

World Toilet Day 2019



A RESOURCE PACKET FOR EDUCATORS

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BILL & MELINDA
GATES foundation



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CENTER FOR
GLOBAL STUDIES
UNIVERSITY of WASHINGTON
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School of International Studies

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Using This Resource Guide

NOTE: Many of these descriptions were excerpted directly from the source website



Recommended Resource



Visual Media



Lesson Plan



Audio



English/Language Arts



Charts and Graphs



Fast Fact/Did You Know?



Articles



Find this packet and more at
world-affairs.org/program/global-classroom

GLOBAL CLASSROOM WANTS TO KNOW HOW YOU
 HAVE USED THIS RESOURCE PACKET IN YOUR
 CLASSROOM!

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Lesson Objectives

1. Students will be able to identify and evaluate the factors (political, economic, social, etc.) that contribute to a lack of sanitation services in various communities around the world.
2. Students will be able to identify the individual and communal challenges (or consequences) that arise due to a lack of sanitation services.
3. Students will be able to develop and evaluate courses of action that address sanitation issues world-wide.
4. Students will be able to identify and describe the interconnected challenges related to water, sanitation, and hygiene.
5. Students will be able to identify and describe the role of local, national, and international organizations and their work to provide access to sanitation resources world-wide.
6. Students will be able to explain the purpose of Sustainable Development Goal #6 (SDG) and evaluate its progress in providing clean water and sanitation for all communities.
7. Students will be able to identify, research, and critique different technologies and their effectiveness in addressing sanitation challenges.



A Note on Learning Standards Presented in this Packet:

Three sets of standards have been linked to each of the learning objectives in this packet. The **Washington State K-12 Social Studies Learning Standards** and the accompanying Grade Level Requirements are the social studies standards for WA State.

The **College, Career, & Civic Life C3 Framework for Social Studies State Standards** are the standards published by the National Council for the Social Studies. Guiding the packet as a whole is the Framework for Global Learning created by the Asia Society and the Council of Chief State School Officers titled *Educating for Global Competence: Preparing Our Youth to Engage the World* (2011).

Cross-objective standards are listed at the beginning of the packet, and content-specific standards can be found after each learning objective.

The standards provided have been selected for relevance, but are not exclusive: many other standards, such as Common Core, may be applicable to the resources and learning objectives identified in this packet. The intention for this packet's organization is to provide educators with an idea of resources available and possible uses for resources. Users should feel free to create their own learning objectives and to select resources according to the specific needs of their classrooms.

WASHINGTON STATE K-12 SOCIAL STUDIES LEARNING STANDARDS

There are five EALRs in Social Studies, one for each of the discipline areas: civics, economics, geography, and history, and a fifth for social studies skills.

(1) Social Studies EALR 1: CIVICS

The student understands and applies knowledge of government, law, politics, and the nation's fundamental documents to make decisions about local, national, and international issues and to demonstrate thoughtful, participatory citizenship.

(2) Social Studies EALR 2: ECONOMICS

The student applies understanding of economic concepts and systems to analyze decision-making and the interactions between individuals, households, businesses, governments, and societies.

(3) Social Studies EALR 3: GEOGRAPHY

The student uses a spatial perspective to make reasoned decisions by applying the concepts of location, region, and movement and demonstrating knowledge of how geographic features and human cultures impact environments.

(4) Social Studies EALR 4: HISTORY

The student understands and applies knowledge of historical thinking, chronology, eras, turning points, major ideas, individuals, and themes on local, Washington State, tribal, United States, and world history in order to evaluate how history shapes the present and future.

(5) Social Studies EALR 5: SOCIAL STUDIES SKILLS

The student understands and applies reasoning skills to conduct research, deliberate, and form and evaluate positions through the processes of reading, writing, and communicating.

COLLEGE, CAREER, & CIVIC LIFE C₃ FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

The C₃ Framework is organized into the four Dimensions, which support a robust social studies program rooted in inquiry.

The four Dimensions are as follows:

- (1) Developing questions and planning inquiries;
- (2) Applying disciplinary concepts and tools;
- (3) Evaluating sources and using evidence;
- (4) Communicating conclusions and taking informed action

C₃ Framework Organization

DIMENSION 1: DEVELOPING QUESTIONS AND PLANNING INQUIR-	DIMENSION 2: APPLYING DISCIPLINARY TOOLS AND CONCEPTS	DIMENSION 3: EVALUATING SOURCES AND USING EVIDENCE	DIMENSION 4: COMMUNICATING CONCLUSIONS AND
Developing Questions and Planning Inquiries	<ul style="list-style-type: none"> • Civics • Economics • Geography • History 	<ul style="list-style-type: none"> • Gathering and Evaluating Sources • Developing Claims and Using Evidence 	<ul style="list-style-type: none"> • Communicating and Critiquing Conclusions • Taking Informed Action

Dimension 2 has four disciplinary subsections: **(1) Civics; (2) Economics; (3) Geography; (4) History**. Each disciplinary subsection has three to four additional categories, which provide an organizing mechanism for the foundational content and skills within each discipline.

Four Categories within Dimension 2

CIVICS	ECONOMICS	GEOGRAPHY	HISTORY
Civic and Political Institutions	Economic Decision Making	Geographic Representations: Special Views of the World	Change, Continuity, and Context
Participation and Deliberation: Applying Civic Virtues and Democratic Principles	Exchange and Markets	Human-Environment Interaction: Place, Religions, and Culture	Perspective
Processes, Rules, and Laws	The National Economy	Human Populations: Spatial Patterns and Movements	Historical Sources and Evidence
	The Global Economy	Global Interconnections: Changing Spatial Patterns	Causation and Argumentation

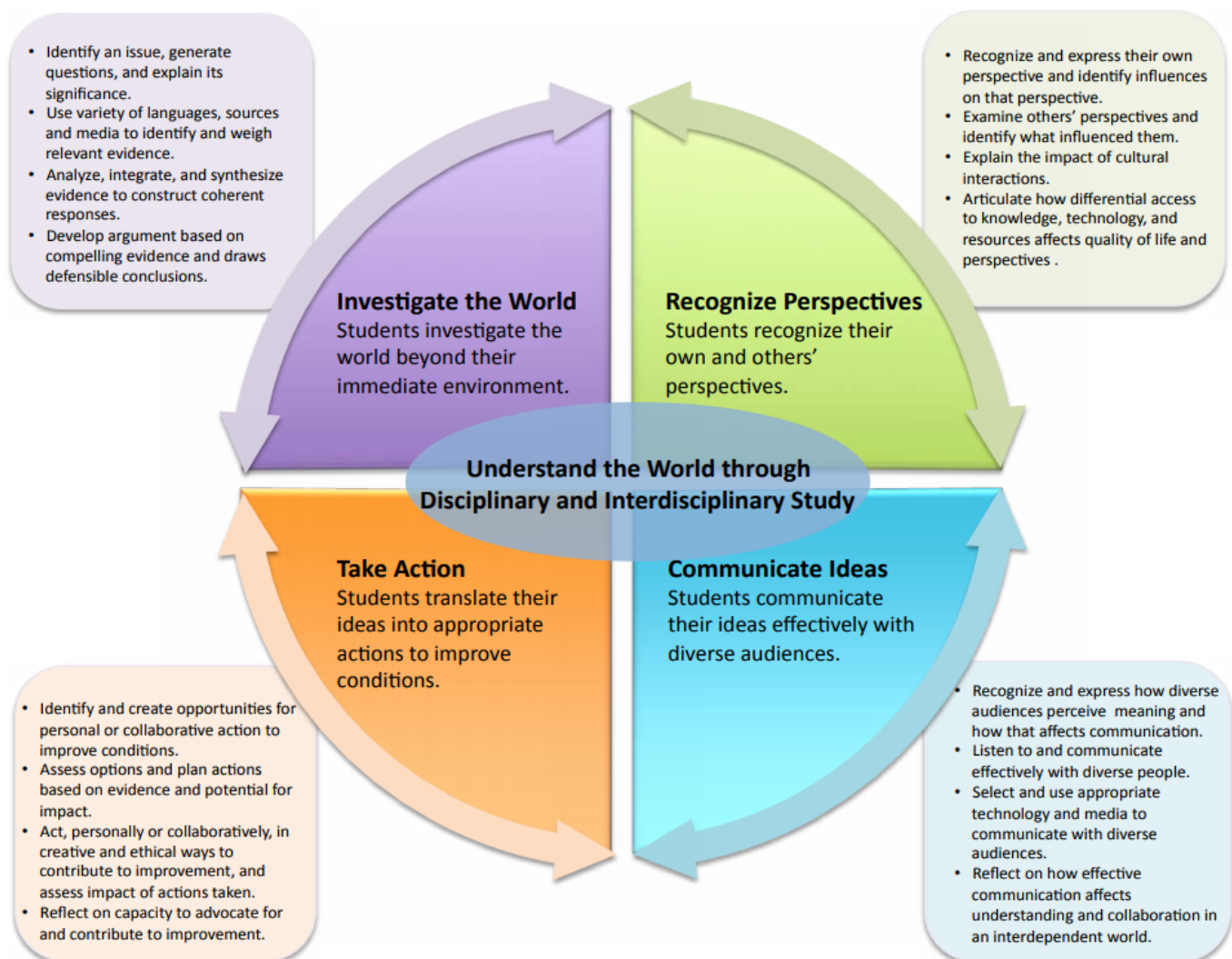
EDUCATING FOR GLOBAL COMPETENCE

Frameworks taken from *Educating for Global Competence: Preparing Our Youth to Engage the World* (Asia Society and the Council of Chief State School Officers 2011).

“Global competence is the capacity and disposition to understand and act on issues of global significance” (Chapter 2).

Globally competent students are able to perform the following four competences:

1. **Investigate the world** beyond their immediate environment, framing significant problems and conducting well-crafted and age-appropriate research.
2. **Recognize perspectives**, others’ and their own, articulating and explaining such perspectives thoughtfully and respectfully.
3. **Communicate ideas** effectively with diverse audiences, bridging geographic, linguistic, ideological, and cultural barriers.
4. **Take action** to improve conditions, viewing themselves as players in the world and participating reflectively.



Key Terms

Improved and Unimproved sanitation: Both of these terms form part of the JMP (see below) categorization of types or levels of sanitation. Improved sanitation includes flush toilets, pit latrines with slab, composting toilets, etc. Unimproved sanitation includes public or shared latrines, bucket latrines, open defecation, etc.

Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP): A World Health Organization/UNICEF programme which reports country, region, and global estimates of progress on drinking water, sanitation, and hygiene and has done since 1990.

WASH: An acronym that stands for water, sanitation and hygiene. Grouped together for convenience and frequently used by the UN and UNICEF.

Wastewater: Term which incorporates any water which has been affected by human use including domestic, industrial and commercial activities.

World Toilet Organization: An international non-profit with a focus on improving toilet and sanitation conditions globally. It was founded in 2001 by Jack Sim.

