Sustainable Sanitation

Practice

Issue 15, 4/2013

COMICS and Posters by:

- Marci Mc Adam
- Tobias Lamberg
- CAWST
- Sourabh Phadke
- Alberto Ysunza Ogazon

Sanitation comics

partner of: sustainable sanitation alliance

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Aim and Scope / ***Offenlegung der Blattlinie gemäß § 25, Abs. 4 Mediengesetz***

Sustainable Sanitation Practice (SSP) aims to make available high quality information on practical experiences with sustainable sanitation systems. For SSP a sanitation system is sustainable when it is not only economically viable, socially acceptable and technically and institutionally appropriate, but it should also protect the environment and the natural resources. SSP is therefore fully in line with SuSanA, the Sustainable Sanitation Alliance (www.susana.org). • SSP targets people that are interested in sustainable sanitation systems and the practical approach to it. • Articles are published after blind review only. • Sustainable Sanitation Practice is published quarterly. It is available for free on www.ecosan.at/ssp.

Sustainable Sanitation Practice (SSP) hat zum Ziel praxisrelevante Information in hoher Qualität im Zusammenhang mit „sustainable sanitation" bereit zu stellen. „sustainable" also nachhaltig ist ein Sanitärsystem für SSP wenn es wirtschaftlich machbar, soziokulturell akzeptiert, technisch als auch institutionell angemessen ist und die Umwelt und deren Ressourcen schützt. Diese Ansicht harmoniert mit SuSanA, the Sustainable Sanitation Alliance (www.susana.org). • SSP richtet sich an Personen, die sich für die praktische Umsetzung von „sustainable sanitation" interessieren. • Artikel werden nur nach einer Begutachtung veröffentlicht. • Sustainable Sanitation Practice erschient vierteljährlich, kostenlos unter: www.ecosan.at/ssp.

Information on the publisher / ***Offenlegung gemäß § 25 Mediengesetz***

Publisher: EcoSan Club, Schopenhauerstr. 15/8, A-1180 Vienna, Austria • chairperson: Günter Langergraber • website: http://www.ecosan.at/ • scope: EcoSan Club was funded as a non profit association in 2002 by a group of people active in research and development as well as planning and consultancy in the field of sanitation. The underlying aim is the realisation of ecological concepts to close material cycles in settlements.

Medieninhaber: EcoSan Club, Schopenhauerstr. 15/8, A-1180 Vienna, Austria • Obmann: Günter Langergraber • Gegenstand des Vereins: Der EcoSan Club wurde 2002 als gemeinnütziger Verein von einer Gruppe von Personen gegründet, die in Forschung, Entwicklung, Planung und Beratung in der Siedlungshygiene - Sammlung, Behandlung oder Beseitigung flüssiger und fester Abfälle aus Siedlungen - tätig waren und sind. Das Ziel des EcoSan Clubs ist die Umsetzung kreislauforientierter Siedlungshygienekonzepte (EcoSan Konzepte) zu fördern, um einen Beitrag zum Schutz der Umwelt zu leisten.

Cover Photo / ***Titelbild***

© CAWST - Centre for Affordable Water and Sanitation Technology

Editorial

Planning and preparing of issue 15 of the SSP journal was a lot of fun. It was a nice occasion to learn about the different approaches on the visualization of sanitation related issues. The result is a huge diversity of drawings. And it was a tour through cultural peculiarities around the world.

In search of sanitation comics we have tried to find cartoonists, illustrators and drawers who are willing to draw a comic specifically for the journal; we have contacted a school in Lower Austria; we have searched the internet and we have used various sanitation platforms to call for contributions.

The output is a compilation of comics which have been produced specifically for the SSP journal (the comics by Marci McAdam and Tobias Lamberg), sanitation posters (producted by CAWST), the nice and attractive illustrated comics by Sourabh Phadke, and finally selections from a comic published by Alberto Ysunza Ogazon. It is a „tour de sanitation" from Canada to Austria, from Africa to India and Mexico.

This issue shall be a motivation to experience comics as valuable awareness raising and communication tool and that pictures say sometimes more than words. For more material and a wide collection of sanitation related posters we refer the reader to the SuSanA library (www.susana.org).

Information on further issues planned is available from the journal homepage (www.ecosan.at/ssp). As always we would like to encourage readers and potential contributors for further issues to suggest possible contributions and topics of high interest to the SSP editorial office (ssp@ecosan.at). Also, we would like to invite you to contact the editorial office if you volunteer to act as a reviewer for the journal.

SSP is available online from the journal homepage at the EcoSan Club website (www.ecosan.at/SSP) for free. We also invite you to visit SSP and EcoSan Club on facebook (www.facebook.com/SustainableSanitationPractice and www.facebook.com/EcoSanClubAustria, respectively).

With best regards,
Günter Langergraber, Markus Lechner, Elke Müllegger
EcoSan Club Austria (www.ecosan.at/ssp)

Content

Comic by Marci McAdam

The comic was produced from Marci McAdam, especially for the SSP journal. Marci is a self-taught Canadian artist, with a Bachelor of Education from the University of Calgary. She lives in Calgary with her sons a her very best friend. Her work has appeared in books, educational publications, comics, logos and in private collections internationally. Her homepage is worth a visit: http://www.frithcat.com.

Author: Marci McAdam

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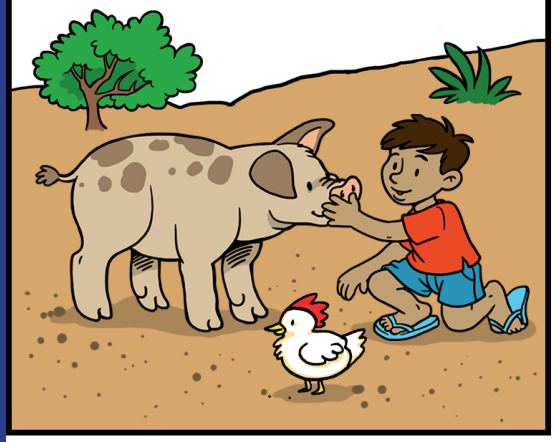
The comic is a short story about hygiene behavior. It shows the importance of hand washing after touching animals and/or using a toilet. A small boy is petting his beloved animals, before touching his mother‘s skirt. Microbs are transferred via the skirt to the family‘s meal, which is making all family members sick.

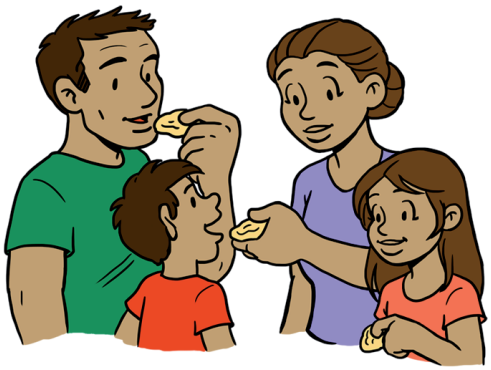
Alvaro and his family have a pig and a chicken. Alvaro likes to play with them.



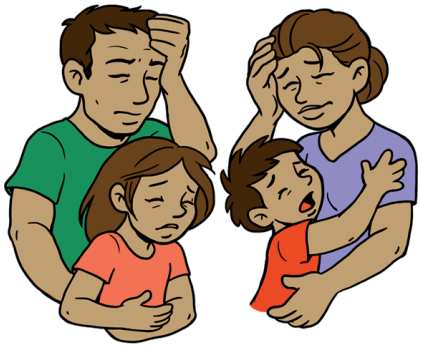
When Alvaro fell and hurt himself, Mama comforted him. Alvara's dirty hands got Mama's skirt dirty.

Mama went back to making the family meal.

The meal was delicious!

