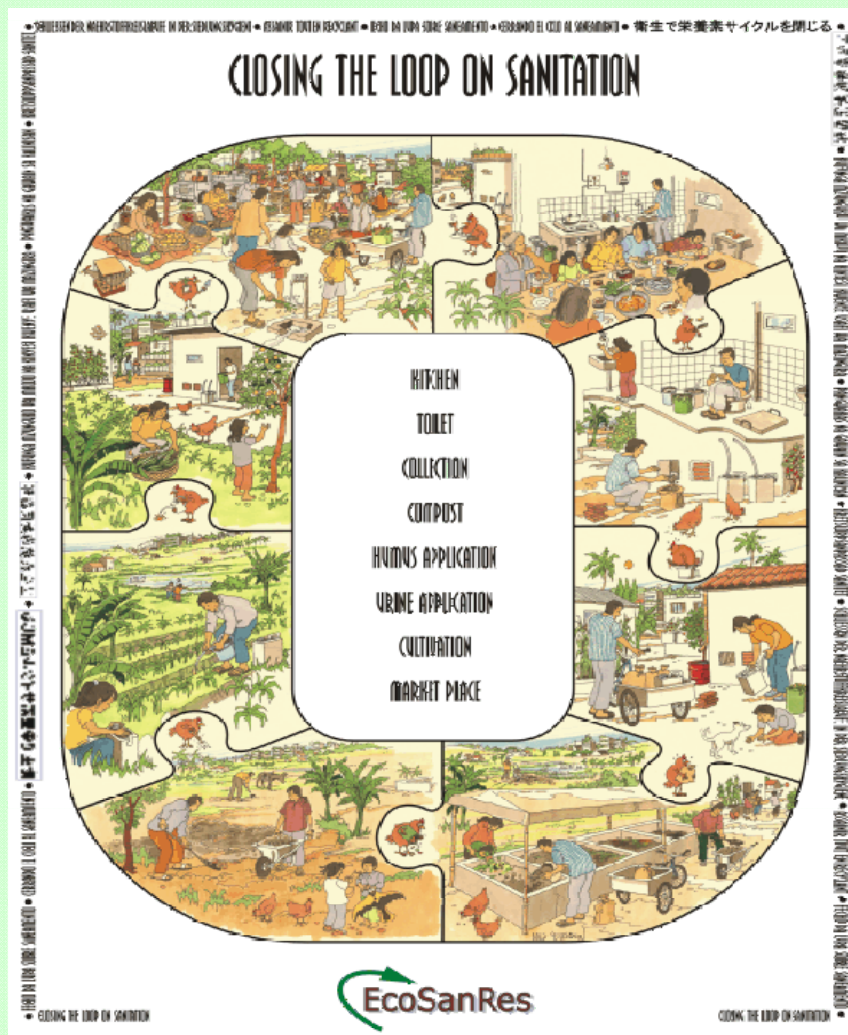


Impact Study of the

ADVANCED INTERNATIONAL TRAINING PROGRAMME

ECOLOGICAL ALTERNATIVES IN SANITATION

from 2005 to 2009



A Special Report to Sida

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Compiled by

Nelson Ekane, SEI
Jan-Olof Drangert, Vatema AB/Linköping University
Solveig Nilsson, Eksjö (SEI)
Ian Caldwell, SEI

Editorial Assistance

Arno Rosemarin, SEI

Strategies for sanitation improvements

Principle: *mix as few flows as possible*

- Organic ≠ other solid waste
- Stormwater ≠ sewage
- Industrial ≠ household wastewater
- Black toilet water ≠ greywater
- Faeces ≠ urine

J-O Drangert, Linköping University, Sweden

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1. INTRODUCTION

The Advanced International Training Programme (ITP) in *Ecological Alternatives in Sanitation* was introduced in 1999 and has been conducted up to 2009, except for an evaluation period 2002 and 2003. The programme was financed by the Swedish International Development Cooperation Agency (Sida) and since 2005 co-ordinated by Stockholm Environment Institute (SEI).

This report covers seven programmes from 2005 to 2009 with a total number of 201 participants, and focuses on the impact on the participants and their organisations.

2. GOAL AND OBJECTIVE OF THE PROGRAMME

Long-term goal

The long-term goal of this training programme was “To improve health and human well-being as well as the environment to attain the Millennium Development Goals (MDGs)”.



