



On behalf of



ecosan Newsletter

Newsletter on sustainable sanitation and ecosan

By the GIZ program "Sustainable sanitation - ecosan"

Issue no. 42 January 2012

Dear Readers,



Our entire team at GIZ wishes you a prosperous year 2012.

The year 2011 unfortunately did not end well for a lot of people in the Philippines due to a tropical storm. In this 42nd newsletter we inform you on how UDDTs are contributing to providing safe sanitation at the evacuation sites. We also

bring you news on UDDTs that are popping up in Mexico, Sierra Leone, Rwanda, Kenya, Burkina Faso and in South Sudan and composting toilets in New Zealand.

The Sustainable Sanitation Alliance (SuSanA) whose secretariat is hosted at GIZ in Eschborn has launched the <u>discussion forum</u> in July last year which now also has some interesting <u>discussions on reuse oriented sanitation systems</u>.

This newsletter is sent to 4,100 subscribers for the English version and 370 subscribers for the French version. If you see this newsletter in a text-only format, please adjust your e-mail program to display e-mails in HTML-format.

Best wishes from Germany,

Rahul Ingle (ecosan@giz.de) (On behalf of the ecosan team)

P.S. UDDTs stands for urine diversion dehydration toilets; you will see this abbreviation quite often in our newsletter.

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- Sustainable Sanitation Practice (SSP) journal, Issue 9 on biogas systems
- Various case studies on sustainable sanitation in Asia

Breaking News

<u>SuSanA</u> celebrates 5 year anniversary on 29 January 2012!

Some statistics: SuSanA now has 172 partner organisations,

- 1100 members and users of its discussion forum,
- 61 case studies
- 13 factsheets
- 6400 photos on flickr
- 1100 entries in its library
- 7100 website hits per month.

Links

Presentations from the SuSanA side event on "<u>Urban sanitation at scale</u>" and <u>session presentations at the WSSCC forum</u> in Mumbai Oct 2011 are now available online.

Results of the SANIRESCH project were presented by the project partners during the 6th SANIRESCH meeting in September 2011, and are now also available in English.

There are new postings about ecosan activities in Kenya on our blog: monitoring and evaluation of school UDDTs, sanitation entrepreneurship, sanitation trainings in a primary school, UDDTs for pastoralist communities and an update on Engineers Without Borders in Ukunda. Please subscribe to the email alert service to keep yourself up to date.

Interested in emergency sanitation?
Then you should check out the blog on sustainable sanitation in emergency situations which has recently had interesting stories for example about urine diversion options.

The Call to Action for WASH in schools global partnership has launched a resource mapping website featuring various resources on WASH in schools worldwide.

- Milestone: The SuSanA factsheet compilation is now available as draft
- Selected new publications on ecosan in the SuSanA library
- Technology review of composting toilets

News

Philippines

UDDTs provide relief amidst the "Sendong" flash flood tragedy - Jan. 2012



When Typhoon "Sendong" hit the Philippines in December 2011, it brought more than a month of average rainfall within 12 hours to the affected regions. In the southern coastal cities of Cagayan de Oro and Iligan the tragic devastation caused by the flash flood displaced thousands of people and left them with no other option but to settle temporarily in public evacuation centers. Together with the STEAG State Power, the Xavier University (XU) Sustainable Sanitation Center provided UDDTs to one of the evacuation centres in Cagayan de

Oro City. Later in order to meet the high demand for emergency sanitation facilities XU also deployed 20 portable toilets to the different evacuation sites on behalf of the Cebu City government. The WAND Foundation Inc. in partnership with many other donor agencies also added UDDTs to several evacuation sites. They found portable UDDTs an effective relief measure for the evacuation centers.

■ Relevant discussion in the SuSanA forum about UDDTs for emergency sanitation

- Photos of portable UDDTs for emergency sanitation
- Blog post by Elmer Sayre and Juergen Eichholz
- Contact: Meiyoshi Masgon (Xavier University); Elmer Sayre (WAND Foundation)

Mexico, worldwide

Ten Mexican UDDT projects added to worldwide ecosan project list – Jan. 2012

The Mexican based international consultancy firm <u>SARAR Transformación SC</u> has compiled a list with detailed information in Spanish and English on ten ecosan projects in Mexico where UDDTs have been implemented. These projects have been running since a few years, but due to the Spanish-English language divide, they are not yet well-known outside of Mexico. These new Mexican ecosan projects, including their costs, have now also been included in the worldwide ecosan project list which is maintained by GIZ, bringing the total number of projects to 324 and the total number of UDDT users to about 1.7 million people.