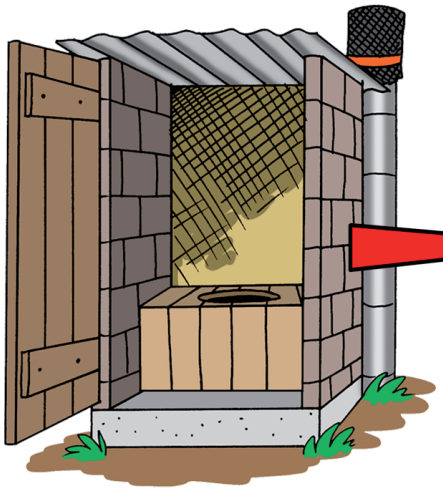


But afterward, everyone got sick



How can you keep yourself and your family healthy?

Always wash your hands after using the latrine, before preparing food, and before eating!



Comic by Tobias Lamberg

The comic was drawn by Tobias Lamberg, a 14 year pupil from the "Kreativhauptschule Stift Zwettl" in Lower Austria. His comic illustrates the short story about a boy, sitting on a water flush toilet, who finds that his mother has forgotten to buy toilet paper. The boy feels completely desperate in this situation.

Author: Tobias Lamberg

Posters by CAWST

The following illustrations are taken from the "Water, Hygiene, and Sanitation Presentations", published by CAWST (Centre for Affordable Water and Sanitation Technology). CAWST is a Canadian humanitarian organization focused on the principle that clean water changes lives. CAWST transfers knowledge and skills to organizations and individuals in developing countries through education, training and consulting services. The full poster collection can be viewed at and downloaded from the CAWST homepage: www.cawst.org

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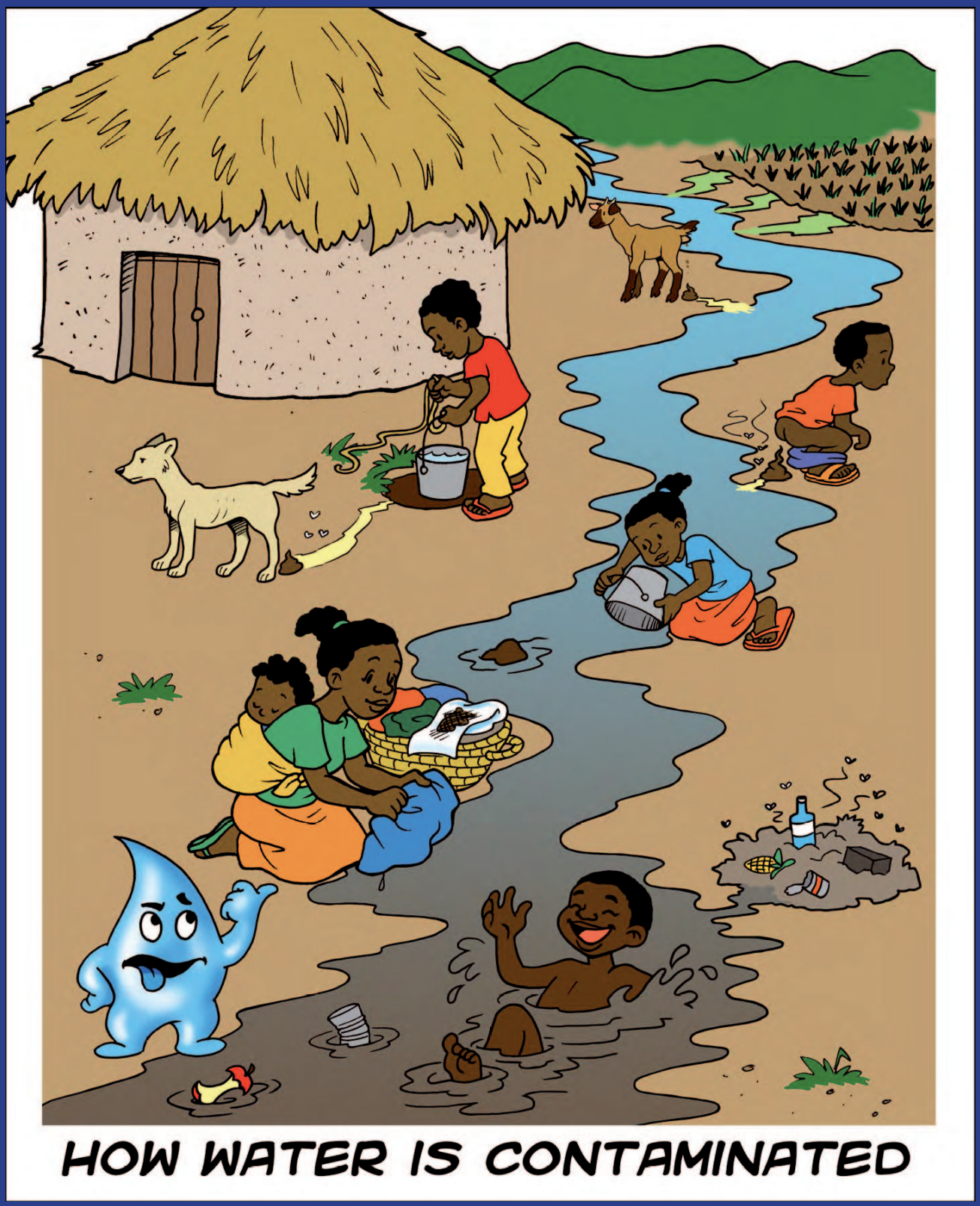
The poster presentation are open content, aiming to be used as a participatory learning tool by Community Health Promoters. It is a collection of various posters from water related issues, to sanitation and hygiene.

For the SSP journal we have chosen five illustrations from the CAWST homepage. We additionally include the short text about key messages and content of each poster as provided by CAWST. The posters chosen for this issue are:

1. **How water is contaminated**. This poster shows that water that contains microbes and other pollutants make us sick.
2. **Microbes come from poop**. This poster shows ways in which microbes are transferred from faeces to our mouth and into our stomach.
3. **Stop microbes – Protect yourselves.** This poster illustrates the three main ways to prevent illness by stopping the transfer of microbes to our mouths: a well maintained toilet, good quality drinking water and proper hygiene.
4. **Stop microbes – Use good sanitation**. This poster illustrates the different ways to prevent illness by practicing good sanitation.
5. **Stop microbes – Use good hygiene.** This poster illustrates the importance of hand washing after using the latrine, before we eat and before we prepare food and after contacting children's faeces

CAWST is a Canadian humanitarian organization focused on the principle that clean water changes lives. Safe water and basic sanitation are fundamentals necessary to empower the world's poorest people and break the cycle of poverty. CAWST believes that the place to start is to teach people the skills they need to have safe water in their homes. CAWST transfers knowledge and skills to organizations and individuals in developing countries through education, training and consulting services. This ever expanding network can motivate individual households to take action to meet their own water and sanitation needs. More information: www.cawst.org


HOW WATER IS CONTAMINATED

How Water is Contaminated

Key Message:
Water can be contaminated in many ways.

Possible Questions:

- Where does the water come from?
- What does it mean when we say that water is contaminated?
- What are the possible sources for water contamination?
- Are humans the only ones contaminating the water?
- Where do the people dispose of faeces?
- Is it alright to defecate anywhere?
- How can we protect the water that we use?

Content:
Water that contains microbes and other pollutants is contaminated. Human and animal faeces are the main source of water contamination. Water is contaminated when people and animals defecate in an open field or near a water source and when latrines are not properly used and maintained. The faeces get into the water and are spread to everyone who uses that water.

Contaminated water can come through rivers, streams, wells and is carried to our homes in pipelines and buckets.