Figure 1. Pictures before and after building improvement in an alley. (Thor-Axel Stenström)

Programme objective

The overall objective of this programme was to disseminate information and knowledge about new options in sanitation to support urban dwellers in reducing human and environmental health risks, improving nutritional status and protecting water resources and other environmental assets.



Figure 2. Children need not live in squalor but can have a healthy upbringing. (Jan-Olof Drangert)

3. TARGET GROUP AND THE SELECTION PROCESS

The programme *Ecological Alternatives in Sanitation* intended to develop capacity among professionals on the concepts of sustainable sanitation and its implementation. The target regions comprised Africa, Asia, Latin America, and Eastern Europe incl. Caucasia. The challenge was to identify and enrol persons who have the organisational and personal capacity to be a change agent in their organisations. During the first three programmes in 1999-2001, we gained ample experience of how to disseminate information about the programme and encourage potential change agents to apply.

The required qualifications include educational background, organisational affiliation, position in the organisation, and relevant experiences of sanitation-related work. New approaches to sanitation will include cooperation between different sectors: within the municipality and between authorities, training institutions and NGOs. Therefore, the selected group need to include this wide range of competencies to be exposed to and trained to understand the way of reasoning among other professional groups.

Since the programme continued for four years, it was possible to gradually build up a critical mass of alumni in a specific town or organisation. Examples are the cities of Hanoi, Durban, Bishkek and Campo Grande and international organisations such as UNICEF and Practical Action.

The anticipated roles that the trainees were to take on after the programme ranges from advocating policy change, develop and implement local projects, train staff in the organisations, curricula development and to educate new cadres of professionals.

Table 1 gives an overview of the kinds of organisations the participants were working for. The single largest group were local and central government employees, while about the same number were recruited from local NGOs, international organisations, research institutes, universities and the private sector. This ensured the desired inter-sectorial composition of the groups. It was particularly difficult for private sector to find the time to spend on the training since these are usually very small companies.

Table 1: Proportion of participants from different sectors of society

Year	Session	Regions	Government	Private Sector	Local NGO	International Org	Research Institute	University
2005-06	Aug – April	LA	1	4	-	2	2	4
		AF	8	1	-	1	3	3
		Sub-total	9	5	-	3	5	7
2006-07	Aug-April	AS	6	4	1	1	2	-
		LA	-	3	3	2	1	4
		Sub-total	6	7	4	3	3	4
	Sept-May	AS	2	2	3	3	3	5
		EE	3	1	2	1	3	3
Sub-total	5	3	5	4	6	8		
2007-08	Aug	AF	4	1	2	4	1	1
		AS	4	2	2	5	2	2
		Sub-total	8	3	4	9	3	3
	Sept	AF	3	-	3	4	-	5
		EE	2	-	5	1	3	2
Sub-total	5	-	8	5	3	7		
2008-09	Aug	AF	5	-	1	4		1
		LA	1	9	1	1	2	2
		Sub-total	6	9	2	5	2	3
	Sept	AS	8	2		1	2	2
		EE	3		8	-	1	-
		Sub-total	11	2	8	1	3	2
Total		50	29	31	30	25	34	

AF: Africa; LA: Latin America; AS: Asia; EE: Eastern Europe

The applications to the programmes came mostly from engineers of various specialisations and the selection had to give some priority to other professional cadres in order to ensure a good mix of experiences in the group. Examples of underrepresented competencies are architects, agricultural engineers and agronomists.

Gender balance is another important factor to consider and due to skewed gender composition among applicants from the four regions, the underrepresented sex was chosen when their qualifications were fairly equal. Applicants from Eastern Europe were almost only females and a majority of those from Latin America. On the other hand, there were many more male applicants from Africa and Asia. Table 2 demonstrates a fairly good gender balance every year with a slight dominance of female participants.

Table 2: Gender balance

Year	Session	Regions	# of Participants	# of Female Participants	# of Male participants
2005-06	August	LA	13	8	5
		AF	16	5	11
		Total	29	13	16
2006-07	August	AS	14	4	10
		LA	13	7	6
		Total	27	11	16
	September	AS	18	12	6
		EE	13	11	2
		Total	31	23	8
2007-08	August	AF	13	3	10
		AS	17	11	6
		Total	30	14	16
	September	AF	15	4	11
		EE	13	11	2
		Total	28	15	13
2008-09	August	AF	11	4	7
		LA	17	11	6
		Tot	28	15	13
	September	AS	16	10	6
		EE	12	10	2
		Total	28	20	8
		TOTAL	201	111	90

AF: Africa; LA: Latin America; AS: Asia; EE: Eastern Europe

The proportion of participants from different regions of the world during 2005 to 2008 is summarized in Table 3.

