

Water, Sanitation and Hygiene Khutbah Guide

A Guide to Help Muslim Leaders
Educate Congregations and
Communities about Water,
Sanitation and Hygiene

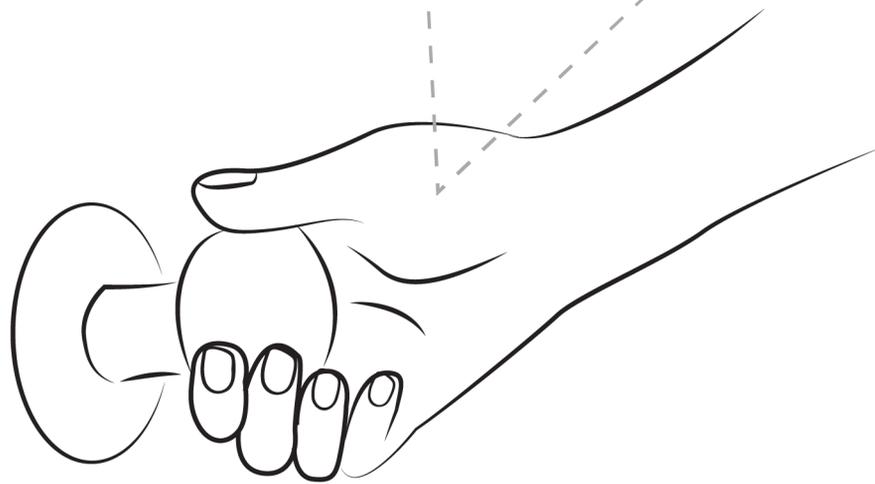
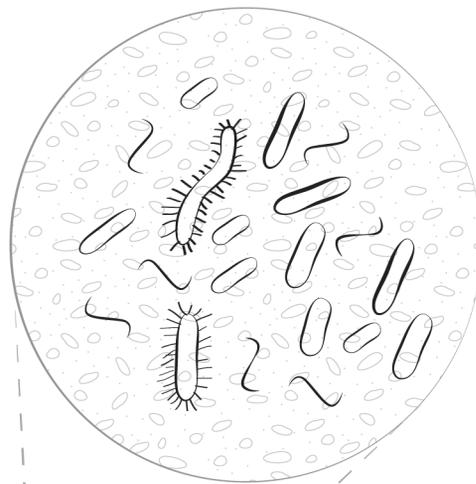


Table of contents

What is a Khutbah Guide?.....	4
Introduction.....	5
Khutbah 1: Cleansing the Body and Soul.....	6
Khutbah Starter 1: Cleansing the Body and Soul.....	8
Khutbah 2: Guarding the Body and Soul.....	10
Khutbah Starter 2: Health for Body and Soul.....	13
Khutbah 3: Our Duty to Seek Knowledge.....	14
Khutbah Starter 3: Our Duty to Seek Knowledge.....	16
Khutbah 4: From Our Households to Our Communities.....	17
Khutbah Starter 4: From Our Households to Our Communities.....	18
Khutbah 5: Sources of Purity and Wisdom.....	21
Khutbah Starter 5: Sources of Purity and Wisdom.....	23
Khutbah 6: From Every Living Thing.....	25
Khutbah Starter 6: From Every Living Thing.....	26
Endnotes.....	28
Sources.....	28

“*We made from water every living thing.*”

What is a Khutbah Guide?

Water, sanitation and hygiene (WASH) are integral components to living a healthy life, and the benefits of improved WASH practices are numerous. Many serious illnesses can be prevented if people used basic WASH practices, which in turn would significantly reduce maternal, infant, and child mortality. Studies have also shown that improved water and sanitation may also help to increase daily productivity and school attendance.

Faith communities and faith-based organizations (FBOs) have the widest reach of any social institution and are deeply embedded in the life of even the most remote, marginalized communities in Africa. Of all the civil institutions in a given country, faith communities and FBOs have the longest sustainability and were present long before any NGOs or other external agencies established themselves in the community. They not only have longevity but also have staying power through conflict, war and natural or manmade disasters. According to the Association of Religion, 95% of Africans affiliate themselves with a religion – and this affiliation is an opportunity to mobilize faith leaders to become educators and promoters of health issues that impact the lives of the community.*

Religious leaders of all faith groups have a tremendous influence on their followers. Bishops, Ministers, Imams and Muftis command an unmatched authority within their constituencies, with strong potential to promote constructive behavior change for the prevention of malaria, for example, or to encourage healthy choices.

Unfortunately, religious leaders face a number of challenges in taking on the issue of their communities' health as their mandate. They and their constituencies often do not have sufficient and accurate information about the causes and preventive measures, and they may lack appropriate attitudes that could turn the tide of the health of the community.

Religious leaders, though well-versed in their faith scriptures and teachings, need both information about preventative health practices and guidance on how to integrate these messages into their guidance of the faithful as they preach, counsel couples and provide premarital direction and counseling.

The Kutbah Guide has two purposes: 1) to educate religious leaders about key WASH issues, and 2) to provide sermon starters for religious leaders that guide them in incorporating preventative health practices in their sermons/religious discourses and the counseling of couples.

Khutbah Guide as a Source of Health Information

Before you can share important health information, you need to become familiar with the topic and learn from research conducted by health experts to ensure you give your congregation accurate information. The guide begins with an overview of the problem and resulting health impact, followed by six chapters addressing a specific health message. The Khutbahs include an introduction explaining the health issue, a sample suggested sermon incorporating the health message and questions for discussion. You may choose to use the suggested sermon as it is written or decide to use it as a resource to develop your own.

Ways to Share Health Messages

There are a number of ways you can share health information with your community:

- Include health-related messages in your sermons as demonstrated in this guide
- Host special sessions on health topics in small group meetings
- Develop a religious school lesson based on a chapter in the guide
- Discuss health matters during home visits and counseling sessions
- Partner with other organizations in your community, such as schools and clubs, to share the messages at their meetings
- Develop your own ways to share the messages with your community.

Acknowledgements

Project Manager – Erika Pearl, IMA World Health

Writer – Kathy Erb, Consultant

Designer – Chris Glass, IMA World Health

Illustrator – Carrie Hamilton, Consultant

Reviewers:

Sarla Chand, IMA World Health
Emily Esworthy, IMA World Health
April McCoy, IMA World Health
Craig Hafner, Consultant
Daniel Tyler, Church World Service
Donna Derr, Church World Service



CHURCH WORLD SERVICE

Contact Information

IMA World Health	Church World Service
500 Main Street P.O. Box 429	28606 Philips Street
New Windsor, MD 21776	Elkhart, IN 46514
imainfo@imaworldhealth.org	info@churchworldservice.org

* The Association of Religion Data Archives. Department of Sociology. Pennsylvania State University. 2006 Regional Figures.

Water, Sanitation and Hygiene

Khutbah Guide

Clean Water Gives Life

A Guide to Help Islamic Spiritual Leaders Communicate Healthy Water and Sanitation Practices

We cannot live without water. It is a fundamental part of our lives each day. We need water to drink, grow food, cook, bathe, and keep our animals alive. Our bodies, and the food we eat, are mostly made up of water. Water is a gift from Allah and is the foundation for life. As the angel Jibreel recited these words from Allah to Muhammad (Peace Be Upon Him): “We made from water every living thing.” (Qur’an 21:30)

The Goal: Safe Drinking Water and Proper Sanitation for All

Water is vital to life. But it must be clean, safe, and free from disease, or it will do more harm than good. We need to protect the water from contamination. We must also practice proper sanitation, which means using latrines or toilets, since diseases carried in human waste can be transmitted through soil. These diseases are caused by germs or parasites that are too small to see, but live in human and animal waste. They can make us sick when they enter our bodies through our skin, mouths, eyes, or noses.

United Nations Secretary General Ban Ki-moon has spoken of the importance of safe drinking water and proper sanitation, saying, “*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.*”ⁱ The eight Millennium Development Goals, which range from cutting the number of people living in extreme poverty in half to stopping the spread of HIV/AIDS,ⁱⁱ are ambitious but achievable targets that we can all work together to reach.

Between 1990 and 2010, more than 2 billion people gained access to improved water sources, such as piped water supplies and wells to protect from contaminants.ⁱⁱⁱ While this progress means healthier children, families, and communities, much remains to be done. There are still 780 million people in the world living without access to safe water.

Access to clean water is critical, but it is only part of the defense against diseases carried by water. We must also have proper sanitation facilities to dispose of human waste so that we do not allow diseases to contaminate soil and water and make us sick. The Millennium Development Goal set for sanitation is that 75 percent of the world’s population use improved sanitation facilities by 2015. While progress toward this goal has been made, in 2010, only 63 percent of the world’s population was using proper latrines or toilets, and there were still an estimated 2.5 billion people living without improved sanitation^{iv}.

The Dangers of Contaminated Water

This guide will cover the most common illnesses carried by unclean water and how you can avoid them by keeping your water source protected from contaminants that cause disease. Two of the most deadly are respiratory illnesses, which are the leading cause of child death^v, and diarrhea, which kills more children than AIDS, malaria, and measles combined.^{vi}

Poor Sanitation Spreads Disease

Sanitation, using proper latrines or toilet facilities to safely dispose of urine and feces, is critical to our health. Without adequate facilities, people are forced to defecate in the open, sometimes near where children play or food is prepared. Just one gram of human feces may contain 10 million viruses, 1 million bacteria, 1000 parasite cysts, and 100 worm eggs; all of these can make us sick.^{vii}

Water contaminated with human waste can transmit diarrhea, cholera, dysentery, typhoid, and hepatitis A. Diseases linked to poor sanitation, poor hygiene, and contaminated water kill 155 people every hour in Africa.^{viii}

Unclean Water and Poor Sanitation Facts:

- Diarrhea kills more than 3,000 children each day.
- Intestinal worms infect about 10 percent of people in developing nations, and if the case is severe, can lead to malnutrition, anemia, inhibited growth in children, and poor school performance.
- Six million people in the world have lost their sight due to trachoma, a disease caused by poor hygiene.
- Two hundred million people are infected with schistosomiasis, a parasitic infection carried by snails found in water, which causes severe problems for 20 million of those infected. Schistosomiasis can cause a rash, fever, chills, cough, blood in the urine and feces, and muscle aches. It can even affect the brain or spinal cord and cause seizures, paralysis, or spinal cord inflammation.
- The deadly diseases of cholera and typhoid are spread in unsanitary conditions and can be prevented by access to safe drinking water, sanitation, and proper hygiene practices.^{ix}

What Can We Do to Protect Ourselves from Disease Spread by Contaminated Water?

Simple actions such as proper hygiene and sanitation when adopted by all can help increase and maintain a healthy lifestyles and disease-free environment for individuals, families, and communities.

Fortunately there are steps we can take to protect ourselves, including:

- Using water from protected sources for drinking and cooking,
- Consistent hand-washing after using the latrine and before and after preparing food and eating, and
- Using proper latrines to prevent contamination of soil by human waste.

More specific instructions on how to practice these basic ideas are outlined in the following six messages, which are the basis for the six sermons in this guide.

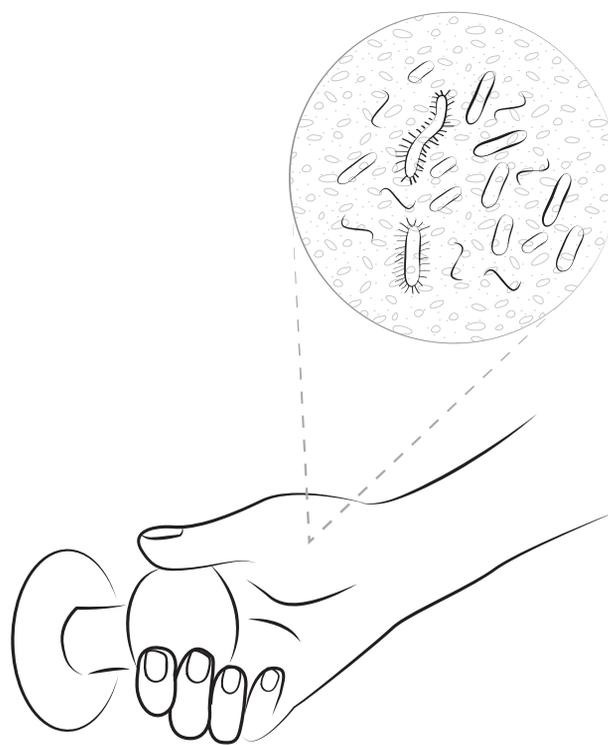
Six Health Messages Included in the Sample Khutbahs

1. Hand-washing with soap or ash reduces diseases such as diarrhea, respiratory illnesses, and intestinal worms, as well as eye and skin infections. This is especially important before and after cooking and eating, and after using the latrine.
2. Using a latrine, instead of defecating in the open, can reduce diarrheal infections.^x
3. Keep communal latrines/home latrines clean and wash hands with soap or ash after every use. Schools with separate latrines for boys and girls reduce girls' drop-out rates.^{xi}
4. Keep a clean environment, so mosquitoes and flies cannot breed. Remove standing water inside and outside the home and clean up trash around your home.
5. Drinking water from covered boreholes with a hand pump can reduce bacterial infections, which cause cholera and typhoid, and also reduce parasite infection.
6. Don't drink or bathe in the same water in which animals pass through or drink from.^{xii}

How to Use this Guide

As a spiritual leader, you have a unique opportunity to encourage behaviors that protect your congregation's spiritual and physical health. Teaching people how to avoid deadly diseases spread by contaminated water is one of the most important things you can do to help your congregation stay healthy.

This guide contains six sample Khutbahs based on the messages above. You can use them as examples or material to develop your own. Don't be constrained to only use this guide in front of your congregations. This tool may also be used as a guide during group meetings (youth, men, or women), counseling sessions, and/or home visits. Questions following each Khutbah can be used in small groups to help people discuss the facts learned from the sermon and develop a better understanding of the messages.



Khutbah I: Cleansing the Body and Spirit

Message: Hand-washing with soap or ash reduces diseases such as diarrhea, respiratory illnesses, and intestinal worms, as well as eye and skin infections. This is especially important before and after cooking and eating, and after using the latrine.

Hand-washing with Soap Stops Disease

Washing our hands with soap (or ash)^{xiii} is very important in staying healthy. Our hands can carry viruses, bacteria, and parasites, organisms that are too small to see, that cause diarrhea, respiratory illnesses, eye and skin infections, intestinal worms, and schistosomiasis, which can result in bladder and rectal bleeding.^{xiv} Using soap or ash breaks down the grease and dirt that carry most of these organisms, or germs, making it easier to dislodge them with rubbing and friction.^{xv} Washing without soap or ash is not as effective in removing germs and parasites.

Deadly Diarrhea

Diarrhea can be deadly, and it is especially dangerous for children. According to the World Health Organization, diarrhea kills more than 3,000 children every day, and 90 percent of all deaths from diarrhea are among children under the age of 5. Eighty-eight percent of the children who die from diarrhea contracted the disease from poor drinking water, lack of proper sanitation, and poor hygiene.^{xvi} Careful hand-washing can reduce diarrhea cases by up to 45 percent.^{xvii}

DEADLY DIARRHEA

Diarrhea can be deadly, and it is especially dangerous for children. According to the World Health Organization...

- Diarrhea kills more than **3,000 CHILDREN EVERY DAY**. That is more than AIDS, malaria, and measles combined.
- **90% OF ALL DEATHS** from diarrhea are among **CHILDREN UNDER THE AGE OF 5**.
- **EIGHTY-EIGHT PERCENT** of the children who die from diarrhea contracted the disease from poor drinking water, lack of proper sanitation, and poor hygiene.
- Careful hand-washing can reduce diarrhea cases by up to **45 PERCENT**.

