

Dear Readers,



We are proud to present to you this anniversary newsletter, celebrating 10 years of GIZ ecosan newsletters, the 40th edition! This is a remarkable achievement in the fast changing world of development cooperation. The foundation for this achievement was certainly laid by Christine Werner, from whom I took over as program leader three years ago. The lead article in this newsletter provides you with some more information about the people behind this program during these 10 years and invites you to send in your impressions and stories about the impacts of this program.

This quarterly newsletter contains many original news items for example from Bolivia, Philippines, Kenya, Cameroon and Burkina Faso. More and more often, you also see the [Bill and Melinda Gates Foundation](#) mentioned in connection to sustainable sanitation which is an encouraging development. The newsletter also contains a [digest](#) of our more frequent news media offers, such as the SuSanA facebook [status updates](#) and the [monthly SuSanA news mails](#).

This newsletter is sent to approx. 4,000 subscribers for the English version and 400 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.

We look forward to a few more ecosan newsletters (having just secured further funding from our ministry, BMZ, until October 2012), and hope you enjoy this special anniversary edition.

Best wishes from Germany,

**Dr. Elisabeth von Münch** ([ecosan@giz.de](mailto:ecosan@giz.de))  
(Program leader "Sustainable sanitation - ecosan")

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- Sustainable Sanitation Practice (SSP) journal, Issue 7 on Planning Tools
- Amparo Flores: Towards sustainable sanitation □ evaluating the sustainability of resource-oriented sanitation

#### Breaking News

The [Bill and Melinda Gates Foundation](#) provides funding for sustainable sanitation projects to five SuSanA partners.

#### Links

[Final report by Linus Dagerskog](#) on ecosan project in Niger "Productive Sanitation Aguié" (in English), and many [French factsheets and studies](#) resulting from this important ecosan project in Niger.

European MP from Great Britain and Bill Gates speak about [more support for sanitation innovation](#) (in European Parliament in April).

New interesting blog entry on low-cost UDDTs in [El Salvador](#).

Simple [Excel-based nutrient content calculator](#) for urine and faeces from Agua Tuya in Bolivia (in Spanish).

GIZ has recently updated its [lists of suppliers](#) for waterless urinals, urine diversion squatting pans and urine diversion pedestals/seats. Please [send us](#) further updates.

[Interview with Kamal Kar](#) who championed Community-Led Total Sanitation (CLTS), an approach for empowering communities to completely stop open defecation.

The SuSanA library now also contains key documents on [menstrual hygiene management](#) (as it is important particularly for school sanitation), see in particular the documents on the menstrual cups (instead of pads and tampons).

All 34 publications by SuSanA are now shown together under [SuSanA publications](#) (except for the case studies which have their own page).

View the [best and most important](#) publications in the area of sustainable sanitation, by SuSanA partners and others (there are now 900 publications in the [SuSanA library](#) in total).

Five new postings in May in the [Ecosan Kenya Blog](#) run by GIZ (please subscribe to the e-mail alert service if interested).

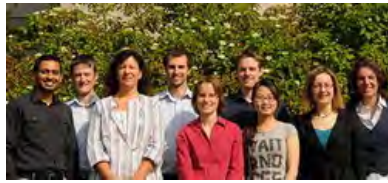
SACOSAN IV: [Colombo declaration](#) tackles "[biggest sanitation challenge in the world](#)".

#### Audio and photos

[Interview with Arno Rosemarin](#) on the Erdos dry toilet project in China.

## Germany

### Looking back on 10 years of GIZ ecosan program



We are very proud of the achievements of the GIZ ecosan program in the last 10 years (funded by the German Federal Ministry BMZ). At the same time, a lot of work still remains to be done. Far too many

children in developing countries are still dying from diarrheal diseases or are infested with intestinal worms due to lack of sanitation and hygiene. Our program started out in 2001 with a very strong focus on reuse (closing the loop), and has in recent years focused more on the five sustainability criteria and on pro-poor approaches with measurable public health impacts.

We invite you to [submit your stories](#) and impressions on the impacts our GIZ ecosan program has had for you. We will compile them for the next newsletter. All submissions will receive a small gift from us, so start typing...