Table 3: Participants from different regions (2005 – 2009)

Year	Africa	Asia	Latin America	Eastern Europe
2005 – 2009	55	65	43	38

The number of participants from Africa and Asia out-numbered those from Latin America and Eastern Europe. This is because four sessions of the programme were open for African and Asian participants and three programmes for Latin American and Eastern European participants during this period. Latin America and Eastern Europe became target regions for the first time in 2005 and 2006 respectively. (See Table 2 above).

Not everybody admitted to the programme could turn up, and therefore, provision was made for 15% extra initial admission and a reserve list to achieve a mixed group or critical mass that the programme management desired. The turnout is also a result of a careful and cautious selection process. The total enrolment was always in the range of 26 to 30 participants. Typically one participant was unable to attend the follow-up course due to visa problems, work load, pregnancy, etc. – reasons that made travelling

impossible. Sida's support for participant's international travel to the follow-up course guaranteed that almost all participants could take part in the whole programme.

4. CORE TEAM OF RESOURCE PERSONS

The anticipated roles that the trainees were to take on after the programme ranges from advocating policy change, develop and implement local projects, train staff in their own organisation, and educate new cadres of professionals. The tools for such activities comprise general knowledge of issues ranging from groundwater pollution, management principles, communication and observation skills to health protection measures, wastewater treatment, toilet systems and reuse of nutrients in food production.

The combined knowledge amongst the participants themselves is a major resource for a training activity for professionals.

The programme was organized and coordinated by experts from Linköping University (LiU), Swedish University of Agricultural Science (SLU), and Swedish Institute for Infectious Disease Control (SMI). The core team of trainers cover the range of required expertise and remained the same throughout the period 1999 to 2009 as shown in Table 4. A number of additional experts were engaged in the training and field visits in Sweden.

Table 4: Core team of resource persons

Programme director	Programme secretary	Resource person	Area of expertise	Institution
Jan-Olof Drangert	Solveig Nilsson	Jan-Olof Drangert ^a	Management	LiU
		Helena Krantz	Management	LiU
		Håkan Jönsson	Agriculture and technology	SLU
		Björn Vinnerås ^a	Agriculture and treatment methods	SLU
		Thor-Axel Stenström ^a	Health and Hygiene	SMI
		Caroline Schonning	Health and Hygiene	SMI

^a Resource person responsible for selection of participants

Three persons from the core team with different areas of expertise were responsible for selecting the participants and they ensured a well-composed group. Input on selection was also provided from the EcoSanRes Programme (Arno Rosemarin and Cecilia Ruben).

For the two-week follow-up courses in the four regions most resource persons were recruited from local and national institution/organisations in the country. The local organisation engaged in each region was Creditte Ltd. in Bangalore, India, v.d. Molen Ltd. and University of the Kwa-Zulu Natal in South Africa, Women for a Common European Future (WCEF) in the Ukraine, and Sarar in Mexico. These organisations remained the same for the four years.

5. PROGRAMME STRUCTURE AND ACTIVITIES

5.1 Programme structure

The programme was made up of three weeks of training in Sweden and two weeks in one of the countries in the target region, and an individual professional project in between.

The Swedish part of the programme covered the more theoretical issues while the follow-up in a regional capital was more implementation oriented. The participants were introduced to the concept of ecological or sustainable sanitation, principles of sanitation provision, water protection and how to safely reuse nutrient from human excreta and water from treated greywater. Lectures, workshops, seminars, and strategic field visits were held in Stockholm (health issues), Linköping (management issues), and Uppsala (systems and agriculture issues). The exposure to alternative sanitation in a developed country as Sweden has been critical for participants to realise that alternative sanitation is relevant for all societies not only countries in the developing world.

While in Sweden, each participant outlined his/her professional project to be implemented within his/her organisation with support from the core team. The time the participant could devote to the project depends on how closely it is related to the workplace, but an estimate is that they spend a few months on average.

