Sustainable sanitation for schools to improve child health

Dr. Elisabeth von Münch
GTZ Sustainable sanitation - ecosan programme

elisabeth.muench@gtz.de
www.gtz.de/ecosan

partner of
sustainable sanitation alliance

commissioned by
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Hygiene and sanitation, while generally in the school curricula, are *theoretical*. Children are often not given the practical guidance or life skills for the proper use and maintenance of toilets (*if they even exist in a hygienic condition at the school!*).

Two MDGs are very off track

(even the most off track of all the MDGs?):

- MDG 4 on **child health**
- MDG 7 on environmental sustainability:
  - indicator on access to **improved sanitation**

Maybe this is no coincidence?

Sanitation… Nobody wants to talk about it…the taboo topic… the „orphan MDG“…

à Health professionals can change this!?

School toilets today

- Non-existent
- Filthy, smelly, unhygienic
- Not enough for the number of children
- Not suitable for teenage girls, handicapped children
- No concept to empty pits when full à overflowing pits; need to dig again (space issues)
- Mostly using pit latrines
- „Latrine“ has a negative connotation…

Sustainable school toilets of the future

- Beautiful, colourful, odourless toilets (can even be integrated in school building!)
- Constructed together with students, teachers, parents
- Accessible to all; menstrual health considered (e.g. mirrors)
- **Producing safe fertiliser for school gardens**
- Using alternative technologies such as **urine diversion dehydration toilets (UDDTs)**, biogas sanitation, waterless urinals for boys and girls…

The ecosan concept

FOOD

FOOD

Closing the loop between sanitation and agriculture:

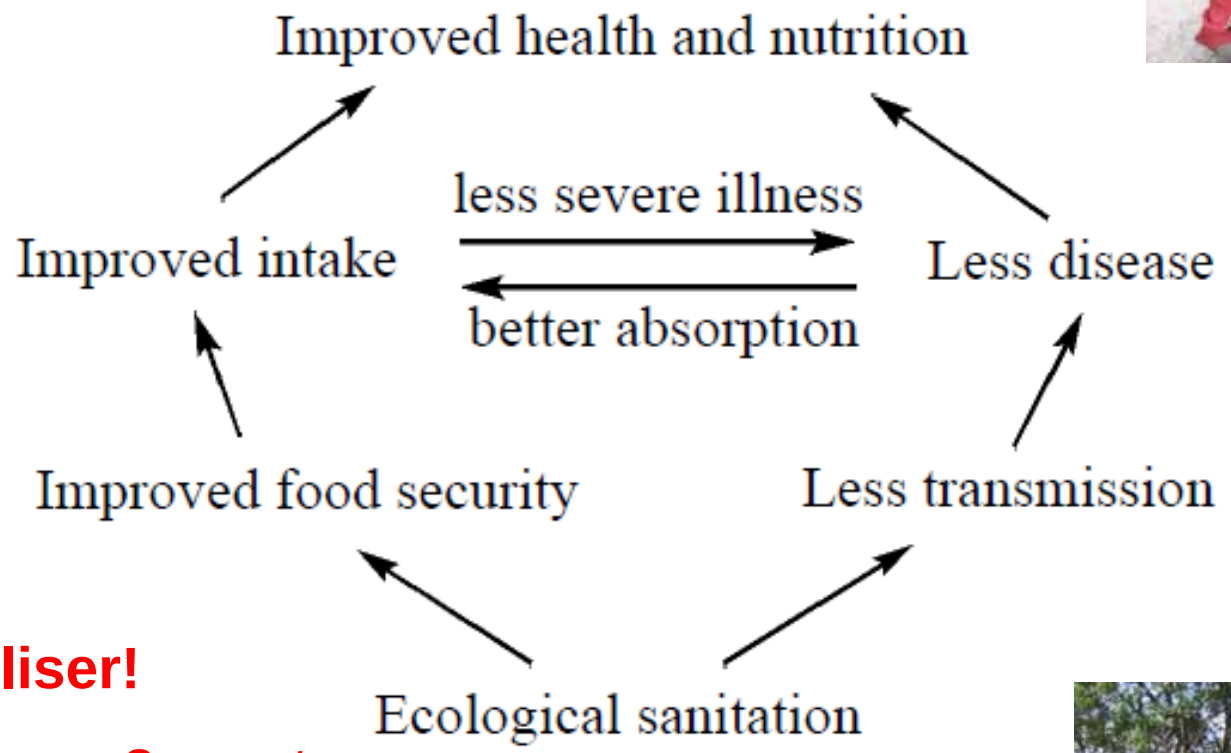
Excreta need not be seen as a “waste”, it is a resource