Project list Mexico in English and Spanish

- Discussion about large-scale UDDT project in Mexico
- Publications from Sarar Transformación
- Contact: Ron Sawyer (SARAR), Elisabeth von Münch (GIZ)

South Sudan

Ecosan arrives in the youngest African country – Jan. 2012

On 1 August 2011, the official handover of the first UDDT (including hand washing facilities) took place in Chief Charles Memorial Primary School, Yei, South Sudan. Thanks to this project, 174 girls and 220 boys now gained access to toilet and hand washing facilities. The toilets were initially built without urine diversion but after a workshop conducted in the school a urine diversion system was installed as the teachers expressed interest in using fertiliser from the UDDTs in the school garden. Moreover, in December 2011, a 3-day-workshop on construction, functioning and implementation of UDDTs was organised by the GIZ program "Development of the Urban Water and Sanitation Sector in South Sudan". The participants represented governmental, private (construction) and NGO sectors.

Website of GIZ in South Sudan

- Pictures of the school UDDTs
- Contact: <u>Agnieszka Samolej</u> (GIZ)

Switzerland, worldwide

cewas – Do you wish to start your own business in the water and sanitation sector? – Jan. 2012

New Groupe URD & UNEP online toolkit: Integrating the environment into humanitarian action and early recovery in English and in French. Module 4 covers sustainable water management and ecological sanitation.

Conference papers of the 35th WEDC International Conference at Loughborough University, including several papers on ecosan topics, are now available for download.

The deadline for submissions for the 2012 WTO International Toilet Design Award has been extended.

Videos and photos

Video: Meet Mr Toilet! This short video documents the work of WTO founder Jack Sim and was recently presented at the Sundance Film Festival in Utah, USA.

Video: Entertaining, short video about "pollee" female urinals which were pilot tested at Roskilde Music Festival in Denmark in summer 2011.

Video: Two 10-minute videos document how the <u>municipality of eThekwini</u> is taking a pioneering role in innovations in water supply and sanitation in South Africa

Video: Germany will introduce new environmental standards for small-scale wastewater treatment plants in 2015. A 3-minute video explains the advantages of the new BDZ quality certification.

Videos: Various videos featuring presentations at the 13th SuSanA Meeting in Kigali. The presentations include lectures from Chris Buckley (UKZN), Annie Kanyemba (Aquamor), Elisabeth von Münch (GIZ), Madeleine Fogde (SEI), and Jack Sim (WTO).

Video: <u>UN video library on sanitation</u> launched to support the International Decade for Action "Water for Life" 2005-2015.

Video: 12-minute video by WECF partner Mehriban on <u>ecological</u> <u>sanitation in rural Uzbekistan</u>.



The international training centre for start-ups in the water and sanitation sector (cewas) in Willisau (Switzerland) has launched the second cewas start-up programme. Registration is now open for the one-year training programme, which is directed at graduates who want to start their own business in the water and sanitation sector. Starting from April 2012, young entrepreneurs-to-be will be supported in the foundation of their business with advanced training modules, business coaching and consulting by international experts and an

extensive international network. The training programme will take place at the cewas training centre in Willisau, Switzerland. Closing date for applications is 4 March 2012.

- More information on the cewas start-up programme and application
- Contact: Diah Uhlmann (cewas)

Germany

Registration opens for sustainable sanitation training courses - Jan. 2012

The German Toilet Organization (GTO) in cooperation with Women in Europe for a Common Future (WECF) and the GIZ program "Sustainable sanitation – ecosan" offers two training courses (basic and advanced) in Germany for NGO workers and interested parties who want to acquire or deepen their knowledge on sustainable sanitation and the planning and implementation of sanitation projects. The basic course "Toilets for schools and public buildings in developing countries" takes place on 11-12 February 2012 in Iffeldorf, near Munich. The advanced course on "Sustainable solutions for sanitation in developing and countries in transition" takes place on 3-4 March 2012 in Berlin. Both courses will be held in German.

