Bush Telegraph
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Sanitation for a Healthy Environment: Is it really that stinky?

No one wants to see other people's poo. Yuck!

Defecation is a normal function of the human body. It helps us rid our body of unwanted substances.

We must use proper toilet facilities and basic hygiene to prevent diseases.

What is wrong with the bush if I have to go?

Human waste is part of the natural environment. We can recycle it using dry toilets and thereby save water and promote our health.

In nature there is no waste. All excretion of living things are used by other animals.

Sanitation is the healthy disposal or recycling of human waste to promote human and environmental health.

THE SANITATION PROBLEM

Did you know that more than 50% of Namibians use the bush as their toilet. And, only about 35% have access to a flush toilet.

What is the problem with that? People have always used the bush.

True, but nowadays there are many more people who are no longer moving from one area to another. Lack of proper sanitation has therefore become a problem for our environment and our health, especially in populated areas.

Why? What do toilets have to do with our health and the environment anyway?

All people worldwide have a right to proper sanitation and a clean environment. Read on to learn about health and environmental problems caused by a lack of access and use of proper sanitation systems.

DISEASES

Some diseases are transmitted by faeces in the environment. When open defecation takes place and/or there is a lack of hygiene, diseases can be spread easily to humans, especially children. The diseases can be spread via hands, flies, soil, water and food. The main diseases are diarrhea and parasites such as intestinal worms. Intestinal worms cause poor nutrition and may stunt growth. Diarrhea leads to dehydration and if uncontrolled may cause severe illness and even death in small children.

POLLUTED WATER

Open defecation and emptying of sewerage systems into oceans, rivers, dams and lakes pollutes our limited sources of clean drinking water. Pit toilets built incorrectly or close to boreholes and wells can pollute our groundwater resources.

LAND DEGRADATION

Open defecation in highly populated areas makes the land unusable and ugly. Large volumes of human faeces, along a schoolyard fence for example, are highly visible. This area will no longer be used except as a toilet.

THEFT AND VIOLENCE

Bush toilets can be dangerous especially at night. Bush toilet users may be attacked and robbed. Women and girls may be raped. People are afraid to go far into the bush and will defecate closer to homesteads.

The government has recognized the problems of faeces contaminated with harmful living organisms stunting and killing children, making people ill, overburdening women and girls, causing loss of income, damaging the environment and holding back national development.

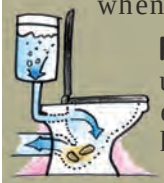
Ministry of Health and Social Services
National Strategy for Rural Sanitation 2000

LOOKING FOR SANITATION SOLUTIONS

Sanitation methods used in the world today are:

DROP ANYWHERE: This method is dangerous to human and environmental health. It is not recommended.

DROP AND STORE: This method can be easy and inexpensive to construct. It is not suitable for all areas (for example, rocky ground) and new pits must be dug when the pit toilet is full.



FLUSH AND DISCHARGE: This method is very clean to the user. It however wastes huge volumes of water and requires expensive sewerage systems to prevent environmental and health contamination.

SANITIZE AND RECYCLE: This method recycles human waste as fertilizer for agricultural purposes. The facilities must be built and maintained correctly to be used effectively.

SANITATION FOR ALL

The Namibian government's National Water and Sanitation Policy (1993) has the objective of providing sanitation services to all Namibians. The policy states that these sanitation services need to consider the environment, especially our water resources. It also states that communities must be involved in determining appropriate toilet systems and sharing the costs.

When looking for sustainable sanitation solutions, several questions should be considered:

1. Does it prevent diseases?
2. Is the environment, especially water, protected?
3. Is nutrient recycling taking place or are the nutrients being wasted?
4. Is the system affordable to the community?
5. Is the system simple to use and maintain?
6. Does the community culturally accept the toilet system?

Are flush toilets the solution for Namibia?

As the driest country in southern Africa, a national toilet system based on fresh drinking water is not appropriate. We must conserve our precious water. Current sewerage systems can only accommodate a limited number of people and are challenged by rapid urban growth. For all Namibians to access safe, affordable toilet facilities we need to consider other technologies such as dry sanitation.