Sanitation: Term refers to the provision of facilities and services for the safe management of human excreta. More broadly, the term sanitation includes the safe management of solid waste and animal waste.

A Note on Articles and Paywalls

Some of the resources found within this packet require a subscription or other payment in order to be viewed. If you do not have free access to these resources through your home institution, you may be able to access them through the University of Washington's borrowing program for educators. To find out how to utilize this program, please follow the link below:

<http://www.lib.washington.edu/services/borrow/card/eligible>



Section 1: What is World Toilet Day?



World Toilet Day 2019: Leaving No One Behind

<https://www.worldtoiletday.info/>

The official World Toilet Day website which includes links to resources and information about relevant events.



World Toilet Day 2019: Background

<https://www.un.org/en/events/toiletday/background.shtml>

United Nations webpage which explores the background to World Toilet Day, which was designated as the 19th November by the United Nations General Assembly.



What in the World is World Toilet Day

<https://www.youtube.com/watch?v=fvEC7keAJgc>

A very informative short animation which introduces World Toilet Day and the problems it hopes to address.



World Toilet Day

<https://www.cdc.gov/healthywater/observances/world-toilet-day.html>

The Centers for Disease Control and Prevention introduction to World Toilet Day. Website includes many useful links for the understanding and promotion of World Toilet Day.



World Toilet Day, Message from the UN Deputy Secretary-General

https://www.youtube.com/watch?v=Ww_B0mvGiYc&list=UU5O114-PQNYkurITg6hekZw&index=2

A video from 2013 featuring the UN Deputy Secretary General discussing the importance of sanitation and, therefore, World Toilet Day.



World Toilet Organization: Our Story

<http://worldtoilet.org/our-story/>

An introduction to the World Toilet Organization, the non-profit which established World Toilet Day and the World Toilet Summit in 2001, and their mission to build global sanitation solutions.



Meet Mr. Toilet

<https://vimeo.com/34792993>

Short video introducing Jack Sim, the founder of the Restroom Association of Singapore, the World Toilet Organization, the World Toilet Day initiative, and Bottom of the Pyramid Hub.



<https://www.un.org/en/events/toiletday/>



World Toilet Day Puts Spotlight on Sanitation Crisis

https://www.youtube.com/watch?time_continue=2&v=QE-QeAQjTE&feature=emb_title

A short TIME video which introduces World Toilet Day and its role in the sanitation crisis.



World Toilet Day - Where You Go, Matters

https://www.youtube.com/watch?time_continue=2&v=QE-QeAQjTE&feature=emb_title

Video from the Ministry of the Environment and Water Resources which considers World Toilet Day and why it is important.



Rethinking Shit

<https://www.rethinkingschools.org/articles/rethinking-shit-excrement-and-equity>

An article from the point of view of an educator, discussing how to change their students' approach to 'shit' and thereby help to tackle the global sanitation crisis.



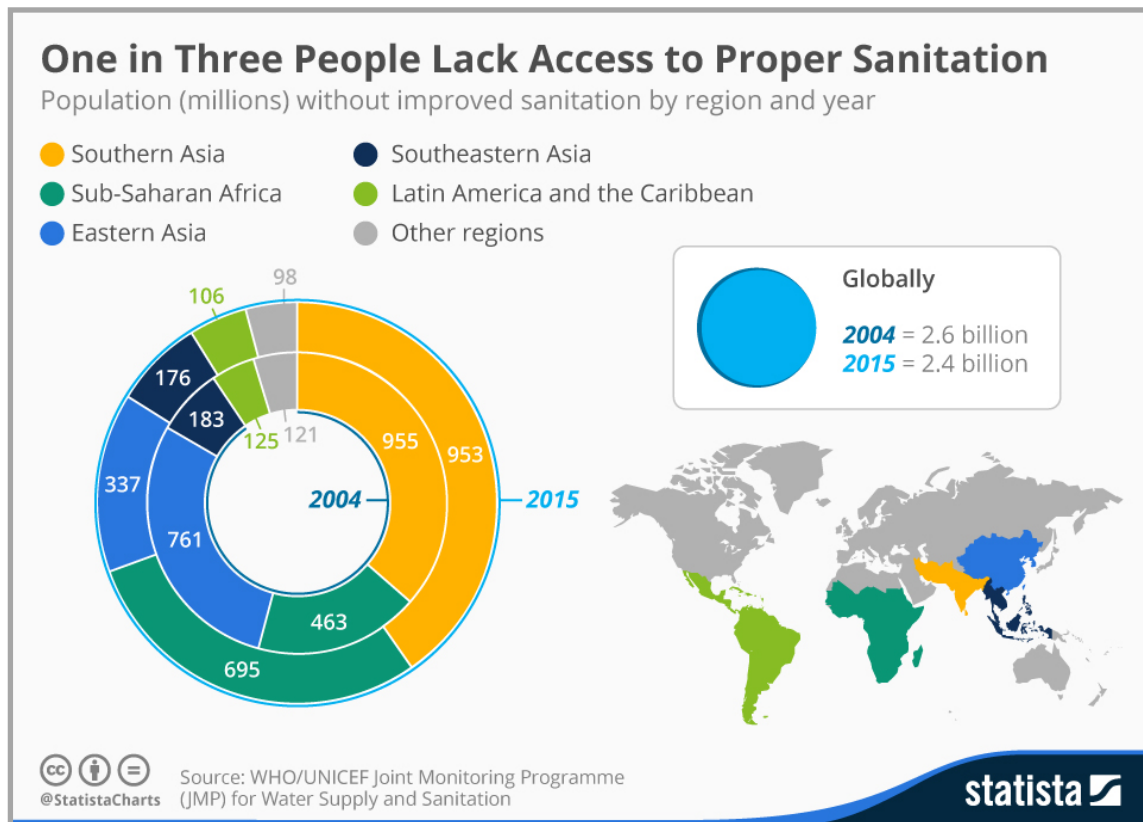
Jack Sim, the founder of the World Toilet Organization and the World Toilet Day initiative.

<http://www.csrvision.in/mr-jack-sim-founder-world-toilet-organization-a-patron-who-live-a-useful-life/>



<https://www.urdupoint.com/en/pakistan/world-toilet-day-on-monday-483026.html>

Section 2: How common is lack of access to sanitation?



International Decade for Action 'WATER FOR LIFE' 2005-2015: Access to Sanitation

<https://www.un.org/waterforlifedecade/sanitation.shtml>

The United Nations update on access to sanitation, prevalent types of sanitation (e.g. basic, unimproved), and what initiatives the UN are involved with to help raise the issue globally.



11 Key Lessons About Water, Sanitation and Hygiene in Schools

<https://www.unicef.org/stories/11-lessons-water-school>

In this article, UNICEF provides some key facts about WASH in schools. For example: globally only 66 per cent of schools have basic sanitation services.



Lack of Safe Water, Sanitation and Soap 'an embarrassment', Says WHO

<https://www.theguardian.com/global-development/2015/mar/17/lack-safe-water-sanitation-soap-embarrassment-who-priority>

Guardian article into the lack of clean water and basic sanitation in health care facilities in low- and middle- income countries.



Drinking Water, Sanitation and Hygiene in Schools: Global Baseline Report 2018

<https://data.unicef.org/resources/wash-in-schools/>

Extensive report into the availability and use of WASH facilities in schools worldwide, along with why they are fundamental to childhood development and education.



Lesson Plan

<https://thewaterproject.org/resources/lesson-plans/water-water-anywhere>

Lesson designed to teach students the reality of water scarcity and the difficulty in allocating water as a resource.

The global population practising open defecation is slowly declining

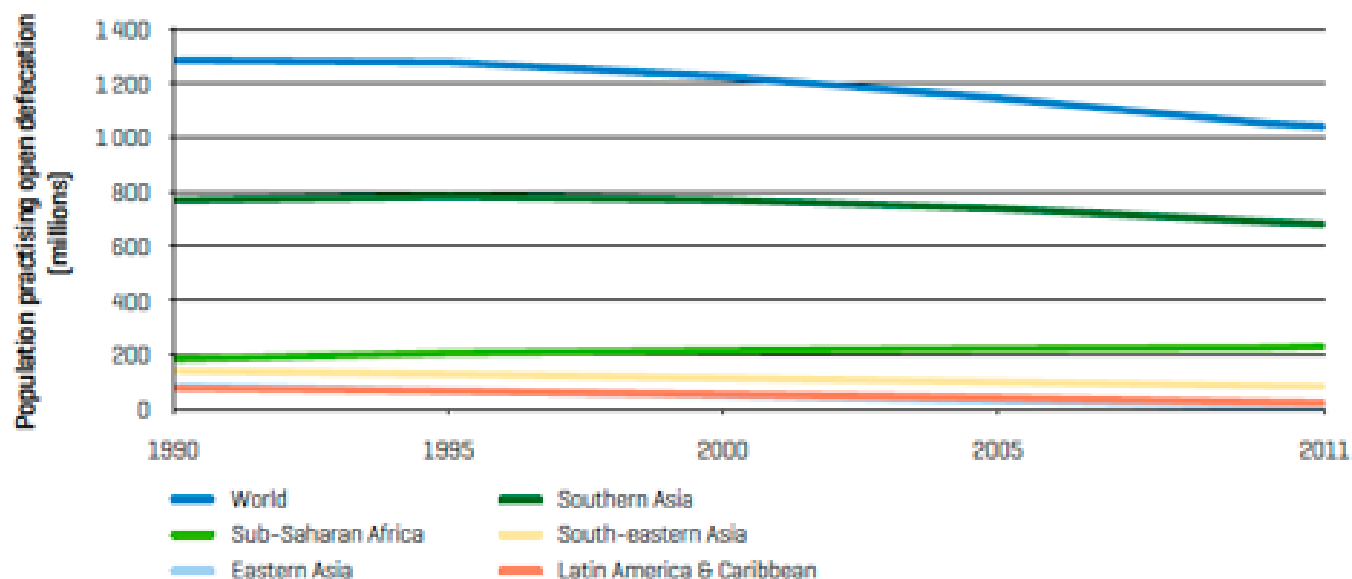


Figure 5. Open defecation trends in developing regions and the world, 1990–2011.