GTO Website

- Course announcement Basic course (in German) (PDF; 0.2 MB)
- Course announcement Advanced course (in German) (PDF; 0.2 MB)
- Contact: Verena Morys (GTO)

Sierra Leone, UK

Villagers and school students can soon access community UDDTs in Pujehun District, Sierra Leone - Dec. 2011



Since 2006, Wherever the Need, a UK-based NGO, has been working with rural communities in Sierra Leone. So far, about 27 community UDDTs and one school toilet have been constructed in 13 out of 23 project villages in Pujehun District. The construction of the toilet units in all project villages will be completed in September 2012. All villages receive ecosan and hygiene training after the commissioning, during which one villager is identified and employed as the ecosan training and maintenance manager. Similarly, in the schools

a member of the teaching staff is appointed to manage the school toilets with a group of students directly involved to pass on the information to other students.

Website of Wherever the Need

- Photos about school UDDT in Pujehun
- Contact: Richard Napper (WTN)

India, the Philippines

Local governments exchange experiences on sustainable sanitation - Dec.

The ACCESSanitation project (funded by EuropeAid; 2009 to 2012) is working directly with ten local governments (LGs) in India and the Philippines to tackle inadequate urban sanitation. Linking sanitation and broader urban water management, the LGs are identifying more sustainable sanitation solutions and developing action plans for their implementation. The LGs are supported through peer-to-peer exchange and tailor-made training and coaching. The third and last training workshop took place in September 2011 in Puerto Princesa, the Philippines. The final year of this project will see the implementation of pilot projects in the ten cities, the development of a sanitation manual specifically addressed to LGs and two national conferences tentatively planned for Delhi and Manila in September 2012.

Photos: Examples of sustainable sanitation for emergency settings.

Photos: Vertical flow constructed wetlands in France.

Photos: Ecoloove - portable UDDTs in

India. top

> Photos: Development of mobile sanitation "toilet pot" with urine diversion in Bangladesh (MoSan).

Photos: Portable UDDTs in flood affected areas of the Philippines by WAND foundation.

Photos: School UDDTs in Ukunda, Kenya by "Engineers without Borders", Germany.

Photos: Otji toilets in Haiti by Ecosur.

Upcoming events

1 Feb. 2012

Consultation meeting with the Special Rapporteur on the right to safe drinking water and sanitation

Geneva, Switzerland

8 Feb. 2012

cewas forum on business development for sustainable sanitation and water management

Willisau, Switzerland

20 - 23 Feb. 2012

16th African Water Association International Congress and Exhibitions,

including SuSanA seminar of Working Group 10 on Operation and Maintenance Contact: Rahul Ingle

Marrakech, Morocco

12 - 17 Mar. 2012 6th World Water Forum Marseille, France

Second half of May 2012 (to be confirmed) Africa Water Week and 15th SuSanA

meeting

Egypt

- Website of ACCESSanitation
- Contact: Barbara Anton (ICLEI European Secretariat)

ESF wins "DSK Energy Award for Environmental Protection" - Dec. 2011

The Institute of Engineers, Pune chapter and DSK awarded the Ecosan Services Foundation (ESF) for its outstanding contributions to environmental protection in December 2011. In the past 5 years, ESF was specifically involved in preparing the technical-economic feasibility study for Pandharpur, a pilgrimage town followed by Development Project Reports for nine components which were under the Environmental Improvement Programme for religious towns. ESF, an NGO, started in 2006 with the cooporation of GIZ, is working in urban and rural settings in the field of sustainable sanitation and water management in India.

- Website of ESF in Pune, India
- Case studies about sustainable sanitation projects with ESF involvement in India
- Contact: Sreevidya Satish (ESF)

Germany

German WASH Network contributes to the Rio+20 process at the Bonn2011 Conference - Nov. 2011



Eighteen German NGOs involved in emergency and transitional aid, and in international development cooperation, that form the new German WASH Network, made a contribution to the high-level Bonn2011 Conference "The Water, Energy and Food Security Nexus -Solutions for a green economy" which took place in November 2011 in Bonn. The network used the platform to convene one of the hot topic sessions named "No Food and Nutrition Security Without Water, Sanitation and Hygiene" to embed the topics water, sanitation and hygiene firmly on the agenda of Rio+20. A shift from disposal to reuse, cities as hot-spots

for resource recovery, scaling up WASH and private sector activation to stimulate innovation were some of the recommendations made in this session. The German Government intends the conference's results to be a contribution to the Rio+20 process.