- [Our staff members and interns over the years \(PDF: 0.2 MB\)](#)
- [First ecosan newsletter in June 2001](#)
- [Archive of all GIZ ecosan newsletters](#)
- [Some team photos since 2008](#)
- Our most recent major output: [the SuSanA library](#)

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## Rwanda

### 13th SuSanA meeting and two SuSanA seminars at AfricaSan 3 □ Jul. 2011

The Government of Rwanda is hosting the AfricaSan 3 conference which is being organised by the AMCOW Sanitation Task Force, from 19 - 21 July 2011 in the Rwandan capital Kigali. SuSanA, the Sustainable Sanitation Alliance, is holding its 13th meeting in Kigali and will also be offering two seminars at the AfricaSan 3 on the following topics:

- [The learning network's approach to sustainable sanitation for all \(SuSanA\)](#)
- [Linkages between agriculture and productive sanitation: Scaling up ecosan in Africa](#)
- [Website of AfricaSan 3](#)
- [Information about the 13th SuSanA meeting](#)

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## Belgium, Netherlands

### Research on sustainable sanitation in emergency kits □ July 2011

The S(P)EEDKITS proposal "Rapid deployable kits as seeds for self-recovery" has been accepted under the EU 7th Framework Programme, providing state-of-the-art material kits in terms of shelter, medical care, water & sanitation and energy supply tailored for humanitarian agencies. The S(P)EEDKITS has a sanitation component which is led by WASTE, The Netherlands. The principle is modular which means that the response and materials can be rapid and light weight in the first phases of emergencies when time is precious, and then adapted when the situation allows for other supplies to arrive. This serves both the immediate and long term recovery phase.

- [Short summary on sustainable sanitation emergency kits \(PDF: 0.1 MB\)](#)
- Project coordinator: [Guy Buyle](#)
- [Blog entry with further information](#)
- [Results from an earlier workshop in the Netherlands and on the same topic \(Stoutenberg, Feb. 2011\)](#)

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## Kenya

### Update and news from the Peepoo project in the Silanga slum area, Nairobi □ June 2011



The Peepoo sanitation solution is an alternative approach to tackle the lack of sanitation in informal settlements and during emergencies. In November 2010 the Peepoo sanitation system was launched in Silanga village in Kibera, Nairobi. Four sales women are since then selling the Peepoo for 0.03 EUR, and when brought to the

collection point a refund of 0.01 EUR per bag is paid back. The aim is to have 20,000 users all over Kibera by 2013. Moreover, 1,500 school children have been taught about WASH by the Peepoople Kenya team and now have the possibility to use the Peepoo.

- [Short one page description about the Silanga demonstration \(PDF: 1.7 MB\)](#)
- Contact: [Camilla Wirseen](#)
- [Peepoople website](#)

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## Switzerland

### Training on Business Development in SSWM □ June 2011



The international centre for water management service (CEWAS) aims at building up small and medium enterprises specialised in Sustainable Sanitation and Water Management

Listen to The World's special five-part series ["Toilet tales from China"](#).

[Photos on WASH activities](#) in earthquake and cholera affected areas in Haiti and [video about composting activities](#) by SuSanA partner SOIL in Haiti.

[Photos of UDDT components](#) from Envirosan, the supplier of urine diversion pedestals for the large [eThekwin sanitation project with 75,000 UDDTs](#).

Photos from [UDDTs funded by Terre des Hommes](#) in Bangladesh.

[Photos of recycling and reuse trials](#) of treated urine and faeces in Zimbabwe by Peter Morgan.

Photos of Chisungu school ecosan project in Zimbabwe: [students build their own ecological toilets](#).

Powerpoint and audio files from [WASH conference in Brisbane](#), May 2011, see in particular this presentation on [floating UDDTs in Cambodia](#) with accompanying [audio file](#).

#### Videos

Video: Elisabeth von Muench's presentation on ["UDDT for sustainable sanitation in developing countries"](#) at EWB, IWC seminar, Brisbane, Australia (March 2011).

Video: Andy Bastable from Oxfam GB speaks on ["Sanitation in Haiti - new developments and trends"](#) (Feb. 2011).

See Peter Morgan in this 15 minute video on ["Spiral Fossa Alterna Construction in Muteesa"](#).

[Video on sanitation marketing project](#) implemented by [IDE](#) in Cambodia wins First Prize in a contest by USAID.