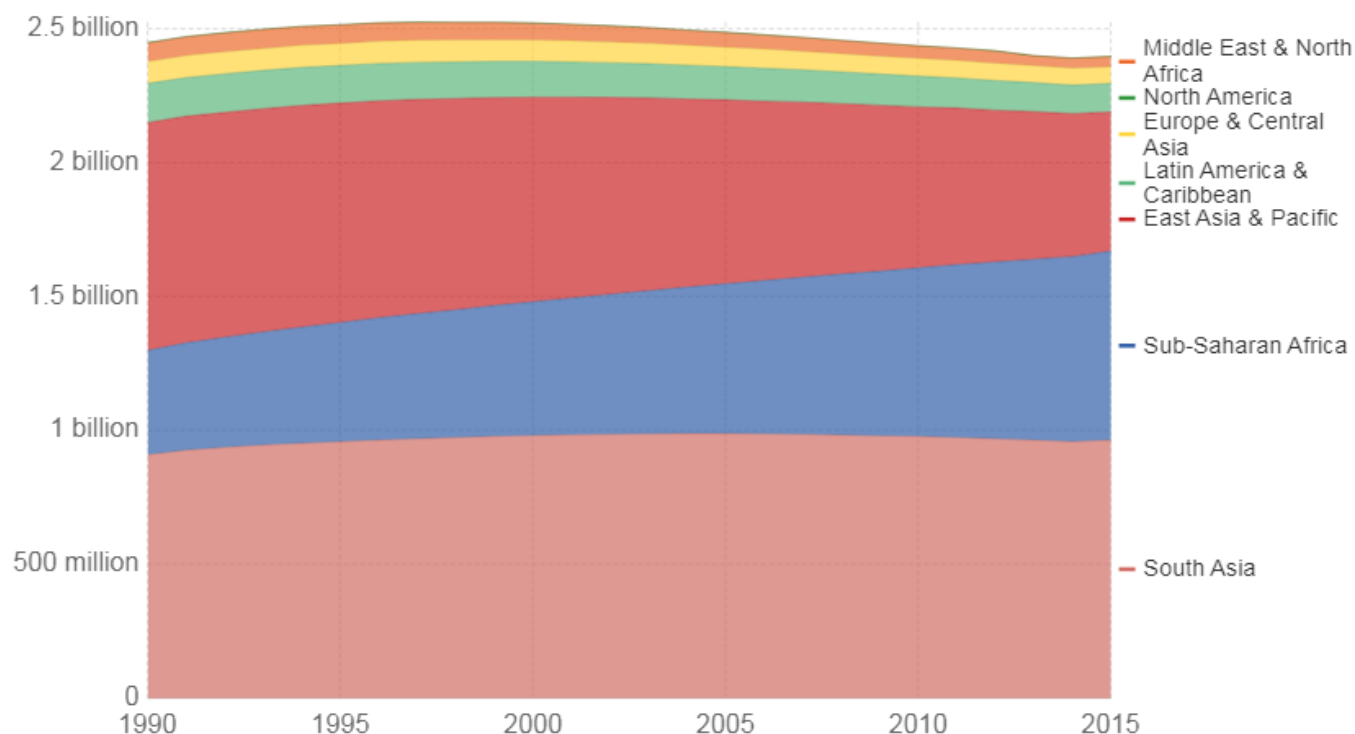
<https://www.un.org/waterforlifedecade/sanitation.shtml>

<https://ourworldindata.org/water-use-sanitation>

Number of people without access to improved sanitation facilities

The total number of people with and without access to an improved sanitation facility by region. Improved sanitation facilities include flush/pour flush (to piped sewer system, septic tank, pit latrine), ventilated improved pit (VIP) latrine, pit latrine with slab, and composting toilet.

Our World
in Data



Source: OurWorldinData based on World Bank, World Development Indicators
OurWorldinData.org/water-access-resources-sanitation/ • CC BY-SA



Water Use and Sanitation

<https://ourworldindata.org/water-use-sanitation>

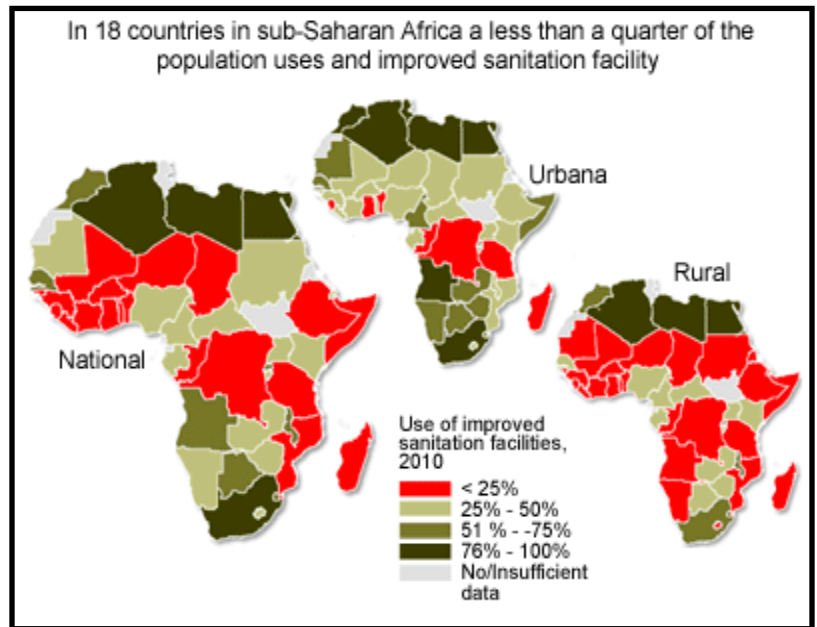
A series of maps, graphs, and charts providing information on water sources, freshwater use, irrigation, and, importantly for World Toilet Day, progress on sanitation.



Sanitation: Key Facts

<https://www.who.int/news-room/fact-sheets/detail/sanitation>

The World Health Organization's key facts on global sanitation, with further reference to how health and sanitation are related.



Billions Globally Lack 'water, sanitation and hygiene', New UN Report Spells Out

<https://news.un.org/en/story/2019/06/1040701>

Article into a recent Joint Monitoring Programme report which found gaps in the quality of services being provided.

<https://www.un.org/waterforlifedecade/africa.shtml>



2.1 Billion People Lack Safe Drinking Water at Home, More than Twice as Many Lack Safe Sanitation

<https://www.who.int/news-room/detail/12-07-2017-2-1-billion-people-lack-safe-drinking-water-at-home-more-than-twice-as-many-lack-safe-sanitation>

A World Health Organization article into the Sustainable Development Goals and the WASH inequalities that continue despite the commitment to good hygiene and sanitation.



People Using Safely Managed Sanitation Services (% of population)

<https://data.worldbank.org/indicator/SH.STA.SMSS.ZS>

Interactive data sets from the World Bank which consider the percentage of every country, and the world as a whole, using safely managed sanitation services. Also provides information as to how this percentage has changed since 2000.



Improved Sanitation Facilities (% of population with access) - Country Ranking

<https://www.indexmundi.com/facts/indicators/SH.STA.ACSN/rankings>

Website which considers how 189 countries rank in terms of the percentage of their population using 'improved' sanitation facilities. Includes links which provide country specific information.



Lesson Plans

<http://www.wateraidgames.org/angryturds>

Play 'Angry Turds' with the students, a game designed in coordination with Wateraid to spread awareness of the extent of unimproved sanitation.

<https://www.wateraid.org/us/publications/human-rights-and-sanitation-lesson-plans>

This set of lesson plans introduces middle school age children to the idea of human rights in the context of basic sanitation.



Fast Facts

- 4.5 billion people live without a safe toilet and 673 million people still practice open defecation.
- One fifth of schools worldwide do not provide any toilet facilities.

Case Study: Cambodia



Sanitation for a Better Cambodia: The Cambodia Rural Sanitation and Hygiene Improvement Program (CR-SHIP)

<https://www.wsscc.org/wp-content/uploads/2016/04/Sanitation-for-a-Better-Cambodia-The-Cambodia-Rural-Sanitation-and-Hygiene-Improvement-Program-CR-SHIP-2014.pdf>

A report on CR-SHIP, a Cambodian program aiming to improve sustainable and consistent use of WASH facilities within the country.



Cleaning Up Cambodia's Toilet Problem

<https://www.dw.com/en/cleaning-up-cambodias-toilet-problem/a-17218678>

Article discussing the sanitation situation in Cambodia with reference to its effects on child mortality. Includes a discussion of potential solutions such as 'hands-off sanitation marketing' whereby local businesses pay for their toilets and, as a result, feel a sense of ownership and prestige.



Water, Sanitation and Hygiene (WASH)

http://www.wpro.who.int/cambodia/topics/water_sanitation/en/

Brief article into WASH in Cambodia and the continuing inequalities in sanitation between urban and rural areas.



World Toilet Day: Growing Momentum for Sanitation in Cambodia

<https://www.aljazeera.com/news/2017/11/world-toilet-day-growing-momentum-sanitation-cambodia-171119110541888.html>

Al Jazeera article into sanitation in Cambodia and how attitudes towards toilets are changing.



Cambodia

<https://water.org/our-impact/cambodia/>

A brief overview of the sanitation crisis in Cambodia and how Water.org is helping to expand access to safe sanitation facilities.



2 Million
without clean water

6 Million
without safe sanitation

<https://lifewater.org/blog/cambodia-water-crisis/>

Case Study: South Sudan



Water, Sanitation and Hygiene (WASH)

<https://www.unicef.org/southsudan/media/2076/file/UNICEF-South-Sudan-WASH-Briefing-Note-May-2019.pdf>

UNICEF article into just how scarce access to adequate water facilities is in South Sudan.



Water and Sanitation in South Sudan: What Needs to be Done to Bridge the Gap?

<http://www.southsudanmedicaljournal.com/archive/may-2014/water-and-sanitation-hygiene-in-south-sudan-what-needs-to-be-done-to-bridge-the-gap.html>

An article from the South Sudan Medical Journal into what needs to be done in South Sudan to challenge its extensive WASH problem.

South Sudan



<https://www.communityledtotalsanitation.org/country/south-sudan>

Article by Community-led Total Sanitation into the Sudanese sanitation problem and its context. Includes a discussion of the success of this non-profit in targeting the problem.



How Simple Toilets and Sanitation are Saving Lives in South Sudan

<https://www.oxfam.org/en/south-sudan/how-simple-toilets-and-sanitation-are-saving-lives-south-sudan>

Discussion of the sanitation problem facing South Sudan and what Oxfam has been doing to challenge it.



KNOW YOUR TOILET

toiletday.com

ArborLoo

This modified pit latrine, once full, it offers a rich compost to plant a young tree. ArborLoos are useful in areas recovering from deforestation, and fruit trees provide food.



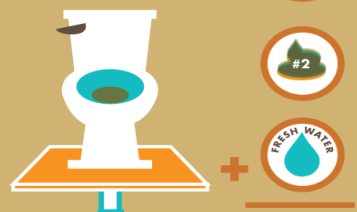
+ Cheap (~\$60), hygienic, doesn't need much water, helps the environment, food/income from fruit

- Requires education to use properly, must dig new pit every 6-8 months, the new tree needs heavy watering after being planted



Flush Toilet

A porcelain seat connected to a piped water source or septic tank, this toilet uses fresh water to flush away waste.



+ Clean, sanitary, easy to use, low maintenance, can be mass produced

- Reliant on municipal water systems, uses large amounts of drinkable water, more expensive than other systems



Pit Latrine (unimproved)

Pit latrines are the simplest form of sanitation and appear worldwide. However, pit latrines built poorly or lacking venting can pose a serious disease risk.



