

Sustainable Sanitation Practice



Issue 10, 01/2012



- A brief history of the „origin“ of EcoSan Club
- Looking back on implementation projects from the last 10 years
- A retrospective view on EcoSan Club's awareness raising activities

10 Years EcoSan Club

partner of:
sustainable
sanitation
alliance

Impressum

published by / *Medieninhaber, Herausgeber und Verleger*

EcoSan Club
Schopenhauerstr. 15/8
A-1180 Vienna
Austria
www.ecosan.at

Editors / *Redaktion*

Elke Müllegger, Günter Langergraber, Markus Lechner • EcoSan Club

Journal Manager / *Journal Management*

Fritz Kleemann

Contact / *Kontakt*

ssp@ecosan.at

Disclaimer / *Haftungsausschluss*

The content of the articles does not necessarily reflect the views of EcoSan Club or the editors and should not be acted upon without independent consideration and professional advice. EcoSan Club and the editors will not accept responsibility for any loss or damage suffered by any person acting or refraining from acting upon any material contained in this publication.

Die in den Artikeln vertretenen Standpunkte entsprechen nicht notwendigerweise der Haltung und Ansichten des EcoSan Clubs oder des Redaktionsteams. Der praktischen Anwendung dargestellter Inhalte muss eine unabhängige Begutachtung und professionelle Beratung vorausgehen. EcoSan Club und das Redaktionsteam haften in keiner Weise für Schäden (Sachschaden oder Personenschaden), die durch die Anwendung, oder Nichtanwendung der in dieser Publikation vermittelten Inhalte, entstehen.

Reproduction / *Reproduktion*

Permission is granted for reproduction of this material, in whole or part, for education, scientific or development related purposes except those involving commercial sale, provided that full citation of the source is given. Cover photo excluded.

Die Reproduktion, Übernahme und Nutzung der Inhalte von SSP, vollständig oder teilweise, für Bildungszwecke, für die Wissenschaft und im Zusammenhang mit Entwicklung ist unter Voraussetzung der vollständigen Quellenangabe gestattet und erwünscht. Titelbild ausgenommen.

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 erscheint 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*

© Günter Langergraber

Editorial

EcoSan Club was founded on 20.02.2002 and is therefore celebrating its 10 year anniversary in 2012. We decided to devote issue 10 of *Sustainable Sanitation Practice (SSP)* to „10 Years EcoSan Club“ (so we actually have a double anniversary). The issue now comprises 3 articles which

1. tell the story behind EcoSan Club,
2. revisit implementation projects that EcoSan Club has been carried out during the last decade, and
3. summarize awareness raising activities of EcoSan Club.

Besides the activities described in the articles a number of additional work has been carried out by EcoSan Club and its members during the last 10 years. The main activities have been the work in research projects and contributions to international organisations. The main research projects with EcoSan Club involvement have been:

- NETSSAF „*Network for the development of sustainable approached for large scale implementation of sanitation in Africa*“; Duration: June 2006 - November 2008; funded within the EU 6th Framework Programme, Sub-priority „Global Change and Ecosystems“ (see <http://www.netssaf.net/>).
- ROSA „*Resource-Oriented Sanitation concepts for peri-urban areas in Africa*“; Duration: October 2006 - March 2010; funded within the EU 6th Framework Programme, Sub-priority „Global Change and Ecosystems“ (see Issue 4 (July 2010) of SSP and <http://rosa.boku.ac.at/>).
- NASPA „*Sustainable Sanitation – Practical Application*“; Duration: February 2007 - July 2009; funded by the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW).
- CLARA „*Capacity-Linked water supply and sanitation improvement for Africa’s peri-urban and Rural Areas*“; Duration: March 2011 - February 2014; funded within the EU 7th Framework Programme, Theme „Environment (including Climate Change)“ (see <http://clara.boku.ac.at/>).

A number of papers presented results from these projects in previous issues of SSP.

Main contribution to the work on international organisations has been the lead in developing the fact sheet of the „Operation & Maintenance“ Working group of the Sustainable Sanitation Alliance (SuSanA) which is available from the SuSanA website (<http://www.susana.org/lang-en/library?view=ccbctypeitem&type=2&id=939>).

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).

We thank all authors and reviewers that contributed to the first 10 issues of SSP and do hope that you as reader like the information we have provided so far.

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

Content

- A brief history of the „origin“ of EcoSan Club4
- Looking back on implementation projects from the last 10 years6
- A retrospective view on EcoSan Club’s awareness raising activities14



A brief history of the „origin“ of EcoSan Club

This paper (humorously) describes EcoSan Club's origin.

Author: Helmut Jung

„He's a real no-where man, sitting in his no-where land, making all his no-where plans for nobody ...“ (John Lennon and Paul McCartney, 1968)

During the years 2000 to 2002 a committed and radical (or even naive) group of engineers at the Institute of Sanitary Engineering at BOKU University was busy to collect the experiences of recent years that they had made in projects within the Austrian development cooperation (ÖEZA) and to challenge themselves: Water supply is not so bad but what about sanitation? Can it go on like this? If not - how should it go and what can we contribute?

The environment in the year 2000 was good; the development cooperation group of the Institute was active in Uganda, Mozambique, Cape Verde, Kenya and Palestine on behalf of the Austrian Ministry for Foreign Affairs. Internationally it was the time of the HIPC (Heavily Indebted Poor Countries) Initiative and SWAp's (Sector-Wide Approaches), when fundamental changes from project to program approaches appeared among donors and partner countries and even sector policy was developed in order to discuss the direction and set up of development in a sector.