Respiratory Illnesses

Respiratory illnesses, such as pneumonia, are the leading cause of death in children.^{xviii} We spread respiratory illnesses when we touch surfaces, such as door knobs and handles, in common areas and leave germs. These germs can live for two hours or longer on these surfaces and spread disease to others when they touch the same surface and touch their eyes, mouth, and nose.^{xix} Evidence suggests that hand-washing after using the latrine and before eating could cut the infection rate by about 25 percent in everyone and by 50 percent in children under 5 years of age.^{xx}

Intestinal Worms

Intestinal worms, also known as soil-transmitted helminths, can cause diarrhea, abdominal pain, and overall weakness, inhibit our ability to work, and keep children from learning and growing as they should. People infected with intestinal worms carry the parasite's eggs in their feces. The soil and water in the area where they live can become contaminated with the eggs if waste is not disposed of properly. Children playing outside can get the eggs on their hands and infect themselves if they eat or put their hands in their mouths before they wash them.^{xxi}

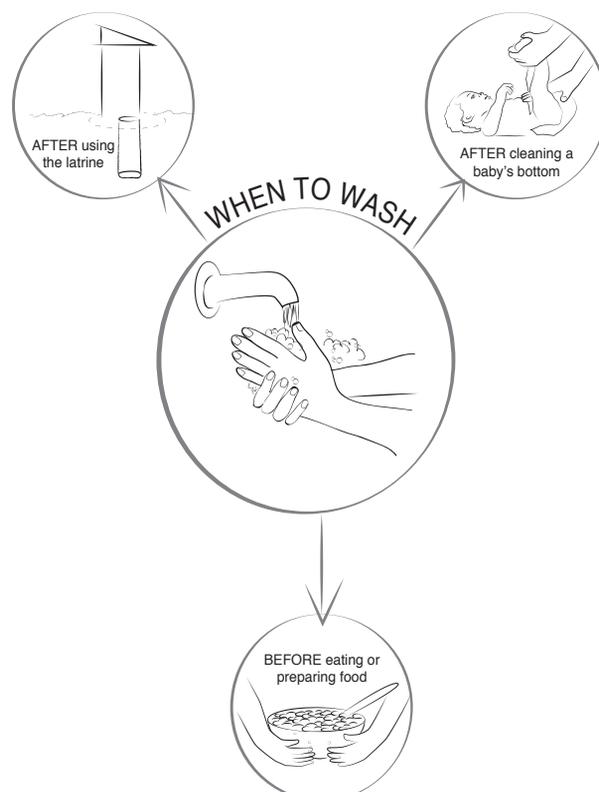
Washing hands with soap or ash can remove the eggs before they are ingested. In addition to hand-washing, it is very important to wear shoes in order to reduce the potential of eggs burrowing into the feet.

Eye and Skin Infections

An eye infection known as trachoma is the leading preventable cause of blindness in the world. Over time, trachoma causes the eyelids to turn inward and the eyelashes rub the eye and scar the cornea. Tra-

choma is caused by germs, or bacteria, and is spread from person to person by the hands or clothing. Washing hands and faces can help stop the spread of the disease.^{xxii}

Impetigo is another painful skin infection that is especially common among children. It causes redness and small blisters that crust and erode. Impetigo is very contagious and can be spread when someone touches the infected spot on the skin of a person with the disease.^{xxiii} Washing thoroughly with soap or ash can help stop the spread of impetigo and other skin infections like scabies.^{xxiv}



It is important that an individual who is ill or suspected to be ill with any of the above described illnesses is brought to the local health care facility to receive appropriate and timely care.

When to Wash Your Hands

The critical moments to wash your hands with soap or ash are after using the latrine or cleaning a child's bottom, and before handling food.^{xxv} That way any germs or parasites present in feces will be removed immediately, and we will not transmit any diseases from our hands to our mouth when we eat, or to the food we prepare for others.

How to Wash Your Hands

Follow these steps to get hands clean and kill germs that cause disease:^{xxvi}

1. Cover wet hands with soap or ash.



2. Scrub all parts of the hands, including palms, backs of the hand, between the fingers, and especially under the fingernails, for at least 20 seconds.
3. Rinse with running water (instead of using still water).
4. Dry either with a clean cloth or by waving in the air.

To help people get a good idea of how long 20 seconds is, find a short song that takes 20 seconds to sing, or memorize a favorite scripture from the Qur'an that lasts for 20 seconds when you say it out loud. You can also recommend people count slowly to 20. Whatever you choose, make sure it lasts about 20 seconds and use it each time you wash your hands.

Importance of Hand-washing in Islam

Health experts recommend that people wash their hands with soap for at least 20 seconds at specific times, such as before handling food and after using the latrine to remove germs or parasites. Islam is consistent and supportive of these recommendations by requiring hand-washing at important times during the day. The Qur'an requires Muslims to wash before prayer, a practice known as ablution, to help reach a state of physical and spiritual purity before approaching Allah in prayer.

Remember, washing your hands with soap or ash, especially before handling food and after using the latrine or cleaning a child will help stop the spread of disease, and can save lives.

Khutbah Starter 1: Cleansing the Body and Spirit

Scripture

"Allah accepts the repentance of those who do evil in ignorance and repent soon afterwards; to them will Allah turn in mercy: for Allah is full of knowledge and wisdom." (Qur'an 4:17)

"... when you prepare for prayer, wash your faces and your hands (and arms) to the elbows; rub your heads (with water); and (wash) your feet to the ankles....Allah does not wish to place you in a difficulty, but to make you clean, and to complete his favor to you that you may be grateful." (Qur'an 5:6)

"O you who believe! do not approach prayers with a mind befogged, until you can understand all that you say, - nor in a state of ceremonial impurity...For Allah blots out sins and forgives again and again." (Qur'an 4:43)

Since we are human, we are destined to make mistakes. Mistakes are an unavoidable part of life. Fortunately, Allah's mercy for us is great and He forgives our sins. But we cannot sin knowingly, fail to repent, and expect spiritual purity.

Have you ever been wronged by someone in your family, like a brother? Imagine your brother took

“Cleansing our hands will help protect our physical health.”

something that you treasure from you without asking and lost or broke it. It might be something you worked hard to make, or something you saved money for a long time to purchase. You would want your brother to admit he did something wrong and ask for forgiveness soon after committing the wrong. What if he did not express repentance, or waited years to apologize? You may be able to forgive and put the incident behind you, but it may be difficult. If he expressed sincere regret immediately you would probably find it easier to forgive and your relationship would be cleansed of bad feelings.

Our relationship with Allah must also remain cleansed in the same way. Allah's words in the Qur'an tell us: *"Allah accepts the repentance of those who do evil in ignorance and repent soon afterwards; to them will Allah turn in mercy: for Allah is full of knowledge and wisdom."* (Qur'an 4:17) Allah commands us to repent, admit our sins, and ask for forgiveness soon after we make a mistake. We must experience a cleansing of our spirit, and He will show us mercy.

The Qur'an tells us about the importance of praying with a cleansed soul, mind, and body. Allah commands: *"O you who believe! do not approach prayers with a mind befogged, until you can understand all that you say, - nor in a state of ceremonial impurity...For Allah blots out sins and forgives again and again."* (Qur'an 4:43)

Washing helps us approach prayer with a cleansed soul and body. Allah commands us in the Qur'an to wash ourselves with these words: *"...when you prepare for prayer, wash your faces and your hands (and arms) to the elbows; rub your heads (with water); and (wash) your feet to the ankles....Allah does not wish to place you in a difficulty, but to make you clean, and to complete his favor to you that you may be grateful."* (Qur'an 5:6)

The cleanliness resulting from washing before prayer prepares us spiritually, but it is also important to our physical health. There are viruses, bacteria, and parasites that live in the soil and on surfaces in our homes, where we work, and anywhere people gather. These viruses, bacteria, and parasites can make us sick, and some of the diseases can be deadly.

Hand-washing for Protection from Disease

Washing these germs and parasites off our hands with soap and ash is one of the most important steps we can take to protect ourselves from the diseases they cause, which include respiratory illnesses, diarrhea, intestinal worms, and eye and skin infections. Respiratory illnesses, such as pneumonia, are very dangerous. They are the leading cause of death in

children. Diarrhea also kills many children. It kills 3,000 children in the world every day. Intestinal worms can make us weak and unable to work, and can keep children from growing and learning as they should. Eye infections can steal our sight, and skin infections can be very painful and interfere with our lives.

Critical Moments: After Using the Latrine or Toilet and Before Food Preparation or Eating

Just like cleansing before prayer is important to our spiritual health, cleansing after certain activities is critical to our physical health. There are two times where it is very important that we always wash our hands with soap or ash. First, every time you use the latrine or toilet, or clean a child after using the latrine, you must wash your hands with soap or ash. That way any germs or parasites present in human waste will be removed immediately.

The second critical time you must always wash your hands is before handling food, whether you are cooking for your family or eating. You don't want to infect the food and then make yourself or your family sick.

But you cannot just quickly dip your hands in water and expect the germs to be removed. You must use soap or ash, and you must scrub your hands thoroughly. To get hands truly clean, follow these important steps:

1. Cover wet hands with soap or ash.
2. Scrub all parts of the hands, including palms, backs of the hand, between the fingers, and especially under the fingernails, for at least 20 seconds.
3. Rinse with running water (instead of using still water).
4. Dry either with a clean cloth or by waving in the air.

Pause for Reflection and Spiritual and Physical Cleansing

To help you get in the habit of washing long enough to remove germs, find a passage to recite or verses of a song to sing that takes 20 seconds. Memorize verses you find helpful and uplifting. You can even use the time you must stop and wash your hands as a good time for reflection, or you can always just relax and count slowly to 20. This will help you make sure you wash long enough with soap or ash to kill and remove germs and parasites.

You will be protecting your spirit as you pause for reflection, reminding yourself of Allah's mercy and your responsibility to avoid sin and repent when you do wrong, and you will protect your body and your loved ones from deadly diseases.

Allah is most merciful and forgives our sins when we repent. Before we can expect forgiveness, however, we must recognize our sins, admit them, and ask for forgiveness. This cleansing will help us remain spiritually healthy. Cleansing our hands will help protect our physical health.

Discussion Questions from Khutbah 1

Question 1: What diseases can we spread when our hands are not clean? How can the diseases exist on our hands?

Response: Respiratory illnesses, like pneumonia; measles; eye and skin infections; stomach and intestinal infections; and parasites can all be spread by unclean hands. The diseases are caused by tiny organisms called germs that live on our hands and are too small to see.

Question 2: Why are these diseases dangerous?

Response: Pneumonia and other respiratory illnesses are the leading cause of death in children. Diarrhea is also very dangerous and kills 3,000 children in the world each day. Intestinal worms make people very weak and can keep children from growing and learning as they should. Eye infections can cause blindness, and skin infections can be very painful. Respiratory and diarrheal diseases can lead to debilitation and death in adults also.

Question 3: How do dirty hands spread these diseases?

Possible Answer: Some of these diseases are caused by germs, either viruses or bacteria. Other diseases are caused by parasites. When we touch unclean surfaces or fecal matter, we can pick up germs and parasite eggs. If we do not wash our hands immediately, we can become sick ourselves or transmit these germs and eggs to other people.

Question 4: When should we wash our hands?

Possible answer: Wash your hands with soap or ash after using the latrine or cleaning a child's bottom, and before handling food. That way any germs or parasites present in feces will be removed immediately, and you will not transmit any diseases from your hands to your mouth while eating, or to the food you prepare for others.

Question 5: How should you wash your hands? Do you have to use soap?

Response: Yes, you must use soap, or ash, if soap is not available, to effectively remove germs. Follow these 4 steps:

1. Cover wet hands with soap or ash, if soap is not available.
2. Scrub all parts of the hands, including palms, backs of the hands, between the fingers, and especially under the fingernails, for at least 20 seconds.

3. Rinse with running water (instead of using still water).
4. Dry either with a clean cloth or by waving in the air.

POOR SANITATION SPREADS DISEASE

Sanitation, using proper latrines or toilet facilities to safely dispose of urine and feces, is critical to our health. Without adequate facilities, people are forced to defecate in the open, sometimes near where children play or food is prepared.

Just one gram of human feces may contain:



Water contaminated with human waste can transmit diarrhea, cholera, dysentery, typhoid, and hepatitis A. Diseases linked to poor sanitation, poor hygiene, and **CONTAMINATED WATER KILLS 155 PEOPLE EVERY HOUR IN AFRICA.**

Question 6: How else can we contract intestinal worms besides by ingesting the parasite eggs?

Response: Intestinal worms can enter the body through the feet. We must always wear shoes.

Khutbah 2: Guarding the Body and Soul

Message: Using a latrine, instead of defecating in the open, can reduce diarrheal infections.

Use a Latrine to Stop Spread of Disease

A person should use a sanitary latrine every time he or she needs to urinate or defecate. Human waste can carry many diseases that can easily be transmitted to the soil and water. If people relieve themselves in the open, in ponds, rivers, or lakes, or anywhere near homes or where children play, disease can spread as the germs and/or parasites found in their urine and/or fecal matter contaminate drinking water and the hands of people who later ingest them when they eat or touch their faces. Flies and other insects will also land on human waste and transmit the disease-causing agents to food and other surfaces.^{xxvii} Some parasites can enter into the body through the soles of the feet. Shoes should always be worn.

Diarrhea is a symptom of many of the diseases caused by germs and parasites carried in human waste. Diarrhea is the passage of three or more loose or liquid stools per day, or more frequently than is normal for the person. It is usually caused by gastrointestinal infection, which can be caused by a variety

“ **Latrines or toilets are the best defense against contamination.** ”

of bacterial, viral, and parasitic organisms present in contaminated drinking water or food and often spread through contact with people. Severe diarrhea causes the person to lose excessive amounts of fluid and can be fatal, especially in young children or people who are malnourished or have impaired immunity.^{xxxiii}

Diarrhea kills more than 3,000 children each day^{xxxix}, more than AIDS, malaria, and measles combined.^{xxx} If a person feels he or she or a child has become ill with diarrhea, it is important to visit the local health care facility for timely and appropriate treatment, which usually includes what is called oral rehydration therapies. These therapies generally include drinking a solution known as oral rehydration salts solution and supplementing with zinc^{xxxi} which helps to replenish vital sources of minerals into the body that has been depleted due to the diarrhea.

To protect communities from diarrhea, it is necessary to prevent the soil and water sources from being contaminated by the germs carried in human waste. Latrines or toilets are the best defense against contamination. Studies show that improved sanitation reduces death rates from diarrhea by one-third^{xxxii}. In addition, providing people with privacy for the personal act of relieving themselves and keeping human waste separate from where residents work, cook, and play also helps maintain dignity and pride in a village.

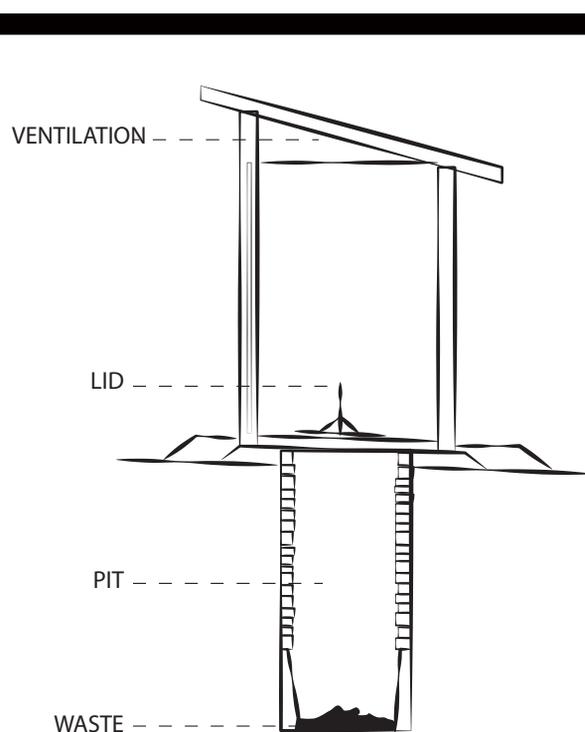
Types of Latrines

Below are five examples of different types of latrines. Not all types are appropriate for all areas and soil conditions. For example, if an area has rocky soil or a high water table, above-ground latrines with removable tanks will be necessary so as not to risk water contamination.^{xxxiii} Each type of latrine has advantages and disadvantages, and community leadership will have to conduct research and come together to decide which type is best for the community.