The two weeks courses in a regional city (Table 5) provided the opportunity for the participants to meet in their own region to share experiences from the professional project work with each other and establish country-based and regional networks.

Table 5: Venues of regional two-week course

Year	Session	Country/City/Town
2005/06	August	Kimberley (South Africa) and Tepoztlan (Mexico)
2006/07	August	Bangalore (India) and Tepoztlan (Mexico)
	September	Bangalore (India) and Kiev/Odessa (Ukraine)
2007/08	August	Bangalore (India) and Kimberley/Durban (South Africa)
	September	Durban/Kimberley (South Africa) and Kiev/Odessa (Ukraine)
2008/09	August	Durban/Kimberley (South Africa) and Tepoztlan (Mexico)
	September	Bangalore (India) and Kiev/Odessa (Ukraine)

In 2006, the core team was impressed by the good experiences and positive results of organising the first week in Kiev where more local resource persons were available and the second week in Odessa where excellent field visits could be arranged. This inspired them to also try this with the African group in 2007 by organising the first week of the African meeting in Durban, South Africa. The outcome of this change (i.e from two weeks in Kimberley to one week in Durban and one week in Kimberley) was successful and made it possible for participants to gain access to ongoing sanitation research at the University of KwaZulu Natal in Durban and the city's 70 000 urine diversion dry toilets in its rural areas. In addition, there was still enough time during the following week in Kimberley to make field visits to ecological sanitation projects and gather information from local resource persons.

All Asian participants received urine diversion dry toilets for ‘washers’¹ in Bangalore while African participants received urine diversion dry toilets for ‘wipers’² in Durban in 2007. This stimulated participants to implement individual and project-based installations.

5.2 Programme activities

Lectures, work in groups, workshops, seminars and field visits were organised to give participants in-depth understanding of the following:

- Water and nutrient cycles in time and space and related routes of contamination
- Management options for improved urban environmental sanitation and ways to utilise nutrients in human excreta as a resource in urban agriculture
- Risk assessment, including hygiene aspects in handling sanitized urine and faecal matter, as well as socio-cultural, religious norms, beliefs and attitudes concerning risks
- Cost and benefits, including those related to the environment, of ecological sanitation systems compared to current technical alternatives
- Exchange of experiences of household efforts to improve well-being through safe excreta disposal and protection of ground water
- Skills training in social inquiry and observation

Some adjustments were made of the programme content each year (See Annual Reports of the programme). More emphasis was given to greywater and organic wastes aspects from 2006. From 2007, the number of seminar presenters during the two-week course was reduced to allow for discussions about observations and other findings during study visits.

All material presented during the whole programme such as lectures, group-work reports, and professional projects were included in a DVD that each participant received together with the Certificate.

5.3 Methodology

Problem-Based Learning (PBL): The programme was designed to stimulate the participant to take responsibility for his/her learning process through own activities. Problem-based learning emphasizes that the participants learn from peer knowledge and experiences. Sanitation is a very good topic for PBL since it is a problem that can be addressed using a variety of solutions in many cases. By discussing and solving problems in small groups, following a seven-step-procedure, they became responsible for the learning process, while the teachers formulated the learning goals and the cases. Lectures served as a support to address the questions and problems that the small-group discussions had led to. The idea is to give answers and contexts after the questions have been put, not to give the answer before the question is formulated. This methodology was feasible since most participants were already working in the sanitation sector and could share their experiences and knowledge with peers from other sectors. This is the essence of the aim of inter-sectorial understanding.

¹ People using water for anal cleansing

² People using toilet tissue, paper, leaves, etc for anal cleansing

Professional projects (in participant's home country): Each participant carried out a professional project in his/her home country. A core-team adviser was allotted based on the academic and professional background and project objectives. The role of the adviser was to respond to queries and provide references for further reading and lastly to comment on the draft reports. Each participant presented her/his professional project orally during the two weeks follow-up meeting. These presentations were followed by discussions in the group. After revision, the final reports were published and made available to the EcoSanRes programme on a DVD.

Participants' professional projects were dealing with a wide range of topics. The quality of the reports varied due to the resources available to the participants i.e. in form of support from their employers or organisations. A certificate was sent out to the participant when the adviser found the report satisfactory. The professional project encouraged each participant to start off with a project already while in training. They also benefited from comments as well as presentations by their fellow-trainees to better understand the intricacies of being a change agent.