#### Upcoming events

22 □ 26 June 2011  
[2nd Course in Sustainable Sanitation](#)  
Agricultural University of Lima, Peru

29 June □ 2 July 2011  
[EAWAGs ToT workshop](#)  
Lima, Peru

3 □ 5 July 2011  
[2nd Southern African Regional Young Water Professionals Conference](#)  
Pretoria, South Africa

4 □ 7 July 2011  
[EAWAGs ToT workshop](#)  
Managua, Nicaragua

6 □ 8 July 2011  
[WEDC Conference](#)  
The future of water, sanitation and hygiene in low-income countries  
Loughborough, UK

13 □ 14 July 2011  
[CWA Annual Conference: Constructed Wetlands - Domestic, Commercial & Industrial](#)  
Wakefield, UK



high-level experts from practice, research, business and finance. The CEWAS training module 2 (business development in SSWM) is taking place from 27 June to 8 July 2011 in Willisau, Switzerland.

- [SSWM online Toolbox](#)
- [SSWM train the trainers](#)

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India, Philippines

### Update on ACCESS project: Local Asian governments adopting leadership for sustainable sanitation □ May 2011



ACCESSanitation (Accelerating City-to-City Exchange for Sustainable Sanitation) had a planning workshop focusing on the development of □city sustainable action plans□. The identification of sustainable sanitation hardware and software pilot interventions in five cities was organised in Cagayan de Oro at the South East Asia Social Leadership Institute. Sustainable sanitation pilot interventions for each city have been

planned starting from public urinals for the city□s tricycle drivers (including urine reuse) up to mobile UDDTs (plus mobile vermi-composting and gardening solutions) for informal settlements. This is part of the ICLEI-led project ACCESSanitation (2009-2012).

- [Short summary on ACCESSanitation \(PDF: 0.1MB\)](#)
- [ACCESSanitation website](#)
- [ICLEI - Local Governments for Sustainability](#)

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Ecuador

### Innovative design of UDDTs using recycled materials □ May 2011



Have you seen a UDDT made of bottles, a bucket and a sack? Conservation biologist and ecosan promoter Christopher Canaday took UDDTs a big step forward, in terms of quick construction, practicality, reduction of the environmental footprint, and acceptability by the users. Christopher worked with the Ecuadorian forestry company, ServiForest, and built a UDDT inside

the house and office of their reforestation project in the Lelia river watershed at the western foot of the Andes in Ecuador. The UDDT is made with readily available materials, many of which were recycled.

- [Blog "Inodoroseco" in Spanish and English](#)
- [Photos of low cost UDDTs in Ecuador](#)

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Peru

### EAWAG□s train the trainers workshop in Lima and Managua □ June/July 2011

The EAWAG institute, agency COSUDE, Foundation SODIS, university UNALM and company Rotaria del Peru are holding a workshop on appropriate sanitation systems and technologies in Latin America (in Spanish) from 29 June - 2 July 2011. The objective of the workshop is the training of trainers for a limited group of professionals from different countries in Latin America. The workshop is based on the popular "Compendium for Sustainable Sanitation" of the EAWAG Institute in Switzerland. From 4 -7 July 2011 the same workshop will be offered in Managua/Nicaragua supported locally by Alianza por el Agua and RASNIC.

- [Detailed information of the two workshops in Peru and Nicaragua](#)
- [Compendio de Sistemas y Tecnologías de Saneamiento \(in Spanish\)](#)

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Germany

### New at SANIRESCH: Greywater treatment plant in GIZ building commissioned □ May 2011



The source separation sanitation system at the GIZ main building in Eschborn was recently expanded. The greywater treatment plant is functional since May 2011. Greywater from kitchenettes and washbasins is collected and treated by a membrane bioreactor (MBR). The daily treated greywater volume is approximately 280 l, produced by approximately 200

employees. The treated effluent will be well-suited for reuse applications such as for laundry or toilet flushing since the aim is to meet the EU regulations for bathing water quality.