Simple Pit Latrine

The simplest and least expensive type of latrine to build is a simple pit latrine, which is generally only used by a household. A pit is dug in the ground and covered with a slab or floor. The slab has a hole through which excreta falls into the pit. A seat or squat hole with footrests can be installed, and there should be a lid to cover the hole. The latrine should be protected with a shelter and located away from water sources and from the home.^{xxxiv}

It is critical that a pit latrine be located downhill from a water source so waste from the latrine will



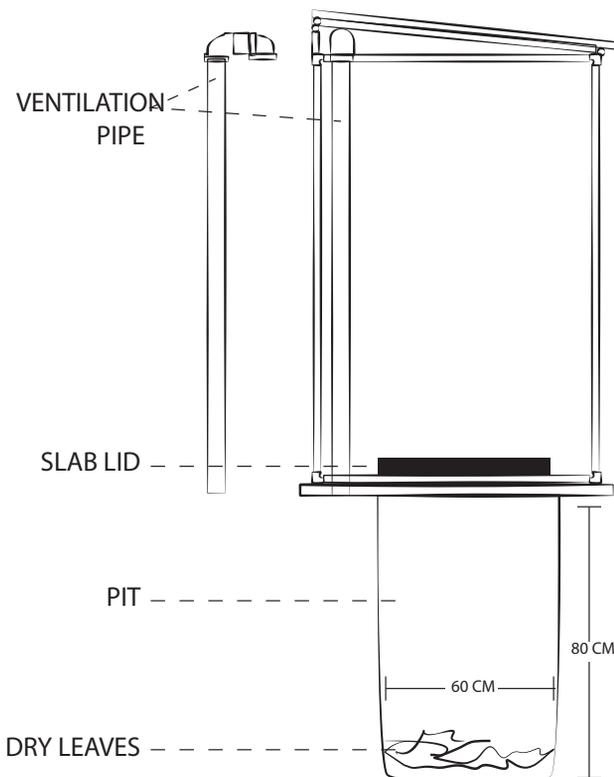
SOURCE: World Health Organization's Fact Sheet on environmental sanitation

not contaminate the water. Experts recommend the pit latrine be located at least 30 meters from a water source and the pit should be dug at least two meters above the water table in an area that is well drained.^{xxxv}

A disadvantage of simple pit latrines is that they produce unpleasant smells, and attract flies and give them a place to breed.^{xxxvi}

Arbor Loo

The Arbor Loo is a recent enhancement of the simple and inexpensive pit latrine. It is helpful to the environment because it will eventually become a site for a fruit tree. To create an arbor loo, dig a pit about 80 centimeters deep and 60 centimeters in circumference and add dry leaves to the bottom. Place a concrete slab over the opening. After each use, add a mixture of soil and ash to encourage soil composting, reduce smell, and discourage insects from breeding. To add privacy, a simple external structure can be added.^{xxxvii}



SOURCE: www.instructables.com/id/Arbor-Loo-Composting-Toilet-for-Haiti

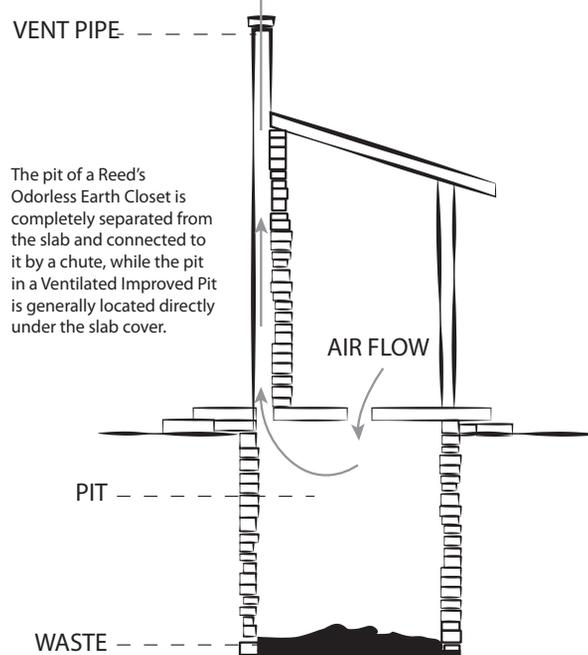
A household uses the arbor loo for one year, and then the slab is removed, the pit is topped with good topsoil, and a fruit tree seedling or other crop is planted in the topsoil. The roots grow down into the pit and take up rich nutrients.

Ventilated Improved Pit (VIP) and Reed's Odorless Earth Closet Latrines

The Ventilated Improved Pit and the Reed's Odorless Earth Closet are types of pit latrines that use a vent pipe to remove the smells and flies from a latrine. They are similar to the simple pit latrine, however, the pit of a Reed's Odorless Earth Closet is completely separated from the slab and connected to it by a chute, while the pit in a Ventilated Improved Pit is generally located directly under the slab cover.^{xxxviii}

Human waste is collected in a pit which has a vent pipe covered with a fly-proof screen at the top. In these latrines, air circulates down the hole or chute, into the pit and up through the vent pipe, which reduces odors in the shelter. No cover should be placed over the squat hole or seat so that air can flow freely into the shelter and the pit.^{xxxix}

The shelter for the latrine must be kept semi-dark so flies will be attracted to the light from the vent pipe and become trapped.^{xl} These latrines improve the problems of odor and flies common with simple pit latrines, but since they must be kept partially dark to help remove flies, people may be discouraged from using them. They also require more mainte-

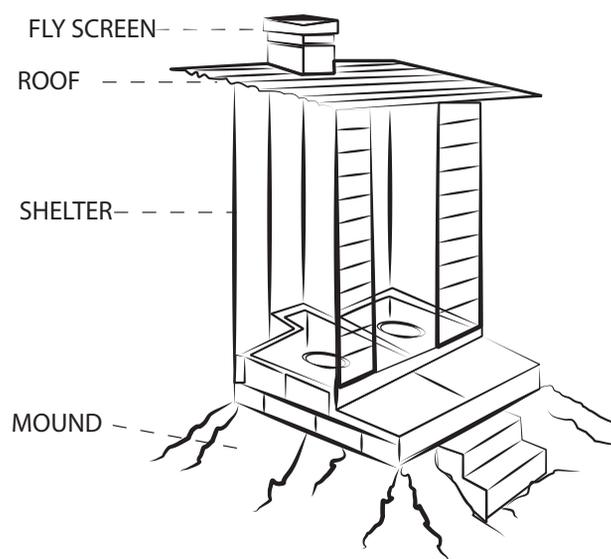


SOURCE: World Health Organization's Fact Sheet on environmental sanitation

nance than a simple pit latrine to make sure the vent pipe is in good working order. Obtaining a durable fly screen for the vent pipe may also be a problem with the Ventilated Improved Pit and the Reed's Odorless Earth Closet.^{xli}

Composting Latrine

A composting latrine may be appropriate for areas where human waste is used as fertilizer along with waste from food preparation. Urine should be collected separately because the material in the latrine must be kept as dry as possible.^{xlii} To construct a composting latrine, two shallow pits or vaults are dug for human waste.^{xliii} The pits must be constructed above



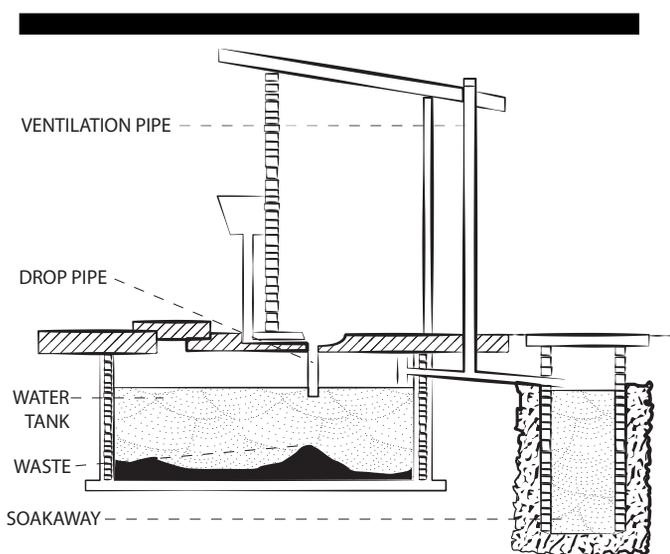
SOURCE: World Health Organization's Fact Sheet on environmental sanitation

ground for proper ventilation and easy access to remove the compost, which will make it necessary to have steps or a ramp leading up to the latrine.^{xliv}

When one pit becomes full, it is covered with soil for at least a year for the excreta to break down and become less harmful, while people use the other pit to relieve themselves. After a year, the dry compost is dug out of the first pit and the pit can be used again as a latrine. Organic waste should be added daily to help the excreta break down, and ash should be added to help remove odors.^{xlv}

Aquaprivies

The aquaprivy is a tank filled with water where the waste falls. A drop pipe reaches below the surface of the water in the tank to prevent odors from escaping.



SOURCE: World Health Organization's Fact Sheet on environmental sanitation

The tank must be watertight to keep the groundwater from being contaminated and should be emptied approximately every three years. The aquaprivy does not have problems with flies or odors and it can be connected to a sewage system if the community later decides to construct one. However, aquaprivies may be more costly to build than other latrines.^{xlvi}

Septic Tanks or Sewage Treatment Systems

In addition to the types of latrines discussed above, communities may consider using septic tanks or sewage treatment systems. Both of these systems are considerably more costly than the latrines described above and require large amounts of water to function properly.

Whichever type of latrine your community chooses, using a sanitary latrine for defecation is a step in the right direction to maintain village cleanliness, establish self pride and decrease the chance of contracting diarrheal infections.

Sermon Starter 2: Health for Body and Soul

Scripture:

Ask Allah for forgiveness and health, for after being granted certainty, one is given nothing better than health.” (Related in Tirmidhi Hadith)

“No one will be allowed to move from his position on the Day of Judgment until he has been asked how he spent his life, how he used his knowledge, how he earned and spent his money and in what pursuits he used his health.” (Related in Tirmidhi Hadith)

“But those who have faith and work righteousness, they are Companions of the Garden: therein shall they abide (for ever). And remember We took a Covenant from the Children of Israel (to this effect): worship none but Allah; treat with kindness your parents and kindred, and orphans and those in need; speak fair to the people; be steadfast in prayer; and practice regular charity...” (Qur’an 2:82-83)

The Prophet Muhammad (PBUH) shared much wisdom and gave us guidance on how to live our lives. In the Tirmidhi Hadith, the Prophet (PBUH) speaks of two of the most critical aspects of life: the first is our relationship with Allah and the importance of His forgiveness, and the second is the gift of health. The Prophet (PBUH) is quoted as saying, “Ask Allah for forgiveness and health, for after being granted certainty, one is given nothing better than health.” (Related in Tirmidhi Hadith)

This is a powerful statement. We recognize the importance of forgiveness in the eyes of Allah. For the Prophet (PBUH) to value health second only to forgiveness from Allah tells us how much we should treasure our physical health during our life here on earth.

It is also related in the Tirmidhi Hadith that the Prophet (PBUH) said our health is an important asset to be used wisely and we will be judged on how we put our good health to use while on earth. The Prophet (PBUH) said, “No one will be allowed to move from his position on the Day of Judgment until he has been asked how he spent his life, how he used his knowledge, how he earned and spent his money and in what pursuits he used his health.” Notice he says “in what pursuits he used his health.” The Prophet (PBUH) is telling us that our health is an asset, a strength, to be used wisely. We are able to accomplish much more and serve Allah and those around us when we are empowered by the benefit of good health.

Allah expects us to complete good works and regular acts of charity. In the Qur’an, He reminds us of the Covenant that guides our behavior and how we will be rewarded if we follow it. He tells us: “But those who have faith and work righteousness, they are Companions of the Garden: therein shall they abide (for ever). And remember We took a Covenant from the Children of Israel (to this effect): worship none but Allah; treat with kindness your parents and

“ Schools with separate latrines for boys and girls’ reduce girls drop out rates. ”

kindred, and orphans and those in need; speak fair to the people; be steadfast in prayer; and practice regular charity...” (Qur’an 2:82-83)

His commandment requires us to perform good deeds. We have a responsibility to be kind to our parents and family, and to treat them well as they grow older and need help. We can provide for our family and protect them when we are strong and healthy. Allah’s call for charity also extends beyond our family, as He commands us to treat orphans and those in need with kindness, and to practice regular charity.

We must be actors in our world in addition to being believers. As the Prophet (PBUH) advises, we must value and treasure our health as a gift that enables us to perform the acts of charity and the good works Allah expects from us.

While illness can strike anyone at any time, there are steps we can take to protect ourselves from dangerous diseases and remain strong and healthy and able to do the good deeds Allah asks of us. One of the most important ways to stay healthy is to keep our environment clean and uncontaminated from germs and parasites that cause diarrhea. Diarrhea causes liquid or loose stools that can dehydrate us. It can make us very weak and can even be fatal, especially for young children or people who are already weak from another illness. If you think you or someone in your household is suffering from diarrhea, you should visit the local health care facility for treatment.

To protect our families and communities from diarrhea, it is necessary to prevent the soil and water from being contaminated by germs and parasites carried in human waste. Latrines or toilets are the best defense against contamination. We know from research that using toilets and latrines reduces death rates from diarrhea by one-third.^{xlvii} And if you value your health in the manner the Prophet Muhammad (PBUH) advises, you will do what you can to follow the advice of experts on how to avoid diseases spread from contamination by human waste.

A person should use a sanitary latrine every time he or she needs to defecate. If people relieve themselves in the open, in ponds, rivers, or lakes, or anywhere near homes or where children play, disease can spread as the germs or parasites contaminate drinking water and the feet or hands of people who later ingest them when they eat or touch their faces. Flies and other insects will also land on human waste and transmit the disease-causing agents to food and other surfaces.^{xlviii}

There are many different types of latrines or toilets. They help us remain healthy by keeping human waste away from where we live. If you have access to them, you must use them. (If a community does not

have latrines, community leaders should work with local health officials to install them.)

Remember the words of the Prophet (PBUH): We must treasure our health and protect our homes and environments from waste that can carry harmful diseases. And keeping ourselves healthy and free from diseases enables us to perform the good works Allah commands.

Discussion Questions from Khutbah 2

Question 1: How can human waste make a person sick?

Response: Human waste carries organisms that are too small to see, known as germs and parasites that cause disease.

Question 2: Why is it dangerous for people to relieve themselves wherever they feel the need?

Response: If people defecate or urinate in the open, in ponds, rivers, or lakes, or anywhere near homes or where children play, disease can spread as the germs or parasites contaminate drinking water and the feet or hands of people who later ingest them when they eat, drink, prepare food, or touch their faces. Flies and other insects will also land on human waste and transmit the disease-causing agents to water, food, and other surfaces.

Question 3: What is diarrhea and why is it dangerous?

Response: Diarrhea is the passage of three or more loose or liquid stools per day, or more frequently than is normal for the person. Severe diarrhea can cause the person to lose too much fluid and can be fatal, especially in young children or people who are malnourished or have impaired immunity. Diarrhea kills more than 3,000 children each day.¹

Question 4: What causes diarrhea?