Interviews: Communication skill is fundamental to any change agent. The intention of this costly interview-training exercise was to develop the trainee's skills in communication, interviewing and investigating. Each participant conducted a mock interview in front of a video camera, and a professional communication expert assisted the group (of four trainees) to observe and comment on each one's performance. The tape was then replayed to see to what extent the first impressions were valid. Each participant later conducted two real-life interviews, one during the stay in Linköping and the second in the regional city. They selected a topic and prepared questions that would enable them to get in-depth answers during interviews. The task to produce an interview protocol required detailed guidance. Finally, they presented their interview results to the group and in this way each participants gained more local information than could be collected by a single person.

This interview training gave opportunity to become more conscious about the impact of one's own behaviour as interviewer and to understand some of the basics in human communication. This skill is readily applicable in their future work, not least when conducting surveys and studies about residents' perceptions and values. The training could help to avoid some of the common mistakes in formulating questionnaires and the way to approach respondents and informants. Respect and good rapport with the informants is a must that is often overlooked.

Observations: An interesting invention was introduced in the 2006 programme as participants were trained in observation skills. During each study visit the programme director collected strategic pictures and oral information from guides and others. A few strategic pictures served as a starting point for detailed discussions a day later about what the participants had seen and learnt. The discussion around the pictures took at least 2-3 hrs i.e. as long as the study visit itself. The general comment from the participants was that they had seen and heard very little. They said that they benefited a lot more through this exercise and it made the study visit worthwhile and a productive way to become observant and make full use of the visits. The discussion also served the purpose to applying what had been learnt earlier in the course and now in a real-life context.



Figure 3. Study visit and follow-up discussions of what had been seen and understood. (Jan-Olof Drangert)

Such an exercise can also be extended to discussing how to improve an observed technology or management. In Tepoztlan, Mexico for example, participants observed the sewage system in a village and later on presented their impressions, suggestions and recommendations for improvements on this system to the local authorities. Similarly, participants in Bangalore decided to assess the existing water and sanitation system in the guesthouse where they stayed and the suggestions were discussed with the hotel management in an open meeting.

This observation skills training can be used to train colleagues back home in their own organisations. In so doing these organisations can improve their capacity to self-evaluate the projects they are involved in.

6. IMPACT OF THE TRAINING FOR PARTICIPANTS AND THEIR PLACES OF WORK

6.1 Individual goals and objectives

In the applications to the programme, the participants express that their interest in this programme was driven by a general desire for:

- Personal development
- Policy development and institutional management
- Networking and business opportunities
- Foreign experience and exposure
- Academic development and international research possibilities

They further anticipated the programme to provide more specific rewards:

- Expand knowledge and skills in ecological sanitation which would function as a catalyst for the government and NGOs in policy development, regulation and proposal drafting. Learn more about promotion of ecosan, planning of ecosan, risk management in ecosan, social aspects of ecosan, construction process, practical aspects of ecosan, and experiences from different ecosan projects/programmes in Africa, Sweden and other parts of the world.

- Help improve research skills in sanitation and keep abreast with latest technologies in sanitation. Get exposure and acquire knowledge to handle critical sanitation issues like solid waste management. Gather in-depth knowledge in teaching sanitation issues at the university back home.

6.2 Impact on the career and short- and long-term impact on the workplace

A basic factor in assessing the impact of a training activity is the career pattern for the alumni (those who have completed the training). A recent survey provided data concerning the situation in April 2010³. Table 6 shows that two out of three alumni have improved their position after completing the training. One likely reason is that persons were given this training opportunity as part of their career in the organisation. The effect is that these alumni stand a better chance to influence changes in their place of work and organisation.

All alumni except three are still working in the sanitation sector. The three have reported that they have moved to other workplaces. A conservative assessment of the data on their position, workplace and work content indicates that 113 of 131 alumni are still engaged in sanitation and ecosan activities which amounts to more than half of all alumni.

Table 6. Number with improved position and number working with ecosan activities.