Already at the beginning of the year 2000 it was clear that in the area of sanitation something must happen to assure that activities of international and development cooperation and the sector activities of partner country governments will meet the opportunities and needs of the local population.

The first milestone became apparent as Uno Winblad, the „grandfather“ of Eco-sanitation, was invited to a workshop at BOKU and even our young students in the student union named and landmarked this event as „SHIT HAPPENS“. It was the beginning of a series of EcoSan events showing the permanent development of this topic until today (see also the article on awareness rising activities of EcoSan Club). This has fuelled fantasies and discussions - and the

advice of Uno Winblad encouraged self-confidence and creativity.

In 2001 we expanded our team and our sphere of impact in a strategic way - we infiltrated an employee in Water and Sanitation Programme (WSP) of the World Bank with a focus on EcoSan and embodied this theme in the programs of the Austrian development cooperation especially in Uganda, Mozambique and Kenya. It is very important to mention that the intense and close cooperation with the ÖEZA at all levels, both in Vienna at the headquarters and in the coordination office enabled us to go ahead in this progressive way. Without this mutual trust and even without the intensive professional dialogue the development would certainly not have been possible.

In particular, the experience in Uganda and Mozambique in the programs SWTWS (Southwestern Towns Water and Sanitation) and Paars (Projecto de Abastecimento e Agua Rural e Saneamento em Sofala – Programme for rural water supply and sanitation in Sofala Province, Mozambique), respectively, showed us the need to increase support for the sanitation and to develop it in a conceptual way. The first concrete activities were held in Uganda in SWTWS program, where we also started collaboration with the university and even an umbrella was prepared as a model for the local organizational development. In Mozambique, lost experiences have been revitalized by local experts and with local partners an implementation plan has been developed.

In 2001, the idea grew up to focus our activities and to form their own group; once clubs were just modern and ecological sanitation was the idea, we decided after long sessions rather humorous to us for

the preparation and establishment of the "EcoSan Club". The first entries are to be found in October 2001, the observations of these notes show our humour as well as many of our experiences that we could make and had to make as well as some funny ideas.

Towards the end of the year 2001 activities became more intense - there was the Nanning Conference on EcoSan, where the SWTWS program was represented, there was an EcoSan workshop in Uganda, there was the Bonn „World Water Vision“ conference, and we were there all right in the centre of activities and dialogue. Additionally, the IWA (International Water Association) Specialist Group on „Resources Oriented Sanitation (EcoSan)“ was established during the Berlin World Water Congress in October 2001.

This intensive cooperation with institutions in our partner countries, our clients, but also international organizations, of course, had to be found in our organization set up and so at the end of 2001 an intensive meeting took place to prepare the establishing EcoSan Club. In the records appear as naturally not only our substantial considerations, of course, now we had to discuss vital topics and we can find topics with big question marks - financing?; Promotion?; ... but also the interesting note: what do we really want? How can we develop our coordination and communication?; etc. etc.

The year 2002 started with a fixed date as 20.02.2002 as the constitution day for EcoSan Club, naturally embedded in hectic and intense activities for the programs in Uganda, Mozambique, Palestine, a gender event „He / She Water“ at BOKU University, lectures on tropical water management, etc., just to avoid to slip into a too cosy club feeling.

Founding members of EcoSan Club and their current affiliations:

Thomas Ertl (Institute of Sanitary Engineering, BOKU University), Nikolaus Fleischmann (independent consultant), Helmut Jung (Institute of Sanitary Engineering, BOKU University), Andreas Knapp (UNICEF Nepal), Günter Langergraber (Institute of Sanitary Engineering, BOKU University), Markus Lechner (ESC Consulting KG), Hans Schattauer (Austrian Development Agency, Kampala, Uganda), and Kirsten Sleytr (BOKU University).

„No-where man don't worry, take your time don't hurry; leave it all till somebody else lends you a hand.“ (John Lennon and Paul McCartney, 1968)

Name: Helmut Jung
Organisation: Institute of Sanitary Engineering, BOKU University
Town, Country: Vienna, Austria
eMail: Helmut.Jung@boku.ac.at



Looking back on implementation projects from the last 10 years

This paper revisits implementation projects carried out by EcoSan Club during the last 10 years.

Authors: Hanno Hierzegger, Bernhard Lang, Stefan Jung, Martin Wafler

Abstract

The paper revisits 8 implementation projects carried out by EcoSan Club during the last 10 years. The projects are described and challenges and problems during the planning/design/implementation phases as well as the lessons learnt are discussed.

Introduction

This paper looks back on EcoSan Club's 10 year experience in implementing projects in the field of water supply and sanitation. Project implementation has been carried out by EcoSan Club and mainly by its company branch, ESC Consulting KG, which was founded in 2004 for this purpose.

Members of the EcoSan Club who have not been involved in the actual implementation work wrote the article. The idea was to revisit implementation projects and look what went well or wrong in order to learn for future projects. We selected 8 projects and discussed specific issues of these projects with those colleagues that have been responsible for project implementation. The starting point for us was the description of the projects in the data sheets that are available on the company's website (<http://www.esc-consulting.at>).