Response: Diarrhea usually results from stomach and/or intestinal infections, which can be caused by a variety of bacteria, viruses, and parasitic organisms. These germs or parasites are present in drinking water or food that has been contaminated by human waste. People become infected by the germs when they consume the contaminated water or food. Germs can also be present on unwashed hands and can be spread from person to person through contact.

Question 5: What can we do to avoid the spread of infections that cause diarrhea?

Response: To help stop the spread of germs and

parasites that cause diarrhea, use a sanitary latrine or toilet every time, and wash your hands afterwards and before eating or preparing food.

Question 6: What can you do if your community does not have latrines?

Response: You can work with community leaders and public health officials to help educate community members on the need for latrines and carry out research on the different types of latrines available and decide which type is right for your community.

Khutbah 3: Our Duty to Seek Knowledge

Message: Keep communal latrines/home latrines clean and wash hands after every use. Schools with separate latrines for boys and girls reduce girls' drop-out rates.ⁱ

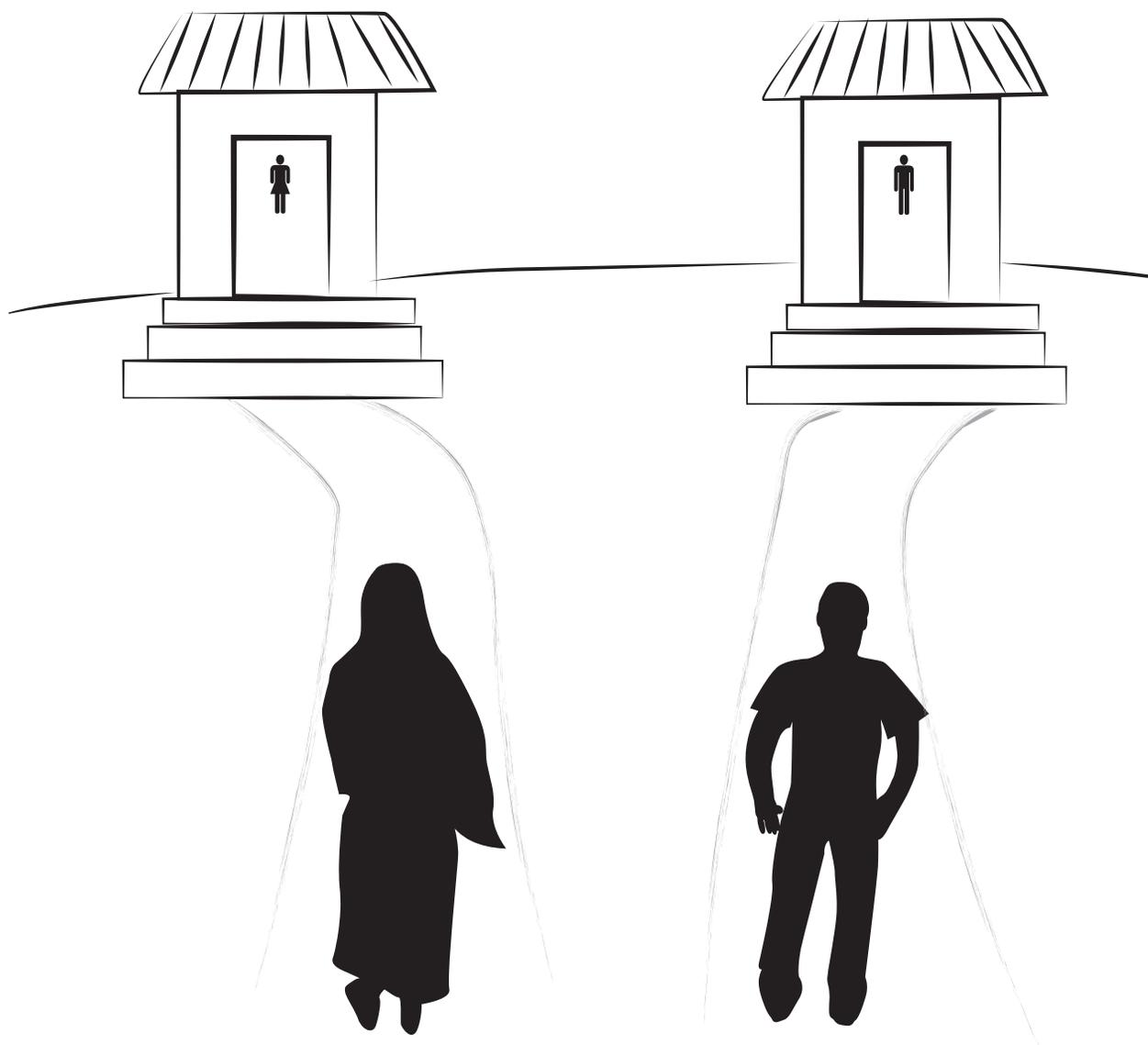
Gaining access to a latrine with hand-washing facilities means that there is no direct contact with feces and a reduction in contamination of local

water supplies. By supplying safe latrines, girls will be more inclined to stay in school after the onset of menstruation. To ensure latrine use, it is beneficial if the students are involved in indentifying latrine type and placement.

Latrine Use Reduces Disease

Human waste carries germs and parasites that cause diseases that can be deadly, such as cholera, typhoid, schistosomiasis (a parasitic infection carried by snails and found in water), and diarrhea. Intestinal worms and eye and skin infections are also caused by parasites and germs found in feces. Some people believe the waste of a child or baby is harmless, but this is not true. The excrement of a child contains just as many germs and parasites as that of an adult.ⁱⁱⁱ If people defecate in the open or in or near water, these disease-causing agents can spread to people. Rain washes the germs from soil into wells and streams and contaminates the water used for drinking.ⁱⁱⁱ

Proper latrine use greatly reduces contamination from human waste. Research shows that improved sanitation, meaning the use of latrines, reduces diarrhea deaths by one-third.^{iv} In order to encourage people to use the latrines and to keep them function-



“ Girls can do just as well as boys in school if they are given the right environment, opportunities, and facilities. ”

ing properly, they must be kept clean. Latrines that are dirty are less likely to be used.

Latrines at School

Many girls drop out of school when they begin menstruating, partly because there are either no toilet facilities or latrines at the school at all, or the ones that exist must be shared with boys. Girls feel more comfortable attending school knowing they have privacy for personal hygiene.

If possible, girls and boys should participate in separate discussions to select the types of latrines to be built and where they will be placed (based on water tables and distance from the school), as this involvement can be critical in determining whether the latrines will be used.^{lv} Discussions should enable girls or boys to speak freely and privately about their personal hygiene concerns separate from the involvement of the other sex.

If boys and girls must use latrines located in the same structure, signs should be placed at the entrance that clearly designate which latrine is for boys and which one is for girls.

Keeping Latrines Clean

Installing latrines is an important first step in reducing illness spread from contact with human waste, but they must also be kept clean and maintained so people will use them. Germs can live on surfaces in the latrine and unpleasant odors and appearances may discourage their use.

The following steps can keep the latrine clean and encourage people to use it^{lvi}:

- Make sure there is no trash on the floor
- Clean the walls, floor, and door of the latrine regularly
- Make sure any cracks in the walls, floor, door, and roof are repaired
- Make sure the latrine is properly ventilated
- Pour lime down the latrine regularly to kill mosquitoes
- Keep soap and a water supply near the latrine for hand-washing.

In addition to cleaning the latrine, the following maintenance inspections should be performed at least monthly:

- Inspect the vent pipe and the fly screen on the latrine vent to make sure they are not corroded or damaged.
- Make sure rain water drains away from the latrine.
- Make sure pit latrines are not full.^{lvii}

Although the responsibility can be shared equally among community or household members, it should

be clearly defined how the responsibility for cleaning latrines will be delegated to ensure proper follow through.^{lviii}

Wash Hands after Latrine Use

It is very important to wash hands with soap or ash after activities like using the latrine or cleaning a child's bottom.^{lix} That way any germs or parasites present in feces will be removed immediately, and diseases will not be transmitted from the hands to the mouth when food is eaten or prepared.

Khutbah Starter 3: Our Duty to Seek Knowledge

Scripture

“The seeking of knowledge is obligatory for every Muslim...” (Hadith; Al-Tirmidhi, 74)

“A woman came to Allah’s Apostle and said, ‘... Men (only) benefit by your teachings, so please devote to us from (some of) your time, a day on which we may come to you so that you may teach us of what Allah has taught you.’ Allah’s Apostle said, ‘Gather on such-and-such a day at such-and-such a place.’ They gathered and Allah’s Apostle came to them and taught of what Allah had taught him.” (Hadith; Bukhari Volume 9, Book 92, Number 413)

“...do not approach prayers with a mind befogged, until you can understand all that you say, - nor in a state of ceremonial impurity... until after washing your whole body...” (Qur’an 4:43)

Allah expects us to seek knowledge and gain an education. Using our intellectual gifts and seeking to learn is very important, both in religious studies and in learning the skills and knowledge we need for a profession.

Life is more rewarding when we have knowledge to understand Allah’s creation and how the earth and all the creatures that inhabit it function. If we did not seek knowledge, we would not have medicines to cure disease. Those are developed by people who spend many years in school gaining knowledge, learning about chemistry and biology so they know how our bodies work and how certain substances will affect the body and attack disease.

However, we do not gain knowledge without effort. The prophet Muhammad (Peace Be Upon Him) said *“The seeking of knowledge is obligatory for every Muslim...”* (Hadith; Al-Tirmidhi, 74) You might be imagining only men seeking higher education and becoming knowledgeable enough to develop new medicines and other inventions that can save lives

and improve the quality of life. But knowledge is not for men only. Women have a right and responsibility to seek knowledge too.

The prophet Muhammad (PBUH) shared his wisdom and knowledge with others and he included women in his teachings. We read in a Hadith that women were interested in Muhammad's (PBUH) teachings and complained that he shared his wisdom only with men: *"A woman came to Allah's Apostle and said, '...Men (only) benefit by your teachings, so please devote to us from (some of) your time, a day on which we may come to you so that you may teach us of what Allah has taught you.' Allah's Apostle said, 'Gather on such-and-such a day at such-and-such a place.' They gathered and Allah's Apostle came to them and taught of what Allah had taught him."* (Hadith; Bukhari Volume 9, Book 92, Number 413)

Our sons and daughters all have intellectual gifts and the responsibility to use those gifts. The participation of our daughters in school is just as important as the participation of our sons. Girls can do just as well as boys in school if they are given the right environment, opportunities, and facilities. Part of having the proper facilities at school includes a healthy and clean environment. All children should have access to sanitary latrines to keep human waste separate from the areas where the children play and learn. Harmful germs and parasites that carry disease are present in human waste and can make people sick if they contaminate the soil. Latrines are our best defense from these diseases. Proper latrine use greatly reduces contamination from human waste. Research shows that the use of latrines reduces deaths from diarrhea by one-third.^{ix}

As girls start to experience their monthly cycles, they will have a special need for privacy for personal hygiene. Unfortunately, many girls drop out of school when they begin menstruating, often because their schools either have no latrines at all, or the girls lack privacy and must share the latrines with boys.^{ixi} It is especially important that girls have access to latrines, and, if possible, they should be latrines that are designated for the use of girls only, with separate facilities for boys. If separate structures are not possible, and latrines are contained in the same structure, the latrines should be clearly marked with signs indicating which one is for boys and which is to be used by girls.

Girls should not be prevented from seeking knowledge and sharing their intellectual gifts at school simply because they do not have access to proper sanitation. Girls will feel more comfortable attending school knowing they have privacy for personal hygiene. Having the facilities is the first step, but girls must also be comfortable using them to make them effective. If possible, girls and boys should participate in separate groups when selecting the types of latrines used and where they will be placed, as this involvement can be critical in determining whether the latrines will be used.^{ixii} Girls should be able to speak freely and privately about their personal hygiene concerns separate from the discussion with boys.

How would a man know where to best place a latrine for use by a girl? A girl or female teacher has more knowledge of the type of latrine that would

make a girl more comfortable and help encourage her to attend school. We must listen to the counsel of the young girls and female teachers, who can give us guidance as we determine which type of latrine and how to place that latrine to encourage its use at school. Keeping our daughters in school to help them seek knowledge to fulfill their potential should be our goal.

Once we have the proper sanitation facilities for both boys and girls at school, and facilities for our households, places of worship, and businesses, we must keep them clean and maintained. We know we will be more likely to use the facilities if they are pleasant, and keeping germs and parasites out of the latrines means keeping them clean. We should set a schedule for who is going to clean the latrines; there is no reason the same person must do it all the time. We must share responsibility for chores to keep our schools, households, places of worship, and businesses operating.

When we clean the latrine, we must make sure there is no trash on the floor, and clean the walls, floor, and door of the latrine. We must also repair any cracks in the walls, floor, door, and roof, and make sure the latrine is properly ventilated. We must control mosquitoes with lime or another substance. The latrine vent should have a properly functioning fly screen. And finally, while it is very important to keep the latrine clean, it is critical that we wash our hands after each time we use the latrine. So, when performing checks on the latrine, make sure there is soap or ash and a water source near the latrine for people to wash their hands.

Hand-washing with soap or ash will remove any germs or parasites that may have gotten on your hands while using the latrine. It is important to remove them as soon as possible, before they have an opportunity to infect you or someone else when you touch your face, the hands of someone else, or prepare food.

We read in the Qur'an that God equates physical cleanliness with spiritual purity. *"...do not approach prayers with a mind befogged, until you can understand all that you say, - nor in a state of ceremonial impurity... until after washing your whole body..."* (Qur'an 4:43) But clean hands are also essential for our physical health. To remove germs that make us sick, we must wash our hands with soap or ash after every time we use a latrine.

Latrine use is necessary to keep germs and parasites away from where people live, cook, work and play. These facilities must be kept maintained and clean in order to encourage people to use them. Having a private facility to relieve oneself and for personal hygiene for girls is crucial to their education and encouraging them to stay in school. Remember, the seeking of knowledge is obligatory, and we must do all we can to enable our boys *and* girls to learn.

Discussion Questions from Khutbah 3

Question 1: Why is it important to keep a latrine clean?

Response: It is important to keep a latrine clean

to remove any germs that may be present on the surfaces of the latrine and to reduce unpleasant odor and encourage its use.

Question 2: What do we need to do to keep the latrine clean?

Response: The following steps can keep the latrine clean and encourage use:

- Make sure there is no trash on the floor
- Clean the walls, floor, and door of the latrine regularly
- Make sure any cracks in the walls, floor, door, and roof are repaired
- Make sure the latrine is properly ventilated
- Pour lime down the latrine regularly to kill mosquitoes
- Keep soap or ash and a water supply near the latrine for hand-washing
- Cover the latrine vent with a fly screen

Question 3: What must we do as soon as possible after using the latrine? Why?

Response: We must wash our hands with soap or ash immediately after using the latrine. Hand-washing with soap or ash removes germs and parasites that can make us sick and keep us from infecting ourselves or others.

Question 4: Why is it important for girls to have access to separate latrines at school?

Response: When girls begin to menstruate, they need private facilities for personal hygiene. Many girls drop out of school when they start their monthly cycles, often because their schools do not have latrines, or have latrines they must share with boys.

Question 5: How can we make girls more comfortable and encourage them to use latrines at school?

Response: Involving girls in the decision of what type of latrine to install at a school, and where that latrine should be placed can make them more comfortable and encourage them to use the latrine.

Question 6: Why is it important for girls to stay in school and complete an education?

Response: It is important for all Muslims to seek knowledge. If girls stay in school, they can learn and perform just as well as boys and will have much to offer their families and communities.

Khutbah 4: From Our Households to Our Communities

Message: Keep a clean environment, so mosquitoes and flies cannot breed. Remove standing water inside and outside the home and clean up trash around your home.