- [MBR description on the Saniresch web page](#)
- [Photos of the MBR installation](#)

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17 □ 18 July 2011  
[13th SuSanA meeting](#)  
Kigali, Rwanda

19 □ 21 July 2011  
[AfricaSan 3](#), including two [SuSanA seminars](#)  
Kigali, Rwanda

8 □ 12 Aug. 2011  
[Metodología Participativa SARAR](#)  
(in Spanish)  
Mexico

19 □ 20 Aug. 2011  
[14th SuSanA meeting](#)  
Stockholm, Sweden

21 □ 27 Aug. 2011  
[World Water Week Stockholm](#)  
(with [SuSanA side event on Thursday, 25 August](#))  
Stockholm, Sweden

12 Sept. □ 02 Dec. 2011  
[The World Vegetable Center□s 30th International Vegetable Training Course](#)  
Bangkok, Thailand

26 □ 29 Sept. 2011  
[8th International Conference on Water Reclamation & Reuse](#)  
Barcelona, Spain

2 □ 6 Oct. 2011  
[The 4th IWA Asia Pacific Region \(ASPIRE\) Conference & Exhibition: Toward Sustainable Water Supply and Recycling Systems](#)  
Tokyo, Japan

09 □ 14 Oct. 2011  
[Global Forum for Sanitation and Hygiene \(WSSCC\)](#)  
Mumbai, India

14 □ 25 Nov. 2011  
[VI Curso Regional de Saneamiento Ecológico Sostenible \(in Spanish\)](#)

21 □ 22 Nov. 2011  
[3rd International Symposium □ Re-Water□](#)  
Braunschweig, Germany

21 □ 24 Nov. 2011  
[2nd IWA Development Congress and Exhibition](#)  
(IWA SG EcoSan plans Terra Preta workshop)  
Kuala Lumpur, Malaysia

7 □ 8 Dec 2011  
[Sanitation Planning Tools in Developing Countries \(Course by EAWAG in the PEAK program\)](#)  
Duebendorf, Switzerland

Mar. 2012  
[World Water Council](#)  
Marseille, France

Aug. 2012  
[4th International Dry Toilet Conference](#)  
Tampere, Finland

2012  
3rd East Asian Ministerial Conference on Hygiene and Sanitation  
Bali, Indonesia

#### Jobs

Applications are invited from international MSc students

Cameroon

### Vegetable Day in Cameroon opens prospects for integrating ecosan ☐ May 2011



AVRDC - The World Vegetable Center in partnership with the Institute of Agricultural Research for Development (IRAD) organised a Vegetable Day at Nkolbisson, Yaounde, Cameroon on 11 May 2011. The day was organised under the theme ☐ Sustainable vegetable production for food security, health and income☐ and was attended by

international and national stakeholders. Considering that the lowland valleys in the urban and peri-urban zones are major production sites for vegetables and also harbour huge quantities of urban and human waste, prospects of integrating ecological sanitation practices within their cultivation were discussed.

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- [One page summary on the Vegetable Day in Yaounde \(PDF: 0.1 MB\)](#)
- [Photos of Vegetable Day at Yaounde](#)
- Contact: [Neakoh Mengyi](#) and [Njoh Wanduku](#)

Bolivia

### Plenty of sustainable sanitation activities are taking place in Bolivia ☐ April 2011

Sustainable sanitation activities are developing rapidly in Bolivia. Non-waterborne sanitation systems are sought after in this country which is facing increasing water scarcity. With the support of [EcoSanRes](#), the [Decentralised Sustainable Sanitation Node](#) is working with more than 200 partners on various guidelines and in the area of education. Various projects were set up and supported by local actors like [Foundation Sumaj Huasi](#) and [Agua Tuya](#) and international donors (Swedish SIDA, UN-Habitat and others). Last but not least three social networks are working now actively with sustainable water and sanitation solutions in Latin America: the group [WASH-Periurbano](#) supported by UN-Habitat, the email list for Latin America [reslac](#) (Red de Redes Latinoamericana de Saneamiento Sostenible) and the EcoSan-network in Latin America [EcoSanLac](#).

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- [Short summary on sustainable sanitation activities in Bolivia \(PDF: 0.1 MB\)](#)
- [EcoSanRes factsheet on Latin America nodes \(PDF: 0.2 MB\)](#)
- [Photographs of the opening ceremony of UDDTs at Navy landing port of Copacabana on Lake Titicaca \(PDF: 2.4 MB\)](#)
- [Report on impact and results on ecological sanitation system by Water for People \(PDF: 6.4 MB\)](#)
- Contact: [Madeleine Fogde](#), SEI, Sweden

Bolivia

### Change in government policies on ecosan ☐ April 2011

The Bolivian Ministry of Environment and Water released the ☐technical guideline for the planning and construction of water supply systems and sewage treatment plants applying alternative technologies☐ in December 2010. This guideline is part of a modernisation process of the Bolivian sector standards which also include now UDDTs as an alternative technology. The introduction of alternative sanitation technologies into the water and sanitation sector is a collaborative effort of the Bolivian government, the GIZ Drinking Water and Wastewater Programme in Bolivia and the [Bolivian Decentralised Sustainable Sanitation Node](#).