The paper briefly introduces the projects and the discussions are presented as interviews from members of EcoSan Club with the persons working on implementation for the company branch.

Project 1: Gloggnitzer Hütte

Location: Lower Austria

Name of client: Gebirgsverein Sektion Gloggnitz (private association), Austria

Dates (start/end): Jan 2009 – Dec 2011

Short description

In the course of the overall renovation of the refuge hut, located within the drinking water protection area of Vienna, a resource oriented sanitation system was designed and implemented. The overall objective of the project was to find a solution, which minimises risks

Lessons learnt:

- Sanitation systems are only operated well if the owner has a benefit from the system (e.g. faecal compost, irrigation water, etc.). Treating wastewater only is not beneficial enough for owners to guarantee sustainable long-term operation of the system.
- Operation and maintenance (O&M) needs to be considered already in the planning phase and the owners of the system need to be aware of the necessity and scope of O&M work. Extra in-depths training sessions might be needed e.g. for composting staffs.
- Implementation partners often do lack capacity in the proposed technologies and therefore do not understand the systems that they shall construct. The outcome of this is poor or wrong implementation work. Therefore more resources need to be foreseen for supervision of construction work in the short run and for capacity building of local partners (e.g. construction firms) in the long run.
- Visits of implementation projects after the project ends more likely result in successful project and need to be foreseen and funded.
- Donors more likely invest in new infrastructure than in rehabilitation of already existing infrastructure, capacity building, measures to ensure O&M, etc.

for the drinking water supply. The system comprises composting toilets for human excreta management with an additional secondary composting step, a waterless urinal and the treatment of greywater in a vertical subsurface flow constructed wetland system before infiltration. Both in order to equalise the load to the treatment system as well as to enable recirculation of treated wastewater during wintertime (infiltration not possible) a buffer tank was foreseen. For a more detailed description of the system see Freiberger and Weissenbacher (2011).

Services provided

Design, application for funding and subsidies, construction supervision

Discussion

Q: Who came up with the idea to implement this project; the owner of the mountain hut or the consultant?

A: Neither, the project was initiated by the Vienna waterworks (Wiener Wasserwerke) as a kind of demonstration project for the large number of mountain huts in the drinking water protection area.

Q: Have similar projects (=same technical solution) been implemented before? If yes, which kind of knowledge benefit was used in this project?

A: No, not in this combination. Of course other projects exist, but with only parts of the full system implemented.

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: The main problem was that the technical solution chosen was not implemented before. Design guidelines for technological components did not exist, e.g. for the constructed wetland treating greywater.

Q: Is the system running as designed?

A: No, there were 2 main problems: 1) the power supply from the photovoltaic system turned out to be too weak for the pumps installed and therefore the process control was not functioning, and 2) the owners did not carry out the few operational measures needed all the time.

Q: What lessons did you learn?

A: Sanitation systems are only operated well if the owner has a benefit from the system, only wastewater treatment is not beneficial enough. If control schemes that require simple operational



Figure 1. Vertical flow constructed wetland and infiltration system in winter.

measures by the owner do not work under European conditions they will not work under conditions in developing countries where most likely less qualified people are assigned to operate the system.

Project 2: Integrated Community Development Water Extension Programme

Location: Gamo Gofa and South Omo, Ethiopia
 Name of client: Horizont 3000 / EU ACP Water Facility
 Dates (start/end): Jan 2007 – Dec 2011

Short description

The Integrated Community Development Programme (ICDP) – Water Extension Project (WEP) aims to combat poverty in that there should be sufficient water for livestock, such as cattle, sheep and goats and possibly leading to irrigation schemes in the future - if sufficient water can be harvested in the targeted communities.

In view of this situation the objective of the proposed action is poverty reduction through the provision of safe drinking water for humans and agricultural production. The economic, social and human well-being of disadvantaged communities (groups and individuals) in selected areas of Gamo Gofa and South Omo Zones shall be secured thus enabling them to actively shape and enhance their own development.

The expected results of the planned project have been 1) improved retention of rainwater, 2) increased infiltration, 3) reduced erosion, and 4) increased quantity and improved quality of water available.

Services provided:

Technical assistance in water management, evaluation.



Figure 2. Borehole drilling, Ethiopia.

Discussion:

Q: What percentage of the local inhabitants was directly involved in the decision process of this project?

A: There was no direct involvement of local inhabitants as this project was performed in cooperation with the local institutions. We had to suppose that the institutions acting in the interest of the local inhabitants.

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: As mentioned above, a demand driven participatory approach was foreseen in the project document but the local implementation partners neglected this. Therefore the local people have only been informed about what's planned. Secondly, the local implementation partner lacked technical knowledge and skills.

Q: Was technical supervision of certain construction performed by the consultant in the process of providing technical assistance in water management”?

A: The supervision on site comprised just a few days, too little to be effective.

Q: Are the systems running as designed?

A: As the project ended just recently, no monitoring data are available yet. However, also most baseline

data are missing that would be needed to assess the systems.

Q: What lessons did you learn?

A: More money for capacity building of local partners would be needed, otherwise money spent for implementation is not effective.

Project 3: Infirmary Hospital Balit - Water Supply and Sanitation

Location: Mindanao, the Philippines
 Name of client: Beschaffungsbetrieb der MIVA, Austria
 Dates (start/end): Jan 2004 – Dec 2005

Short description

The project supported the establishment of a new Health Centre with the design and construction supervision of the water supply and sanitation infrastructure. Drilling of boreholes, catchment of protected springs, rainwater harvesting and the storage and distribution system were included on the water side, while on the sanitation side the entire hospital was equipped with newly design indoor dry toilets and decentralised greywater treatment systems.