NUTRIENTS

NUTRIENTS

Pathogen destruction

Ecosan improves child health in 2 ways



Nice toilets!

Safe fertiliser!

Urine

Compost

Photos: Peter Morgan, Zimbabwe

Ecosan example from Burkina Faso

UNION EUROPEENE

Assainir et produire plus !

PROJET
D'ASSAINISSEMENT
ECOLOGIQUE DE LA VILLE DE OUAGADOUGOU

CREPA gtz ONE

ecosan_UE@reseaucrepa.

Example:
Urine (liquid or solid in the form of struvite) from GTZ House 1 is used as fertiliser at a farm near Bonn (research and demonstration project SANIRESCH, www.saniresch.de)

Urine diversion dehydration toilet (UDDT)

Homan gamit sa kasilyas, manghugas sa kamot ginamit ang sabon.

Pama-agi sa Paggamit Urine-Diversion Toilet

ecosan

Angayan Buhaton...

Ang tae ihulog diha sa luyong bahin sa "toilet bowl" ug ang babaye mangihi sa atubangan nga bahin (urine chamber).

Bóbó-an ug abó o abo og yuta ang tae pagkatapos kalibang. Ayaw bóbó-e ug tubig sulod sa tangke.

Ang lalaki ug mga batang lalaki mogamit sa lina-in nga ihi-anan para sa pag-ihi.

Ilabay ang ginamit nga ilo ngadto sa linaing sudlanan aron sunogon o ilubong.

Ilabay ang tae sa mga bata ngadto sa lungag sa kalibangan alang sa tae.

Paningkamotan nga kanunay nga sirado ang "toilet bowl" aron walay makasulod nga langaw sa lungag.