+ Inexpensive, simple, no reliance on formal utilities

- Strong odor, breeding grounds for insects, if poorly lined or near the water table, can leach contents into groundwater & spread disease



VIP Latrine (improved)

A pit latrine with a vent pipe allows odors to be exhausted from the pit while controlling flies. A deep enough pit will not fill up under normal use.



+ Inexpensive, simple, no reliance on formal utilities, reduced odor, controls flies, hygienic

- More features mean more expensive than a pit latrine



Open Defecation

This is the only option for millions of people around the world. Open defecation means using open land or waterways. This is the least sanitary option, and its effects are dramatic in urban areas.



+ Free, no construction or infrastructure needed

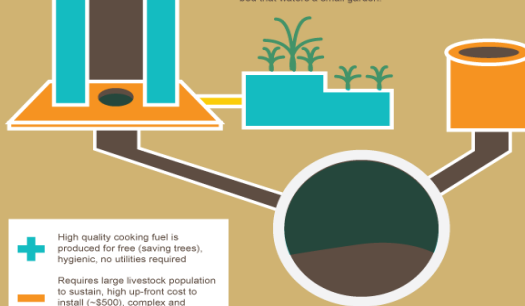
- Waste tracked by feet, flies and flooding, rapidly spreads disease, strong odor, undignified or taboo in most societies



BioGas Toilet (with urine diversion)

This toilet funnels waste into an airtight pit while a second receptacle accepts animal dung slurry (dung + water) and the two mix together underground. The pit generates methane gas and as the pressure builds, gas is pushed through a pipe connected to a cook stove.

A urine diversion system collects urine and wash water separately from solid waste, channeling them into a rocky filter bed that waters a small garden.



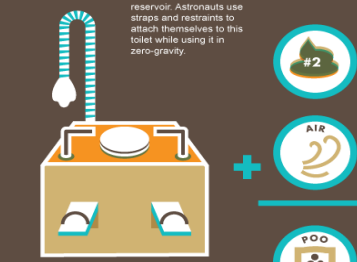
+ High quality cooking fuel is produced for free (saving trees), hygienic, no utilities required

- Requires large livestock population to sustain, high up-front cost to install (~\$500), complex and difficult to use/maintain



Space Toilet

Aboard the International Space Station, toilets use high speed air to vacuum human waste into sealed packages for the return to Earth. Water is filtered from urine and returned to the drinking water reservoir. Astronauts use straps and restraints to attach themselves to this toilet while using it in zero-gravity.



+ System works in zero gravity, hygienic, urine is filtered to create drinking water

- Extremely complex, difficult to use and maintain, one space toilet costs \$19 million



Section 3: Why is safe, clean sanitation important?

1: Disease and nutrition



Water, Sanitation and Hygiene

https://www.unicef.org/wash/index_wes_related.html

A list of common water and sanitation-related diseases.



Diarrheal Disease Solutions: WASH

<https://report.defeatdd.org/wash/>

Defeat Diarrheal Diseases report which considers WASH solutions to the diarrheal disease epidemic.



Preventing Diarrhoea Through Better Water, Sanitation and Hygiene

https://apps.who.int/iris/bitstream/handle/10665/150112/9789241564823_eng.pdf;jsessionid=87D9386128B9163263DAB93A243C8451?sequence=1

Report based on scientific literature on the medical burden of diarrhoea resulting from inadequate water, sanitation, and hygiene.



Lack of Water, Sanitation and Hygiene (WASH) and its Effect on Nutrition

<https://www.youtube.com/watch?v=di2Yxd9cA1U>

Short video by the Sustainable Sanitation Alliance on why sanitation is important and how a lack of sanitation is linked to disease and malnutrition.



The Impact of Poor Sanitation on Nutrition

<https://thousanddays.org/wp-content/uploads/The-Impact-of-Poor-Sanitation-on-Nutrition-1.pdf>

Thorough report into the impact of poor sanitation on nutrition and physical development in children.



Why the Lack of Toilet is Killing Millions

https://www.youtube.com/watch?v=B6g92hRzXc&feature=emb_title

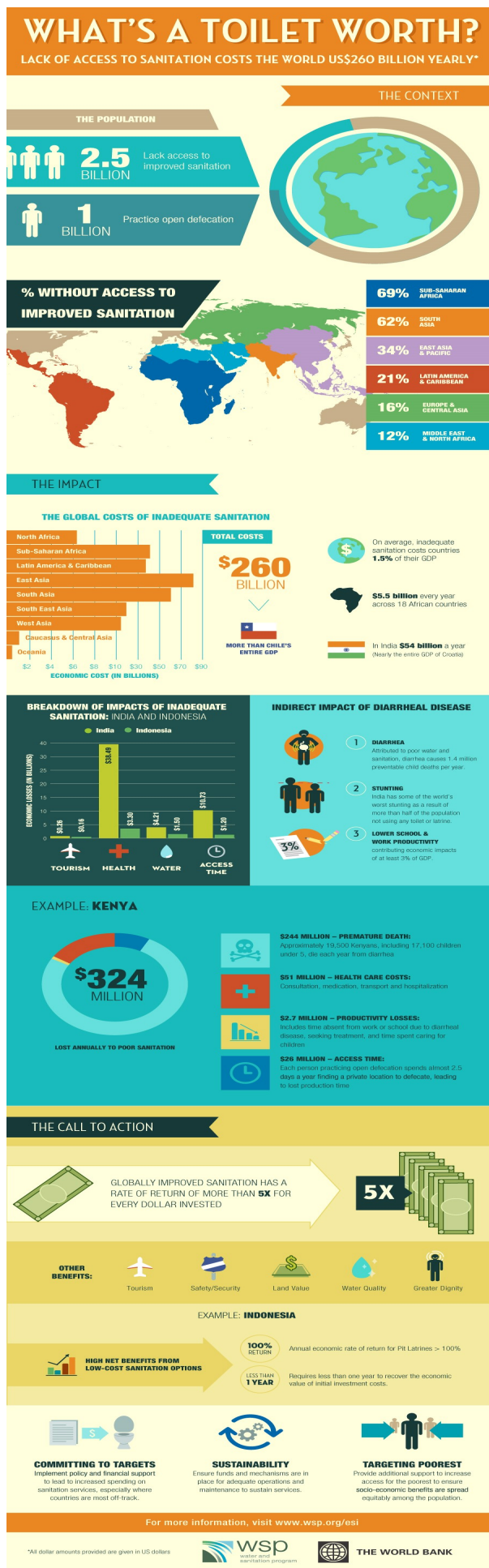
A short video into how the lack of sanitation affects millions worldwide.



Lesson Plan

<https://static1.squarespace.com/static/563a8427e4b02d05f44d829d/t/564ce8d2e4b0e4c59118f59a/1447880914071/classroom+activity%3B+science+1+-4+Health+disease+transmission.pdf>

Lesson which aims to give students experience of the ways that disease can transfer.





Improving Nutrition Outcomes with Better Water, Sanitation and Hygiene

<https://blogs.worldbank.org/water/gender-and-sex-inequalities-water-sanitation-and-hygiene>

Extensive report into the influence of poor WASH on nutrition and the interventions necessary to prevent disease and improve nutritional status.



Unique Urban Sanitation Issues

<http://www.uniteforsight.org/urban-health/module4>

A consideration into how urban poverty and poor sanitation are related, and the resultant health hazards that this intersection of problems causes.



Shared Sanitation and the Prevalence of Diarrhea in Young Children: Evidence from 51 Countries, 2001-2011

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4080558/>

Medical study into the causal relationship between shared 'unimproved' sanitation and diarrhoea among children.



How to Observe World Toilet Day—A Crash Course on Sanitation

<https://www.globalcitizen.org/en/content/world-toilet-day-sanitation-water-poop/>

An article about World Toilet Day and why sanitation is important to prevent the spread of microbes and disease.



Lesson Plans

<https://thewaterproject.org/resources/lesson-plans/hand-washing-hangups>

Lesson plan to show the importance of hygiene and sanitation training in water improvement projects.

<http://>

cdn.worldslargestlesson.globalgoals.org/2016/06/14-Clean-Water-for-All.pdf

Lesson plan to help students understand water pollution, its causes, and the global inequality of access to clean water.

https://www.wateraid.org/us/sites/g/files/jkxoof291/files/splish-splash-flush-ks2-lesson-plans_0.pdf

This set of lesson plans introduces younger students to the significance of toilets in staying healthy.

https://discovergates.org/wp-content/uploads/2019/04/Dollar-Street-Secondary-LP_Secondary.doc

This lesson plan from the Gates Foundation considers different methods of sanitation across the world and their importance.

In the WHO European Region diarrhoeal diseases cause an estimated **14 deaths per day** due to inadequate

WaSH WATER SANITATION HYGIENE

Diarrhoeal diseases can be prevented through:

- safely managed drinking-water
- adequate sanitation and safely managed wastewater disposal
- good handwashing practices.

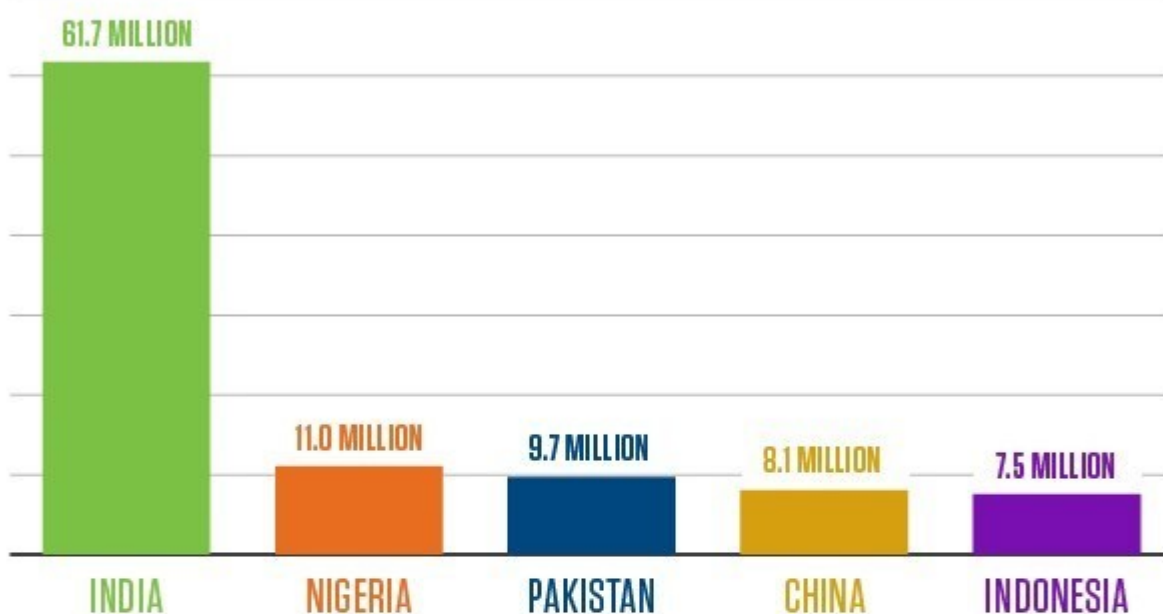
<http://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation>

04/2016

World Health Organization Europe

FOUR OF THE TOP FIVE COUNTRIES WITH THE LARGEST NUMBER OF THE WORLD'S STUNTED CHILDREN ARE IN ASIA.