Standing water is needed to produce mosquitoes. Covering water containers in the home and rain water roof catchment containers when it is not raining, and draining any standing water will prevent mosquito breeding, and thus reduce the transmission of water-borne infections. A hygienic environment,

clean water, and adequate sanitation are key factors in preventing water-borne infections as well as opportunistic infections associated with HIV/AIDS.^{lxiv}

Mosquitoes carry diseases that can be fatal, such as malaria and dengue fever. Because mosquitoes need standing water to breed, we can reduce the mosquito population in our home and immediate area by limiting their ability to reproduce. Female mosquitoes can lay 50 to 200 eggs at a time, which are laid directly on the water and float on top.^{lxv} Keeping containers of water in the home covered prevents mosquitoes from laying their eggs in the water and also keeps dirt, food particles, and other substances that may carry disease out of the water.

Water storage vessels that have wide openings, such as buckets and pots, from which water is removed using a hand-held cup or scoop increases the chance that disease-causing germs present on the hands, scoop, or cup could be introduced into the water. Where possible, containers should have spouts for pouring or a tap for dispensing water.^{lxvi}

People should also limit areas outside of their homes where mosquitoes can breed. They should remove all items that could collect water, including any



trash, buckets, tires, pots, and cans, and make sure water containers to store water for home use have lids and remain covered. Mosquitoes do not need much water to breed, and even shallow puddles are sufficient. Rain water roof catchment containers should be covered when it is not raining.

In addition, the inside and outside of homes should be kept clean and clear of garbage as much as possible. Flies reproduce by depositing eggs in decayed, fermenting, or rotting organic material that can be either of animal or vegetable origin. Flies can breed in feces, but decaying garbage provides their main breeding ground. Once the female fly lays eggs in the garbage or other rotting material, the eggs hatch in a matter of hours, begin feeding, and develop into an adult fly over the next few weeks.^{lxvii}

The adult flies pick up germs and parasites while they are feeding or crawling on trash or rotting material and transmit them when they land on people or food. Diarrheal diseases and skin and eye infections are carried by flies.^{lxviii} Everyone needs to be careful to avoid these diseases, but people living with HIV/AIDS are naturally more susceptible to any kind of infection and will become sicker than people living with healthy immune systems.^{lxix} Keeping a clean

“**Ask Allah for forgiveness and health, for after being granted certainty, one is given nothing better than health.**”

home will reduce the presence of germs that cause illnesses.

Removing garbage and using latrines that provide protection from flies will help reduce breeding areas and the population of flies near humans. People should follow the directions of the Ministry of Health in their area for how to get rid of waste, which may include disposal at a landfill or composting spot. Composted materials can regenerate poor soils and

THE DANGER OF MALARIA

Malaria is a dangerous infectious disease that is often fatal. Although it can strike anyone, it is especially dangerous to young children, pregnant women, and anyone with a chronic illness or weakened immune system.

- Malaria is caused by a parasite that is transmitted through **BITES BY INFECTED MOSQUITOES**.
- In 2010, there were approximately **216 MILLION CASES** of malaria and an estimated **655,00 DEATHS**.
- In Africa, **ONE CHILD DIES EVERY MINUTE** from malaria.
- Pregnant women are at a higher risk of harm from malaria, which can cause **MISCARRIAGE & LOW BIRTH WEIGHT** for the baby.

the composting process encourages the production of beneficial micro-organisms. Composting also helps reduce pollution by diverting material from landfills.^{lxx}

While garbage is being stored prior to disposal or collection, it should be stored in garbage cans or other containers with lids to keep flies out. If garbage is collected by a municipality, containers should be large enough to store all the waste that accumulates in between collection days.^{lxxi}

The Danger of Malaria

Malaria is a dangerous infectious disease that is often fatal. Although it can strike anyone, it is especially dangerous to young children, pregnant women, and anyone with a chronic illness or weakened immune system. While we have medicines to treat malaria, some strains of malaria are becoming resistant to drugs, making the disease more difficult to treat.^{lxxii}

Malaria is caused by a parasite that is transmitted through bites by infected mosquitoes. Once in the human body, the parasites live and multiply in the liver and then infect red blood cells. Malaria causes

fever, headache, and vomiting, and if not treated, can quickly become fatal by disrupting the blood supply to vital organs.^{lxxiii}

There were approximately 216 million cases of malaria and an estimated 655,000 deaths from the disease in 2010. Most malaria deaths occur among children in Africa, where a child dies every minute from the disease. Pregnant women are also at a higher risk of harm from malaria, which can cause miscarriage and low birth weight for the baby.^{lxxv}

Even when malaria is not fatal, repeated attacks can lead to debilitation.

Dengue Fever

Dengue fever is transmitted by the bites of mosquitoes infected with the dengue virus. It can cause either a mild or high fever, severe headache, pain behind the eyes, muscle and joint pain, and a rash. Dengue hemorrhagic fever (fever with abdominal pain, vomiting, and bleeding) mainly affects children and can be fatal.^{lxxvi}

The incidence of dengue fever has increased over recent decades, and half the world's population is now at risk of the disease. The World Health Organization estimates there may be 50 to 100 million dengue infections worldwide each year.^{lxxvii}

If someone in your congregation or community becomes ill and you suspect malaria or dengue fever, it is important to visit the local health care facility for timely and appropriate treatment.

Sermon Starter 4: From Our Households to Our Communities

Scripture

“We have enjoined on man kindness to his parents: in pain did his mother bear him, and in pain did she give him birth. ...” (Qur’an 46:15)

“Ask Allah for forgiveness and health, for after being granted certainty, one is given nothing better than health.” Related in Tirmidhi Hadith

“They ask you what they should spend (in charity). Say: Whatever you spend that is good, is for parents and kindred and orphans and those in want and for wayfarers. And whatever you do that is good, - Allah knows it well.” (Qur’an 2:215)

Protecting our families and our communities from harm is our duty. Our children rely on us to protect them. Our elderly parents and those living with chronic illness in our care are particularly vulnerable and need our protection. God speaks to us in the Qur’an about showing kindness to our parents and

UNCLEAN WATER AND POOR SANITATION FACTS:

■ Diarrhea kills more than **3,000 CHILDREN EACH DAY**.

■ Intestinal worms infect about **10 PERCENT** of people in developing nations, and if the case is severe, can lead to malnutrition, anemia, inhibited growth in children, and poor school performance.

■ **SIX MILLION PEOPLE** in the world have lost their sight due to trachoma, a disease caused by poor hygiene.

■ **TWO HUNDRED MILLION PEOPLE** are infected with schistosomiasis, a parasitic infection carried by snails found in water, which causes severe problems for **20 MILLION** of those infected. Schistosomiasis can cause a rash, fever, chills, cough, blood in the urine and feces, and muscle aches. It can even affect the brain or spinal cord and cause seizures, paralysis, or spinal cord inflammation.

■ The **DEADLY DISEASES** of cholera and typhoid are spread in unsanitary conditions and can be prevented by access to safe drinking water, sanitation, and proper hygiene practices.

providing for our families and the vulnerable.

The Prophet Muhammad (PBUH) recited, *“We have enjoined on man kindness to his parents: in pain did his mother bear him, and in pain did she give him birth. ...”* (Qur’an 46:15) We have a duty to our parents to protect them and provide for them as they have given us life. The most important thing we can do for our families is to protect their health. As it is related in the Tirmidhi Hadith, the Prophet Muhammad (PBUH) said, *“Ask Allah for forgiveness and health, for after being granted certainty, one is given nothing better than health.”* We owe this precious gift of health to our families and we must do what we can to protect them from disease.

But our responsibility does not end at home. In addition to providing for our families, God also speaks to us about showing kindness for those around us in need. As we read in the Qur’an: *“They ask you what they should spend (in charity). Say: Whatever you spend that is good, is for parents and kindred and orphans and those in want and for wayfarers. And whatever you do that is good, - Allah knows it well.”* (Qur’an 2:215) We should not forget the health of those outside our own homes and in our communities.

We have direction from the Prophet (PBUH) about the importance of health and guidance from the Qur’an to be kind to our families and the people in need around us. Unfortunately, although we may not realize it, some very simple habits can be a threat to the health of our families and to others living near us, robbing them of this precious gift.

One of those habits that we may not realize is dangerous is leaving containers of water for cooking and cleaning uncovered in our homes. Mosquitoes breed in water and lay their eggs on top of standing water. Uncovered containers of water in our homes give them a place to breed.

Mosquitoes carry dangerous diseases, such as malaria and dengue fever, which they transmit to people when they bite. Malaria is especially danger-

ous for children and pregnant women. A child dies from malaria every minute in Africa.^{boxviii} Malaria in a pregnant woman can cause miscarriage, or low birth weight for the baby. Severe dengue fever, also known as hemorrhagic fever, can cause abdominal pain, vomiting, and bleeding that can appear as tiny spots of blood on the skin and larger patches of blood under the skin, and can even be fatal. Death generally results from shock, which causes the body’s vital organs to fail to receive adequate oxygen.^{boxix} It is important to visit the local health care facility for timely and appropriate treatment if you or someone you know has fever, chills, headache, abdominal pain, or vomiting. These can be symptoms of malaria or dengue fever.

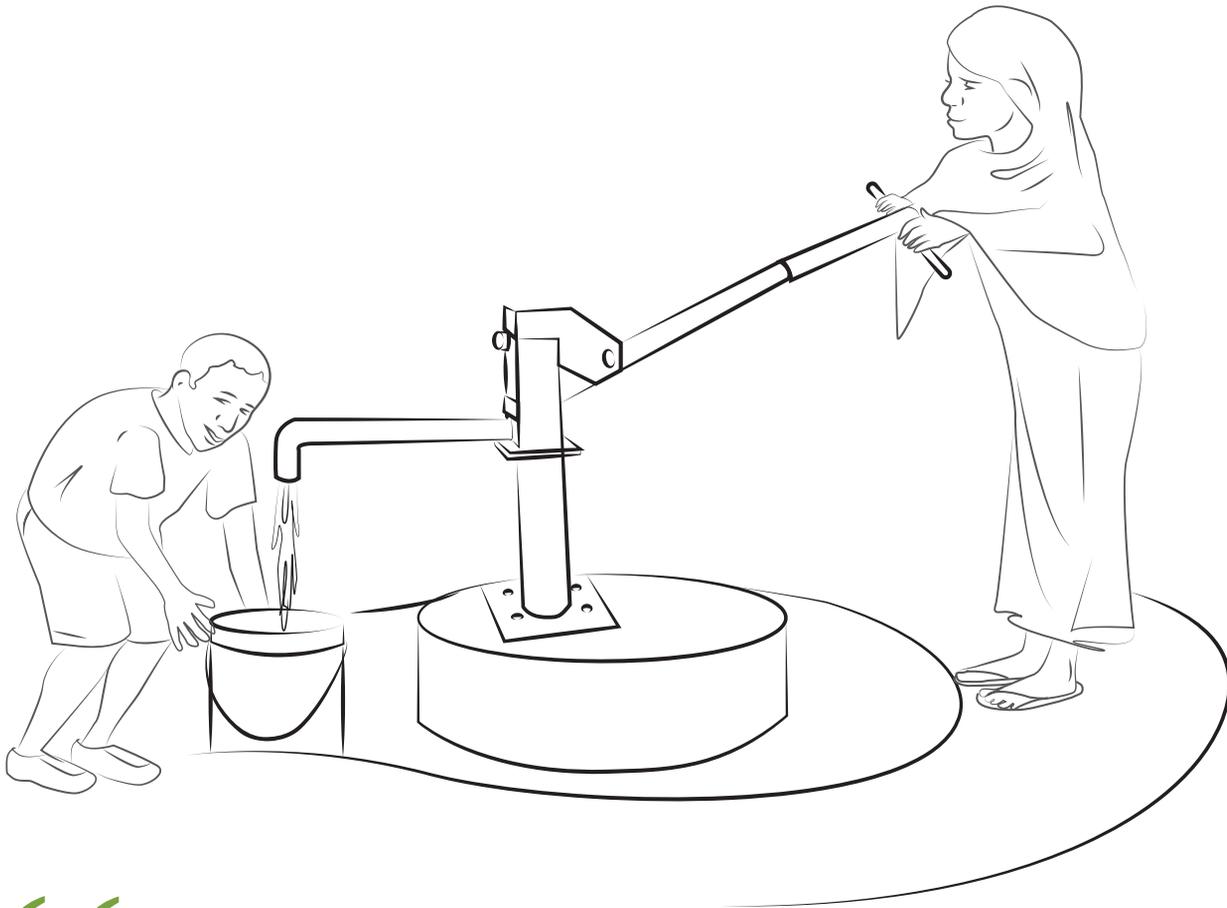
In addition to providing a breeding ground for mosquitoes, water stored in open containers in our homes can easily become contaminated with germs, making it unhealthy to use in cooking, cleaning, and washing dishes and clothes. Water must be kept in containers with lids to reduce the chance of contamination by germs or parasites. Also, we should not dip a cup or scoop into the water container to collect it, because we might introduce germs into the water. Water should be stored in containers with spouts for pouring or taps or spigots for dispensing it.

Imagine a family collects water for their home. They leave the container open and uncovered. No one in the family realizes that a mosquito has just found the water and laid its eggs there. Nothing is seen wrong with the water, because it looks clean. Before long, those eggs hatch and new mosquitoes are in the home and the community, carrying diseases from one family to another. Everyone in the family is unaware of the danger the uncovered container of water poses and they mean no harm to people living in the home and to their neighbors living close by.

But now you do know the danger of uncovered containers of water. You can go back to your homes and make sure you cover any containers of water with a lid or find new containers that come with lids and have spouts or taps or spigots to dispense the water. You also have a duty to inspect the outside of your homes and remove any items that can collect water, such as trash, buckets, tires, pots, and cans. Even small amounts of water can provide a place for mosquitoes to breed. In addition, rain water roof catchment containers should be covered when it is not raining.

There are other dangers inside and outside our homes. If we let garbage sit too long in our house or leave it around the outside of our house, it can provide a place for flies to breed. Flies lay their eggs in rotting food, or feces. It only takes a few hours for the eggs to hatch and the process of transformation into adult flies to begin. Adult flies pick up germs and parasites while they are feeding or crawling on trash or rotting material and transmit them when they land on people or food.

These germs and parasites cause diarrheal and skin and eye infections. These infections are dangerous for everyone, but can be especially dangerous for people who are living with HIV/AIDS and do not have healthy immune systems. Removing rotting food and



“ **Health is a precious gift that we must value highly** ”

trash, using latrines that properly dispose of human waste, and keeping animal waste cleared from our living areas will reduce areas around our homes where flies can breed.

Remember, the Prophet (PBUH) has told us that health is a precious gift that we must value highly. Out of kindness to our family members and neighbors, especially the vulnerable and weakened around us, we must provide and protect this gift. We must help decrease the number of mosquitoes and flies in our community by keeping water containers and garbage covered to help control the spread of diseases they carry. If all community members cooperate, we can reduce the number of places mosquitoes and flies have to breed. We will be protecting ourselves, our families, and our communities.

Discussion Questions from Khutbah 4

Question 1: What can happen when water sources in the home and surrounding the home are left uncovered?

Response: Mosquitoes need water to breed. Leaving containers of water in the home and standing water outside the home uncovered provides a place for them to breed.

Question 2: Why should we try to control the population of mosquitoes?

Response: Mosquitoes carry dangerous diseases,

such as malaria and dengue fever, which can both be fatal.

Question 3: How should water be stored in the home?

Response: Water should be stored in containers with lids or coverings.

Question 4: What can happen if we use a cup or scoop to remove water from a container?

Response: Dipping a cup or scoop into a container of water can introduce germs that are present on the hands or the cup or scoop into the water. If possible, water should be stored in containers that have a spout or tap to dispense water.

Question 5: What can happen if garbage and rotting food is left inside or outside of the home?