Water can also be contaminated when:

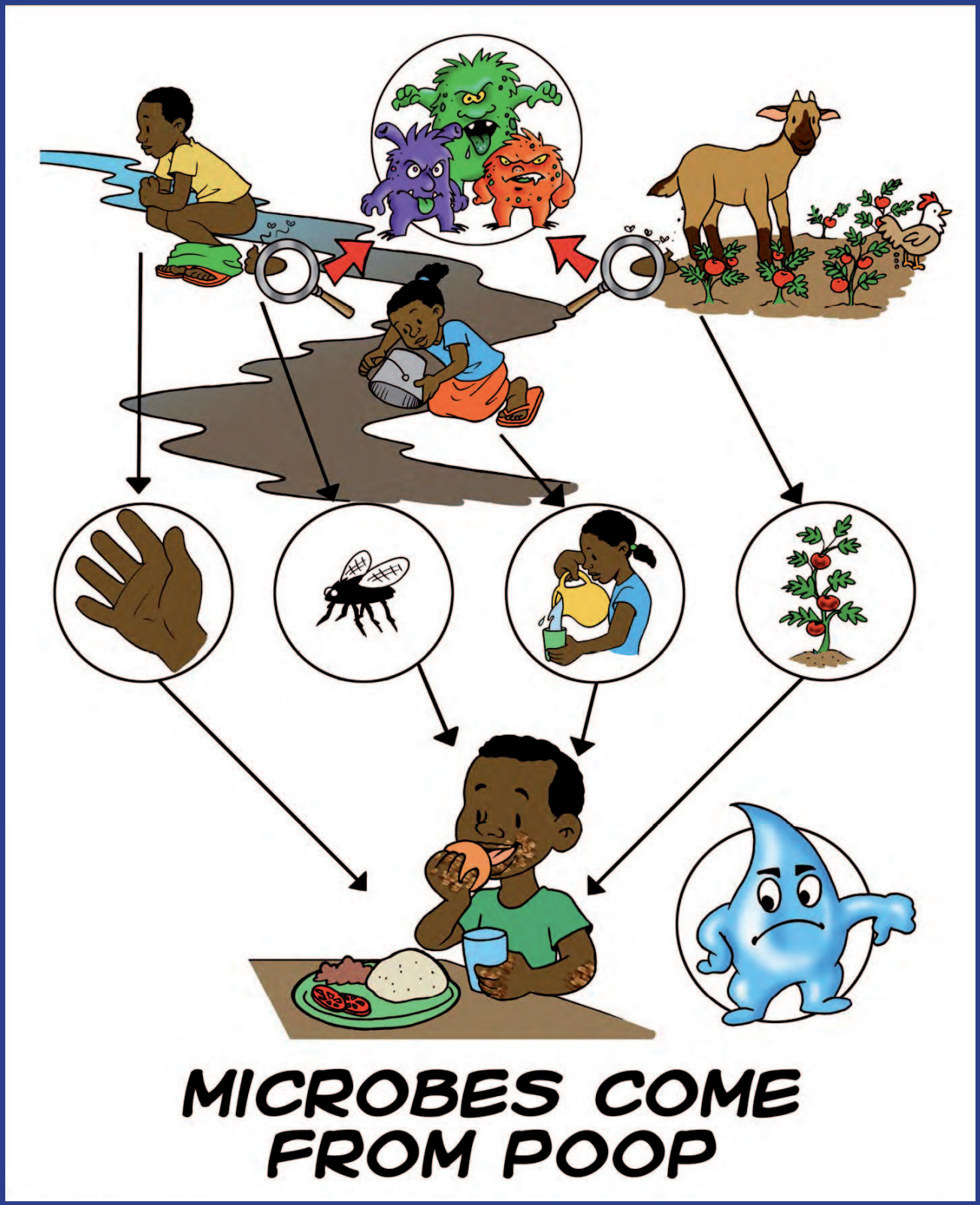
- Containers for storing water are not cleaned properly
- Water storage tanks are not covered to protect against contamination
- The bucket and rope that are used to pull water out of the well were in contact with something dirty (hands, animals, ground)

Water can look dirty when it is contaminated, but even clear water can contain microbes that cause illness. Not all sources of water are good quality water.

Rainwater is pure when falling from the sky, but may become dirty when landing on the roof. Groundwater can be of good quality, but may be contaminated with chemicals or latrine waste. Surface water is of poor quality because there are many so ways it can become contaminated.

Check for Understanding:

- Explain, in your own words, what contamination means.
- Which sources of drinking water are easily contaminated?
- Why are these water sources easily contaminated?
- If you get water from a well, can microbes get into that well? How?
- How can garbage contaminate our water?
- What are some other habits that can lead to contamination of water?
- If the water is clear, could it be contaminated?


MICROBES COME
FROM POOP

Microbes Come From Poop

Key Message:

Microbes are transferred from faeces to our mouths in many ways.

Possible Questions:

- How do you think microbes can be transferred from faeces to your mouth?

Content:

This poster shows ways in which microbes are transferred from faeces to our mouth and into our stomach. These are the ways that we become sick from microbes.

Microbes can spread on our hands and fingers. Every time that our hands touch human or animal faeces, there is a chance that microbes can be spread to our mouth or to our food. The microbes can also be spread to other people's hands and food.

Flies are attracted to the smell of human or animal faeces. When they land on faeces and then fly and land on our food, they spread the microbes that cause illness. Also if the flies land on our face or hands, they can spread the microbes to us.

Water that is contaminated with faeces will flow around the countryside and spread the contamination. When this water is used in the household, the microbes could be transferred to our mouth. This can happen when we drink the water and also when we use dishes washed in contaminated water.

Plants can also pick up microbes from faeces. The fruit or vegetables may become contaminated with microbes from animal or human faeces. If fruit or vegetables are not washed with clean water then we can become sick.

When a healthy person consumes contaminated food and water, the microbes enter the stomach and can result in illness. When children and adults are sick, their faeces contain the microbes that caused their illness. When a sick person defecates, especially out in the open field, the microbes are once again entering the environment. In this way, the transmission cycle of microbes and disease continues.

Check for Understanding:

- How do flies transfer microbes from faeces?
- How can microbes be transferred through water?
- How are microbes transferred through our hands and fingers?
- How can food become contaminated?
- How is water contaminated?


STOP MICROBES
PROTECT YOURSELVES

Stop Microbes - Protect Yourselves

Key Message:

There are three main ways to stop the transfer of microbes to our mouths: basic sanitation, safe water and proper hygiene.

Possible Questions:

If poster is used as an introduction:

- What do you see on this page?
- How do you think these items and activities will help make your family healthier?

If poster is used as a review:

- Show the ways that microbes can go from faeces to your mouth.
- How do you keep a latrine clean?
- What are some ways to treat water to ensure that it is of good quality?
- What is a good way to wash your hands?
- How do you protect your food?

Content:

This poster illustrates the three main ways to prevent illness by stopping the transfer of microbes to our mouths.

1. 1. Sanitation: A well maintained latrine will not attract the flies and will stop the spread of human faeces from contaminating our food and water systems. Burying our garbage is a good way to reduce the number of flies and rodents around our homes.
2. Water: Treating our water before drinking is a good way to ensure our water is safe to drink. We can make sure our families do not become sick by drinking good quality water.
3. Hygiene: Keeping food covered so that flies don't get on our food is a good way to protect ourselves from illness. Washing our hands with soap and water will remove microbes from our hands so that they can't get into our mouths.

The cycle of transferring microbes from faeces to our mouths can be stopped with a few easy steps. Good sanitation, water treatment and good hygiene practices will improve the health of our families. By doing these things regularly, we will establish good habits that will lead to better health.