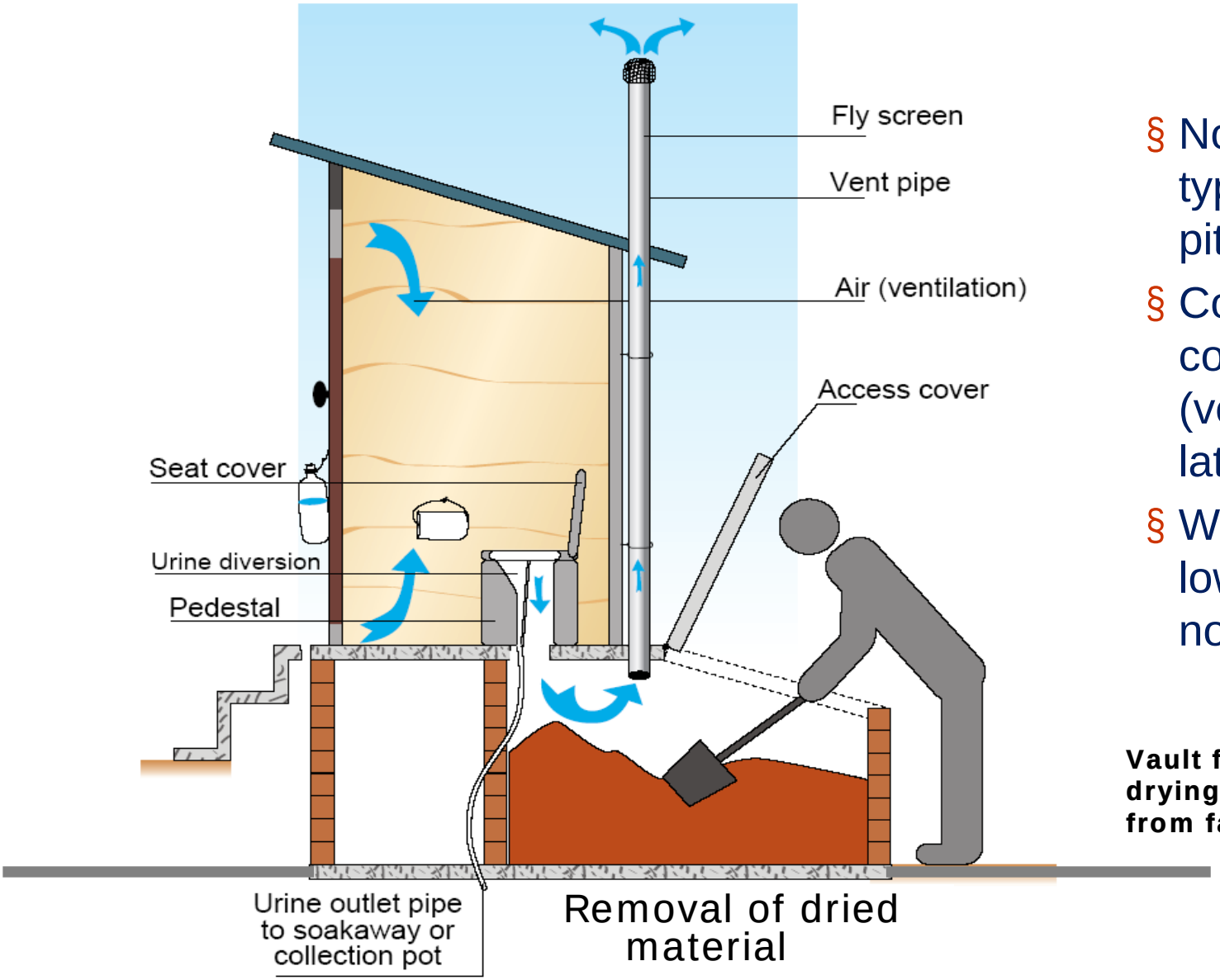
User instruction photos…. (example from the Philippines; Robert Holmer, Xavier University)

UDDT at school in Lima, Peru

Photos: Heike Hoffmann (Rotaria), 2008

Schematic of urine-diversion dehydrating (UDD) toilet

(here: single-vault; double-vault also common)



- Note: the entire toilet is typically above ground (no pit needed!)
- Construction costs are comparable to VIPs (ventilated improved pit latrine)
- Whole of life costs are lower than for VIPs since no need to re-dig

Vault for faeces collection and drying (no seepage into ground from faeces vault!)

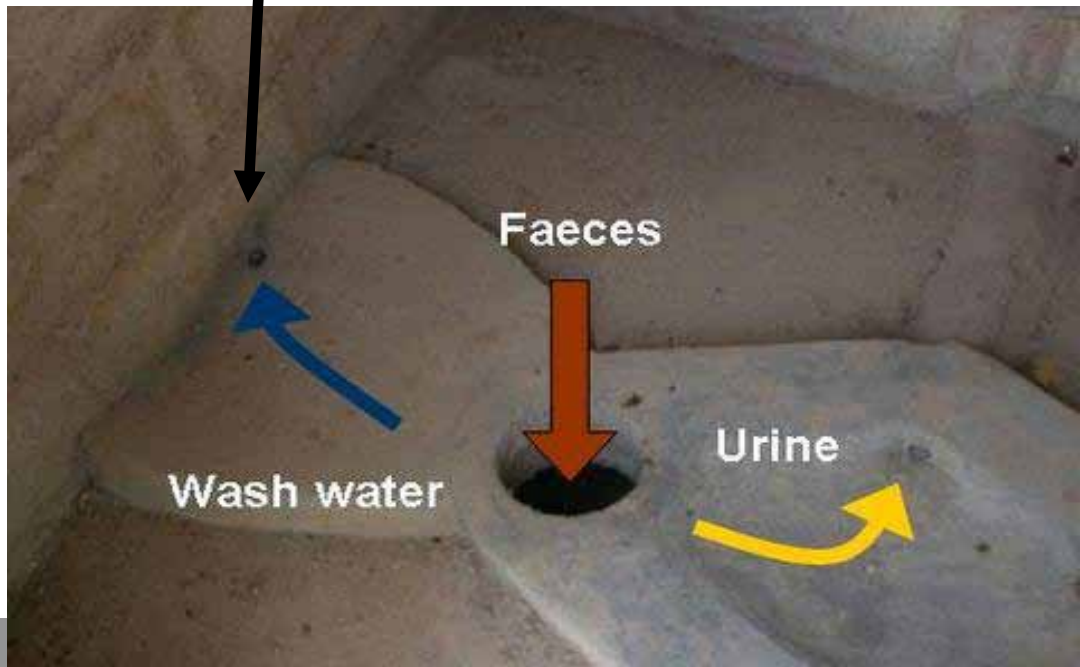
Source: http://web.mit.edu/urbanupgrading/waterandsanitation/resources/pdf-files