Response: Flies lay eggs in rotting food, vegetables or meat. Reducing garbage near the home decreases the opportunities for flies to lay their eggs near where people live.

Question 6: Why are flies dangerous?

Response: Flies pick up germs and parasites that cause diarrhea and skin and eye infections when they feed or crawl on garbage or feces. They then transmit these to people when they land on food or other surfaces humans touch.

Question 7: What should you do about garbage from cooking and other household activities?

Response: Check with your Ministry of Health to find out how garbage should be disposed of in your area. Make sure to store garbage in a container with a lid between removal times.

Khutbah 5: Sources of Purity and Wisdom

Message: Drinking water from covered boreholes can reduce bacterial infections that cause cholera and typhoid, and parasitic infections.

Drinking water is a necessity to survive, having access to clean drinking water is necessary in the prevention of ingesting bacteria and parasites that cause water-borne infections. It is also important to avoid standing in contaminated water as parasites can enter through the skin.

Although we need water to survive, we must ensure drinking water is not contaminated with bacteria or parasites that cause illness.

Cholera

One of the diseases caused by bacteria in drinking water is cholera. It is an intestinal infection that causes painful watery diarrhea that can quickly lead to severe dehydration and death if treatment is not received. Vomiting also occurs in most patients.^{lxxx} The incidence of cholera is rising and there are an estimated 3-5 million cases of cholera with 100,000-120,000 deaths from the infection each year.^{lxxxi} People with low immunity, such as malnourished children or people living with HIV and AIDS, are at a greater risk of death from cholera.^{lxxxii}

teria and is spread when people eat or drink food or water contaminated by the feces or urine of people carrying the disease. Typhoid causes a fever, severe headache, nausea, loss of appetite, constipation or sometimes diarrhea, and can be fatal. Antibiotics are used to treat typhoid, but antibiotic-resistant strains of the disease are developing in some areas.^{lxxxvi}

Parasites

Parasitic intestinal worms infect about 10 percent of people in developing nations, and if the case is severe, can lead to malnutrition, anemia, inhibited growth in children, and poor school performance.^{lxxxvii}

A parasitic infection, known as schistosomiasis, infects approximately 200 million people. Schistosomiasis is carried by snails found in water and causes severe problems for 20 million of those infected. Symptoms include a rash, fever, chills, cough, blood in the urine or feces, and muscle aches. Schistosomiasis can even affect the brain or spinal cord and cause seizures, paralysis, or spinal cord inflammation.^{lxxxviii}

Guinea worm disease is caused by a parasitic worm, the *dracunculus medinensis*. The larvae of the guinea worm can be found in contaminated water.

After a person is infected by drinking water containing larvae, the worm lives in the infected person's tissues and causes severe pain, especially in the joints. The worm eventually emerges from the body, causing open sores, fever, and vomiting. The individual should not pull on the worm as it emerges from the body but visit the local health care facility to ensure appropriate care for the limb where the worm is emerging. It releases embryos when it is expelled, continuing the cycle of development.

Fortunately, occurrences of this disease are declining. Care should be taken to avoid drinking or standing in infected water for the decline of this disease to continue.

“When it comes to our physical nourishment, we must also be careful our sources are pure and do not cause us to become ill.”

The germs that cause cholera are spread in areas that lack proper sanitation facilities for disposal of human waste.^{lxxxiii} Hand-washing with soap or ash after using the latrine and before handling food is one of the most effective ways to remove germs that cause diarrheal diseases, including cholera.^{lxxxiv} Cholera is a threat more common after a disaster or similar emergency where normal sanitation is disrupted and people are living closely together in camps for displaced persons.^{lxxxv}

Typhoid

Typhoid is a disease also caused by a type of bac-

A very common way of contracting schistosomiasis and guinea worm is by standing in contaminated water, as the snails and worms can penetrate the skin. People should avoid standing in ponds, rivers, lakes and other sources of surface water in areas where these parasites are common.

Many countries have programs to eliminate these diseases and it is important to participate in mass drug eliminations and accept the disinfection of water sources when the Ministry of Health schedules these activities. If infected with any of the above diseases, an individual should visit the local health care facility for treatment.



Drink Groundwater Pumped from Wells and Avoid Surface Water

To avoid infection of cholera, typhoid, and parasites, it is important to drink water from protected groundwater sources that are much less likely to be contaminated and to avoid drinking surface water.

Surface water comes from sources such as rivers, streams, ponds, and lakes. Groundwater is water that is found underground and pumped up to the surface through wells. Groundwater sources are often of good quality and may only require disinfection. Surface waters are frequently contaminated and require more elaborate treatment before becoming safe to use^{lxxxix}.

Boreholes

Boreholes are a type of well used to collect water from the ground. If possible, boreholes should be dug in the dry season and should extend below the water table to ensure a continuous supply of water. Boreholes may require a drilling rig which may need to be mounted on the back of a truck or a trailer. Large drilling rigs can drill boreholes more than 200 meters deep. However, if a hand pump is going to be used to collect water, the borehole must not be deeper than 60 meters deep. Boreholes deeper than 60 meters require a motorized pump.^{xc}

Boreholes need regular monitoring to ensure they are delivering a safe and adequate water supply. The World Health Organization recommends a community inspect its wells four times a year and an external surveillance agency inspect them once a year. Water quality inspections should be conducted twice a year: once in the dry season and once in the rainy season.^{xcii} A committee made up of community

members (both men and women) can be established to ensure the maintenance of the borehole.

What to Look for in a Borehole Inspection

Look for the following when designing and inspecting a borehole:

- The well should be surrounded by a cement apron that is at least two meters in diameter to prevent the collection of standing water. If cement is not available, it is possible to use lime as a lower cost alternative to cement.^{xciii} Check with your local government building construction officials for advice.
- The cement apron surrounding the well to protect it from surface water contamination should be properly maintained and inspected for cracks.
- Hand pumps must be securely fixed to the well.
- A drainage channel leading away from the well and pump should be properly maintained to prevent pooling of water.
- There should not be any uncovered wells within 100 meters of the borehole well.
- Latrines should be more than 30 meters downhill from the well.
- Watering pools for animals should be more than 20 meters downhill from the well.
- The top of the well should be completely covered to prevent surface or spilt water from entering the well. This may be accomplished by using a concrete base on which the hand pump is securely fixed.^{xciii}

Disinfection

Good quality groundwater that comes from a covered well or borehole with a pump can be disinfected with methods such as the addition of chemicals, through boiling, or by solar radiation.

Chemicals

Chemicals such as chlorine and iodine can be added to water to remove pathogens. These chemicals remain in the water and minimize the re-introduction of bacteria and discourage re-contamination.

Boiling

A disadvantage of boiling is the consumption of energy and cost of fuel necessary to heat water to boiling, and it may not be feasible everywhere. If boiling water is feasible in your area, the World Health Organization recommends that the water is heated until it reaches a rolling boil, which indicates a high enough temperature to destroy pathogens has been reached. It is also recommended that the water be stored in the same container in which it has been boiled, preferably one with a lid or other protected opening in order to reduce opportunities for recontamination. The water should be consumed soon after it has cooled, preferably within the same day to reduce the chance for recontamination.^{xciv}

Using the Sun to Kill Pathogens

Heating water to temperatures high enough to make the pathogens harmless using the heat of the sun can be a more accessible and economical alter-

native to boiling using wood or fuel as a heat source. Water can be heated to temperatures capable of killing the disease-causing organisms in transparent bottles, such as a plastic beverage bottle exposed to sunlight for at least six hours. Painting the bottle black on one side or lying it on a dark surface can help raise the temperature. This method of treatment uses both the ultraviolet radiation in sunlight as well as the heating effect of sunlight to make the germs harmless. Using a container that is completely black or made out of a material that can absorb heat, such as a metal container, can also make the germs harmless.^{xcv}

Filtration

Filtration removes particles and at least some of the microbes from water. There are a variety of methods to filter impurities from water, including using sand, coal, sponge, or cloth. These methods are only moderately effective in removing microbes.

Recommended practices for disinfection vary among nations. Check with your Ministry of Health for the preferred method in your area and more specific instructions.

Disinfection is not sufficient for contaminated surface water, which requires more extensive treatment to remove disease-causing agents.^{x cvi}

Sermon Starter 5: Sources of Purity and Wisdom

Scripture

“We made from water every living thing.” (Qur’an 21:30)

“Allah said: ‘We have tested your people in your absence: the Samiri has led them astray.’” (Qur’an 20:85)

“Your (real) friends are (no less than) Allah, His Messenger, and the (Fellowship of) Believers, - those who establish regular prayers and regular charity, and they bow down humbly (in worship).” (Qur’an 5:55)

We can receive spiritual and physical nourishment from many sources. When it comes to spiritual nourishment and advice, family members, teachers, neighbors, and others in our community may counsel us to help us do what is right when we make important decisions. We must be careful the advice we receive is from someone with pure motives, who cares about us and wants us to make the best choice.

When it comes to our physical nourishment, we must also be careful our sources are pure and do not cause us to become ill. We are especially vulnerable to impure sources of water. We read Allah’s words in the Qur’an, where He said, *“We made from water every living thing.”* (Qur’an 21:30) Although we cannot survive without water, it can also be dangerous if it is contaminated. Water can be infected with germs and parasites that we cannot see and can cause dangerous diseases. So we must be careful to choose a pure source for our water and listen to health experts and our Ministry of Health for guidance on how to do that.

The Children of Israel learned what could happen to them when they turned to the wrong source for guidance. They were led astray when Moses was not there to keep them on the right path. After Moses led his people to freedom from Pharaoh, he traveled alone to Mount Sinai. While he was away, the Children of Israel listened to a dangerous source of counsel. They followed the advice of Samiri, a man who had constructed a golden calf and encouraged the people to worship it instead of worshipping Allah as their only god. Moses’ brother Aaron attempted to convince the people not to do this, but they did not listen. When Moses returned and learned of their sin, he was very distraught. Allah told Moses that his people had been deceived. It is recited in the Qur’an: *“Allah said: ‘We have tested your people in your absence: the Samiri has led them astray.’”* (Qur’an 20:85)

Finding someone to be a source of advice and counsel when we face difficult decisions or problems is important. But we must be careful the source of counsel has our welfare in mind and will give us advice that will help us solve our problems and stay away from trouble.

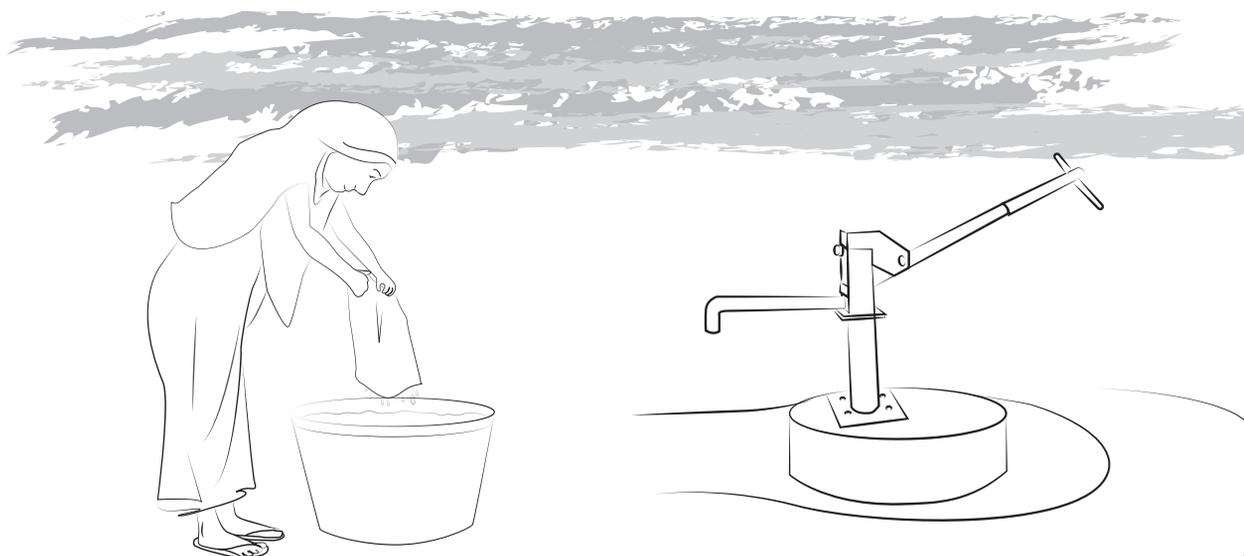
Fortunately the Qur’an contains advice concerning who we should follow. It is recited in the Qur’an: *“Your (real) friends are (no less than) Allah, His Messenger, and the (Fellowship of) Believers, - those who establish regular prayers and regular charity, and they bow down humbly (in worship).”* (Qur’an 5:55) This means we can always turn to the word of Allah and His Messenger. We can also look for advice from the people around us who are living a holy life, practicing acts of charity and worshipping Allah humbly. Those who encourage us to seek revenge when we are upset or to harm others or disrespect our parents are not the pure sources of wisdom we should follow.

While water is necessary for survival, water from the wrong source is dangerous. Water in ponds, lakes, streams, and collections of rain water is known as surface water because they are not protected; these sources are especially vulnerable to being contaminated with germs and parasites.

Some of these germs can cause diseases, like cholera and typhoid. Cholera causes painful watery diarrhea that can quickly lead to severe dehydration and death if not treated immediately. More than 100,000 people die from cholera each year. Cholera can be especially dangerous for malnourished children or people living with HIV. Typhoid causes a fever, severe headache, and stomach problems, and can even be fatal. Antibiotics are used to treat typhoid, but strains that can resist antibiotics are developing.

In addition to bacteria, parasites live in water and will make us sick when we ingest them. Intestinal worms are a type of parasite that can be caused by drinking contaminated water. These worms can lead to malnutrition and anemia and can keep children from growing and learning as they should. We can also be infected by these worms through the soles of our feet, so it is important to wear shoes.

Hundreds of millions of people in the world are infected by another type of parasite that is carried by snails and found in water. It can cause a rash, fever, chills, cough, and muscle aches. This parasite



can even affect the brain or spinal cord and cause seizures and paralysis.

The larvae of the parasitic worm, known as the guinea worm, can be found in contaminated water. When people drink contaminated water, they become infected by the larvae, which grow into adult worms that live in human tissues and cause severe pain until they are expelled which can take days or weeks. It is even more common to contract these parasites by standing in contaminated water because the snails and worms can penetrate your skin.

To avoid infection of cholera, typhoid, and parasites, it is important to drink water from protected groundwater sources that are much less likely to contain parasites, avoid drinking surface water, and avoid standing in contaminated water.

To draw groundwater to the surface, we use a type of well, known as a borehole. Boreholes should have a pump operated by hand or motor to bring water up from deep under the ground. The pump and well should have an apron made of cement or another alternative material, such as lime, and a drainage channel leading away from the well. Latrines, watering pools for animals, and uncovered wells must be located well away from the borehole to reduce the risk of contamination, and the top of the well should be completely covered to prevent surface or spilled water from entering the well. Water from a borehole may still need to be disinfected as directed by the Ministry of Health.

Making sure we know the source of the water we drink, and that the source is safe from bacteria and parasites is critical to protecting our health. Drinking groundwater will help protect us from bacteria and parasites that may be present in surface water.

Protecting our physical and spiritual health is critical. We can help protect our spiritual health by listening to a trusted source for advice about how to live our lives and make important decisions. The Children of Israel listened to the wrong source of advice while Moses was gone. They worshiped a false god at the advice of Samiri and did not listen to Moses' brother Aaron. We must be more careful with our spiritual and physical health by turning only to pure sources for nourishment. Just as we protect our spiritual

health by listening to the right advice, we can help protect our physical health by turning only to protected sources of drinking water and avoiding those that may be contaminated.

Discussion Questions from Khutbah 5

Question 1: What can happen if we drink from or stand in lakes, ponds, rivers, or streams?