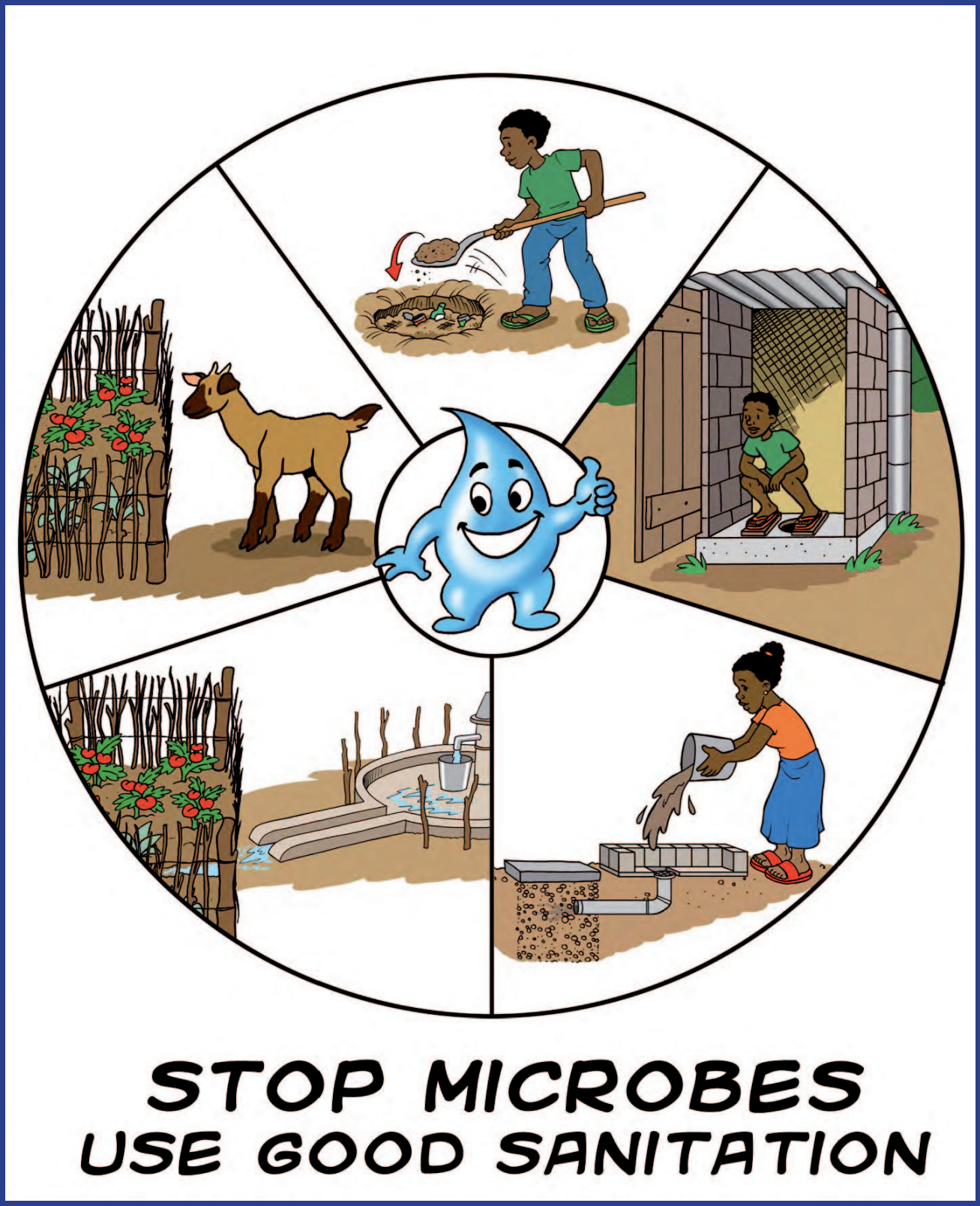
Check for Understanding:

If poster is used as an introduction:

- What are the three ways to stop the transfer of microbes from faeces to your mouth?

If poster is used as a review:

- What will a properly used and maintained latrine prevent?
- Why should household garbage be buried?
- How can we stop the transfer of microbes through water?
- Why should we wash our hands?
- How can we protect food from contamination?


STOP MICROBES
USE GOOD SANITATION

Stop Microbes - Use Good Sanitation

Key Message:
Good sanitation habits prevent transmission of microbes.

Possible Questions:
- Do you have a latrine?
- If yes, is it a communal or household latrine?
- What do you use your latrine for?
- Do you or your community practice any of these activities?

Content:
This poster illustrates the different ways to prevent illness by practicing good sanitation.

A well maintained latrine will not attract flies and will stop the spread of human faeces from contaminating our food and water systems.

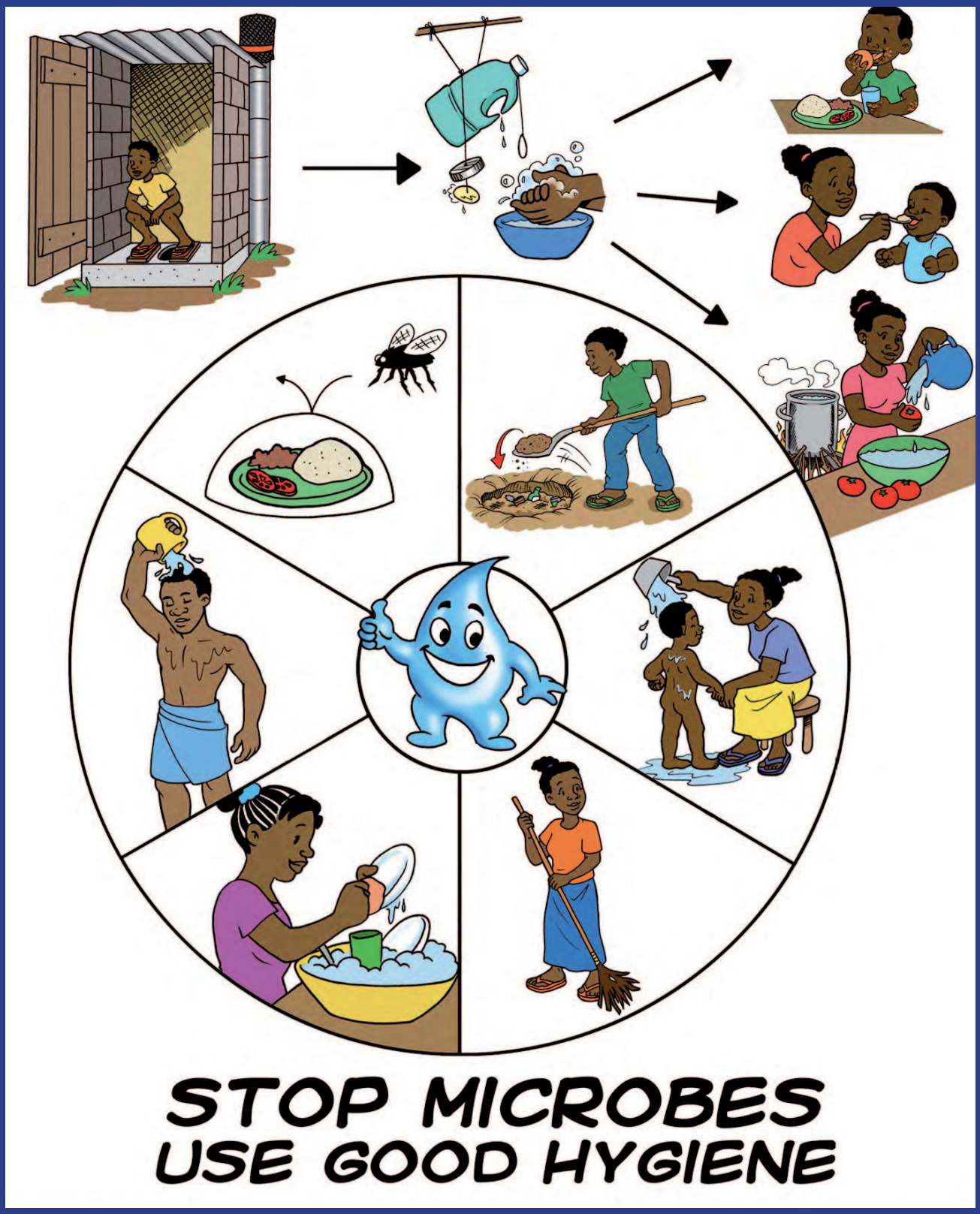
Wastewater can be disposed of in a soak pit. A soak pit is a hole in the ground filled with gravel where water can soak into the ground safely. Standing water is dangerous because mosquitoes breed in standing water. Mosquitoes spread illnesses like malaria and dengue fever. We can help stop these illnesses by constructing and using soak pits.