Nine advantages of keeping urine and faeces separate (= urine diversion)

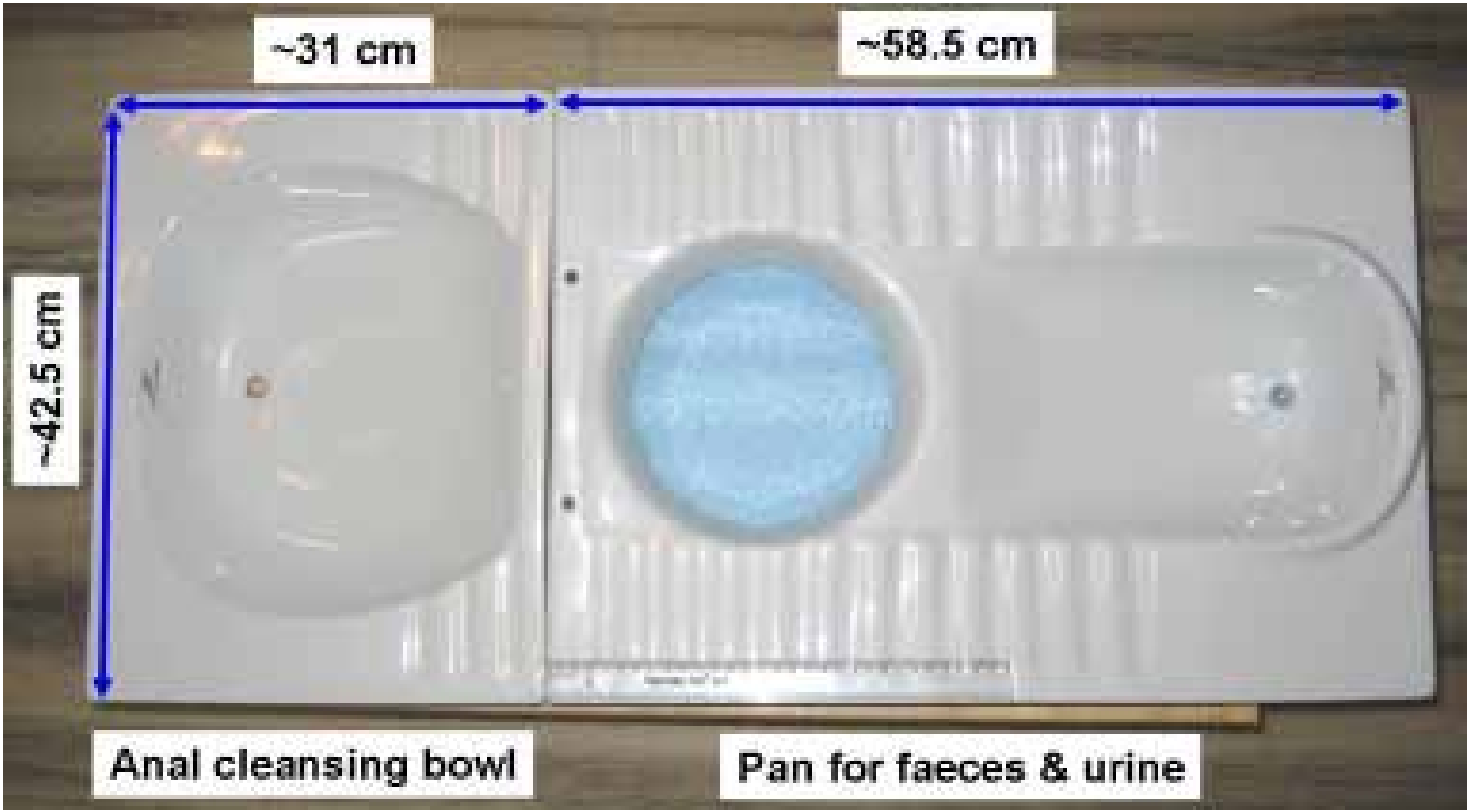
1. Reduces odour to near zero
2. No water needed for flushing
3. No wet faecal sludge production
4. Allows collection of pure urine for use as fertiliser
5. Enables pathogen kill in faeces via drying
6. Allows production of safe soil conditioner and compost from faeces
7. Prevents groundwater pollution
8. Allows toilets to be indoors and on any floor of the house!
9. Toilet can be built high above ground in flood-prone areas