Year	Session	Regions	# with improved positions after		# working with ecosan in 2010	
			Actual	Out of ¹	Actual	Out of ²
2005-06	Aug.	LA	9	10	8	10
		AF	6	8	5	4
2006-07	Aug.	AS	4	6	12	13
		LA	9	11	9	9
	Sept.	AS	8	10	8	8
		EE	6	13	7	9
2007-08	Aug.	AF	1	10	4	8
		AS	5	12	6	6
	Sept.	AF	10	13	6	9
		EE	6	8	6	7
2008-09	Aug.	AF	4	7	10	11
		LA	11	16	14	15
	Sept.	AS	7	12	9	11
		EE	8	9	9	11
Total			94	145	113	131

¹ Number of alumni that we have information on their previous and present job positions (See appendix)

² Number of alumni that we have information on their achievements and ongoing projects (See appendix)

³ The programme's alumni website - <http://itp.ecosanres.org/> complemented with reported activities/projects and achievements through e-mail correspondence with the director and personal communication with the core team are presented above and further in the Appendix (presented by year, region, sex, present position, affiliation, kind of work, impact, external impact, projects, and articles).

Policy formulation, implementation of sanitation projects and training activities go together and can have a long-term impact on sanitation development locally and in the country. Training of the next generation of sanitation-related experts such as sanitation engineers, city planners, construction consultants is part and parcel of the contribution to improved health and well-being.

Table 7 shows that 97 (=27+17+53) alumni out of 131 are engaged in ecosan capacity building, that is three out of four alumni. 53 are engaged in ecosan advocacy, promotion, training, and demonstration in schools, offices, rural and urban communities through NGOs and other organisations.

27 are involved in research and have included ecosan in their lectures in universities and other research institutes. Lecturers in Latin American universities have successfully included ecosan in the curricula for training students. They also engage students in project work as part of their formal training. In this way, more financial, local human and physical resources are channeled to the sanitation sector. In addition, more researchers often provide advice to policy makers and hence contribute to guidelines, norms, etc. 17 alumni have their PhD topic related to sanitation and ecosan. They can in turn inspire students and young researchers to devote their careers to developing a more sustainable sanitation sector than would otherwise be the case.

Table 7. Alumni engaged in lecturing/teaching ecosan in universities and research institutes, pursuing PhD-studies with ecosan-related topics, and promoting/ demonstrating/training ecosan through local NGOs, schools and other institutions.

Year	Session	Regions	# Researchers /lecturers teaching ecosan at Universities and research institutes		# Were/are pursuing PhD studies with ecosan-related topics during and after the training		# Promoting/ training/demonstrating ecosan in (schools, NGOs, etc)	
			Actual	Out of ¹	Actual	Out of ¹	Actual	Out of ¹
2005-06	Aug.	LA	4	10	-	10	1	10
		AF	1	4	-	4	-	4
2006-07	Aug.	AS	1	13	1	13	8	13
		LA	2	9	1	9	3	9
	Sept.	AS	1	8	1	8	3	8
		EE	6	9	-	9	2	9
2007-08	Aug.	AF	2	8	2	8	-	8
		AS	1	6	-	6	3	6
	Sept.	AF	2	9	5	9	3	9
		EE	2	7	1	7	-	7
2008-09	Aug.	AF	-	11	1	11	8	11
		LA	4	15	4	15	6	15
	Sept.	AS	1	11	-	11	8	11
		EE	-	11	1	11	8	11
Total			27	131	17	131	53	131

¹ Number of alumni that we have information on their achievements and ongoing projects (see appendix)

Despite the fact that private entrepreneurs have less opportunity to be away for long training courses a total of 22 have participated in the Ecological Alternatives in

Sanitation programme (from toilet design, construction and marketing). They are very important actors that can influence the direction of bigger projects. Another 28 alumni have reported that they are involved in one way or the other in policy development and a number have been successful in influencing politicians and decision makers to include ecosan in sanitation rules guidelines and regulations.