NUMBER OF STUNTED CHILDREN UNDER AGE 5



STUNTING PREVALENCE



1 IN 4
GLOBAL SHARE OF
CHILDREN UNDER 5 WHO
ARE STUNTED

860k
ANNUAL DEATHS OF
CHILDREN UNDER 5
FROM MALNUTRITION

2.5 BILLION
PEOPLE LACK ACCESS
TO IMPROVED
SANITATION

Sources: Unicef, *Improving Child Nutrition: The Achievable Imperative for Global Progress* (New York: Unicef, 2013); World Health Organization, *Safer Water, Better Health: Costs, Benefits, and Sustainability of Interventions to Protect and Promote Health* (Geneva: WHO, 2008); and United Nations, "We Can End Poverty: Millennium Development Goals and Beyond 2015," accessed at www.un.org/millenniumgoals/enviro.htm, on July 29, 2014.

2: For gender equality



We Can't Wait: A Report on Sanitation and Hygiene for Women and Girls

<http://worldtoilet.org/wp-content/uploads/2014/02/WecantWait.pdf>

An extensive report into the effect of poor sanitation on women and girls. The report has found that improved sanitation: ensures better birth survival rates; provides more privacy for girls when they are menstruating; prevents sexual violence; and keeps women and girls in their places of work or education.



Safe Water and Basic Sanitation Would Slash Maternal Deaths, Report Says

<https://www.theguardian.com/global-development/2014/dec/16/safe-water-sanitation-maternal-deaths>

Guardian article into how the number of deaths from childbirth complications could be reduced if access to water and sanitation facilities was improved.



4 Reasons Water and Sanitation are a Gender Issue

<https://www.globalcitizen.org/en/content/4-reasons-water-and-sanitation-are-a-gender-issue/>

A Global Citizen article discussing how women and girls are affected by lack of water and sanitation.



It's Time we Focus on Women's Access to Better Sanitation Facilities

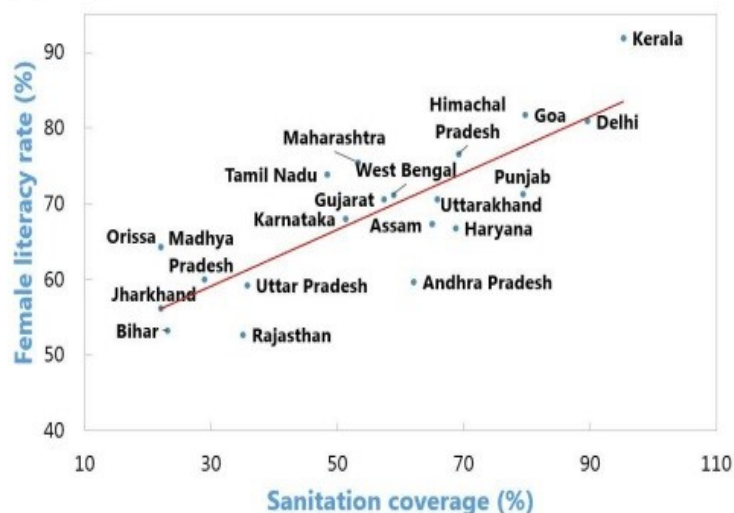
<https://yourstory.com/mystory/5331941b32-it-s-time-we-focus-on>

Article considering the problems faced by women lacking adequate sanitation, specifically in India.

Well read

Indian states with higher sanitation coverage have higher female literacy rates.

(in percent)



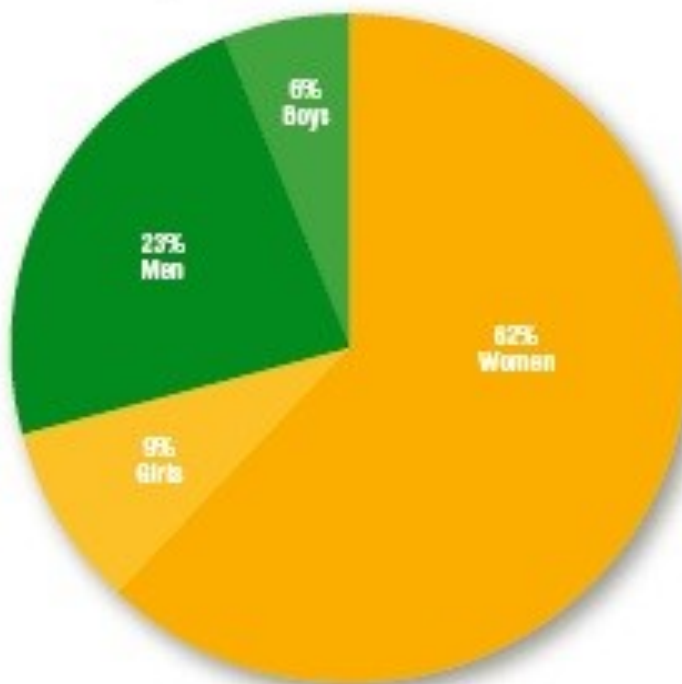
Sources: Census of India (2011), and IMF staff estimates.



INTERNATIONAL
MONETARY FUND

<https://blogs.imf.org/2017/02/27/chart-of-the-week-for-india-toilets-bring-benefits/>

Women bear the main responsibility for collecting water in sub-Saharan Africa



https://www.unicef.org/wash/index_womenandgirls.html



Lesson Plan

<https://www.peacecorps.gov/educators/resources/healthy-girls-healthy-villages/>

A Peace Corps lesson plan which seeks to explore the challenges facing girls in Niger, including sanitation related health issues.



https://www.devp.org/sites/www.devp.org/files/documents/thinkfast-activities/07-thinkfast_walkingforwater.pdf

Educational game which aims to teach students about global disparity resulting from unfair division of the world's resources.



Gender, Women and Sanitation

<https://www.waterpathogens.org/book/gender-and-sanitation>

Extensive study into how women and girls are especially affected by inadequate sanitation and how this inequality manifests itself.



Gender Equality in the 2030 Agenda

<https://www.unwomen.org/-/media/headquarters/attachments/sections/library/publications/2018/issue-brief-gender-responsive-water-and-sanitation-systems-en.pdf?la=en&vs=3915>

UN report into WASH as a gender-based issue.



India Bihar Rapes 'caused by lack of toilets'

<https://www.bbc.com/news/world-asia-india-22460871>

BBC article on the assault of women and girls in India's Bihar state, with comments by senior police officials on how indoor toilets might have changed the prevalence of rape in the area.



Violence, Gender and WASH: a Practitioners' Toolkit. Making Water, Sanitation and Hygiene Safer Through Improved Programming

<https://odihpn.org/magazine/violence-gender-and-wash-a-practitioners-toolkit-making-water-sanitation-and-hygiene-safer-through-improved-programming/>

Humanitarian Practice Network website considering how violence against women is related to lack of access to water, sanitation and hygiene.



India's Sanitation Crisis Is Trapping Women In A Cycle of Violence

<https://www.forbes.com/sites/anushayhossain/2014/09/09/indias-sanitation-crisis-is-trapping-women-in-a-cycle-of-violence/#6bab1a4f2910>

Forbes article into sanitation facilities in India and how the lack of such facilities affects women.

Poor WASH conditions have significant **costs on well-being**



Aquiring Water

17.4 minutes – average time households spend to reach their water source, collect water, and come back home

81% of water collection trips take place on foot

Responsibility for fetching water falls primarily on **women** (63%) and **young girls** (15%)

4.19 trips household members take to fetch water on a typical day

<https://blogs.worldbank.org/water/gender-and-sex-inequalities-water-sanitation-and-hygiene>

AN ESTIMATED
SEVENTEEN
MILLION



Number of people in Vietnam who do not have access to a clean, safe toilet.



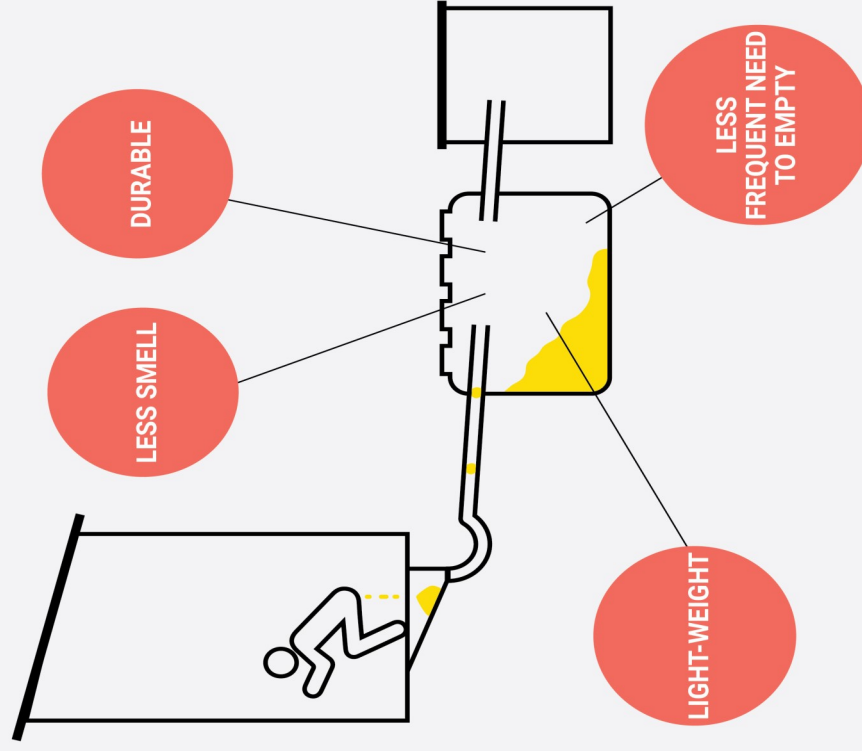
1/3 of deaths among children under five are caused by limited sanitation services, unsafe water and poor hygiene practices.



Unsafe sanitation puts women and children at risk for assault.



The lack of sanitation contributes to **1.5 million** deaths from diarrheal diseases among children under five each year across the globe.



<https://www.psi.org/2015/11/how-building-toilets-ensures-dignity-and-health-for-women-and-girls/>

3: For education



The Impact of a Toilet: A Family Story

<https://www.youtube.com/watch?v=8dnKTxFbrol>

Short video into how building a toilet helped one family in Bihar, India.