Response: Drinking surface water or standing in contaminated water can cause infection by dangerous parasites or bacteria that causes cholera and typhoid.

Question 2: What are cholera and typhoid?

Response: Cholera and typhoid are diseases caused by bacteria that are found in water. Cholera is an infection that causes painful watery diarrhea that can quickly lead to severe dehydration and death if not treated immediately. Typhoid causes a fever, severe headache, and stomach problems, and can even be fatal.

Question 3: What are the three types of parasitic infection that can be caused by drinking or standing in contaminated water?

Response:

- Intestinal worms, which can lead to malnutrition and anemia and can keep children from growing and learning as they should. These can also be transmitted from the soil to our feet, so it is important to wear shoes.
- Parasites carried by snails can cause a rash, fever, chills, cough, and muscle aches. This parasite can even affect the brain or spinal cord and cause seizures and paralysis.
- Guinea worms which live in human tissues and cause severe pain until they are expelled from sores in the body.

Question 4: How can we avoid cholera, typhoid and parasitic infections caused by contaminated drinking water?

Response: Drinking groundwater that comes from a covered borehole, not standing in contaminated water, and wearing shoes greatly reduce the chance of infection from parasites and bacteria.

Question 5: Is there anything that needs to be done to water retrieved from covered boreholes?

Response: Groundwater retrieved from a covered borehole is generally safe, but can be disinfected with methods such as adding chlorine or iodine or boiling the water to ensure purity. Residents should check with their local Ministry of Health if there is a recommended method for their area.

Question 6: What are important aspects in proper borehole design?

Response:

- The well should be surrounded by a cement apron that is at least two meters in diameter to prevent the collection of standing water.
- The apron should be properly maintained and inspected for cracks.
- Hand pumps must be securely fixed to the well.
- A drainage channel leading away from the well and pump should be properly maintained to prevent pooling of water.
- The top of the well should be completely covered to prevent surface or spilt water from entering the well.

Question 7: Is the location of the borehole important? Can it be near watering holes for animals or latrines?

Response:

- There should not be any uncovered wells within 100 meters of the borehole well.
- Latrines should be more than 30 meters downhill from the well.
- Watering pools for animals should be more than 20 meters downhill from the well.

Khutbah 6: From Every Living Thing

Message: Don't drink or bathe in the same water in which animals pass through or drink.

Consuming water contaminated with animal feces may result in one developing fecal-oral diseases such as cholera and diarrhea.^{xcvii}

Animal feces can contain germs that cause deadly diseases, including cholera and dangerous diarrhea. People can become infected with these diseases by drinking water contaminated by animal feces.

Cholera

One of the diseases caused by the contamination of water by animal feces is cholera. It is an intestinal infection that causes painful watery diarrhea that can quickly lead to severe dehydration and death if treatment is not received. Vomiting also occurs in most patients. The incidence of cholera is rising and there are an estimated 3-5 million cases of cholera with 100,000-120,000 deaths from the infection each year. Cholera can kill within hours of the onset of symptoms from severe loss of fluid. People with low immunity, such as malnourished children or people living with HIV, are at a greater risk of death from cholera.^{ci}

The germs that cause cholera are also present in human feces and are spread in areas that lack proper sanitation facilities for disposal of human waste.^{cii} In addition, hand-washing with soap or ash after using the latrine and before handling food is one of the most effective ways to remove germs that cause diarrheal diseases, including cholera.^{ciii} Proper sanitation and access to clean drinking water are critical in stopping the spread of cholera. Cholera is a threat more common after a disaster or similar emergency where normal sanitation is disrupted and people are living closely together in camps for displaced persons.^{civ}

Dangerous Diarrhea from E. Coli Infection

Animal feces carry bacteria known as E. coli. Although most strains of E. coli are harmless, some strains cause dangerous diarrhea. Cattle, sheep, and goats are the main sources of a strain of E. coli that can cause life-threatening diarrhea, although it has also been found in horses, pigs, rabbits, dogs, and cats.^{cv}

This strain of E. coli can cause fever, vomiting, abdominal cramps, and diarrhea that may progress to bloody diarrhea. Young children and elderly people infected with this strain are vulnerable to life-threatening problems, such as kidney failure. Advanced cases of the disease can cause seizures, strokes, and coma.^{cvi}

Proper sanitation is important in controlling the spread of dangerous E. coli. People can carry the germs without showing symptoms of illness and infect others. Regular hand-washing with soap or ash, especially before handling food and after using the latrine, is important to control the spread of E. coli. Coming in direct contact with animals has also been identified as a risk factor in the spread of E. coli. Hand-washing with soap or ash after handling animals or coming in contact with them is critical in preventing infection by E. coli.^{cviii}

Water Contamination by Animal Feces

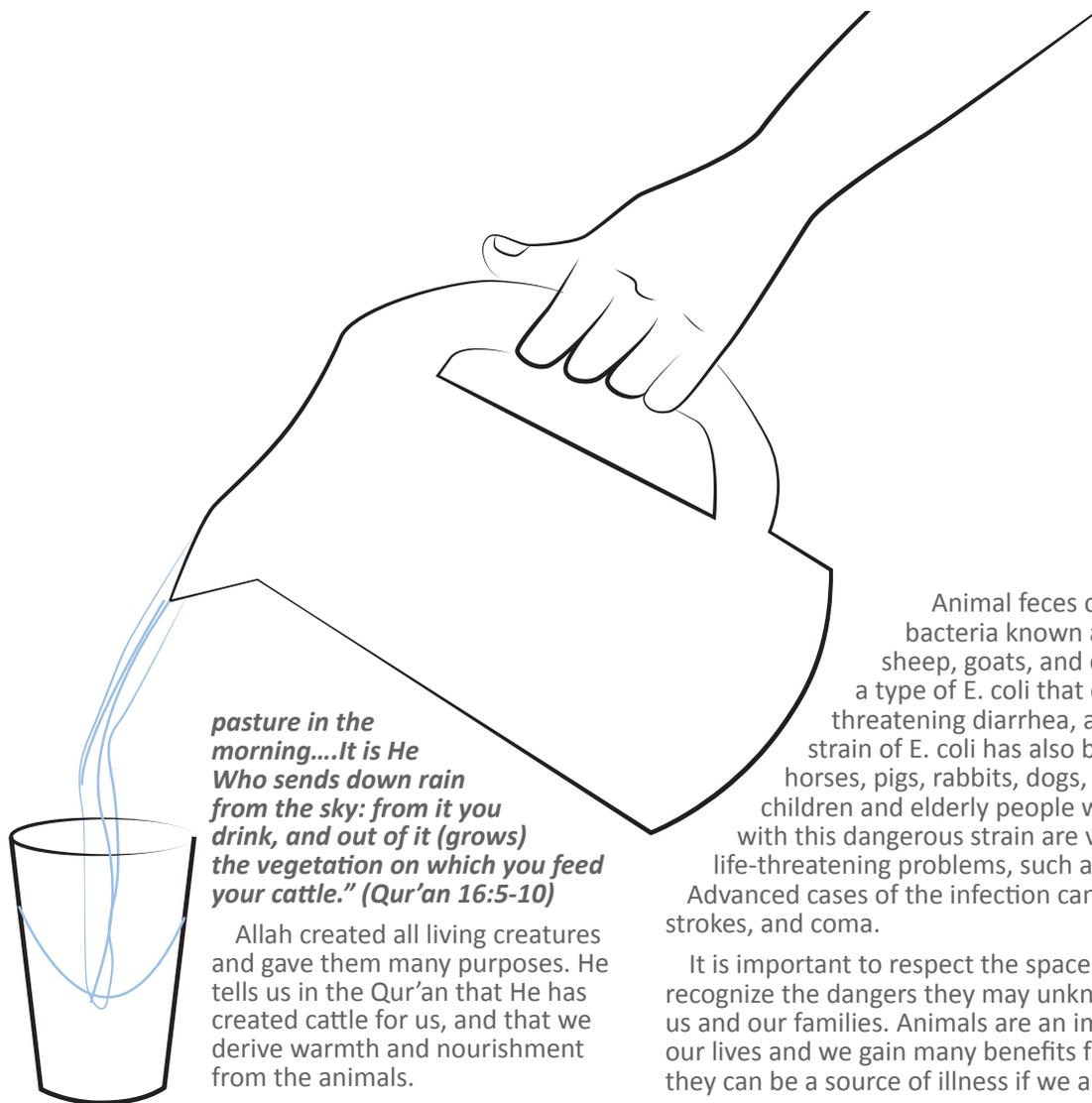
Animals can transmit the germs that cause cholera and dangerous strains of E. coli when they walk through or drink from pools, ponds, lakes, rivers, or streams. People who bathe in or drink from these waters can become infected by the disease-causing germs.

If you think that you might have cholera or E.coli it is important to visit your local health care facility immediately for timely and appropriate treatment. Cholera can kill within hours of the first symptoms.

Sermon Starter 6: From Every Living Thing

Scripture

“And He has created cattle for you (men): from them you derive warmth, and numerous benefits, and of their (meat) you eat. And you have a sense of pride and beauty in them as you drive them home in the evening, and as you lead them forth to



pasture in the morning....It is He Who sends down rain from the sky: from it you drink, and out of it (grows) the vegetation on which you feed your cattle.” (Qur’an 16:5-10)

Allah created all living creatures and gave them many purposes. He tells us in the Qur’an that He has created cattle for us, and that we derive warmth and nourishment from the animals.

Of His creation, we read, *“And He has created cattle for you (men): from them you derive warmth, and numerous benefits, and of their (meat) you eat. And you have a sense of pride and beauty in them as you drive them home in the evening, and as you lead them forth to pasture in the morning....It is He Who sends down rain from the sky: from it you drink, and out of it (grows) the vegetation on which you feed your cattle.” (Qur’an 16:5-10)*

As Allah explains, He sends down rain from the sky to nourish plants which we use to feed our cattle, supporting the cycle of life.

While we may be dependent on animals around us for nourishment, there are also potential hazards resulting from exposure to those animals and we must be careful to protect ourselves. Both animals and people can carry germs that cause dangerous diseases in their digestive systems that are released into the environment with their waste. Germs from animal waste will be present in water that animals drink from and walk through, and people can become infected by these germs when they drink or even bathe in the water. We must be responsible and protect our health and the health of our families by avoiding contact that may cause infection and illness.

One of the deadly diseases that can be spread by animal and human feces present in water is cholera. Cholera is an intestinal infection that causes painful watery diarrhea that can quickly lead to severe dehydration and death if treatment is not received. Cholera kills 100,000-120,000 people each year.

Animal feces can also carry bacteria known as E. coli. Cattle, sheep, goats, and deer often carry a type of E. coli that can cause life-threatening diarrhea, and this deadly strain of E. coli has also been found in horses, pigs, rabbits, dogs, and cats. Young children and elderly people who are infected with this dangerous strain are vulnerable to life-threatening problems, such as kidney failure. Advanced cases of the infection can cause seizures, strokes, and coma.

It is important to respect the spaces of animals and recognize the dangers they may unknowingly pose to us and our families. Animals are an important part of our lives and we gain many benefits from them, but they can be a source of illness if we are not careful.

Both cholera and E. coli can also be spread by human waste, so making sure to use a latrine that keeps waste separate from our living areas is vital in protecting ourselves from these dangerous diseases. And, we must make sure to wash our hands immediately after using the latrine and before handling food to remove any germs.

Allah’s complex system has many parts that are all connected to each other to form our earth. Trees and plants need water and sun to grow. Animals need plants and other animals for nourishment, and we also rely on them to live. Although we must live among the animals and care for them, we must recognize the hazards of this close contact. Animals carry germs that cause dangerous diseases. But we can protect ourselves by making sure never to bathe in or drink water that animals pass through, or drink from.

We have an important role in this complex system. We are free to use the plants and animals in Allah’s creation for nourishment. But with all the good things Allah has given us comes responsibility to protect ourselves and our families.

Discussion Questions from Khutbah 6

Question 1: Why must we avoid bathing in or drinking from water that animals drink from or pass through?

Response: Animals carry germs that can cause dangerous diseases in their intestines, which are

released with their waste and can be present in the water. People can become infected when drinking or bathing in the water.

Question 2: What germs can be in the water where animals walk through or drink?

Response: Germs that cause cholera and E. coli, which can cause dangerous diarrhea can be present in the water.

Question 3: Why are cholera and E. coli dangerous?

Response: Cholera is an intestinal infection that causes painful watery diarrhea that can quickly lead to severe dehydration and death. A dangerous strain of E. coli can cause life-threatening problems, such as kidney failure, seizures, strokes, and coma.

Question 4: How else are cholera and E. coli spread in addition to contact with water contaminated with animal feces and how can we protect ourselves?

Response: E. coli and the germs that cause cholera can also be present in human waste. Always using latrines or toilets and carefully washing hands with soap or ash after using the latrine and before handling food will help stop the spread of these germs.

Conclusion: Safe Drinking Water and Proper Sanitation Save Lives

As a spiritual leader, you can be a source of knowledge on many issues, including healthy habits. By following recommendations contained in this guide and from your local Ministry of Health, you can set a good example and help protect yourself, your family, and your congregation from dangerous water-borne illnesses.

The main protections people should take to avoid water-borne illnesses include using water from protected sources for drinking and cooking, using proper latrines or toilets to prevent contamination of soil by human waste, and consistent hand-washing after using the latrine and before and after handling food. More specific recommendations are included in the six messages the sample sermons in this guide are based upon.

Six Safe Water and Sanitation Messages:

1. Hand-washing with soap or ash reduces diseases such as diarrhea, respiratory illnesses, and intestinal worms, as well as eye and skin infections. This is especially important before and after cooking and eating and after using the latrine.
2. Using a latrine, instead of defecating in the open, can reduce diarrhea infections.
3. Keep communal latrines/home latrines clean and

wash hands with soap or ash after every use. Schools with separate latrines for boys and girls reduce girls' drop-out rates.

4. Keep a clean environment, so mosquitoes and flies cannot breed. Remove standing water inside and outside the home and clean up trash around your home.
5. Drinking water from covered boreholes with a hand pump can reduce parasite infection.
6. Don't drink or bathe in the same water that animals pass through or drink from.

Remember that in addition to the information you share in your kuhtbahs and group meetings at your place of worship, your habits can also influence the decisions and behavior of the people around you. Demonstrating in your work with your congregation and in your own behaviors that you take these recommendations seriously can help encourage your community to embrace and practice them.