DRY SANITAT

There are many different dry sanitation systems available in Namibia. Dry sanitation systems use the principles of dehydrating or decomposing faeces and urine to destroy bacteria and diseases. Dry toilets also do not need plumbing, water or chemicals.

DEHYDRATING SYSTEM

Dehydrate: to remove water/to dry out

Dehydrating systems usually separate faeces and urine. The urine is diverted to be collected or goes into a soak pit. The faeces are collected in chambers below the toilet seat. Lime or ash are added after each use to help dry out the faeces and reduce smell. Over time the faeces are dried out and can be spread out over soil.

DECOMPOSING SYSTEM

Decompose: to break down

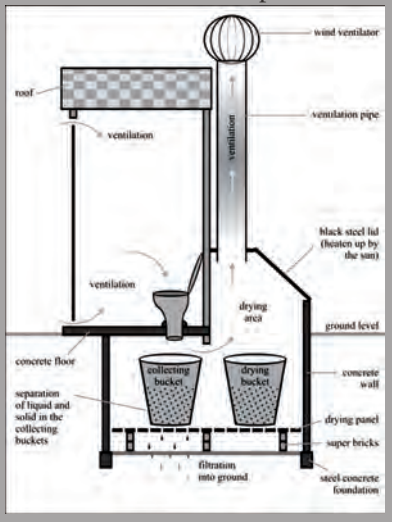
Decomposing systems usually do not separate faeces and urine. These systems use bacteria, worms and other organisms to break down the faeces. For decomposition to take place there must be sufficient air and organic matter in the pile. Over time, the faeces will become compost which can be used as fertilizer.

Let us explore some of the dry toilets available in Namibia:

THE OTJI-TOILET - a dehydrating system:

The Otji-toilet was developed and is produced by the Clay House Project in Otjiwarongo. It is a dehydrating system. Both urine and faeces are deposited in a collecting container underneath the toilet. The urine drips through into the ground or evaporates. A black metal lid promotes the drying process. When the collecting container is full after about six months, it is rotated with an empty container from the drying area. After one year the dried out faeces can safely be disposed or composted further.

The Otji-toilet can be installed indoors with the operated addition of a solar ventilation system.



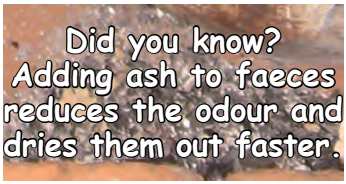
ION SOLUTION

Top view

URINE DIVERSION SYSTEM (UDS) -a dehydrating system:

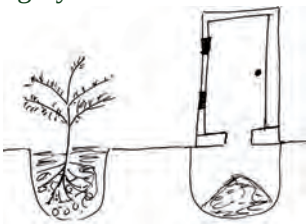
The urine diversion system is a dehydrating system. It separates urine and faeces immediately. The toilet has two chambers. Urine goes into the front part where it flows into a soak pit or into a storage container. Urine from the storage container can be directly used for agriculture. The faeces go through the second chamber into a storage pit for drying. When the faeces are dry, they are almost odourless and free of harmful bacteria. They can be used in a compost and as a fertilizer.

Bottom view

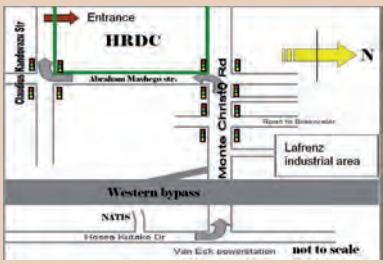


ARBORLOO – a decomposing system:

The Arborloo was developed in Zimbabwe and is a soil composting system. It is based on the design of a regular long-drop, pit toilet. After each use, soil is added to the toilet. After several months, most harmful bacteria have been destroyed due to competition with the non-harmful bacteria in the soil. When the pit is full, the toilet house can be shifted to a new pit. A tree is planted directly into the pit with the composted faeces. The faeces are recycled as nutrients as the new tree grows. This also helps to address the problem of deforestation.