Services provided

Detailed technical design, construction supervision



Figure 3. Toilet seat for a Urine-Diversion Dehydration Toilet (UDDT).

Discussion

Q: What have been the main constraints/hindrances during planning/design/implementation?

A: The organisational responsibilities for O&M have not been discussed between the donors and the local partners until the end of the implementation work.

Q: Is the system running as designed?

A: No, according to our information the whole hospital did not start into operation until today. An additional problem was the corruption of the local project partner.

Q: What lessons did you learn?

A: Management and operation of the system need to be considered from the start; including the organisational responsibilities. It has to be clear to the owners that the new systems might require additional effort in O&M and maybe also additional personal.

Project 4: Ecological Rehabilitation of Water Supply and Sanitation Infrastructure at Maracha Hospital

Location: Arua District, Uganda

Name of client: Beschaffungsbetrieb der MIVA, Austria

Dates (start/end): Jan 1999 – Dec 2002

Short description

During the implementation period of the project the entire water supply and sanitation infrastructure at the Maracha Hospital was rehabilitated, resp. where required newly constructed. In addition to other components in the overall project - construction of staff houses and installation of solar energy supply systems - boreholes were renovated, new (solar) pumps installed, the distribution network rehabilitated and water meters installed. On the sanitation side a sewer system for wastewater and greywater collection was constructed, the wastewater being fully treated in a constructed wetland wastewater treatment plant. For staff families dry urine diversion toilets were installed. In addition theoretical and on the job training was carried out for operation & maintenance personnel.



Figure 4. Faecal compost, Maracha hospital.



Figure 5. Constructed wetland at Maracha hospital.

Services provided

Preparation of feasibility studies, participatory planning, detailed design, tendering, construction supervision

Discussion

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: The whole process went well, mainly because a lot of time was planned to be spent at site for supervision of the construction work. Usually donors do not allow for the time required to guarantee effective supervision.

Q: Dry toilets were installed only for family staff member. What about the patients?

A: For patients sealed pit latrines are in place, the pit latrines are emptied into a sludge drying bed.

Q: Is the system running as designed?

A: Composting works well as there is a benefit from the faecal compost. The syphon for flushing the vertical flow constructed wetland broke several times. Although it was replaced repeatedly by us (after the project duration) the owners did never replace the spare parts by themselves.

Q: What lessons did you learn?

A: Only if benefits from the sanitation system exist and the owners recognise these benefits (e.g. faecal compost in this case) the systems are operated and working well, otherwise O&M is neglected and the systems are not functioning.

Project 5: Rehabilitation of water supply and sanitation infrastructure at the St. Franzis Naggalama Hospital

Location: Mukono District, Uganda
Name of client: Beschaffungsbetrieb der MIVA, Austria
Dates (start/end): Jan 2002 – Dec 2004

Short description

During the implementation period of the project the entire water supply and sanitation infrastructure at St. Franzis Naggalama Hospital was rehabilitated, resp. where required newly constructed. In addition to other components in the overall project - installation of a new (solar) energy supply system - boreholes were renovated, new pumps installed, the distribution network rehabilitated and water meters installed. On the sanitation side a sewer system for wastewater and greywater collection was constructed, the wastewater being fully treated in a constructed wetland wastewater treatment plant. For staff families dry urine diversion toilets were installed. In addition theoretical and on the job training was carried out for operation & maintenance personnel.



Figure 6. Mechanical pre-treatment of wastewater upstream secondary treatment in a constructed wetland.



Figure 7. Constructed wetland at St. Franzis Naggalama Hospital.

Services provided

Feasibility Study, detailed technical design, construction supervision.

Discussion

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: The local implementation partner did not fully understand how the constructed wetland system works. Therefore, sand that is not suitable (not washed and wrong grain size distribution) has been used for filling the beds. Finally the sand had to be removed and washed before the refilling of the bed could be carried out.

Q: Was the hospital closed during construction works? If not, how was the management of using toilets during rehabilitation?

A: The hospital was not closed, it performed as usual. Staffs as well as patients were using the existing pit latrines during construction.

Q: Is the system running as designed?

A: The project has been visited several times after completion. Generally spoken, the system worked as expected, except for some problems with regular O&M activities like cleaning of the distribution chamber. The keen interest in faecal compost production was really surprising. In the beginning the faecal compost from sludge, faeces and organics was used in the health centre's own garden. But after several month real business started to grow and the operators started selling faecal compost to nearby farmers.

Q: What lessons did you learn?

A: Again, capacity building of local partners is of utmost importance, the implementation partners need to fully understand the system. Additionally, responsibilities among local partners need to be clearly defined during the implementation process. This project is again an example that the systems are working if there is a benefit for the owner and one can even make profit.