- Website German WASH Network
- Link to presentation with voice of Thilo Panzerbieter "No Food and Nutrition Security without WASH" at the Bonn 2011 Nexus Conference
- Summary of Hot Topic Session on sanitation at the Bonn 2011 Nexus Conference (PDF: 0.4 MB)
- Photos of the session
- Contact: Thilo Panzerbieter (GTO and WASH Network)

Austria, Malavsia, East Africa

IWA PIA-Development "Honour Award" for ROSA project - Nov. 2011

Guenter Langergraber, researcher at the "University of Natural Resources and Applied Life Sciences" (BOKU) in Vienna and the coordinator of the ROSA project, received an "IWA Project Innovation Award Development" in the Sanitation and Wastewater Category for Applied Research. The award ceremony took place on 23 November 2011 during the 2nd IWA Development Congress in Kuala Lumpur, Malaysia. The ROSA project had aimed to promote resources-oriented sanitation systems in 4 East African pilot cities, i.e. Arba Minch in Ethiopia. Nakuru in Kenya, Arusha in Tanzania, and Kitgum in Uganda. Key partners of ROSA successfully applied for a follow-up project that builds on the findings, - the CLARA project (Capacity-Linked water supply and sanitation improvement for Africa's peri-urban and Rural Areas) is funded by the EU 7th Framework Programme and started in March 2011.

- **ROSA** website
- For more information on ROSA see Issue 4 of the SSP Journal
- IWA Project Innovation Award website
- CLARA project website
- Contact: Guenter Langergraber (BOKU)

7 - 11 May 2012

European Water Association (EWA): "Sustainable Wastewater Management -New solutions for new problems" Munich. Germany

25 - 27 Jun. 2012 **EcoTechnologies for Wastewater** Treatment

Santiago de Compostela, Spain

22 - 25 Aug. 2012

4th International Dry Toilet Conference

Abstract submission extended to 31 January

Tampere, Finland

26 - 31 Aug. 2012 World Water Week 2012 Stockholm, Sweden

5 - 7 Sept. 2012 4th IASTED African Conference on Water Resource Management Gaborone, Botswana

16 - 21 Sept. 2012 **IWA World Water Congress & Exhibition** Busan, South Korea

Jobs

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SOIL - a US based non-profit organisation that promotes ecological sanitation in Haiti - is looking for a WASH engineer.

Applications are invited from international MSc students currently studying in Germany wanting to do a 3months internship with the GIZ Ecosan team in Eschborn, Germany.

India, Switzerland

School Students E-exchange ideas on sustainable sanitation - Nov. 2011

Ecosan Services Foundation (ESF) together with seecon International carried out the "7th International sustainable sanitation online exchange programme" with Sharada Vidyalaya School in India and St. Gallen High School in Switzerland. Students did project work and field visits to understand the sanitation conditions in their countries. The E-exchange took place on the ESF online platform. The students from both countries enthusiastically discussed and exchanged with their peers online and developed a better understanding on their peers' country and cultural habits.

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- ESF online platform
- To conduct similar School Sanitation Exchange, contact: <u>Sreevidya Satish</u> (ESF) or <u>Martin</u> <u>Wafler</u> (seecon International)

Moldova, the Netherlands

PhD research on "terra preta nova" from source separated human excreta – Oct. 2011

In late 2011, a new PhD research project was started at UNESCO-IHE, Delft, looking into the use of the terra preta process as a treatment method for source separated human excreta. The main issues to be studied are: assessing the quality of terra preta nova (TPN) obtained with different proportions of human faeces and human faeces combined with cattle manure, plant biomass and biochar; TPN nutrient enrichment with human urine adsorbed on biochar; the effect of TPN on soil and crop productivity of corn and the economic feasibility of TPN production in Moldova. The research will be based in Moldova and Netherlands and will be carried out over a period of 4 years. The supervision is being shared between UNESCO-IHE and the Crop Research Institute Selectia (Moldova). The research is also guided by the water and sanitation experts of WECF.