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- [Photos showing the presentation ceremony of the legislation in the field of basic sanitation](#)
- Contact: [Detlef Klein](#)

Namibia

### Up-scaling Otji dry toilets (UDDTs) in informal settlements of Omaruru with assistance from GIZ ☐ April 2011



After successfully supporting the construction of 21 Otji dry toilets in the informal settlements of Omaruru, the GIZ - Namibian Water Resources Management (NWRM) Program will now focus on the up-scaling of the project. After a community meeting together with the municipality, the Omaruru Basin Management Committee supported by GIZ, plans to establish a strategy for a follow-up project. Apart from the involvement of the municipality in the construction of new toilets, the establishment of a public private partnership (PPP) is planned. The

idea is to support a local company to set up a local production business for dry toilets.

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- [One page report about Otji toilets in Omaruru \(PDF: 0.4 MB\)](#)
- [SuSanA case study: Otji dry toilets for peri-urban informal households \(draft\)](#)
- [Photos of Otji Toilets in Omaruru](#)

Colombia

### An indigenous community embraces ecosan ☐ April 2011



According to the governor of Munchique-Los Tigres, one of the local indigenous communities, ecosan is the way that their ancestors managed and used the excreta but in an improved manner with techniques of modern times. This sanitation approach is coherent with the Indigenous "Plan of Life" for the conservation of the territory. As a

learning and demonstration project, 9 dry sanitary units - 7 in households and 2 public ones - were implemented in the community. Since the end of 2010, the facilitators of the community have led three demonstration and learning activities on ecological sanitation and made a supporting visit to a school project where dry sanitation units are under construction.

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- [Short summary on the EcoSan project with the indigenous Nasa by Alter-Eco in English \(PDF: 0.2 MB\)](#) and in [Spanish \(PDF: 0.2 MB\)](#)
- [Projects updates](#)

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#### Francophone Africa

### CREPA has been developing "sanitation for greater production" for 8 years □ April 2011

CREPA has developed and optimised ecological sanitation for over 8 years. Launched in 2002, this initiative was conducted in 7 countries in the CREPA network. Farmers and local communities in peri-urban and rural areas were integral to the process through their use of ecosan by-products i.e. urine and faeces as alternative fertilisers. A major outcome of this initiative was the economic savings and benefits to the communities. Riding on the success and experiences gained, CREPA has conducted and completed major work on ecosan funded by the EU. It recently embarked on a 6th phase for the period 2011-2015.

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- [CREPA poster about the ecosan cycle](#)
- [CREPA poster in French explaining the reuse options of ecosan](#)
- [Links to further publications by CREPA about ecosan and productive sanitation \(PDF: 0.3 MB\)](#)
- [CREPA website](#)
- Contact: [Lucia Henry](#)

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#### Burkina Faso, European Union

### SaniFaso project: benefits for sustainable family sanitation □ March 2011

Through its facility "family sanitation in rural areas" in 2010, the European Union (EU) granted a 2.5 million EUR subsidy to the project SaniFaso, resulting from the collaboration between four NGOs (Eau Vive (France), WaterAid (Great Britain), Helvetas (Switzerland), IRC (Netherlands)) and GIZ, to improve the access to sanitation in 12 municipalities in a sustainable way. This project incorporates the application of the National Strategy of Sanitation, defined by the ministry, and meets the needs of municipalities, formulated in their municipal plans of development. GIZ assisted in developing the project and its implementation in 5 municipalities. It also assisted in the capacity development of the local actors, to coordinate and monitor activities, and the construction of toilets.