Project 6: Kanawat Health Centre - Improvement of Sanitation Infrastructure

Location: Kotido District, Uganda

Name of client: Beschaffungsbetrieb der MIVA, Austria

Dates (start/end): Jan 2003 – Dec 2004

Short description

The following activities were carried out under this project:

1. renovation and reconstruction of pit latrines into composting toilets
2. renovation of showers and connection to sewer line
3. construction of 2 dry toilet blocks with 2 units each
4. construction of sewer line and house connections (incl. bypassing of existing septic tanks and soak pits)
5. construction of a wastewater treatment system comprising a septic tank for pre-treatment, a horizontal subsurface flow constructed wetland system for secondary treatment, a sludge drying bed for sludge from the septic tank (to be discharged by gravity)
6. construction of a low cost medical waste incinerator.

Services provided

Technical design, construction supervision



Figure 8. Composting toilets (rebuilt from pit latrines) at Kanawat Health Centre.



Figure 9. Reforestation area.

Discussion

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: Too little time/money was available for supervision of construction, which lead to insufficient quality of the implemented structures.

Q: How did you design the composting toilets?

A: The requirement was to use the existing pit latrines. They have been constructed above ground due to the rocky underground that did not allow the digging of pits. The volume of the storage chambers for the composting toilets was therefore determined by the existing structure.

Q: In case if family members accompany the patients, there would be a high fluctuation of people? Which effect has this fluctuation on the operation of the composting toilets?

A: The composting toilets where constructed without a urine separation to avoid misuse of the toilets due to the high fluctuation in the hospital. Further it was assumed that the hospital staff will not be able/willing to train every day all new patients and family members regarding the correct use of composting toilets.

Q: Was a filter installed at the medical waste incinerator? If not, do certain operation manuals exist on how to burn the waste to avoid unnecessary exhausts

A: Yes, there is such a manual and adequate operation is part of the on the job training.

Q: Regarding the safe reuse of materials from composting toilets in agriculture and gardening: Have there been analysis performed?

A: No, nevertheless an additional project focussed on the risk of reuse of such materials.

Q: Is the system running as designed?

A: According to measurements the constructed wetland performs well in terms of treatment. The system is also operated well as the treated water is used for irrigation of a forest. Reforestation is an important topic in this area.

Q: What lessons did you learn?

A: Two main things: 1) Enough resources (time/money) need to be foreseen for supervision of construction work, and 2) systems are operated well if the owners has a benefit (irrigation water in this case).

Project 7: Rehabilitation of Water Supply and Sanitation Infrastructure at St. Joseph's Hospital, Kitgum

Location: Kitgum District, Uganda

Name of client: Beschaffungsbetrieb der MIVA, Austria

Dates (start/end): Jan 2006 – Dec 2008

Short description

St Joseph's Hospital, located in Kitgum Town in Northern Uganda suffers from an old and overstrained water supply system and an inadequate, resp. mostly non-existing sanitation infrastructure. The project's objective is the development of a conceptual design for water supply and sanitation at the hospital and the detailed technical design. Special focus is laid on a resource-oriented systemic approach, enabling the hospital to make double profit of the new system. During the construction phase ESC is furthermore responsible for local as well as external supervision and technical backstopping.

Services provided

Technical design, construction supervision



Figure 10. Toilet facilities at St. Joseph's Hospital.

Discussion

Q: What have been the main constraints / hindrances during planning/design/implementation?

A: The project was not planned sufficiently by the donors. After a detailed planning was finally done the costs increased up to twice the available budget. This led to splitting of the implementation work in two phases and even higher implementation costs at the end.

Additionally, quality of construction work was poor and, again, too little resources have been planned for supervising the construction work.

It has been shown that training of staffs on composting needs much more time than originally planned and that additional visits to the site are needed especially in the first months after completion.

Q: Which kind of reuse of treated human excreta is foreseen?

A: At the beginning it was planned that the products can be used in a small garden at the site of the treatment plant. Further use cannot be foreseen; unfortunately no resources are available to follow up on this issue.

Q: What is special about the design of the composting toilets?

A: The composting toilets have been constructed on ground level to allow for easy access for elderly and ill persons without stairs. However, this implicates additional efforts for operation, e.g. emptying the chambers.

Q: Is the system running as designed?

A: Yes, except the syphon for loading the vertical flow constructed wetland, which broke already several times and was not replaced by the owners.

Q: What lessons did you learn?

A: Extra training is required especially for composting. Visits after finalisation of the have been shown crucial for the operation especially for the composting part.

Project 8: Catholic Diocese of Kotido Water and Sanitation Project

Location: Kotido District, Uganda

Name of client: Dreikönigsaktion, Austria

Dates (start/end): Jan 2008 – Sep 2010 (phase 1); Jan 2011 – Dec 2013 (phase 2)

Short description

The purpose of this project is to improve and guarantee access to safe water in sufficient quantity and quality for human consumption as well as improve the sanitary conditions for the people living in Kotido District.

The expected results have been:

- Water sources & infrastructure (boreholes, town water supply system) are operated and maintained
- Information on quantity and quality of water resources in the diocese is available
- The potential of rainwater harvesting for groundwater recharge has been demonstrated
- A sanitation behaviour change has been initiated

Services provided

Technical consultancy, construction supervision

Discussion

Q: What have been the main constraints/hindrances during planning/design/implementation?

A: It took the first 3 years of the project to convince local implementation partners that the rainwater harvesting component is required in its proposed form. Implementation has not yet started.

Q: Did the demonstration of “the potential of rainwater harvesting for groundwater recharge” had any sustainable impact on the behaviour of the community?

A: Not yet (see above). Implementation for this part of the project did not start yet.

Q: What has been achieved up to now?

