov/>
 - PBS News Hour: <http://www.pbs.org/newshour/>
 - U.S. Environmental Protection Agency: <http://www.epa.gov/>
 - U.S. Geological Survey: <http://www.usgs.gov/>

Note: The continuation of this homework assignment is included in Lesson 3, as an introductory lesson.

Water, Sanitation, and Hygiene: I Didn't Know That!

Soap...

“Turning handwashing with soap before eating and after using the toilet into an ingrained habit could save more lives than any single vaccine or medical intervention, cutting deaths from diarrhea by almost half and deaths from acute respiratory infections by one-quarter.”

http://globalhandwashingday.org/Global_Handwashing_Day_2nd_Edition.pdf and WELL Fact Sheet at <http://www.lboro.ac.uk/well/resources/fact-sheets/factsheets-htm/Handwashing.htm>

Saris...

“Forcing water through a **simple filter made from the cloth of old saris can reduce cholera cases by about half**, according to a study of rural villages in Bangladesh. When people drink unfiltered water ... it introduce[s] bacteria into their systems that causes extreme diarrhea and cramping. Without treatment, cholera kills 50 to 80 percent of those infected.”

“Old Sari Cloth Filters Cholera, Study Finds”
New York Times: January 14, 2003

Students...

“Our experience at UNICEF reveals that **children are the best change agents at both home and in the community**. We believe that if we target the children, they will in turn bring change in the family and thereby the entire community.”

Mrs. Sukanya Subramanian, Assistant Project Officer of Education, UNICEF

Mozambique: Children Lead the Way*

In Mozambique, young people are transforming dark and dirty schools into healthy, inviting places of learning. Children as young as 7 are educating their peers, their families, and their communities about the importance of safe water, good hygiene, and private, separate sanitation facilities.

In 2000, a UNICEF study found that 80% of all primary schools here had no toilets for boys or girls and no hand-washing facilities. To address this situation, UNICEF supported the construction of latrines and hand-washing facilities for boys, girls, and teachers. But the most powerful tools in improving the school and community environment were the children themselves.

UNICEF trained 17- to 24-year-olds to bring the message about improving their schools and communities to primary school students. Child-to-child sanitation clubs sprang up in 15 primary schools. These clubs promoted hygiene practices and healthy school environments. The young people also pushed for central refuse collection spots so that they no longer had to share their play spaces with garbage.

Flávo Varela de Araújo, 14, is an active member of a child-to-child radio program that supports the school sanitation clubs. "With the creation of the club, the school environment is changing," says Flávo. "The students' behavior is changing, too."

Also, parents are listening to their children. They are practicing hygienic behavior at home. They have begun asking local authorities to provide better hygiene education and services in all schools.

These initiatives have also encouraged girls' education. Older girls used to drop out of school for lack of privacy. They are now remaining in school to complete their basic schooling. The improved hygienic conditions have given girls back their books and their dignity.

*Source: UNICEF http://www.unicef.org/infobycountry/index_2231.html

Indonesia: Water and Sanitation and the “Little Doctors”*



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Mothers in Indonesia beam with pride as they watch their children performing in the primary school play. But the mothers are more than entertained by the young actors; they are also learning valuable lessons about the importance of boiling water, washing their hands before preparing food or eating, and disposing of refuse properly.

The actors are members of “Little Doctors,” a primary school project funded by the government of New Zealand and supported by UNICEF. This school club, consisting of

30 students from grades 4 to 6, promotes hygiene through community theater and other activities.

The discussion about water, sanitation, and health continues long after the play’s final curtain. The children bring the lessons home. The mothers say that they are getting the message and are changing their hygiene behavior.

The students’ work of improving the health of their community goes beyond their theater productions. They also take charge of the village’s “Clean Friday,” a national movement that encourages hygiene promotion. When the “Little Doctors” club began in 1998, it improved the community’s sanitary environment by upgrading drains, clearing debris, and working on a school herb garden.

The Little Doctors are becoming leaders, learning to communicate clearly and effectively, problem-solve, negotiate, and analyze. As future mothers and fathers, they are also ensuring hygienic environments and better health for tomorrow’s generation. But the benefits are already happening today.

“With a clean environment people don’t become ill,” says 13-year-old Zarkasi. “So our concentration for studying isn’t disturbed and we learn better in school.”

*Source: UNICEF http://www.unicef.org/infobycountry/index_2103.html

LESSON 3

Water and Sanitation for All: Bringing the Issue Home

A Middle School Unit (Grades 6–8)

YOU CAN BE PART OF THE SOLUTION!