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- [Short summary on SaniFaso project \(PDF: 0.3 MB\)](#)
- [SaniFaso report in French \(PDF: 0.4 MB\)](#)

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#### Mexico

### Sarar-T executes SWASH+ Program in Oaxaca, Mexico □ March 2011



The SWASH+ Program in Oaxaca State, Mexico (2009-2011) which takes place within the framework of the □ Integrated watershed management: development of new models in Mexico □ program is coordinated by Sarar Transformación S.C. (Sarar-T) for the World Wildlife Fund / Fundación Gonzalo Rio Arronte Alliance. Sarar-T, in one of its projects of this program, is working with local schools in a large watershed, using urine and excreta for reforestation employing the Sarar-T participatory methodology throughout. In the continuing quest to identify strategies to assure program sustainability, Sarar-T is

planning a 1-day SWASH+ forum at the end of June which will bring together all stakeholders from local, regional and national level.

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- [Short summary on SWASH+ Program \(PDF: 0.1 MB\)](#)
- [Program report \(PDF: 7.5 MB\)](#)
- [SARAR website](#)
- Contact: [Ron Sawyer](#)

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#### South Africa, Spain

### e-Thekwini sanitation project wins "Water for Life" Best Practices award □ March 2011

The project "A participatory and learning based approach to raising awareness on water and sanitation" in e-Thekwini (Durban, South Africa) has been awarded with the □ Water for Life □ Best Practices Award during a ceremony that has taken place in Zaragoza, Spain, on World Water Day. The Award

recognition and existing practices that can ensure the long-term sustainable management of water resources and contribute to the achievement of internationally agreed goals and targets. Free basic water supply and sustainable sanitation in form of UDDTs (urine diversion dehydration toilets) have been provided in rural and peri-urban areas on household level by eThekweni Municipality.

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- [Further information \(PDF: 0.1 MB\)](#)
- [eThekweni's approach to raising awareness on water and sanitation \(PDF: 0.7 MB\)](#)
- [UN Water for Life website](#)
- [Two SuSanA case studies on e-Thekweni sustainable sanitation projects](#)

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Sub-Sahara Africa, European Union

### New EU project on Sanitation (CLARA) started □ March 2011



The project "CLARA - Capacity-Linked water and sanitation for Africa's peri-urban and Rural Areas" started in March 2011. CLARA, a collaborative project funded within the EU 7th Framework Programme is coordinated by BOKU University Vienna, Austria. CLARA builds on the results of the [ROSA](#) (2006-2010)

and [NETSSAF](#) (2006-2008) projects. Within CLARA a simplified planning tool for integrated water supply and sanitation systems for small communities and peri-urban areas shall be developed.

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- [CLARA website](#)
- Contact: [Dr. Guenter Langergraber](#)

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## Publications on ecosan and sustainable sanitation

Sustainable Sanitation Alliance

### Six new or updated SuSanA case studies now online

Several authors have worked on new SuSanA case studies or improved existing ones, bringing the total number to 60 case studies. We always welcome feedback on these case studies and your submission of new ones.

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- [UDDTs in flood-response project, Guara-Guara, Sofala province, Mozambique](#)
- [Oti-Toilets for peri-urban informal households, Omaruru, Namibia](#)
- [Large-scale peri-urban and rural sanitation with UDDTs, eThekweni Municipality \(Durban\), South Africa](#)
- [Urban urine diversion dehydration toilets and reuse, Ouagadougou, Burkina Faso](#)
- [Urine diversion dry toilets and greywater system, Erdos City, Inner Mongolia Autonomous Region, China](#)
- [Wastewater treatment using constructed wetlands, Tirana, Albania](#)

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Stockholm Environment Institute, Sweden

### Practical guidance on the use of urine in crop production now available in Spanish



This publication, which has recently been translated into Spanish, gives practical guidance on the use of urine in crop production as a vital component of sustainable crop production and sanitation systems. It also includes guidance on how to start activities that will facilitate the introduction of new fertilisers to the agricultural community. The handbook intends to help in establishing links between research and professionals interested in implementation of sustainable sanitation systems. It is easy to read and informative, with examples from case studies and hints on further reading for those interested.