There are many other toilet systems also available in Namibia. The Habitat Research and Development Centre (HRDC) in Windhoek is testing some of the systems above and many others. They can provide advice and assistance. Contact the HRDC for more information: P.O. Box 63036, Claudius Kandovazu Street, Wanaheda
Tel: 061 - 268200 Fax: 061 - 268201



DECADE OF EDUCATION FOR SUSTAINABLE DEVELOPMENT: Sanitation

What is the DESD?

The Decade of Education for Sustainable Development (DESD) is a ten year period (2005-2014) led by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

"The overall goal of the DESD is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations."

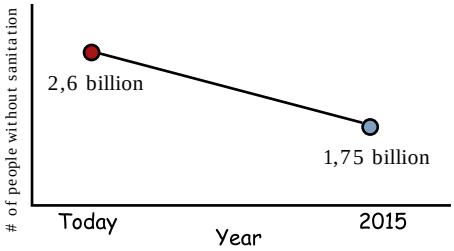
- UNESCO website

The Decade's objectives are to:

~ facilitate, network and collaborate among stake-holders in ESD;
~ foster greater quality of teaching and learning of environmental topics;
~ support countries in achieving their Millennium Development Goals (MDGs) through ESD efforts;
~ provide countries with new opportunities and tools to reform education

The United Nations Millennium Development Goals (MDGs) on Sanitation

Goal 7:
Ensure Environmental Sustainability
Target 3: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.



In Namibia improvement of sanitation is a shared responsibility of the Ministry of Health and Social Services and the Ministry of Regional and Local Government and Housing and Rural Development.
In the National Development Plan 2, the government aims to:

~ increase rural households' access to adequate sanitation from 18.9% to 50%;
~ increase school coverage with adequate sanitation facilities 55% to 100% in cooperation with the Ministry of Education;
~ develop and implement an education and awareness hygiene programme for targeted areas.

Check out these websites: WEB
DESD information: www.unesco.org
MDGs information: www.un.org
NDP information: www.npc.gov.na

PERSONALITIES IN CONSERVATION

Name: Peter Arndt
Job: Manager of Clay House Project (CHP)
Number of years at the CHP: 7

What does the Clay House Project do?

The CHP is a Namibian non-profit organisation. Since 1991 the CHP is building eco-friendly and affordable clay houses for the poor people in Otjiwarongo. The idea of building houses out of clay derives from the wish to overcome the huge housing need as clay is available for free in many places. To meet the population's need for affordable sanitation facilities, the Otji-toilet was developed in 2003. The overall aim of the CHP is to promote environmentally and socially sound sustainable development.

How many people are employed?

39 employees and up to 200 seasonal subcontractors at a building site.

How does the Otji-toilet address environmental issues?

Water is a scarce resource and local sources can't meet the growing demand. In some parts the water must be pumped from over 110 m of depth. This can only be done with an enormous energy input and results in decreasing groundwater level. Western civilization developed the flush toilets; thus the wastewater treatment. Until today, billions of people have to do without this alleged progressive solution because it is too expensive. The Otji-toilet, named after its place of origin in Namibia, Otjiwarongo, combined the advantages of saving water and hygienic standards. Compared to a flush toilet, the Otji-toilet saves more than 90,000 litres of water per household annually and improves living conditions.

How many Otji-toilets have been built to date in Namibia?

More than 700 toilets.

How can people get Otji-toilets in their community?

People should ask at their municipality or regional council for the Otji-toilet. Farm owners are obliged by law to provide toilet facilities for their workers.

What is the average cost of an Otji-toilet? What if I already have a long drop toilet, can I adapt it?

The Otji-toilet is much cheaper than any comparable composting/dry toilet. It costs about N$6000. A pit latrine can't be adapted because the Otji-toilet needs its own concrete tank where the excrements are collected.