Protecting our water sources from animal faeces is very important. If we use a well for our water then it is best to build a fence around it to keep animals out. To prevent pools of water forming around the well, divert the spilled water away from the well, pump or tapstand. The wastewater from the well, pump or tapstand can be used to water a small garden or diverted into a soak pit.

Animals can contaminate the food we grow in gardens if there is no fence to keep them out. Make a fence around the garden to protect fruit and vegetables.

Burying household garbage is a good way to maintain a clean home and compound. We can help stop flies from being attracted to our garbage and lying eggs there.

Check for Understanding:
- How can we stop the transfer of microbes through sanitation?
- What are some good sanitation habits?


STOP MICROBES
USE GOOD HYGIENE

Stop Microbes - Use Good Hygiene

Key Message:
There are things we can do to protect ourselves from microbes.

Possible Questions:
- How can microbes from faeces be transferred to your mouth?
- How can microbes from faeces be transferred to your food?
- What are some good personal habits to stop the transfer of microbes from our fingers to our mouths?
- How can we protect our food and dishes from being contaminated?
- What can we do to keep our homes clean?

Content:
Good and bad habits can determine whether our food is clean or contaminated. Faeces from humans and animals are the main cause of contamination and illness.

Microbes can be transferred from faeces through our hands and fingers and then on to our food or mouth.

Microbes will be transferred to our fingers every time we touch something that has been contaminated. When our fingers are contaminated and we touch our mouths, we may become sick.

We should wash our hands after using the latrine, before we eat and before we prepare food. We should also wash our hands after contacting children's faeces.

Regular baths with soap are important to wash off microbes that may be on our bodies. This will help keep us clean and healthy.

Protecting our food from flies will help stop the spread of microbes. Washing dishes in soapy water after we eat will stop the transfer of microbes to the next person who uses that dish.

Keeping our houses clean and burying our garbage also helps stop the transfer of microbes.

Check for Understanding:
- What are some good hygiene practices?
- How are microbes spread through our fingers?
- How can we stop microbes from being spread on our fingers and hands?
- Why do we keep flies off food?
- What should we do with garbage?
- When should we wash our hands?

Comics by Sourabh Phadke

Sourabh Phadke is an Indian School teacher and architect (the former by choice, the latter by chance) amongst other fictitious titles. He works with children on matters of exceeding importance including mud balls, the birds & the bees (literally), junk toys, pee-poo and stuff around us. He is also known to build houses of all things natural and junk, and is frequently found professing the same among organic circles. He is the author and illustrator for a number of publications which include ‚The Muddy Micromanuals!', ‚Toilet', and ‚Poo'.

Author: Sourabh Phadke

In this part we publish some illustrations from Sourabh Phadke´s illustration book called „Poo". The book is full of simple drawings, which are telling short stories on several topics including

- Why sanitation? A case against open defecation;
- Paradigms – from line to loop;
- The real deal;
- Pee & Poo;
- Technology & miracles;
- Hardware – first process, then product.

For the SSP journal we have chosen some examples from the chapters "Pee & Poo": the value of urine and the importance of hand washing and "Hardware": soak pit and UDDTs.

Additionally, we choose another example of Sourabh Phadke's work, i.e. the comic "Toilet", because of the extraordinary style of the illustrations. "Toilet" is actually a manual on building a urinediverting dry toilet with cob and recycling material.

Selected pieces from the chapter “Pee & Poo“

One of lifes greatest joys: to Pee!

We pee more than a litre everyday!

Pee is a complex concoction

Usually sterile, harmless!

It is mostly water

But contains a host of other chemicals!

Pee is an excellent fertiliser

Which has to be diluted before application

Who needs those chemical fertilisers anyways?

With regular use of pee,

We can get fantastic results!!

Pee is versatile..

A toilet is not enough to ensure health

Our behaviour should be hygienic

We must wash our hands with soap and water

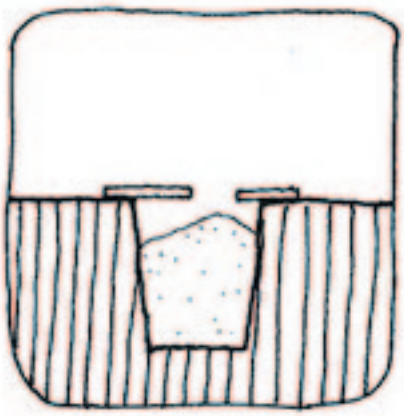
After we poo poo

And before cooking or eating

We can reduce chances of disease drastically!

Soak Pit from the chapter “Hardware“

Soak pits can also be abandoned when full



So when the first pit is full of poo,

Simply dig one close by

And plant a tree in the first!

Now the second pit can be used regularly

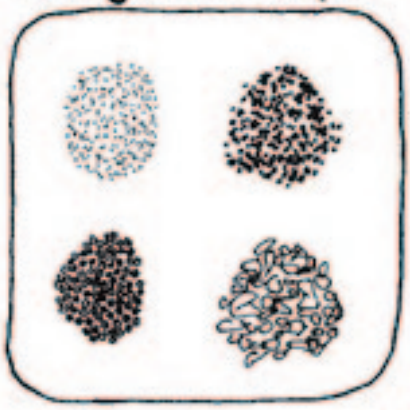
So while you poo, fruits grow beautifully in front of you!

UDDT from the chapter “Hardware“

The pee is collected or percolated into the ground

And we can wash/wipe away from the poo

The cover material avoids odours and helps dry the poo



Ash, dry leaves, mud, husk are all good cover materials

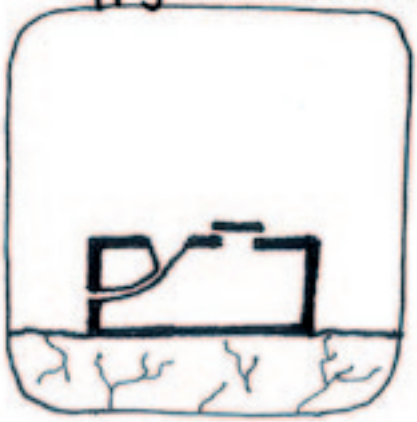
When the tank is full, the poo is isolated for a year

After which it is safe to be removed manually

It doesnt stink one bit, and doesnt look gross!

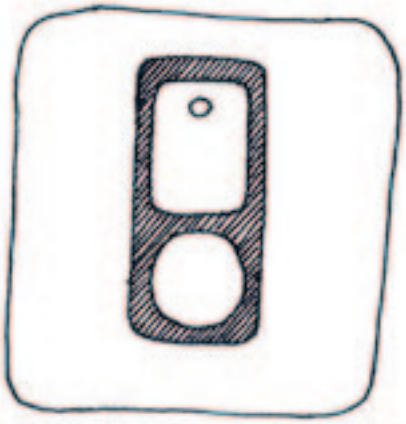
We can compost the same and apply on the fields!

Such a toilet also saves oodles of water!