A: Management of existing boreholes has been improved a lot.

Q: What lessons did you learn?

A: Donors more likely invest in constructing infrastructure than in rehabilitation of existing infrastructure.

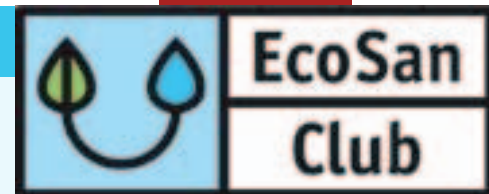


Figure 11. Existing water source lacking management.

References

Freiberger, E., Weissenbacher, N. (2011): Sanitation system for the 'Gloggnitzer Huette' mountain refuge. Sustainable Sanitation Practice 8 (July 2011), 8-12.

Names: Hanno Hierzegger, Bernhard Lang, Stefan Jung, Martin Wafler
Organisation: EcoSan Club Austria
eMail: club@ecosan.at



A retrospective view on EcoSan Club's awareness raising activities

This paper provides an overview on EcoSan Club events and publications over the last 10 years.

Author: Elke Müllegger

Abstract

The main activities of the EcoSan Club are the promotion of Ecological Sanitation (EcoSan) principles and provision of information. Over the last 10 years different awareness raising activities have been organised and coordinated. This paper provides an overview on these activities. One of the activities is SHIT HAPPENS, a series of events on EcoSan taking place since the year 2000. So far 7 events have been organized. Another event was the exhibition "Sanitation is Dignity", which had a stopover in Vienna, at the Campus of the University of Vienna in September 2007. Also different publications have been produced, like the "Sustainable Sanitation Practice" (SSP) journal. SSP is published quarterly since the fall of 2009 and provides high quality information on practical experiences with available sustainable sanitation systems.

SHIT HAPPENS

SHIT HAPPENS stands for a series of events on the topic of Ecological Sanitation (EcoSan), which have been taking place since the year 2000. Over the years a variety of topics have been dealt with, from projects in East Africa to sanitation in the mountains in Austria. Invited speakers have been from numerous countries including Germany, Kenya and the Philippines. The focus was on a number of topics, from very general events on the concept of Ecological Sanitation to specific solutions for alpine huts. All events have been organized in cooperation of EcoSan

Club and the Institute of Sanitary Engineering at BOKU University in Vienna where most of the events took place. The best-attended event was the one in the year 2006, "SHIT HAPPENS IV – Resource-oriented wastewater systems: a possibility for alpine regions?" with nearly 100 students and participants.

Detailed information on the different events is available at <http://www.ecosan.at/events>. A short overview on all SHIT HAPPENS events is summarised in the following:

Main activities:

Events:

- SHIT HAPPENS: 7 events since the year 2000.
- A full day workshop for architects and planners on resources-oriented wastewater systems on 16.09.2004, at Kommunalkredit Austria KG, Vienna.
- „Sanitation is Dignity – Where would you hide?": Exhibition from 25.–30.09.2007 at the Campus of the University of Vienna.

Publications:

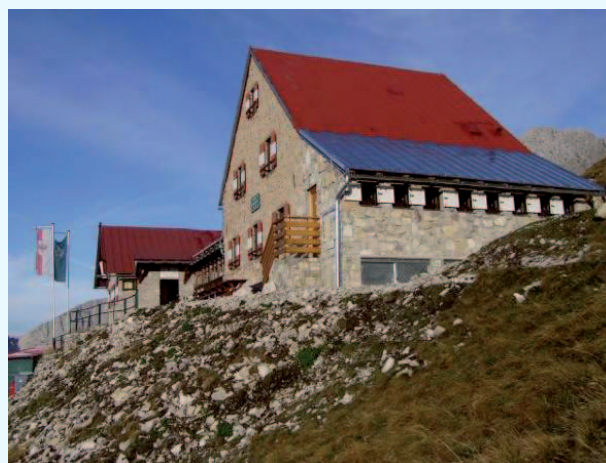
- Müllegger, E., Lechner, M. (2004): Ecological Sanitation – a sustainable approach to the future. Austrian Development Agency, Vienna, Austria.
- Langergraber, G. and Müllegger, E. (2005): Ecological sanitation - A way to solve global sanitation problems? *Environ Int* 31(3), 433-444.
- Müllegger, E., Lechner, M., (2008): Solutions in Sanitation – Planning principles. Austrian Development Agency, Vienna, Austria.
- EcoSan Club (since fall 2009): Sustainable Sanitation Practice. <http://www.ecosan.at/ssp>

Title:	SHIT HAPPENS I – Ecological Sanitation
Date and Place:	15.06.2000, BOKU University, Vienna
Invited guests:	Uno Windblad (Swedish Development Cooperation), Andreas Knapp and Helmut Jung (BOKU University)
Topic:	The general concept of Ecological Sanitation and experiences from China, Vietnam and Mexico were presented.

Title:	SHIT HAPPENS und wohin damit?
Date and Place:	11.12.2002, BOKU University, Vienna
Invited guests:	Christine Werner (Deutsche Gesellschaft für technische Zusammenarbeit, GTZ); Erich Kaschka (Posch & Partner GmbH-Ingenieur-Gemeinschaft), Andreas Knapp (The World Bank/Water and Sanitation Program – Africa)
Topic:	The concept of Ecological Sanitation and experiences from East Africa, Kosovo and Austria were presented.