Water, Sanitation and Hygiene in Schools

https://www.unicef.org/wash/index_schools.html

UNICEF website discusses the importance of having WASH facilities in schools, particularly in reference to female education.



Schools

<https://washdata.org/monitoring/schools>

A JMP report into WASH facilities in schools and how widespread they are. Touches on how the lack of such facilities affects childhood development.



Sanitation and Education: How Poor Conditions Keep Children Out of School

<https://lifewater.org/blog/sanitation-education/>

Article into the link between sanitation and education.



What does Sanitation and Hygiene have to do with Education?

<https://www.oxfamamerica.org/explore/stories/what-does-sanitation-and-hygiene-have-to-do-with-education/>

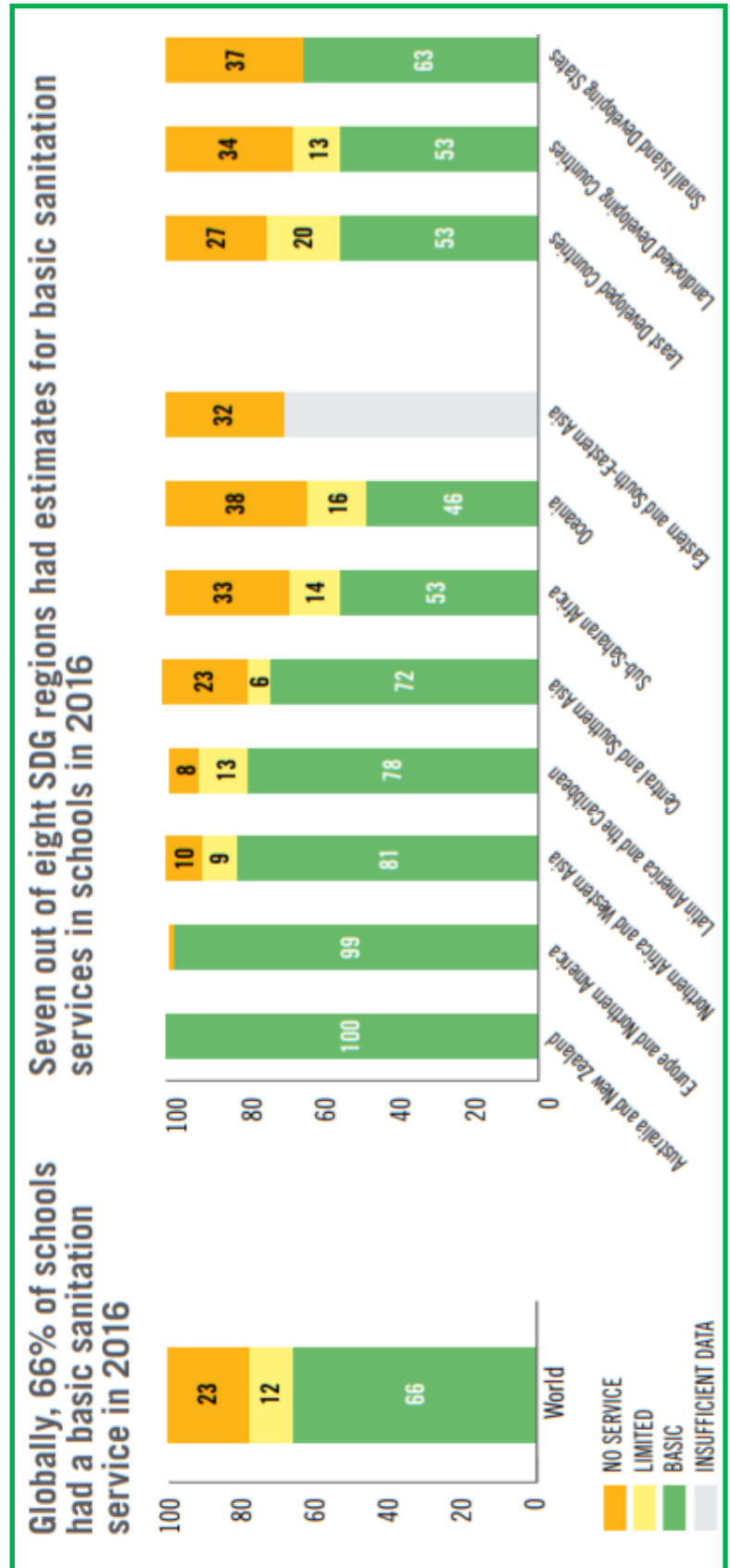
Short film into a sanitation program run by Oxfam in West Mosul to ensure children have safe and sanitary environments to continue their schooling.



Sanitation and Education

http://scholar.harvard.edu/files/adukia/files/adukia_sanitation_and_education.pdf

Academic article into the relationship between school-sanitation and educational attainment.



https://waterinstitute.unc.edu/files/2018/11/03_VP11_WaSH_in_Schools_14-country_Evaluation.pdf

SAFE SANITATION IS ESSENTIAL FOR HEALTH AND DEVELOPMENT



1 IN 3 PEOPLE
DON'T USE A TOILET



ALMOST 1 BILLION PEOPLE STILL
PRACTICE OPEN DEFECATION

WE BELIEVE EVERYONE SHOULD HAVE ACCESS TO A CLEAN, SAFE TOILET. THAT'S WHY WE SUPPORT SUSTAINABLE DEVELOPMENT GOAL 6, WHICH INCLUDES A TARGET ON ADEQUATE AND EQUITABLE ACCESS TO SANITATION. ACHIEVING THIS WILL ACCELERATE PROGRESS AGAINST OTHER GOALS, INCLUDING ENDING HUNGER, PROMOTING GENDER EQUALITY AND IMPROVING HEALTH AND WELL-BEING.



IMPROVING HEALTH



EVERY 2 MINUTES A CHILD DIES OF DIARRHOEAL DISEASES WHICH COULD BE PREVENTED BY IMPROVED WATER, SANITATION AND HYGIENE (WASH)

BETTER EDUCATION



443 MILLION SICK DAYS ARE TAKEN BY CHILDREN EVERY YEAR BECAUSE OF WASH-RELATED DISEASES*



ONLY 47% OF SCHOOLS IN THE LEAST DEVELOPED AND LOW-INCOME COUNTRIES HAVE ADEQUATE SANITATION FACILITIES

NUTRITION



IN 2014, **159 MILLION CHILDREN** WORLDWIDE WERE STUNTED DUE TO MALNUTRITION. ONE OF THE MAIN CAUSES IS WASH-RELATED DISEASE LIKE DIARRHOEA THAT PREVENT THE PROPER ABSORPTION OF NUTRIENTS FROM FOOD

REDUCING INEQUALITY



THE BURDEN OF POOR SANITATION FALLS DISPROPORTIONATELY ON **WOMEN, CHILDREN, THE ELDERLY AND THE DISABLED**

ECONOMIC GROWTH



SOME COUNTRIES **LOSE AS MUCH AS 7% OF GDP** BECAUSE OF INADEQUATE SANITATION, WITH WASH RELATED DISEASES CAUSING MISSED DAYS OF WORK DUE TO ILLNESS OR CARING FOR SICK RELATIVES



GLOBAL ECONOMIC LOSSES ASSOCIATED WITH INADEQUATE WATER SUPPLY AND SANITATION ARE **US\$260 BILLION ANNUALLY**, EQUIVALENT TO THE GDP OF CHILE

GENDER EQUALITY



HUNDREDS OF MILLIONS OF WOMEN AND GIRLS AROUND THE WORLD FACE DISEASE, HARASSMENT SHAME AND THE THREAT OF VIOLENCE BECAUSE THEY HAVE NO CHOICE BUT TO **RELIEVE THEMSELVES IN THE OPEN**



GIRLS ARE MORE LIKELY TO STAY IN SCHOOL WHEN SAFE, PRIVATE TOILETS ARE AVAILABLE FOR MENSTRUAL HYGIENE MANAGEMENT

WATER QUALITY



2 MILLION TONNES OF HUMAN WASTE ARE DISPOSED INTO WATER SOURCES EVERY DAY, POLLUTING DRINKING WATER WITH **DANGEROUS DISEASE-CAUSING PATHOGENS**



Section 4: SDG #6 - Clean Water and Sanitation

Sustainable Development Goal 6 - Targets for 2030

<https://www.un.org/sustainabledevelopment/water-and-sanitation/>

- Safe and affordable drinking water for all
- End open defecation and provide access to sanitation and hygiene
- Improve water quality, wastewater treatment and safe reuse
- Increase water-use efficiency and ensure freshwater supplies
- Implement integrated water resources management
- Protect and restore water-related ecosystems
- Expand water and sanitation support to developing countries
- Support local engagement in water and sanitation management



SDG #6: Clean Water & Sanitation

<http://worldslargestlesson.globalgoals.org/global-goals/clean-water-sanitation/>

This website, the World's Largest Lesson, provides resources and infographics on all of the Sustainable Development Goals, including number 6 (which is specified in this URL).



Goal 6 : Clean water and Sanitation

<https://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-6-clean-water-and-sanitation.html>

The United Nations Development Programme website considering SDG #6, which includes several relevant links and facts and figures on the goal.



Sustainable Development Goal 6: Ensure Access to Water and Sanitation for All

<https://sdg-tracker.org/water-and-sanitation>

The SDG tracker provides extensive information into the progress towards specific SDGs, in this case number 6. Each target listed above is considered individually, alongside charts and maps of global progress towards clean water and sanitation for all.



Ensuring Access to Water and Sanitation for All: What SDG 6 Wants to Achieve and Why it Matters

<https://www.iisd.org/blog/ensuring-access-water-and-sanitation-all-what-sdg-6-wants-achieve-and-why-it-matters>

A short article considering Sustainable Development Goal 6, its importance to the developing world, and its influence more generally.



SDG 6 On Water and Sanitation is Essential for Sustainable Development

<https://blogs.worldbank.org/opendata/sdg-6-water-and-sanitation-essential-sustainable-development>

This article considers water and sanitation in a wider context of development factors, and how they are linked.

Section 5: The Future of Sanitation



Reinvent the Toilet

<https://www.youtube.com/watch?v=fdwvuTrycYU>

Bill & Melinda Gates Foundation video considering how to revolutionize toilet design.



Toilets: We All Need to 'go'

<https://globaldimension.org.uk/toilets-we-all-need-to-go/>

A very informative website which considers the history of sanitation, problems arising from a lack of sanitation, and possible solutions to these problems.



Awesome Sanitation Services for the Urban Poor

<https://www.youtube.com/watch?v=kZTvbCj5U-4>

Gates Foundation YouTube video into one man's mission to ensure toilets are clean and utilized.



Preventing Sanitation-Related Disease

https://www.who.int/phe/events/wha_66/Sanitation_related_disease_flyer_091213.pdf

Flyer from the World Health Organization considering their role in tackling poor sanitation and the related diseases.



It's World Toilet Day. Why do so Many People Lack Adequate Sanitation Facilities?