Clay House Project.s Message to Namibia.s Youth:

Talk about your needs in sanitation. Force your friends, parents and politicians to take care of the environment and ask them to build environmentally friendly sanitation facilities.

For the BEGINNER READER: Wash your hands!

Do you wash your hands with soap? It is important to wash your hands with soap because it breaks down grease and dirt that carry germs. Germs cause diseases.

When should I wash my hands?

You should wash your hands WITH soap:

- After using the toilet
- After helping a small child to use the toilet
- Before eating
- Before preparing food
- Before and after caring for a sick person
- After handling domestic animals

Directions: Look at the three children below. Circle the one that is following the nurse's guideline correctly:

Take action for your own health and wash your hands with soap everyday. Spread the word to your friends, family and neighbours.

Global Handwashing Day
October 15

Celebrate Global Handwashing Day on 15 October and everyday!

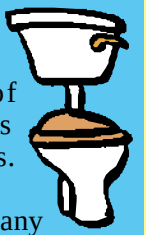
www.globalhandwashingday.org

ADVANCED READER: EcoSan

Ecological sanitation, also called EcoSan, addresses sanitation issues by looking at the problem from a holistic viewpoint. Instead of creating environmental problems through high resource consumption systems, EcoSan is helping to solve environmental problems that our modern lifestyles have created. It uses the basic 3Rs principle of reduce, reuse and recycle.

The main EcoSan principle is to prevent pollution instead of trying to control it afterwards. This is a sanitize and recycle system. The Otji-toilet, Urine Diversion System and Arborloo are, if implemented correctly, EcoSan approaches. Let us explore how the EcoSan approach saves resources and addresses global environmental issues.

WATER

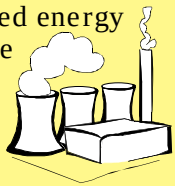


Flush toilets use between 10-14 litres of water per use. 20-40% of all water used in towns is purely for flushing toilets. Where does all of this sewerage water go? In many places around the world, it goes into our oceans or other fresh water sources!

As a dry toilet system, EcoSan immediately reduces water consumption and there is no pollution of fresh water sources.

ENERGY

Sewerage systems need high levels of fossil fuel based energy to be constructed, maintained and operated. Ecological sanitation is implemented locally and can utilise local energy and building materials. Operation of ecological sanitation uses minimal solar, wind and human energy sources. Reduced energy use protects our finite natural resources and reduces air pollution and the greenhouse effect.



SOILS AND CLIMATE CHANGE

Modern agricultural methods, deforestation and other human impacts have contributed to poor soil quality worldwide. This threatens our ability to secure enough food for all people. Sanitized human faeces can address this problem by improving the nutrients in soil. This leads to increased plant growth and restored top soils. Farmers can also save money by using human faeces instead of commercial fertilizer. Did you know that nutrient-rich soil also helps to reduce the greenhouse effect and climate change? Currently, most efforts to reduce the greenhouse effect are focused on reducing our CO_2 emissions.

Nutrient-rich soil and plant life tackle the problem from the other side. They take in CO_2 and therefore reduce the amount that is already in the atmosphere. This is called a carbon sink.

ACTIVITY PAGE

Ecological sanitation has taught us that urine and faeces are a resource and not a waste product. Let us explore different uses of urine.

What is urine?

Urine is produced by the human body to rid itself of harmful toxins such as ammonia. Urine also contains sugars, water and urobilins (old blood cells). Healthy urine is light yellow in colour.

FREE FERTILIZER!

The nutrients in urine depend on what a person eats. However, many of the substances in urine are great fertilizers for plants, for example, nitrogen, phosphorous and potassium.

Researchers from several countries have tested the benefits of urine for plant growth. Check out the amazing results of this test done in Finland on cabbage growth rates:

No fertilizer used =  x 1kg

Conventional fertilizer used =  x 60 kg

Urine used =  x 250kg

Urine can be applied directly to plants or it can be stored for 1 month before application. If applied directly, wait several weeks before harvesting.