TOTAL TIME: 55 MINUTES

Objectives

Students will:

- Become familiar with ways they can take action to address the global water and sanitation crisis.
- Brainstorm and strategize the best way youth can take action in their communities.

Materials Needed/Setup

- Computer with Internet access set to the New York City water walk video *New Yorkers Walk a Mile on World Water Day*. To access the video visit the UNICEF YouTube Channel at <http://www.youtube.com/user/unicef#p/search/0/YgG-c2vvOnc>.
- Handout #5, “Paul Simon Water for the World Act of 2009”
- Handout #6, “Taking Action: A Planning Guide”

Directions

1. **(15 minutes)** Place students in groups and have them discuss what they read and the key action points they identified. The following questions might help facilitate group conversation:
 - What were the main activities that the students were engaged in? (Hygiene clubs, dramatic presentations, talking with their families, walkathons, cleaning up the school grounds, etc.)
 - Which of these seem easy to do and which seem more difficult?
 - What are some similarities and differences?

Explain to the students that they are going to be introduced to two ways they might be able to take action in their community and that they will be given.

Learn more about the U.S. Fund for UNICEF Tap Project, a program designed to raise awareness and funds for UNICEF water and sanitation programs, by visiting www.taproject.org.

2. **(10 minutes)** Watch *New Yorkers Walk a Mile on World Water Day*. Then ask:
 - How did these New Yorkers decide to take action?
 - What kind of impact might this type of activity have?
 - What is the goal of World Water Week?
 - Is this activity something you could do in your community? Why or why not?
3. **(20 minutes)** Have the students read Handout #5, “Paul Simon Water for the World Act of 2009” and then answer the accompanying questions. As a class discuss the students’ responses.
4. **(10 minutes)** As a closing activity brainstorm with the students how they can take action in their community to address local or global water issues.
5. **Homework:** Ask students to choose one of the action ideas the class brainstormed and complete Handout #6, “Taking Action: A Planning Guide.” Students should be prepared to share their plan with their classmates making sure to explain why it is a feasible action opportunity.

Writing Activity: If time permits have the students write a letter to their elected officials explaining why they support the Paul Simon Water for the World Act of 2009 or sign an online petition as a class at <http://volunteers.unicefusa.org/activities/advocate/>.

Visit the U.S. Fund for UNICEF Advocacy Center to learn more about the World Water Act and other pieces of legislation at <http://volunteers.unicefusa.org/activities/advocate/support-the-water-for-the.html>.

Paul Simon Water for the World Act of 2009

Name: _____

Directions: Read about the Paul Simon Water for the World Act of 2009 and then answer the questions below.



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Water is life. Yet **one billion people do not have access to safe water**, and 2.6 billion people live without proper sanitation. Diarrheal diseases related to poor water and sanitation constitute the second-highest cause of child death in the world.

UNICEF is committed to providing safe water and sanitation to the millions of affected children and their families. Access to clean water does more than just save lives, it can turn lives around. When children no

longer struggle with recurring illness, they can go to school and get an education. Their parents can tend to their fields and earn an income. Girls, especially, often miss out on school because they spend hours every day fetching water from distant sources. And when schools lack appropriate sanitation facilities, girls are more likely to drop out.

It is important that individuals everywhere continue to support programs and initiatives that help to bring safe water and better hygiene to children every day. But governments need to play a stronger role as well.

In order to strengthen the U.S. Government's response, both the House and the Senate are considering the Senator Paul Simon Water for the World Act of 2009, bipartisan legislation to help the United States make clean water a reality for a hundred million people. The legislation (S. 624 and H.R. 2030) would help provide the leadership and resources to ratchet up interventions such as building latrines, promoting hand-washing with soap, constructing water wells, and providing point of use water treatment.

1. What is the Paul Simon Water for the World Act of 2009?
2. If passed, what would this legislation help do?
3. List 3 to 5 reasons a U.S. government elected officials should or should not support this legislation.

Taking Action: A Planning Guide

Name: _____

Directions: Choose one of the action ideas that were discussed in class or share another idea and then use this template to explain how you might implement this idea in your community.

I. Action Idea

- What is your action idea?
- What specific issue do you want to address?
- Why do you think this is an important issue?
- Why do you think this is the best way to address this issue?

II. Logistical Information

- Ideally, how many people do you need to implement this idea?
- Do the people who help you with this idea need to have any specific skills?
- Are there any costs associated with this action idea? Explain.
- How much time do you need to plan and then implement this idea?

III. Other

- Are there any disadvantages to this idea?