Phillipines (NGO CAPS)

For “washers”:
Anal washwater collected separately in third outlet hole
(treatment e.g. via soil filtration)



Burkina Faso (NGO CREPA)



Shital ceramics, India

Opportunities for ecosan systems in schools

1. With the right training, UDDTs are easy to build and maintain by school children and staff - increasing ownership
2. UDDTs are more suitable than pit latrines in dense urban settlements
3. Ecosan systems produce valuable liquid and solid fertilisers which can be used in school gardens
4. (Biogas sanitation systems can produce biogas for cooking in school kitchen)

UDDT = urine-diversion dehydration toilet

Experiences in Kenya
UDDT at Khaimba primary school in Butere

- EU-Sida-GTZ ecosan promotion project (2006 – 2010)
- Participation in decision making process
- Cost sharing for toilet construction with at least 20% contribution
- 2 UDDTs for students and 2 for staff; 40 m^3 rainwater harvesting tank for handwashing
- Health club responsible for maintainance, and reuse of fertiliser in school farm

UDDT toilet block of Ecosan Promotion Project in Kenya (SIDA, EU, GTZ)

Photos: Hagen von Bloh, GTZ, 2008

Back of UDD toilet block at nursery school in Nakuru, Kenya (ROSA project)

Photos: Steffen Blume, GTZ, 2009

Experiences in Kenya
Gachoire Girls high school, Nairobi (outskirts)



- 30 pour flush toilets connected to fixed dome biogas digester
- Biogas used in school kitchen à reduces expenditure on LPG
- Operational since Feb 2009 -Monitoring is currently being carried out

Experiences from India
Navsarjan Trust schools, Gujarat

- 3 primary boarding schools
- 8 single vaulted UDDTs, waterless urinals, greywater recycling into gardening
- In operation since Aug 2006
- Capacity development needed to change initial prejudices

Before

Example:
School UDD Toilet Facility for 200 school children plus teachers in Garla Mare, Romania
(by WECF)

My UDDT at home in Frankfurt (from Separett, Sweden)

General factors for achieving long term success in implementing sustainable school sanitation

1. **Awareness raising** among the decision-makers on the importance of school sanitation.
2. Having an enabling legal, technical, economical and social **framework** in place for the implementation of new and sustainable sanitation concepts for schools.
3. **Stakeholder involvement** in decision making and planning particularly children's participation and good leadership.
4. **Creating demand** through stakeholder involvement by employing demand-driven approaches.
5. Using many channels and media for sanitation and hygiene promotion beyond health benefits only (multifaceted approach).

Source: Factsheet of working Group 7 of Sustainable Sanitation Alliance

Take home messages

- We cannot teach children about hygiene education without offering them hygienic school toilets to use.
- When you think of low-cost school toilets, please don‘t just think of pit latrines!
  - There are many interesting sustainable sanitation technologies available now.
- School toilets can be linked to school gardens (via safe use of fertiliser produced by the pupils!).

Thank you!

www.gtz.de/ecosan and **www.susana.org**

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On behalf of
Federal Ministry
for Economic Cooperation
and Development