<https://www.washingtonpost.com/news/monkey-cage/wp/2018/11/19/its-world-toilet-day-why-do-so-many-people-lack-adequate-sanitation-facilities/>

Washington Post article by an academic in the field of sanitation which promotes three suggestions to improve India's sanitation record.

"Sanitation is more important than political independence."

Mahatma Gandhi

"Giving people access to toilets isn't enough. You also have to persuade them to use the toilets."

Bill Gates

System configuration

A waterless self-contained toilet for private household of 10 people

Faeces processing

1. Archimedes screw
Removes solid waste from holding after settling period

2. Drier pelletizer
Reduces moisture content of the solid waste before dosing the fuel into the gasifier below

3. Gasifier
Burns the faeces to produce the energy for the system

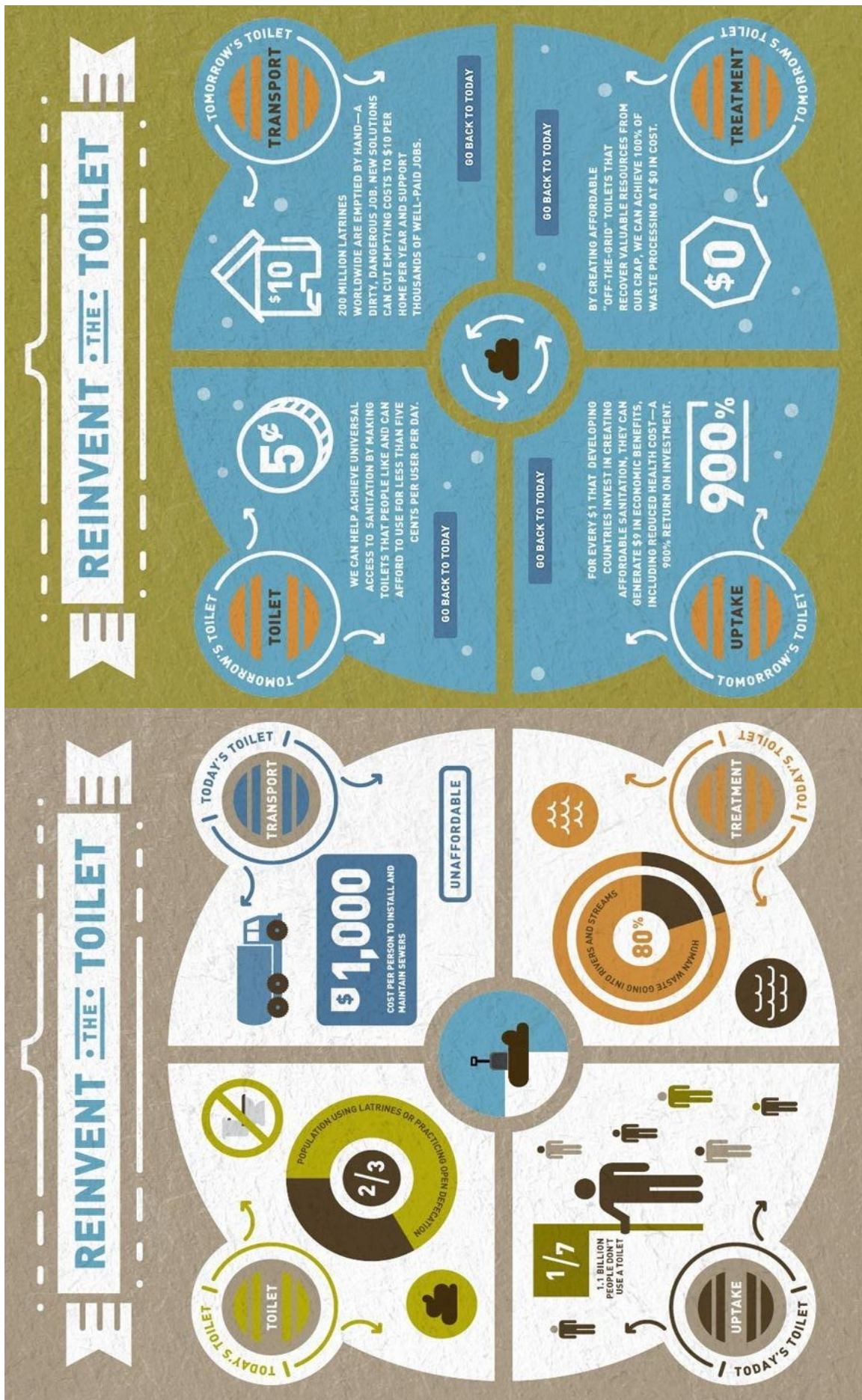
Urine processing

1. Weir channel
Urine will pass over the weir and into the channel where it will warm up around the exhaust of the gasifier

2. Membrane bundle
The urine will pass into the membrane chamber and pure water will pass out of the hollow membrane fibres

3. Heat exchanger
The water vapour will condense to liquid and fall to the bottom

4. Reservoir
The pathogen free water will be stored ready for either use around the home or easy disposal by the home owner



Source: <https://twistedsifter.com/2012/08/bill-gates-reinvent-the-toilet-challenge/>
 Comparison of the issues of today's toilet and the hope for tomorrow's toilet, as laid out by the Gates Foundation.



These New Toilets Could Solve a Global Problem

<https://www.nationalgeographic.com/magazine/2019/07/new-toilets-could-solve-global-sanitation-problem/>
National Geographic article into innovative, waterless toilets which use nano-membranes to break down waste.



More Toilets Used by More People

https://www.unilever.com/Images/sanitation-behaviour-change-source-book_tcm244-510654_en.pdf

Unilever Report on sanitation behavior change which focuses on not just increasing the number of toilets but altering the perception of using a toilet. Includes example ideas that, when implemented, would be effective in influencing the target audience to use, maintain, and clean a toilet.



Understanding User Experience of Sanitation for the Urban Poor

https://bopdesigner.files.wordpress.com/2011/11/pottyproject_execsummary1.pdf

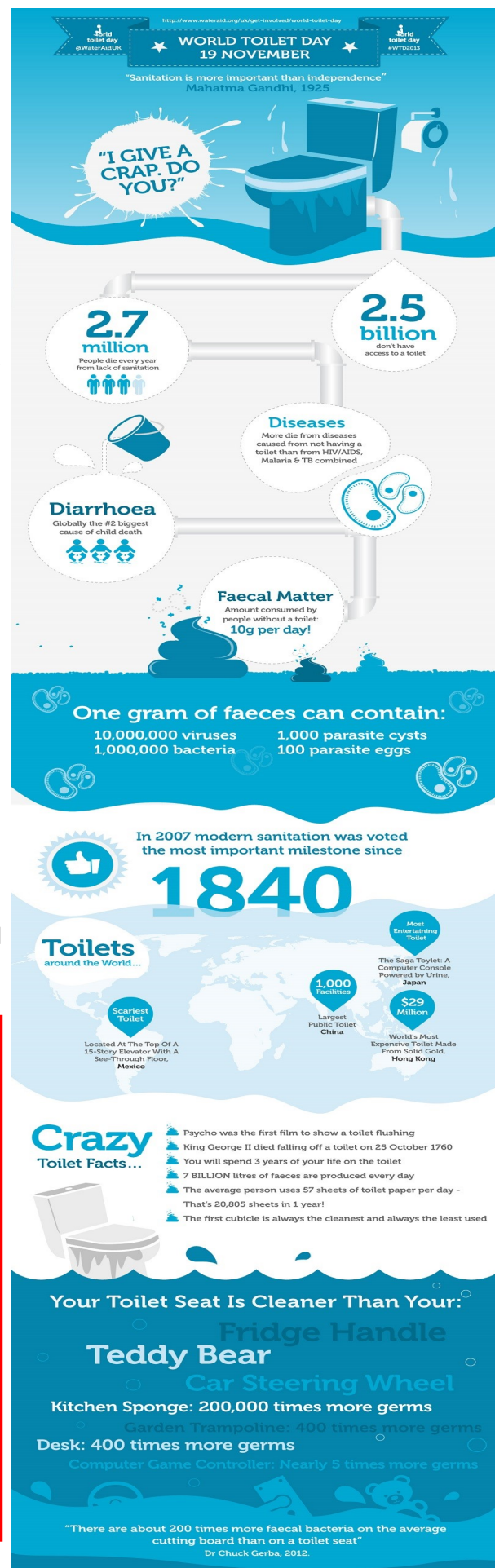
Research by the Potty Project (commissioned by the Gates Foundation) which studied 5 cities in India and their populations' attitudes toward hygiene and sanitation.



When Bad Sanitation Becomes a Distant Memory—from the UK to Madagascar

<https://www.wateraid.org/uk/blog/when-bad-sanitation-becomes-a-distant-memory-from-the-uk-to-madagascar>

Wateraid article into how recently the UK faced a sanitation crisis, and a consideration of why this should inspire all of us to help improve the global sanitation problem.



Lesson Plan Idea

Have students design a toilet facility for sustainable sanitation using the nano-membrane toilet as an example.

Lesson Plans

<http://remakelearning.org/wp-content/uploads/2018/01/Mt-Lebanon-School-District-Remake-Learning-Connected-Learning-Lesson-Plan.pdf>

As part of this lesson, students are encouraged to design a product which will help to tackle the global water and sanitation crisis by supporting campaigns which seek to improve it.

<https://www.watercorporation.com.au/home/education/teaching-resources/find-a-lesson-plan/lesson-plan/what-are-biosolids>

Lesson focused on raising awareness of biosolids as a source of renewable compost.