Table 8 Number of alumni active as private entrepreneurs and alumni in positions where they can influence policy

Year	Session	Regions	# active private entrepreneurs in the ecosan sector		# alumni in position to influence policy change	
			Actual	Out of ¹	Actual	Out of ¹
2005-06	Aug.	LA	1	10	1	10
		AF	-	4	-	4
2006-07	Aug.	AS	2	13	6	13
		LA	1	9	3	9
	Sept.	AS	4	8	2	8
		EE	-	9	1	9
2007-08	Aug.	AF	1	8	-	8
		AS	-	6	1	6
	Sept.	AF	1	9	-	9
		EE	-	7	-	7
2008-09	Aug.	AF	1	11	3	11
		LA	4	15	4	15
	Sept.	AS	3	11	4	11
		EE	4	11	3	11
Total			22	131	28	131

¹Number of alumni that we have information on their achievements and ongoing projects (See appendix)

The summary of positions from which the alumni collectively can have an impact on the development is that 28 (of 131) tell they have influence at policy level, 53 work with advocacy and promotion, 27 are lecturers/researchers in universities, 17 are PhD students or ready PhDs developing sustainable sanitation systems, and 22 are private entrepreneurs who can carry out professional sanitation projects. The other alumni are working with projects in sanitation and water.

This indicates that the alumni network that is in place since April 2010 has a strategic role as node for information, exchange and cooperation.

6.3 Examples of organisational effectiveness

There are more than 150 professional projects on a DVD which is available at SEI. The titles of some of these are given in the Appendix and give a hint as to the great variety of activities that are included in the concept of sustainable sanitation.

Most of the alumni are active in sanitation-related activities and initiate new ecosan related projects at different scales to continue demonstrating the concept. Others have produced ecosan guidelines and are working towards influencing policy. In addition, some have been able to establish important links with other sectors like the

agricultural sector. In the following we give some typical examples of how alumni have tackled the challenges of institutionalising ecosan or sustainable sanitation.

Many alumni have been involved in dissemination of the WHO Guidelines (2006)⁴ in Sri Lanka, Colombia, India, South Africa, to give some examples. They are also a resource base for the establishment of eight ecosan nodes around the world. Alumni are also engaged by organisations such as UNICEF and donor agencies to help establishing and implement sanitation programmes. Several are engaged when research project or interventions are being planned and have managed to mobilise national research funds for ecosan project. Furthermore, alumni are engaged in different ways through their professional organisations and regional networks such as the World Toilet Organization (WTO), International Water Association (IWA), the Sustainable Sanitation Alliance (SuSanA) and PEN the EcoSan network in the Philippines, and the Inter-American Association of Environmental Engineering (AIDIS).

Uganda has a 10-year strategy on ecosan which focuses on coordination and networking, change of attitudes, concepts and technologies, and political and policy support. An ecosan coalition committee coordinates this work and three alumni are members of this committee. They are working to bring down costs of UDDT in relation to VIP, and will also introduce other ecological low cost sanitation options like the arborloo.

The Latin American alumni network organises regular meetings, seminars/workshops. Members share information and experiences through skype meetings and online discussion groups. In November 2007 two alumni organised a regional conference in Fortaleza with over 150 delegates. A network meeting for Latin American knowledge nodes is planned for 2010 in Peru the main organizers of this meeting are alumni.

A growing number of regional government institutions use and pilot ecosan in the Philippines. An alumnus was involved in the formulation of the Philippines Clean Water Act 2007 (CWA) which provides guidelines on procedures and technical requirements for a certification process for reuse of wastewater for irrigation and other agricultural purposes. At the moment, the PEN network where many alumni participate is working on developing a national road map for sanitation.

In Sri Lanka, some alumni have organised a national conference with council representatives from the entire country. They managed to encourage the Ministry of Health to approve legislation for urine-diverting toilets and recycling of urine. There is an ongoing development of combining biogas production fed with toilet flush water while diverting and reusing urine separately.

In Colombia, a national group of alumni is working on sustainable sanitation with the objectives to disseminate information and exchange knowledge, provide technical support, and standardise technical aspect for ecosan. They also work on policy development for alternative sanitation in rural and peri-urban areas. Ecosan has been included, but the dry urine-diverting toilet is categorised as a latrine.

In the Ukraine the alumni and their organisation (WCEF) has made a breakthrough with introducing dry urine-diverting toilets in schools, and has government support for their activities. They also carry out some research on hygiene risks for ecosan systems.

⁴ WHO Guidelines (2006) for Safe Use of Wastewater, Excreta and Greywater

In South Africa the ecosan development is rapid and cities like Durban and Kimberley have large number of modern dry urine-diverting toilets (over 70,000). They develop large-scale system for emptying and eventual reuse of nutrients in agriculture. The treatment and reuse of greywater becomes easier when the pathogenic faecal fraction is taken care of separately. A university-based group (Water Pollution Research Group) carries out relevant research which is funded by the city council on the advice of two alumni.