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■ Contact: Nadejda Andreev (PhD student) or Mariska Ronteltap (mentor at UNESCO-IHE)

Kenya, Germany

Construction of school UDDTs in Ukunda, Kenya is completed - Oct. 2011



The German NGO "Ingenieure ohne Grenzen" (Engineers without Borders, regional division Aachen, Germany) has constructed eight school UDDT units in the DARAD education centre in the coastal community of Ukunda, which is about 30 km south of Mombasa. In spite of facing some administrative and technical challenges during the construction phase, four UDDTs for girls, three UDDTs and three urinals for boys, and one Wonderloo

(single vault UDDT) for persons with disabilities were completed in April 2011. The students and teachers of the education centre were actively involved in the construction, and the toilets are maintained by school employees.

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- Ingenieure ohne Grenzen (website in German)
- Blog entry about this project in Ecosan Kenya Blog
- Pictures from the project
- Contact: Stefan Miethig (Ingenieure ohne Grenzen)

Burkina Faso

EU Food Facility funds productive sanitation in 20 villages in Kourittenga, Central-eastern Region, Burkina Faso – Oct. 2011

In the province of Kourittenga which is one the most densely populated provinces in the central-eastern region of Burkina Faso, the sanitation coverage remains low and lack of adequate sanitation is considered to be the main source of water borne diseases. WSA (formerly CREPA) aims to provide 3120 UDDTs in 20 villages of the province of Kourittenga by 2015. The project receives 90% of its funding from the EU Food Facility. In an earlier phase of the project the communities have been sensitised for the use of UDDTs and demand was created for the planned facilities. The project duration is 44 months (it started in March 2011) and it has a budget of EUR 1.62 million.

- Website of WSA (formerly CREPA)
- Short project brief (in French) (PDF; 0.2 MB)
- Presentation on agriculture as a driver for sanitation (PDF; 3.2 MB)
- Productive sanitation initiatives in rural Burkina Faso and Niger links to human rights
- EcoSan CES techniques for rural populations' adaptation to climate change effects in

Burkina Faso (in French)

- Brochure by Europe Aid on food security projects funded by the Food Facility (PDF; 11.7 MB)
- Contact: Koné Adama (WSA) or Lucia Henry

New Zealand

Compost toilets for earthquake disaster response in Christchurch – Oct. 2011



Following the devastation caused by the earthquake in Christchurch, New Zealand, early 2011, there was a grassroot initiative which started demonstrating an emergency use compost toilet to local communities affected by the loss of the city sewer system. Workshops were run on composting toilets. In contrast to the council's chemical toilet response, a hygienic compost toilet method was developed, which is constructed with easily available

materials and contains the human excreta until it is well composted and effectively becomes a beneficial resource.

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- Blog of "Compost toilets in Christchurch"
- Link to the latest report by Permaculture Emergency Response Network (PDF; 1.0 MB)
- Links to related postings on discussion forum (about new handout and about Oregon)
- Contact: <u>James Bellamy</u> (PERN)

Rwanda, Austria

Rwandan Ministry of Infrastructure constructs UDDTs for 22,600 people – Oct. 2011

The FEA ("Funds for Water and Sanitation") is a basket funding financial mechanism, funded by the EU, Austrian Development Agency (ADA) and the Rwandan Ministry of Infrastructures for providing water and sanitation in Nyamagabe and Nyaruguru districts of Rwanda. FEA works on a decentralised management and demand driven approach, and works in close cooperation with the district authorities for its interventions. So far, 687 school UDDTs and 32 household UDDTs have been constructed in the two districts reaching a total of 22,600 people. The two main reasons for choosing UDDTs in Rwanda were (i) the soil of the intervention zone is very acidic and the reuse of faeces and urine as fertiliser is well appreciated at the schools, (ii) the UDDTs are cheaper because they are permanent as compared to pit latrines (which get full after some years and can cause accidents when the soils are not fit enough to support the superstructure).

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- Presentation on interventions in water and sanitation in Rwanda by the Ministry of Infrastructure
- Photos about these UDDTs in Rwanda
- Project description in worldwide project list (Number 252)
- Contact: <u>Lambert Karangwa</u> (FEA) or <u>Eugene Dusingizumuremyi</u> (FEA)

Publications on ecosan and sustainable sanitation

GIZ. Germany

Technology review of UDDTs - Design principles, urine and faeces management, costs, maintenance



This technology review – which is part of GIZ's series of technology reviews on sustainable sanitation technologies – deals with urine diversion dehydration toilets (UDDTs) and has recently been updated and restructured. It is putting the focus on general design aspects for double vault UDDTs, specific settings, costs, operation and maintenance and practical experiences. The UDDT is portrayed as a valid sanitation alternative for rural and urban areas in cases when other conventional systems (sewer systems or pit latrines) are not suitable. The authors are welcoming feedback, input and contributions to this publication for the final revision and printing at the end of February 2012.