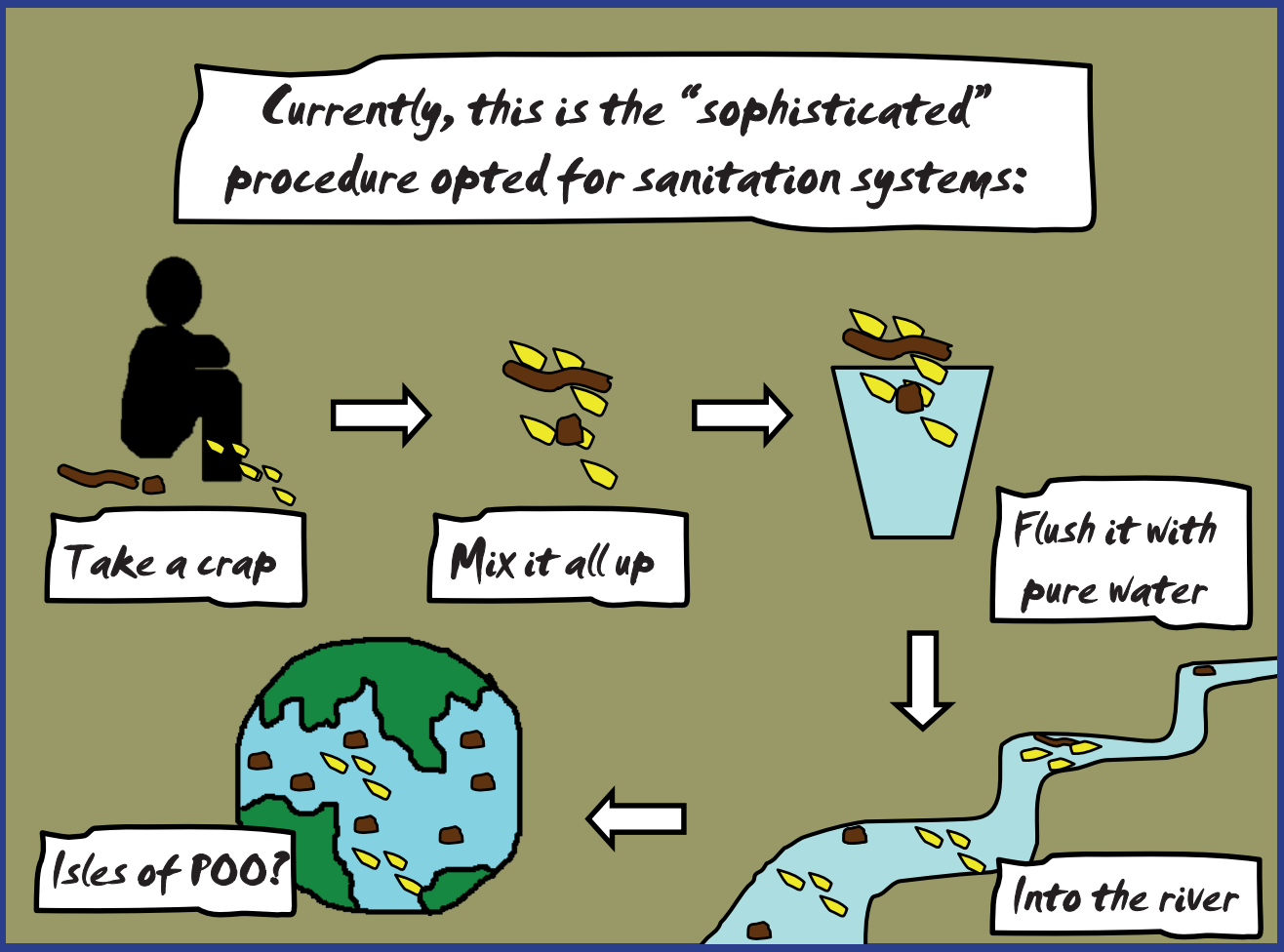
And can be built even in rocky areas

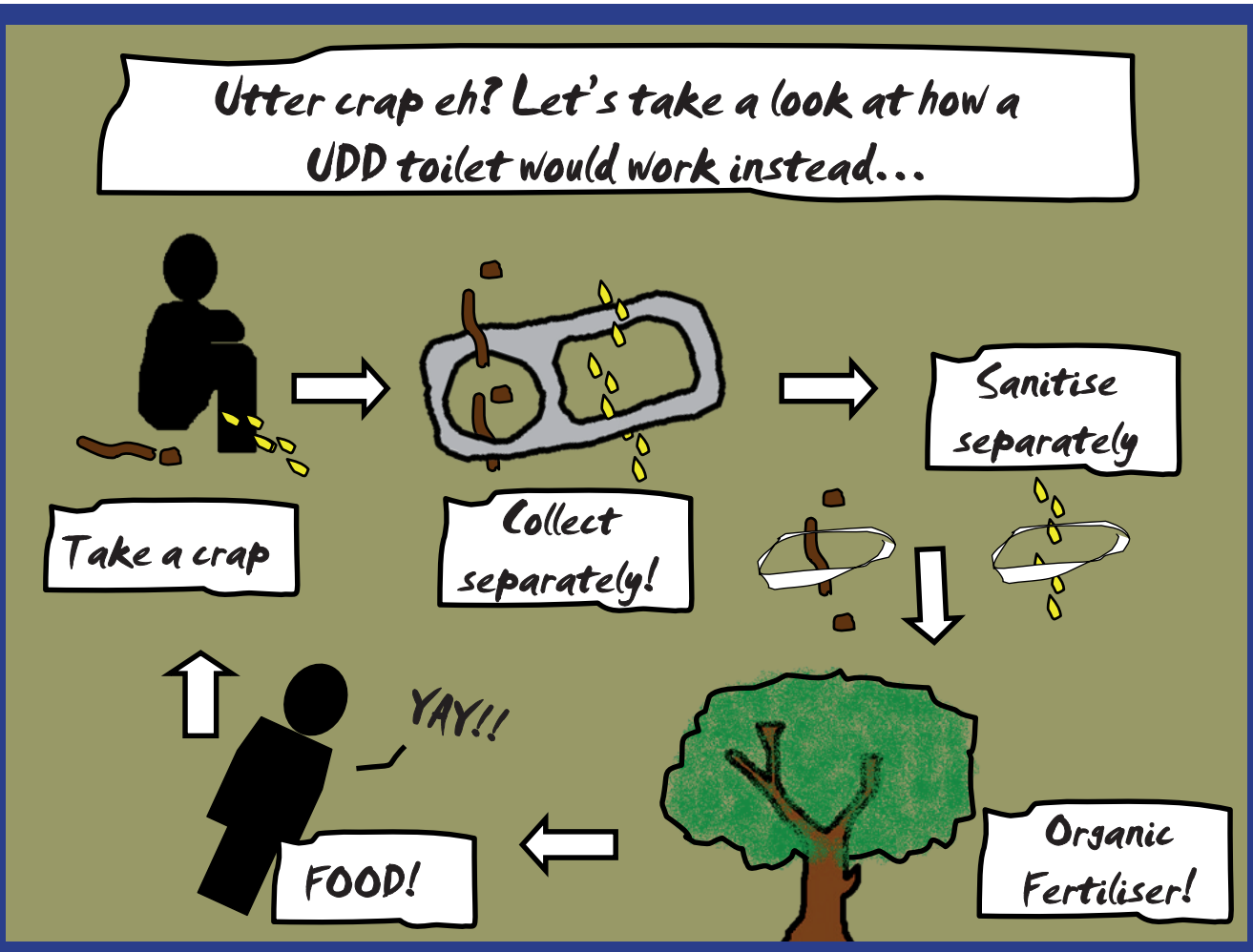
Since it isolates the poo, its ideal for flood prone areas

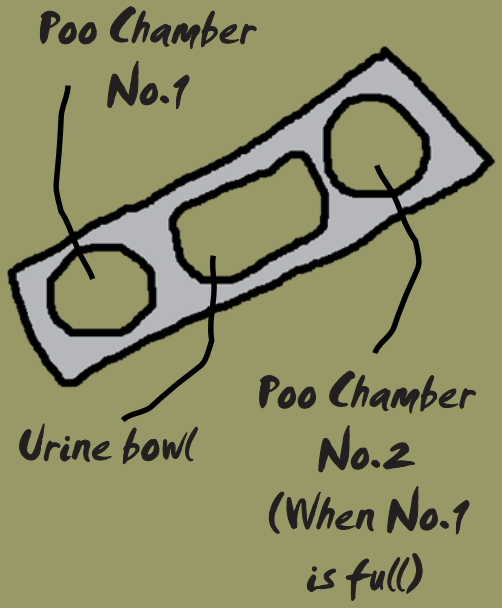


It is called a Urine Diversion Dehydration Toilet. A UDDT!