References and Endnotes

The Qur'an, Translation by Abdullah Yusuf Ali

- ⁱ UNICEF. *Water, Sanitation and Hygiene*. http://www.unicef.org/wash/index_bigpicture.html retrieved March 20, 2012.
- ⁱⁱ United Nations. <http://www.un.org/millenniumgoals/bkgd.shtml> retrieved March 26, 2012
- ⁱⁱⁱ UNICEF and the World Health Organization. *Progress on Drinking Water and Sanitation*. http://whqlibdoc.who.int/publications/2012/9789280646320_eng_full_text.pdf retrieved March 28, 2012
- ^{iv} UNICEF and the World Health Organization. *Progress on Drinking Water and Sanitation*. http://whqlibdoc.who.int/publications/2012/9789280646320_eng_full_text.pdf retrieved March 28, 2012
- ^v http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{vi} UNICEF and the World Health Organization. *Diarrhoea: Why Children Are Still Dying and What Can Be Done*. http://whqlibdoc.who.int/publications/2009/9789241598415_eng.pdf retrieved March 19, 2012.
- ^{vii} World Health Organization. *Fact file: 10 Facts on sanitation*. <http://www.who.int/features/factfiles/sanitation/facts/en/index.html> retrieved March 20, 2012.
- ^{viii} World Health Organization. *Fact file: 10 Facts on sanitation*. <http://www.who.int/features/factfiles/sanitation/facts/en/index.html> retrieved March 20, 2012.
- ^{ix} UNICEF. *Child Info: Monitoring the Situation of Children and Women*. <http://www.childinfo.org/water.html> retrieved March 20, 2012
- ^x *Global Handwashing Day: Planners Guide*. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved December 4, 2011.
- ^{xi} UNICEF. *Strategies for Girls' Education*. http://www.unicef.org/publications/files/English_Version_A.pdf retrieved December 4, 2011.
- ^{xii} Lennotech. *Water Borne Diseases*. <http://www.lennotech.com/library/diseases/diseases/waterborne-diseases.htm> retrieved December 4, 2011.
- ^{xiii} USAID Hygiene Improvement Project, *Small Doable WASH Actions for HIV/AIDS Programs in Ethiopia*, May 2009 http://pdf.usaid.gov/pdf_docs/PNADT188.pdf
- ^{xiv} USAID's Neglected Tropical Disease Program, *Schistosomiasis* http://www.neglecteddiseases.gov/target_diseases/schistosomiasis/index.html
- ^{xv} *Global Handwashing Day: Planners Guide*. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{xvi} UNICEF. *Child Info: Monitoring the Situation of Children and Women*. <http://www.childinfo.org/water.html> retrieved March 26, 2012
- ^{xvii} World Health Organization. *Fact file: 10 Facts on sanitation*. <http://www.who.int/features/factfiles/sanitation/facts/en/index.html> retrieved March 20, 2012.
- ^{xviii} http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{xix} Centers for Disease Control and Prevention. *Understand How Infections Diseases Spread*. <http://www.cdc.gov/travel/page/infectious-diseases.htm> retrieved March 26, 2012
- ^{xx} *Global Handwashing Day: Planners Guide*. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{xxi} World Health Organization. *Soil-Transmitted Helminths*. http://www.who.int/intestinal_worms/en/ retrieved March 27, 2012 xxii World Health Organization. *Water-related Diseases*. http://www.who.int/water_sanitation_health/diseases/trachoma/en/index.html retrieved March 27, 2012
- ^{xxiii} National Center for Biotechnology Information, U.S. National Library of Medicine, *PubMed Health* <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001863/> retrieved April 4, 2012
- ^{xxiv} World Health Organization. *Water-related Diseases*. http://www.who.int/water_sanitation_health/diseases/scabies/en/ retrieved March 27, 2012
- ^{xxv} *Global Handwashing Day: Planners Guide*. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{xxvi} *Global Handwashing Day: Planners Guide*. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012
- ^{xxvii} World Health Organization. *Fact Sheet on Sanitation*. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 5, 2012.
- ^{xxviii} World Health Organization. *Health Topics: Diarrhoea*. <http://www.who.int/topics/diarrhoea/en/> retrieved on April 11, 2012.
- ^{xxix} UNICEF. *Child Info: Monitoring the Situation of Children and Women*. <http://www.childinfo.org/water.html> retrieved March 26, 2012.
- ^{xxx} UNICEF and the World Health Organization. *Diarrhoea: Why Children Are Still Dying and What Can Be Done*. http://whqlibdoc.who.int/publications/2009/9789241598415_eng.pdf retrieved March 19, 2012.
- ^{xxxi} World Health Organization. *Medicines. The International Pharmacopoeia*. <http://www.who.int/medicines/publications/pharmacopoeia/ors/en/>
- ^{xxxii} World Health Organization. *Fact Sheet on Sanitation*. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 5, 2012.
- ^{xxxiii} Pan American Health Organization and the World Health Organization. *Guide to Sanitation in Shelters and Camps*. http://new.paho.org/hq/index.php?option=com_content&task=view&id=167&Itemid=259 retrieved April 18, 2012
- ^{xxxiv} World Health Organization. *Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options*. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 5, 2012.
- ^{xxxv} World Health Organization. *Fact Sheets on Environmental Sanitation. Fact Sheet 3.4, Simple Pit Latrines*. http://www.who.int/water_sanitation_health/hygiene/emergencies/fs3_4.pdf retrieved April 5, 2012.
- ^{xxxvi} World Health Organization. *Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options*. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 5, 2012.
- ^{xxxvii} Catholic Relief Services and USAID. *Best Practices in Water and Sanitation*. http://pdf.usaid.gov/pdf_docs/PNADP101.pdf
- ^{xxxviii} World Health Organization. *Fact Sheets on Environmental Sanitation. Fact Sheet 3.5, VIP and ROEC Latrines*. http://www.who.int/water_sanita-

tion_health/emergencies/fs3_1/en/ retrieved April 5, 2012.

^{xxxix} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.5, VIP and ROEC Latrines. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 5, 2012.

^{xl} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.5, VIP and ROEC Latrines. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 5, 2012.

^{xli} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 5, 2012.

^{xlii} World Health Organization. Operation and Maintenance of Rural Water Supply and Sanitation Systems: A Training Package for Managers and Planners. http://www.who.int/water_sanitation_health/hygiene/om/RuralPart2-2.pdf retrieved April 19, 2012

^{xliii} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 15, 2012.

^{xliv} Deplenge, D., South Pacific Applied Geoscience Commission. Design Examples of Waterless Composting Toilets. <http://www.pacificwater.org/user-files/file/MR0249.pdf> retrieved April 18, 2012

^{xlv} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 15, 2012.

^{xlvi} World Health Organization. Fact Sheets on Environmental Sanitation. Fact Sheet 3.1, Excreta Disposal Options. http://www.who.int/water_sanitation_health/emergencies/fs3_1/en/ retrieved April 15, 2012.

^{xlvii} World Health Organization. Fact Sheet on Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 5, 2012. ^{xlviii} World Health Organization. Fact Sheet on Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 5, 2012

^{xlix} World Health Organization. Health Topics: Diarrhoea. <http://www.who.int/topics/diarrhoea/en/> retrieved on April 11, 2012. ^l UNICEF. Child Info: Monitoring the Situation of Children and Women. <http://www.childinfo.org/water.html> retrieved March 26, 2012.

^{li} UNICEF. Strategies for Girls' Education. http://www.unicef.org/publications/files/English_Version_A.pdf retrieved April 14, 2012.

^{lii} World Health Organization. Water Sanitation Health. Fact Sheets on Environmental Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 14, 2012.

^{liii} World Health Organization. Water Sanitation Health. Fact Sheets on Environmental Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 14, 2012.

^{liiv} World Health Organization. Fact file: 10 Facts on sanitation. <http://www.who.int/features/factfiles/sanitation/facts/en/index5.html> retrieved April 14, 2012

^{liv} UNICEF. Strategies for Girls' Education. http://www.unicef.org/publications/files/English_Version_A.pdf retrieved April 14, 2012.

^{lv} Rehydration Project. Dialogue on Diarrhoea Online. <http://rehydrate.org/dd/su36.htm#page2> retrieved April 14, 2012

^{lvii} World Health Organization. Operation and Maintenance of Rural Water Supply and Sanitation Systems: A Training Package for Managers and Planners. http://www.who.int/water_sanitation_health/hygiene/om/RuralPart2-2.pdf retrieved April 19, 2012

^{lviii} World Health Organization. Water Sanitation Health. Fact Sheets on Environmental Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index2.html retrieved April 14, 2012.

^{lix} Global Handwashing Day: Planners Guide. http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved March 27, 2012

^{lx} World Health Organization. Fact file: 10 Facts on sanitation. <http://www.who.int/features/factfiles/sanitation/facts/en/index5.html> retrieved April 14, 2012

^{lxi} UNICEF. Strategies for Girls' Education. http://www.unicef.org/publications/files/English_Version_A.pdf retrieved April 14, 2012.

^{lxii} UNICEF. Strategies for Girls' Education. http://www.unicef.org/publications/files/English_Version_A.pdf retrieved April 14, 2012.

^{lxiii} Rehydration Project. Dialogue on Diarrhoea Online. <http://rehydrate.org/dd/su36.htm#page2> retrieved April 14, 2012

^{lxiv} UNICEF. Water, Sanitation and Hygiene. http://www.unicef.org/wash/index_wes_related.html retrieved March 16, 2012.

^{lxv} Centers for Disease Control and Prevention. Malaria. <http://www.cdc.gov/malaria/about/biology/mosquitoes/> retrieved on April 27, 2012

^{lxvi} World Health Organization. Water Sanitation Health. Managing Water in the Home: accelerating health gains from improved water supply. http://www.who.int/water_sanitation_health/dwq/wsh0207/en/index3.html retrieved on April 29, 2012

^{lxvii} World Health Organization. Water Sanitation Health Resources. Vector Control: Methods for use by individuals and communities. http://www.who.int/water_sanitation_health/resources/vector302to323.pdf retrieved May 12, 2012.

^{lxviii} World Health Organization. Water Sanitation Health Resources. Vector Control: Methods for use by individuals and communities. http://www.who.int/water_sanitation_health/resources/vector302to323.pdf retrieved May 12, 2012.

^{lxix} UNICEF. Water, Sanitation and Hygiene. http://www.unicef.org/wash/index_wes_related.html retrieved May 12, 2012.

^{lxx} Environmental Protection Agency. Waste - Resource Conservation – Reduce, Reuse, Recycle - Composting <http://www.epa.gov/osw/conserves/rrr/composting/benefits.htm> Retrieved June 3, 2012

^{lxxi} National Demonstration Water Project, Institute for Rural Water and National Environmental Health Association, Technical Notes, for USAID. [http://www.watersanitationhygiene.org/References/EH_KEY_REFERENCES/SANITATION/Solid%20Waste%20Collection%20and%20Disposal/Designing%20a%20Solid%20Waste%20Collection%20System%20\(USAID\).pdf](http://www.watersanitationhygiene.org/References/EH_KEY_REFERENCES/SANITATION/Solid%20Waste%20Collection%20and%20Disposal/Designing%20a%20Solid%20Waste%20Collection%20System%20(USAID).pdf) Retrieved May 27, 2012

^{lxxii} World Health Organization. Malaria Fact Sheet Number 94. <http://www.who.int/mediacentre/factsheets/fs094/en/index.html> retrieved on April 29, 2012

^{lxxiii} World Health Organization. Health Topics: Malaria. <http://www.who.int/topics/malaria/en/> retrieved on April 27, 2012.

- ^{lxiv} World Health Organization. Malaria Fact Sheet Number 94. <http://www.who.int/mediacentre/factsheets/fs094/en/index.html> retrieved on April 27, 2012
- ^{lxv} World Health Organization. Malaria Fact Sheet Number 94. <http://www.who.int/mediacentre/factsheets/fs094/en/index.html> retrieved on April 27, 2012
- ^{lxvi} World Health Organization. Health Topics: Dengue. <http://www.who.int/topics/dengue/en/> retrieved on April 27, 2012
- ^{lxvii} World Health Organization. Dengue and Severe Dengue Fact Sheet Number 117. <http://www.who.int/mediacentre/factsheets/fs117/en/index.html> retrieved on April 27, 2012
- ^{lxviii} World Health Organization. Malaria Fact Sheet Number 94. <http://www.who.int/mediacentre/factsheets/fs094/en/index.html> retrieved on July 8, 2012
- ^{lxix} National Center for Biotechnology Information, U.S. National Library of Medicine, PubMed Health <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0002349/> Retrieved July 8, 2012
- ^{lxx} World Health Organization. Health Topics: Cholera. <http://www.who.int/topics/cholera/en/> retrieved May 8, 2012.
- ^{lxxi} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 8, 2012.
- ^{lxxii} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 8, 2012.
- ^{lxxiii} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 15, 2012.
- ^{lxxiv} http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved May 15, 2012.
- ^{lxxv} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 15, 2012.
- ^{lxxvi} World Health Organization. Immunization, Vaccines, and Biologicals <http://www.who.int/immunization/topics/typhoid/en/index.html> retrieved June 24, 2012
- ^{lxxvii} UNICEF. Child Info: Monitoring the Situation of Children and Women. <http://www.childinfo.org/water.html> retrieved May 6, 2012
- ^{lxxviii} UNICEF. Child Info: Monitoring the Situation of Children and Women. <http://www.childinfo.org/water.html> retrieved May 6, 2012
- ^{lxxix} World Health Organization. Water Sanitation Health. Fact Sheet on Environmental Sanitation. http://www.who.int/water_sanitation_health/hygiene/emergencies/envsanfactsheets/en/index1.html retrieved May 6, 2012
- ^{xc} World Health Organization. Water Sanitation Health. Fact Sheet 2.3. Boreholes and Tubewells. http://www.who.int/water_sanitation_health/hygiene/emergencies/fs2_3.pdf
- ^{xci} World Health Organization. Water Sanitation Health. Fact Sheet 2.3. Boreholes and Tubewells. http://www.who.int/water_sanitation_health/hygiene/emergencies/fs2_3.pdf
- ^{xcii} Sickels-Taves, Lauren B., and Allsopp, Phillip D., (2005) Lime and Its Place in the 21st Century: Combining Tradition, Innovation and Science in Building Preservation. <http://www.limes.us/pdf/LimeAssociation.pdf> Retrieved June 3, 2012
- ^{xciii} World Health Organization. Water Sanitation Health. Fact Sheet 2.3. Boreholes and Tubewells. http://www.who.int/water_sanitation_health/hygiene/emergencies/fs2_3.pdf
- ^{xciv} World Health Organization. Water Sanitation Health. Managing Water in the Home: Accelerated Health Gains from Improved Water Supply. http://www.who.int/water_sanitation_health/dwq/wsh0207/en/index4.html Retrieved June 3, 2012
- ^{xcv} World Health Organization. Water Sanitation Health. Managing Water in the Home: Accelerated Health Gains from Improved Water Supply. http://www.who.int/water_sanitation_health/dwq/wsh0207/en/index4.html Retrieved June 3, 2012
- ^{xcvi} World Health Organization. Water Sanitation Health. Fact Sheet 2.16: Disinfectants. http://www.who.int/water_sanitation_health/hygiene/emergencies/fs2_16.pdf retrieved May 6, 2012
- ^{xcvii} Lenntech. Water Borne Diseases. <http://www.lenntech.com/library/diseases/diseases/waterborne-diseases.htm> retrieved December 4, 2011.
- ^{xcviii} Lenntech. Water Borne Diseases. <http://www.lenntech.com/library/diseases/diseases/waterborne-diseases.htm> retrieved December 4, 2011.
- ^{xcix} World Health Organization. Health Topics: Cholera. <http://www.who.int/topics/cholera/en/> retrieved May 8, 2012.
- ^c World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 8, 2012.
- ^{ci} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 8, 2012.
- ^{cii} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 15, 2012.
- ^{ciii} http://www.globalhandwashingday.org/Tools/Global_Handwashing_Day_2nd_Edition.pdf retrieved May 15, 2012.
- ^{civ} World Health Organization. Media Centre: Cholera, Fact Sheet 107. <http://www.who.int/mediacentre/factsheets/fs107/en/index.html> retrieved May 15, 2012.
- ^{cv} World Health Organization. Media Centre: Enterohaemorrhagic Escherichia coli, Fact Sheet 125. <http://www.who.int/mediacentre/factsheets/fs125/en/index.html> retrieved May 8, 2012.
- ^{cvi} World Health Organization. Media Centre: Enterohaemorrhagic Escherichia coli, Fact Sheet 125. <http://www.who.int/mediacentre/factsheets/fs125/en/index.html> retrieved May 8, 2012.
- ^{cvi} World Health Organization. Media Centre: Enterohaemorrhagic Escherichia coli, Fact Sheet 125. <http://www.who.int/mediacentre/factsheets/fs125/en/index.html> retrieved May 15, 2012.
- ^{cvi} World Health Organization. Media Centre: Enterohaemorrhagic Escherichia coli, Fact Sheet 125. <http://www.who.int/mediacentre/factsheets/fs125/en/index.html> retrieved May 15, 2012.