Title:	SHIT HAPPENS III
Date and Place:	15.12.2004, BOKU University, Vienna
Invited guests:	Helmut Jung (BOKU University), Markus Lechner (EcoSan Club), Elke Müllegger (BOKU University, EcoSan Club), Gert de Bruijne (WASTE, Netherlands).
Topic:	The brochure “Ecological Sanitation – a sustainable approach to the future” as well as sustainable sanitation projects in East Africa were presented. Gert de Bruijne presented the film „The Human Excreta Index“.

Title:	SHIT HAPPENS IV – Resource-oriented wastewater systems: a possibility for alpine regions?”
Date and Place:	07.12.2006, BOKU University, Vienna
Invited guests:	Peter Kapelari (Österreichischer Alpenverein), Gunnar Amor (TB Amor), Christian Gschnitzer (Hüttenwirt der Bettelwurfhütte), Wolfgang Becker (Universität Innsbruck).
Topic:	The invited guests presented the specific problems remote huts in the Alps are faced with and introduced sustainable sanitation solutions which have been implemented in Tyrolenne Mountains.



Figures 1 (top & bottom): Bettelwurfhütte in Tyrol, equipped with a urine diverting toilet system (Pictures: Gunnar Amor).

Title:	SHIT HAPPENS V – kein Klo, also Wo?
Date and Place:	27.09.2007, Campus of the University of Vienna
Invited guests:	Markus Lechner (EcoSan Club), Martin Regelsberger (AEE Intec), Hans Schattauer (African Development Bank), Marie-France Chevron (Institut für Kultur- und Sozialanthropologie, Universität Wien), Catherine Mwangi (KWAHO, Kenia), Dan Lapid (Centre for Advanced Philippine Studies)
Topic:	This event took place as part of the exhibition „Sanitation is dignity“. The invited experts discussed questions like: What does it mean for the people to have insufficient or no access to sanitation infrastructure? Which problems are people faced with? Who can solutions look like? How is the situation in Austria?

Title:	SHIT HAPPENS VI – Sustainable Sanitation in praxis, a journey through East-Africa
Date and Place:	10.12.2008, Afro Asian Institute (AAI) Vienna
Invited guests:	Stefan Jung (EcoSan Club), Elke Müllegger (EcoSan Club), Franz Höllhuber, Hans Schattauer (Austrian Development Agency).
Topic:	This event took place on occasion of the „International Year of Sanitation 08“. Projects, which are aiming to improve the sanitation infrastructure in East African cities, were presented as well as the brochure „Solutions in Sanitation - Planning Principles“.

Title:	SHIT HAPPENS 12 - Sustainable implementation of water and sanitation project in Africa and Europe - experiences from the last 10 years
Date and Place:	31.10.2012, BOKU University, Vienna
Invited guests:	Martin Wafler (Seecon), Elisabeth Freiberger and Elke Müllegger (EcoSan Club), Markus Lechner (EcoSan Club)
Topic:	Shit Happens 12 celebrated the 10 years anniversary of the EcoSan Club. The focus of the event is the implementation of sustainable sanitation projects in Africa and Europe.

Resource-oriented wastewater systems – planning and implementation of ecological oriented sanitation concepts

The workshop on „Kreislauforientierte Abwassersysteme - Planung und Ausführung von ökologisch orientierten Sanitärkonzepten“ on 16.09.2004 was hosted by Kommunalkredit Austria AG in Vienna. It was well attended with over 40 participants from a broad range of disciplines, from authorities, engineering offices and universities. The brisance of the topic was clearly defined with the focus of discussion firmly concentrated on Austria and Germany. Animated discussions followed the presentations and filled the coffee breaks.

The programme was divided into two main areas: i) Theory and ii) practical implementation. Both blocks concentrated on wastewater management, with the emphasis on the possible contribution of architecture to ecological sanitary concepts. It was clearly stated that for architecture function alone was not the only focal point. A balance between function and effect must also occur, and it was acknowledged that composition and design can play a huge role in ensuring acceptance. Both these themes are often largely neglected in the technical planning of sanitary concepts.

The documents presented in the conference (contributions and presentations) are available at: <http://www.ecosan.at/events>.

Sanitation is Dignity – Where would you hide?

“Where Would You Hide?” is a travelling exhibition, which has been touring prominent public places, conferences and museums since 2006. From 25-30 September 2007 the exhibition was on display in Vienna, at the Campus of the University of Vienna.

“Crowds of children helped to break the toilet taboo in Vienna.

What started as a side-programme to the exhibition quickly became the key attraction of the event. A puppet theatre and educational activities for children drew more school and pre-school groups than we had ever expected. And the happy bustle of the youngsters (Figure 2) convinced older passer-bys to also stop and watch.

Newspapers announced that locals could come to have their picture taken to be transformed into a figure and thereby become part of the travelling exhibition. The children's open approach to this basic human need provided a great example for the adults and encouraged many supporters to participate in the competition (pants up!). By the end of the week the campaign had two new “orange squatters”. Another new figure was provided by eight year old Birgit's excellent drawing.” (German Toilet Organisation, 2009).