For more information check out:
www.sciencenewsforkids.org/articles/20071010/Note3.asp

Experiment:

Making water from urine

Solar distillation can be used to separate out the water in urine. Set up this simple experiment to make water from your own urine.

Materials needed:

1) Cup
2) Large urine container
3) Smaller collecting container
4) Prestik/ glue
5) Clean, clear plastic sheet or bag
6) Elastic band
7) Small rock

Directions:

1. Glue or use prestik to fasten the small collecting container inside the large urine container.
2. Collect your urine in the cup.
3. Pour urine into the large urine container so that it surrounds the smaller collecting container.
4. Fasten the plastic sheet and put the small rock into the centre over the smaller collecting container.
5. Place the containers into the sun and check the experiment the following morning.

Overnight the water should condense on the plastic sheet and run down to the centre point (made by the rock). From here it will drip into the smaller collecting container. Now you have clean water inside the smaller collecting container.

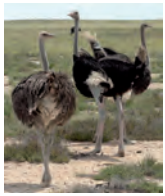
Chinga's & Nzovu's Corner

Dear friends,

Our PO Box has been very empty lately. We miss hearing from you. If you have questions about the environment, please send them to us so we can answer them for you! Write to: **Chinga & Nzovu, NaDEET, PO Box 31017, Pioniers Park, Windhoek**

Dear Chinga and Nzovu
Why are ostriches well suited to the dry conditions of Namibia?

Hilma in Grootfontein



Dear Hilma,
Thank you very much for your question. Ostriches can live in many habitats, but they are well adapted to the desert. The conditions that define a desert are extreme temperature differences (very hot and very cold), high evaporation rates and low rainfall. The large, loose feathers of the ostrich are arranged that when it is hot, the ostrich can hold the feathers upright to shade its body and create air movement close to the skin surface. They also use their wings as sun umbrellas to shade their naked thighs. When it is cold, the ostrich sits on the ground to trap warm air between its wings and the ground. To save water, the ostrich breathes out dry air. If there is no water available to drink, the kidneys reduce the volume of urine expelled and coat the uric acid waste in mucus rather than water. To increase its water intake, the ostrich grazes on plants with high water content. The ostrich lays many large, white eggs in a shallow ground nest. The white colour reflects the heat of the sun and the thick shell protects the unborn chicks. Did you know that one ostrich egg contains as much as 24 chicken eggs?

Chinga and Nzovu

UPDATES FROM LAST ISSUE

Congratulations to our Coastodian Prize Winners:

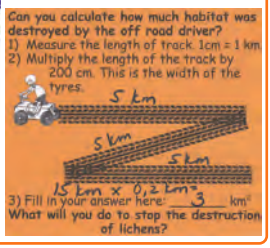
Adults

1st prize - Getrude Kahaka
2nd prize - Ute Gramowsky
3rd prize – Antje Wilke

Learners

1st prize - Martin Ismael
2nd prize - Kapenda Simeon
3rd prize - Roswitha Katjivirueko

Answers from page 3 and page 6



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NaDEET Centre offers week-long programmes for school, youth, educator and adult groups in the Namib Desert. The programme aims to engage participants in sustainable living through first-hand learning and living experiences.

Join the BUSH TELEGRAPH Reader Club

The Bush Telegraph is a mini-magazine for Namibian youth. It aims to increase knowledge of and improve attitudes towards our environment through reading. It is distributed twice a year for free. Just fill in this form and send it to this address: **Namib Desert Environmental Education Trust (NaDEET), P.O. Box 31017, Pioniers Park, Windhoek**

BUSH TELEGRAPH READER CLUB SIGN UP FORM

Fill in the information below or write it on a piece of paper or post card.

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Tick the correct box:

☐ Learner (age ..... grade .....) ☐ Teacher ☐ Other

School.....

Postal Address..... Town.....

Are you an educator?: Multiple copies of the **Bush Telegraph** are available for you to use for education purposes. If you are interested, please complete the following:

yes, please send me ..... additional copies.

DHPL