Toilet by Sourabh Phadke







A UDDt source separates the pee & poo (along with the wash water), which can then be treated separately before reuse. The faeces are sanitised by containing and desiccating them in the tanks below. The urine can be stored and used on dilution or percolated directly along with the wash water.

*The urine bowl remains the same, a separate wash bowl may be provided.

Sanitario Ecologico by Alberto Ysunza Ogazon

The pictures are taken from a comic book published by Alberto Ysunza Ogazon, in 2003. Alberto is Head of the Department of Experimental and Rural Studies of the National Institute of Medical Science and Nutrition Salvador Zubirán in Mexico.

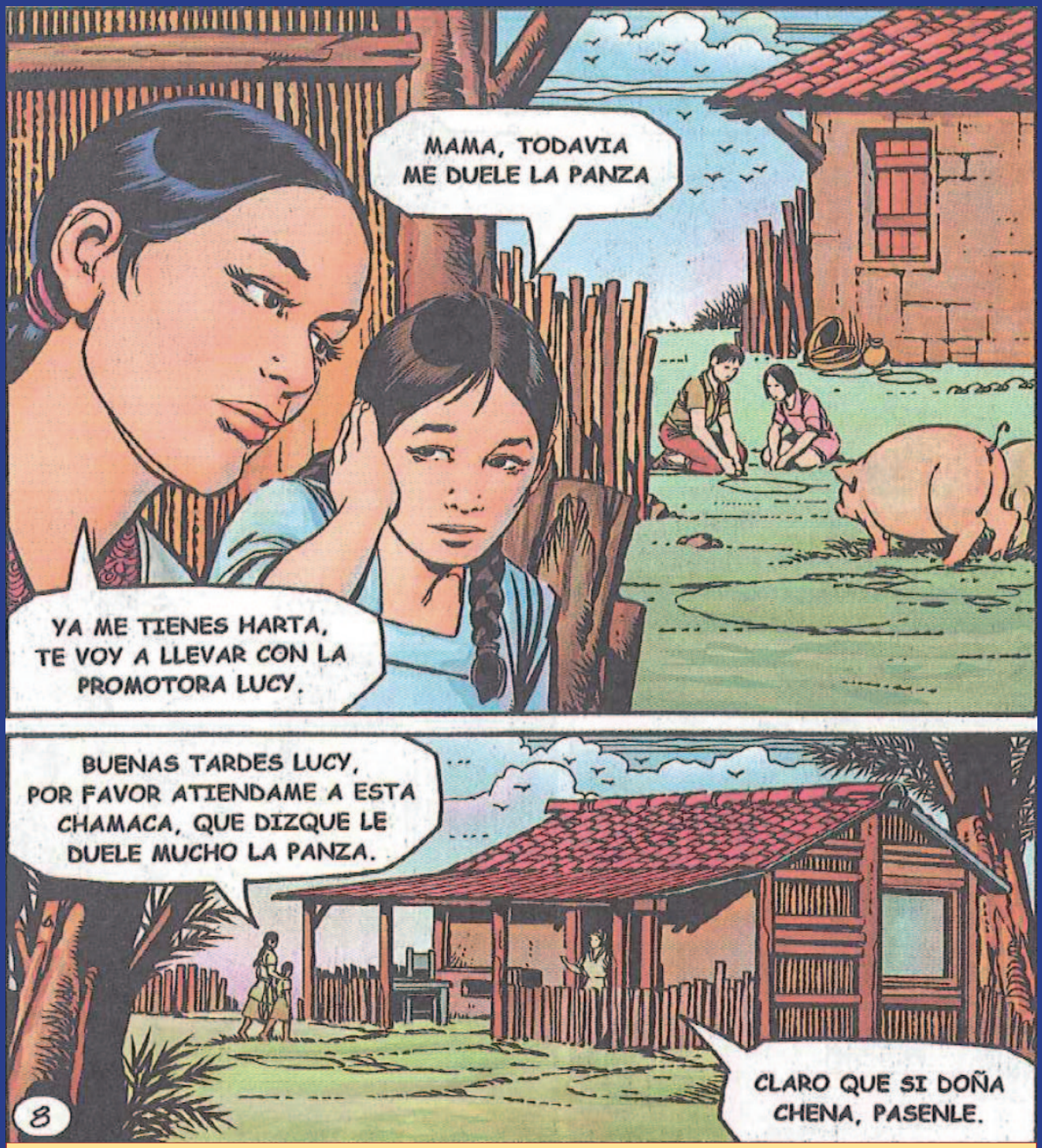
Author: Alberto Ysunza Ogazon

For this issue we have chosen several pages of the comic book which shall allow to tell the whole story in short form.

Short summary of the story: The comic starts with the description of the hygienic situation for a family living in Oaxaca, Mexico. The daughter of a family living in the countryside in Mexico is getting sick, but traditional medicine is not effective. The family is looking for other solutions and learns from a local NGO about the advantages of urine diverting dry toilets (UDDTs). The comic illustrates in detail how the family is constructing an UDDT, how it is operated, the advantages of UDDTs and how it works. At the end the family is proud of their new toilet and the improved hygienic situation.

The text has been translated from Spanish to English by Christina Ehgartner.