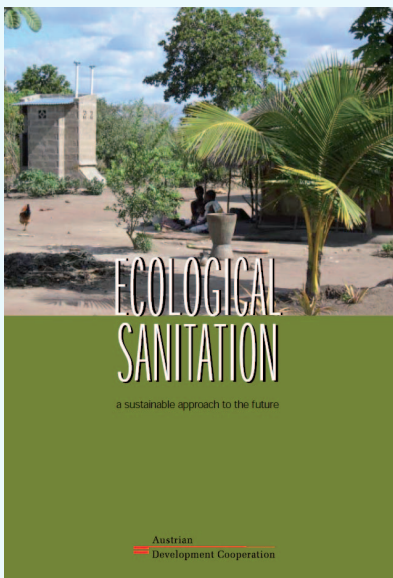
The event was made possible with support from the Austrian Development Agency. Further support was provided by CWS, Catholic Children's Movement (Dreikönigsaktion) and BOKU University.

More information on the “Sanitation is dignity” campaign is available at <http://www.sanitation-is-dignity.org>.



Figure 3: Children help to break the toilet taboo in Vienna (Picture: Elke Müllegger).

Publications



Author: Müllegger, E. and Lechner, M.
 Publisher: Austrian Development Agency
 Year: 2004

Link: <http://www.ecosan.at/info/publications>

Ecological Sanitation – a sustainable approach to the future

The brochure “Ecological Sanitation – a sustainable approach to the future” provides an overview on the concept of ecological sanitation. It includes also two examples of EcoSan Programmes of the Austrian Development Cooperation from Uganda and Mozambique.

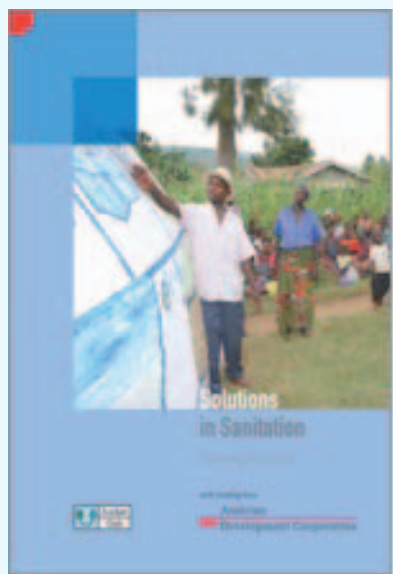


Author: Langergraber, G. and Müllegger, E.
 Publisher: Elsevier Ltd., Environment International
 Volume 31, Issue 3, April 2005, Pages 433-444
 Year: 2005

Link: <http://www.ecosan.at/info/publications>

Ecological sanitation - A way to solve global sanitation problems?

The paper „Ecological sanitation - A way to solve global sanitation problems?“ presents an introduction to EcoSan principles and concepts including re-use aspects (available nutrients and occurring risks), and case studies of EcoSan concepts in both industrialized and developing countries.



Author: Müllegger, E., Lechner, M. and EcoSan Club
 Publisher: Austrian Development Agency
 Year: 2008

Link: <http://www.ecosan.at/info/publications>

Solutions in Sanitation – Planning principles

Within the framework of the International Year of Sanitation 2008 the purpose of the brochure “Solutions in Sanitation – Planning Principles” was to inform about the Austrian Development Cooperation’s approaches, strategies, priorities and direction in the area of sustainable sanitation. Therefore this brochure addressed policy makers, programmers and implementers alike.

„The Austrian Development Cooperation supports the International Year of Sanitation to strengthen the dialogue and interaction between institutions and people, working towards the achievement of the MDG sanitation target.“ (Öppinger-Walchshofer, B., 2008).

Sustainable Sanitation Practice

With Sustainable Sanitation Practice (SSP) EcoSan Club aims to make available high quality information on practical experiences with available sustainable sanitation systems. SSP should fill a gap that we have identified in the last few years in which sustainable sanitation has become an important issue that is discussed among many disciplines. 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).

The SSP journal has been published quarterly since October 2009 and is available for download free from: <http://www.ecosan.at/ssp>.

References

German Toilet Organisation (2009): Children – the best toilet advocates. <http://www.sanitation-is-dignity.org/node/76> (date of visit: 4.1.2012).

Langergraber, G., Müllegger, E. (2005): Ecological sanitation - A way to solve global sanitation problems? *Environ Int* 31(3), 433-444.

Müllegger, E., Lechner, M. (2004): Ecological Sanitation – a sustainable approach to the future. Austrian Development Agency, Vienna, Austria.

Müllegger, E., Lechner, M., EcoSan Club (2008): Solutions in Sanitation – Planning principles. Austrian Development Agency, Vienna, Austria.

Table 1: Thematic topics of the first 9 issues of the SSP journal

Issue 1	Oct 2009	Greywater - Treatment and reuse
Issue 2	Jan 2010	Operation & Maintenance
Issue 3	Apr 2010	Use of Urine
Issue 4	Jul 2010	The ROSA project
Issue 5	Oct 2010	Sanitation as a Business
Issue 6	Jan 2011	Toilets
Issue 7	Apr 2011	Planning tools
Issue 8	Jul 2011	Solutions for mountain regions
Issue 9	Oct 2011	Biogas systems



Figure 3: Title pages of the first 9 issues of the SSP journal

Name: Elke Müllegger
Organisation: EcoSan Club
Country: Austria
eMail: elke.muellegger@ecosan.at

Next issues and further information:

www.ecosan.at/ssp

Contact:

ssp@ecosan.at

www.facebook.com/SustainableSanitationPractice

www.facebook.com/EcoSanClubAustria