- Download UDDT technology review
- Link to all five GIZ technology reviews
- Contact for obtaining the Word document and providing feedback Christian Rieck (GIZ)

Eawag- Sandec, WSSCC, UN-HABITAT, Global

CLUES New planning guidelines for environmental sanitation in urban areas now online



Eawag-Sandec together with the Water Supply and Sanitation Collaborative Council (WSSCC) and UN-HABITAT launched CLUES (Community-Led Urban Environmental Sanitation Guidelines) in a SuSanA side event at the Stockholm World Water Week last August. This updated set of planning guidelines is based on the lessons learned from piloting the HCES approach. The simple to use guidelines feature 7 logical planning steps and 30 tools which are accessible in a digital version. The main focus of the CLUES approach is to provide stakeholders with the opportunity to participate in the planning, implementation and operation of sustainable environmental sanitation services in urban communities. This toolbox is now available online.

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- Community-Led Urban Environmental Sanitation Guidelines (CLUES)
- Contact: <u>Christoph Luethi</u> (Eawag)

EcoSan Club, Austria

Sustainable Sanitation Practice (SSP) journal, Issue 9 on biogas systems



Issue 9 of the journal Sustainable Sanitation Practice (SSP) is on "Biogas systems" and shows successful examples of biogas systems installed as part of sanitation systems. The first paper presents results from a study in Kerala, India, for digesters on a household level. The second paper provides the results of a long-term implementation program for biogas systems in Lesotho. The third paper presents results of a digester constructed in a small village in Morocco.

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- SSP journal website
- Contact: Guenter Langergraber (BOKU)

CAPS, the Philippines

Various case studies on sustainable sanitation in Asia

The Centre for Advanced Philippine Studies (CAPS) has prepared 38 case studies on sustainable sanitation and decentralised wastewater treatment in Laos, Vietnam, Cambodia and the Philippines. These studies were produced by CAPS for UNEP with funding by KOICA and are now online in the SuSanA library.

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- Website of CAPS
- Case studies from Cambodia
- Case studies from Laos
- Case studies from Vietnam
- Case studies from Philippines

SuSanA, worldwide

Milestone: The SuSanA factsheet compilation is now available as draft



This publication is a compilation of 13 thematic factsheets which were produced by the eleven SuSanA working groups and updated in an extensive reviewing process since July 2011. What makes these factsheets so special is that they are multi-authored from people belonging to many different organisations or who are working as independent consultants all over the world. We are now inviting your feedback and comments (until 12 February 2012) before we finalise this document and produce a printed version.

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- Follow discussion on SuSanA discussion forum about this compilation (and download Word documents)
- Download SuSanA factsheet book compilation
- Download individual factsheets
- Contact: Rahul Ingle

Various organisations

Selected new publications on ecosan in the SuSanA library

We would like to draw your attention to the following new publications on ecosan topics by various authors which have recently been added to the SuSanA library. This online library now contains 1100 entries.

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- Ecosan training handout from Yemen (in Arabic)
- The SOIL guide to ecological sanitation (from Haiti) in English and Creole
- Community eco-sanitation toilets, water, livelihoods and tree nursery, Narok South, Ongata Naado, Kenya
- <u>Urine diversion dehydration toilets in rural schools, Nyanza, Western and other provinces,</u>
 Kenya (case study)
- Large-scale peri-urban and rural sanitation with UDDTs, eThekwini Municipality (Durban), South Africa (case study)

GIZ, Germany

Technology review of composting toilets



This GIZ publication explains the design, use and operational requirements of composting toilets. Ample examples for composting toilets from around the world are included in the publication to show that these types of toilets have a wide range of applications under a variety of circumstances (for wealthy or poor people; for cold, hot, wet or dry climates; for urban or rural settings). The appendix contains a listing of suppliers.

- Download publication
- Photo set for composting toilets which are engineered
- Link to all five GIZ technology reviews
- Contact: Martina Winker (GIZ)

partner of

sustainable sanitation alliance

GIZ is a partner of the <u>Sustainable Sanitation Alliance</u> (SuSanA) - a loose network of 172 organisations active in the field of sustainable sanitation.

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