<http://globaldimension.org.uk/>



Clean water and sanitation

Challenges

UNSAFE WATER, INADEQUATE SANITATION and INSUFFICIENT HYGIENE kill 3.5 million people every year



80% of WASTEWATER is released the environment **UNTREATED**. Degrade the environment and you destroy **NATURE'S ABILITY TO PROVIDE SAFE DRINKING WATER**



WATER SCARCITY affects more than 40% of the global population



Solutions

STOP DUMPING CHEMICALS AND WASTE into the environment, **INVEST IN SANITATION** and **RAISE AWARENESS** on best hygiene practices

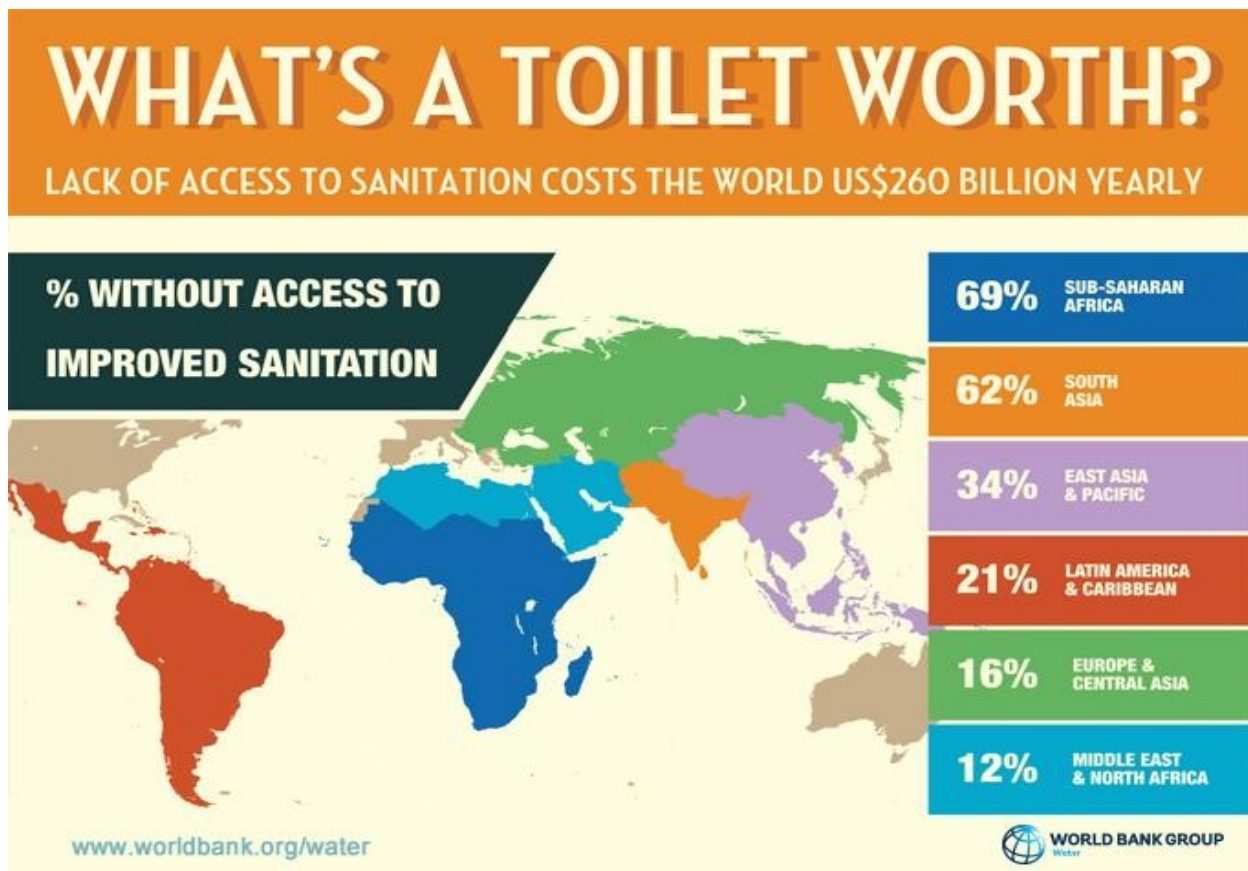


PROTECT NATURAL RESOURCES and avoid water pollution



RESTORE ECOSYSTEMS to secure access to safe water





<https://tataandhoward.com/2015/11/the-importance-of-world-toilet-day-2015/>



Sanitation Management & Improvement Worldwide

<https://www.youtube.com/watch?v=XQbSPOrCT7Y>

A Bill and Melinda Gates Foundation video into what 21st century sanitation looks like.



The Mad Science Plan to Power The World With Poop

<https://www.gizmodo.com.au/2019/03/the-mad-science-plan-to-power-the-world-with-poop/>

Article considering how fecal matter could be harnessed for energy.



8 Toilet Designs That Could Save Millions of Lives Around the World

<https://inhabitat.com/8-toilet-designs-that-could-save-millions-of-lives-around-the-world/>

A selection of pictures and information about several innovative toilet designs which could potentially help with the ongoing sanitation crisis.



How the Toilet Changed History

<https://www.youtube.com/watch?v=GWQG1YZS9l4>

Short video into how the toilet has changed history and how history has changed the toilet. Considers the problems that could be solved if toilets were not such a taboo subject.



Nearly 1.4 Billion People Worldwide Lack Access to Toilets. Can Innovation Solve the Problem?

<https://scroll.in/article/932269/nearly-1-4-billion-people-worldwide-lack-access-to-toilets-can-innovation-flush-out-the-problem>

Article which investigates innovative answers to the sanitation problem, such as a toilet system which requires neither water nor electricity.



10 Things to Know About the Future of Water and Sanitation

<https://www.odi.org/publications/10886-10-things-know-about-future-water-and-sanitation>

10 infographics on the future of water and sanitation alongside SDG #6.

Section 6: Success Stories



World's Biggest Refugee Settlement Gets Biggest Ever Waste Facility

<https://www.unhcr.org/news/briefing/2019/2/5c540fe74/worlds-biggest-refugee-settlement-gets-biggest-waste-facility.html>

Summary of a speech by UNHCR spokesperson Andrej Mahecic, within which he discusses a new human waste treatment facility at Cox's Bazar. Close to a million Rohingya refugees live in a complex of settlements in the Cox's Bazar area and the building of the plant will significantly reduce the likelihood of the outbreak of disease and health risks for the refugees and host communities.



Ending Open Defecating in Guinea-Bissau: It All Starts Under a Mango Tree

<https://www.unicef.org/stories/ending-open-defecation-guinea-bissau>

Article which considers the success of the community-led total sanitation approach undertaken in Qui-nara, the first region of Guinea-Bissau that has been recognized as 'open defecation free'. Includes bullet points on what change has looked like for the region.



Breaking Taboos to Better Human Rights

<https://www.ohchr.org/EN/NewsEvents/Pages/OyungerelTsedevdamba.aspx>

Article by the Office of the High Commissioner on Human Rights at the UN which discusses the work of one human rights activist hoping to break taboos related to toilets in order to improve sanitation in Mongolia. Accompanied by a short video on how the breaking of the toilet taboo was done.



Facilitating Sanitation Micro-finance for Rural Households

[https://www.worldbank.org/en/news/video/2019/09/23/gwsp-facilitating-sanitation-microfinance-for-rural-households?](https://www.worldbank.org/en/news/video/2019/09/23/gwsp-facilitating-sanitation-microfinance-for-rural-households?CID=WAT TT Water EN EXT)

CID=WAT TT Water EN EXT
Short video focused on the success of using microfinance to encourage sanitation investments by rural households and entrepreneurs in Bangladesh.

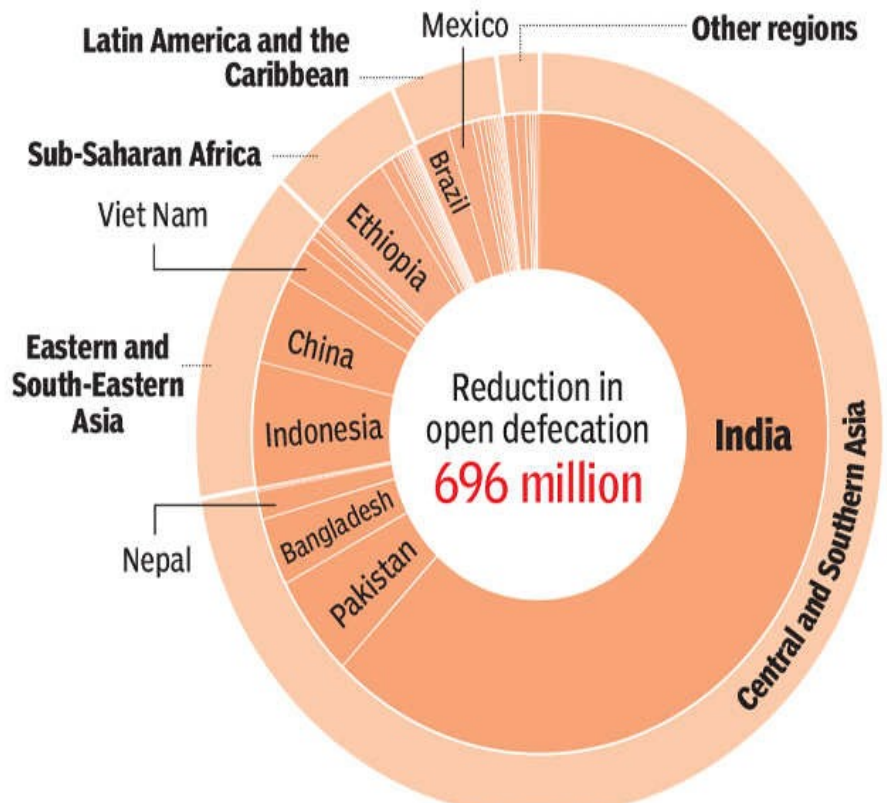


Half of India Couldn't Access a Toilet 5 years ago. Modi Built 110M Latrines — But Will People Use Them?

<https://www.cnn.com/2019/10/05/asia/india-modi-open-defecation-free-intl-hnk-scli/index.html>

CNN article considering the success and problems associated with the 'Clean India' campaign.

Change in number of people practising open defecation, by country and region, 2000 and 2017 (millions)



<https://timesofindia.indiatimes.com/india/how-india-powered-global-reduction-in-open-defecation/>

Section 7: Get involved



Ten Things You Can Do for UN World Toilet Day

<http://worldtoilet.org/ten-things-you-can-do-for-un-world-toilet-day/>

A summary of the World Toilet Organization's suggestions of how to get involved in the Day. Examples of potential activities include doing a 'Big Squat' or becoming a toilet advocate. Includes links for more information on each suggestion.



A Global 'Urgent Run' To Raise A Stink For Sanitation

<http://worldtoilet.org/a-global-urgent-run-to-raise-a-stink-for-sanitation/>

Website provides information into what many countries around the world do for World Toilet Day and ideas of how to get involved through holding an 'Urgent Run'.



World Toilet Day: How to Get Involved

<https://ironline.american.edu/world-toilet-day-get-involved/>

The International Relations Blog from the School of International Service offers some suggestions on how to get involved with World Toilet Day.



World Toilet Day

<https://globaldimension.org.uk/resource/world-toilet-day/>

This website provides a number of resources which offer ways to celebrate World Toilet Day with your classroom. These include a quiz and a 'Toilets in World History' program.



Water 1st International - Get Involved

<https://water1st.org/get-involved/>

This Seattle based non-profit seeks to help the sanitation crisis by providing clean water systems and toilets to the world's poorest people. They host a number of annual events in Seattle to raise money for their work.



Mr. Toilet: The World's #2 Man

<https://mrtoiletfilm.com/>

The official website of the Mr. Toilet film, which includes the trailer and a link to learn more about the team that were involved in directing and producing it, including Lily Zepeda.



Lesson Plan

<https://www.medbox.org/school-lessons-lesson-9-sanitation/download.pdf>

Lesson focusing on the importance of the improvement of water and hygiene. At the end of the lesson, it is suggested that the students become recognized as Safe Water Promoters.



<http://worldtoilet.org/the-urgent-run-for-un-world-toilet-day-2014/>