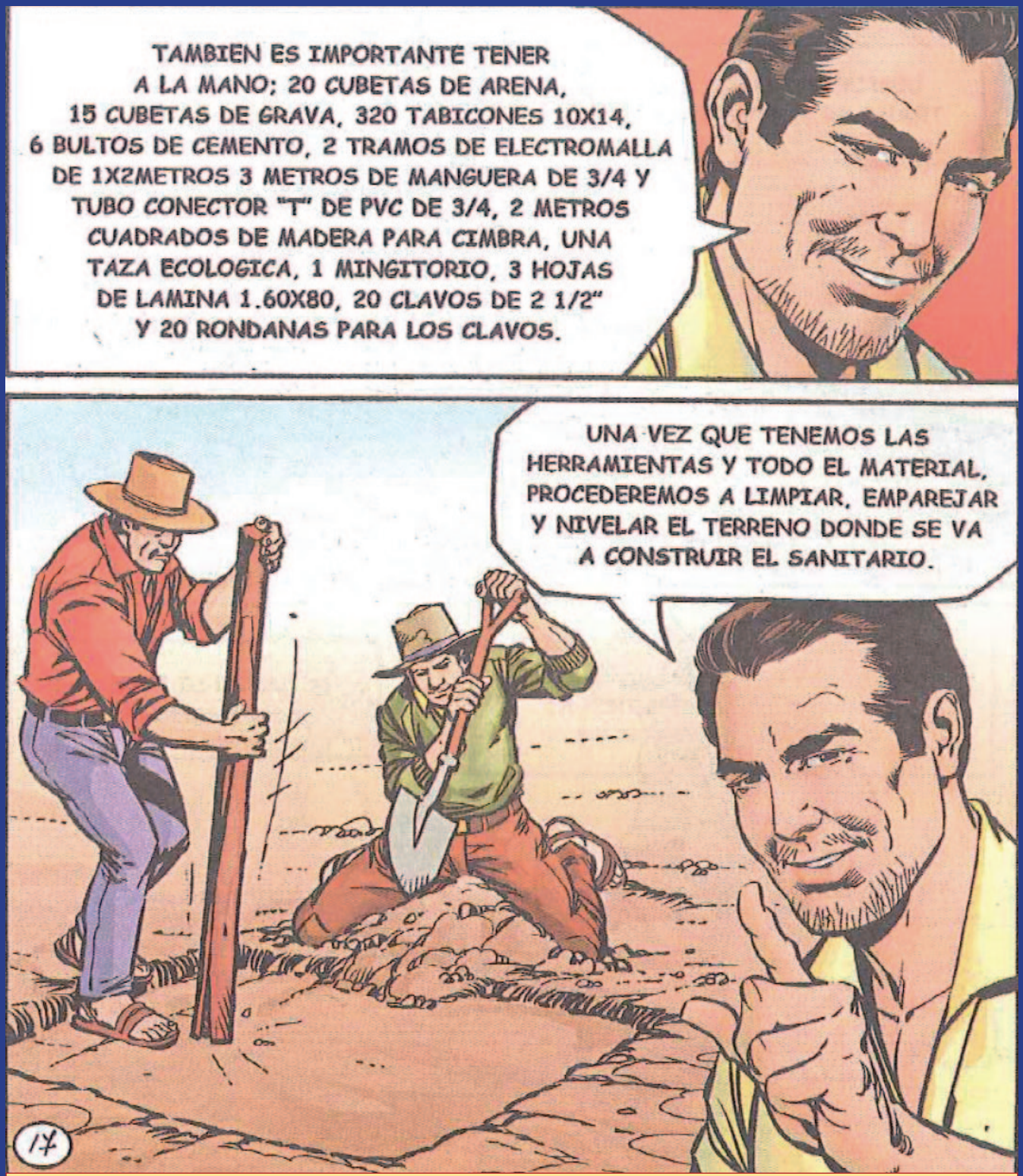
The full version of the comic can be downloaded from the SuSanA homepage: http://www.susana.org/lang-en/library?view=ccbktypeitem&type=2&id=794



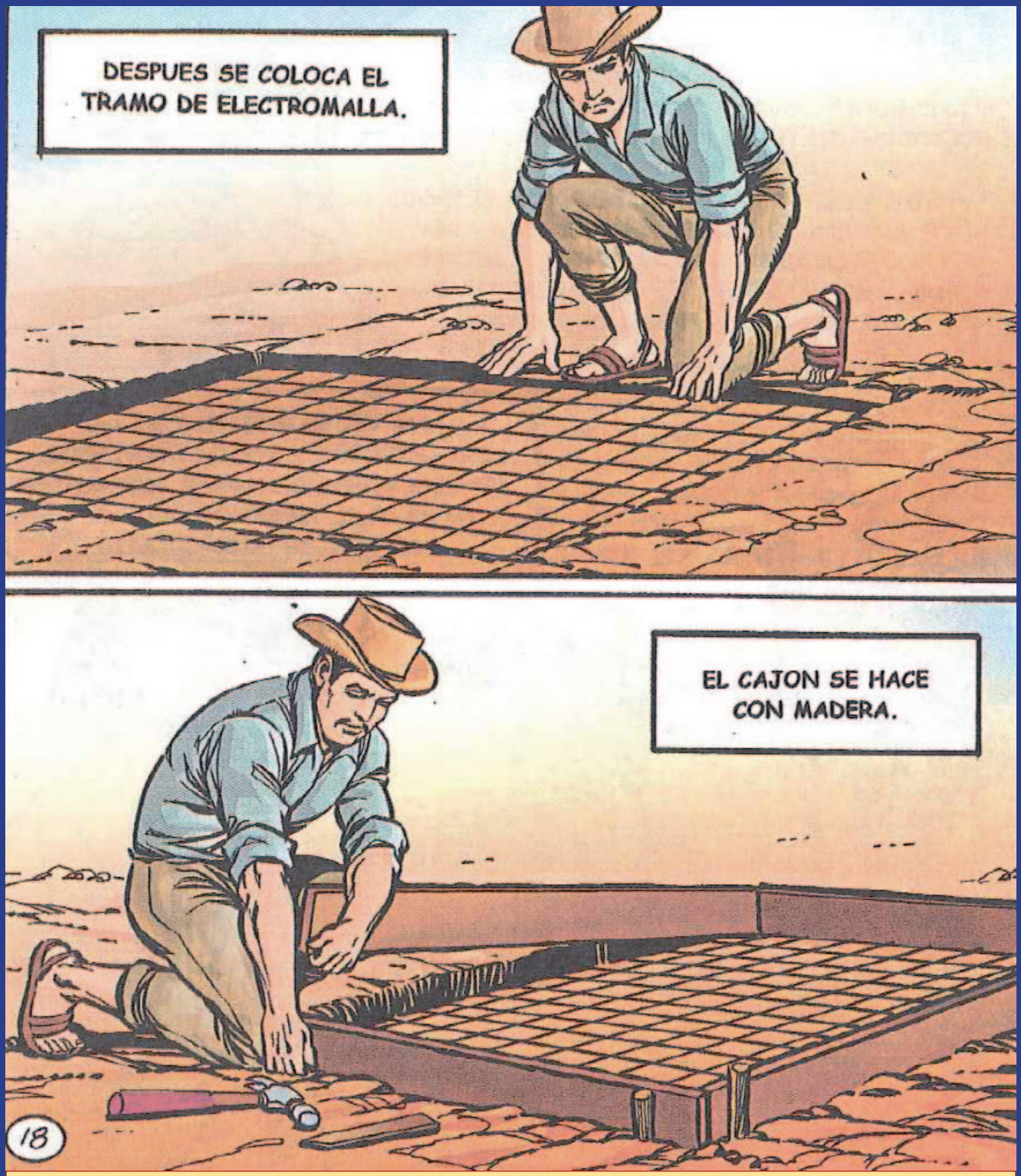
...Mam, my belly still hurts.
... Now it is enough. I will take you to the facilitator Lucy.
... Good afternoon Lucy. Can you please have a look on my girl, who says that she suffers from a lot of pain in her belly.
... Sure Madame Chena, come in.

… Let's see Josefina. Tell me since when do you have your belly ache?
… Yesterday I woke up with a lot of pain. Then I was with Mr. Simon who massaged my belly. Afterwards it was a little better. But than I went to the toilet and many worms came out.
… I think your daughter has a belly ache because she has parasites. Don't worry lady. You will have to give her 4 drops of this micro-dosis of Epazote for 5 days. You will see she will be cured very fast.

... Sorry Mr. Moy, but how are we going to construct the toilet, if this is new for everybody?
... Don't worry. We from Ceciproc will facilitate you. At the same time you can help us to construct an urine diverting dry toilet in two days. It will be constructed at the community school.
... We only need a shovel, a hammer, a brick trowel, a plastic bucket, a threat, a water level, a mortar board and tongs.



… It is also important to have: 20 buckets of sand, 15 buckets of gravel, 320 bricks 10x14, 6 bags of cement, 2 pieces of iron fence 1x2 meters, 3 meters of water pipe of ¾, and a PVC T connection of ¾, 2 m² of wood for the casing, one squatting pan, one urinal, 3 metal sheets 60x80, 20 nails 2 ½ inches and 20 nuts for the nails.
… Once we have the tools and the materials, we can continue to clean and level the space where the UDDT will be constructed.



... Then you put the metal fence.
... The casing is made from wood.

… PRODUCTION OF FOOD WITH ORGANIC FERTILIZER.
… When you mix 1 part of urine with 5 parts of water you will obtain urea, an excellent fertilizer for your plants.
… The organic fertilizer is obtained as soon as one of the collection chambers is full. It‘s use is determined when it is completely dry.

Next issue:

Issue 16, July 2013: **„Behaviour change“**

Further information:
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