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- [Publication in Spanish](#)
- [Publication in English](#)

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AVRDC - The World Vegetable Center, Thailand

### More crop per drop - Using simple drip irrigation systems for small-scale vegetable production



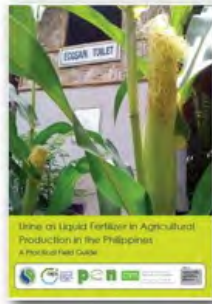
One of the options to apply urine safely to crops is by using drip irrigation. By producing vegetables year-round, small-scale growers can increase their incomes and enhance the diets of their families and communities. This 10-chapter manual provides basic, step-by-step procedures for installing simple drip irrigation systems for

different crops, climates and soils. It addresses common problems, provides troubleshooting and maintenance tips, and offers irrigation scheduling guidelines to avoid under- or over-irrigation. This manual is intended as a guide for small-scale vegetable producers, and as a reference for extension agents to use in training and demonstrations.

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- [Publication More crop per drop](#)
- Contact: [Dr. Robert Holmer](#)

## Urine as liquid fertiliser in agricultural production in the Philippines



This practical field guide on urine reuse in agriculture in the Philippines is a publication of the Sustainable Sanitation Center of Xavier University in the field of ecological sanitation in the Philippines. Not many people, especially the local farmers, realise that human urine is a valuable resource rich in plant nutrients beneficial to sustainable agriculture, much less how to apply it and in what quantity. In this present day of high cost of inorganic fertiliser, human urine can be the miracle relief for the agriculture sector especially for the small subsistence farmers.

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- Publication [Urine as liquid fertiliser](#)

## The human right to water and sanitation



Last year, the resolution on the human right to "safe and clean drinking water and sanitation" has been overwhelmingly voted for by the United Nations General Assembly. The newly acquired human right is a main step forward for the poor and vulnerable, in particular women and children. But what are the criteria of the human right to water and sanitation? How can it be claimed? This new publication by WECF (Women in Europe for a Common Future) gives guidance on the background and implications of this human right.

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- [Publication download \(PDF; 2.0 MB\)](#)
- [WECF website](#)

## Sanitation solutions for flooded zones - The WAND Foundation experience



This publication details experiences in promoting ecological sanitation in flooded zones where pour-flush toilets are no longer effective and where people defecate in the open. Sanitation solution comprises simple single-chamber urine diverting dehydration toilets (UDDTs) and simple urine collectors. In this project, WAND (Water, Agroforestry, Nutrition and Development) Foundation found out that promoting a decentralised sanitation system that is cheap, robust, appropriate and scalable for the bottom poor living in flooded zones is indeed realisable.

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- [Publication on sanitation solutions for flooded zones](#)

## Mohammad Saif Uddin: Assessment of UDDTs as a flood resilient and affordable sanitation technology, and their potential to contribute to the fertiliser demand



UNESCO-IHE graduate Saif Mohammad Uddin from Bangladesh investigated the applicability of UDDTs in flood prone areas. He visited locally built UDDTs and other types of sanitation in flood prone areas in Bangladesh, studied prices, building costs and current subsidies. His work presents a proposed local model UDDT, a cost analysis, and a study of local fertilizer needs.

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- [Sustainable Sanitation for Bangladesh website](#)
- [MSc Thesis of Mohammad Saif Uddin \(PDF; 2.8 MB\)](#)
- [SuSanA case study on a similar topic \(household UDDTs funded by Terre des Hommes in Bangladesh \(draft\)\)](#)

## Sustainable Sanitation Practice (SSP) journal, Issue 7 on Planning Tools



Practice (SSP) journal on [Planning tools](#) highlights some of the on-going work in this area. The planning processes, frameworks and tools described in this issue include articles on design planning processes, tackling complex urban sanitation problems, the SSWM toolbox and comparing economic costs of sanitation.

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- [SSP journal issue 7](#)

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University of Cambridge, United Kingdom (PhD Thesis)  
**Amparo Flores: Towards sustainable sanitation – evaluating the sustainability of resource-oriented sanitation**



This PhD thesis evaluates the sustainability of resource-oriented sanitation systems which are designed to recover resources from wastewater while minimising the demand on other resources, particularly water and energy. This research explores the proposition that such systems offer a more sustainable alternative to conventional waterborne systems. Its centerpiece is a case study of the world's largest urban dry sanitation system designed for complete resource recovery, located at the Erdos Eco-Town Project (EETP) in the Inner Mongolia Autonomous Region of China.

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- [PhD thesis of Amparo Flores](#)
- [SuSanA case study on urine diversion dry toilets and greywater system, Erdos City, Inner Mongolia Autonomous Region, China](#)
- Contact: [Amparo Flores](#)

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