A single alumnus can also make an impact. A good example is in Rwanda where ecosan is fast developing. One of the forces behind the scaling up of ecosan in Rwanda is an ITP alumni working for UNICEF Rwanda.

The alumni manager of SPACE Bangladesh is heavily engaged in scaling up ecosan. SPACE has constructed 500 household eco-toilets and urinals in 5 secondary schools.

In Brazil, the Brazilian Association of Environmental Engineers meet at annual conference with more than 6000 participants. In 2010 a former alumnus was coordinating an EcoSan session with an attendance of more than 100 engineers.

In relation to the development of EcoSanRes 2 programme activities, alumni expertise/competencies have been mutually beneficial during the scoping process to identify knowledge nodes and later on in regional networks for the working groups of the Sustainable Sanitation Alliance (SuSanA) and in the establishment the African Sanitation Knowledge Network (ASKNet).

6.4 Continued cooperation between alumni and the core team

There is a continued collaboration between many alumni and members of the core team. Core team members are invited as speakers to conferences, as commentators on planned investigations and surveys on various aspects of sanitation systems, to write joint research papers, to assist in developing project proposals, etc.

Many of the alumni are commenting on a new e-learning material on *Sustainable Sanitation for the 21st Century* that is presently developed by the programme director and two core-team members. It originates from a development of the programme's learning material and consists of some 500 powerpoint slides and a page of text to each outlining the content of the slide and providing references for further reading.

The material will be launched at the Stockholm Water Week 2010 and is intended to be used in training institutions for professionals and can also be of value for other promotion and capacity building activities. The alumni will play an important role in dissemination of this learning material.

7 CONCLUDING REMARKS

The programme has faced an uphill battle since the topic of managing human excreta and other rest products from households is a non-issue in many quarters. Therefore, the challenges that face the alumni in implementing changes are daunting.

From the presentation of results it is clear that the achievements are much more than expected. This, in turn, is the likely result of all environmental problems accompanying rapid urban (unplanned) growth and pressure on limited resources, both human and natural.

Authorities are pressed by time since new conventional housing areas are being built at an unprecedented speed. Last year, China contributed 50% of the built area in the world that year. Most of the constructed sanitation solutions are not sustainable and new thinking has to come in a big way. Alumni from the programme can be instrumental in helping this process to take on.

During the programme the participants had the opportunity to approach and deal with sanitation problem using a holistic perspective. They showed engagement and appreciation, and were happy to meet other participants with different backgrounds and to share knowledge and experiences with one another.

Generally, the objectives of both the programme and the participants were met. Some comments from participants during the evaluation of the whole programme included:

- Benefited a lot and left Sweden with a major sense of achievement in the learning objectives
- Wonderful moment to interact with facilitators and other participants
- Good, enriching and exciting experience
- This ecosan exposure will bring good things and breakthroughs
- A great personal and professional experience
- Grateful for attention, patience and understanding
- Interesting and unique experience
- Stimulating and enriching experience in Sweden

A conclusion that can be drawn is that the professional projects have given each participant an identity (developed within the area of sanitation) in their various working places.

From the correspondence with participants after their participation in the programme, it is clear that they have changed their way of working. Therefore, an important programme goal has been fulfilled.

8 APPENDICES

A recent survey provided data concerning the situation in April 2010 below. The programme's alumni login website: <http://itp.ecosanres.org/> complemented with reported activities/projects and achievements through e-mail correspondence with the director and personal communication with the core team are presented in the Appendix (presented by year, region, gender, present position and affiliation, kind of work, impact, external impact, projects, and articles).

8.1 International Training Programme (ITP): Ecological Alternatives in Sanitation, 2008/09 August Session

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Africa										
Coulibaly Chiaka	M	Tr	Tech Assis	↗	IO	Pd		Introducing ecosan concept		Created a small company to promote ecosan
Simon Mariwah	M	RA	RA	→	U	Cb		Introducing UD in peri-urban areas		Working with a church relief agency/PhD studies
Dexter Masese	M	WSHC		↗	NGO			Introducing ecosan in 8 primary schools		Demonstration garden for reuse
Rogério Batine	M	Soc	HU	↗	CGov	Cb, Pa				New higher and prestigious position within the ministry of Public Works responsible for Procurements
Jansen Charmaine	F	PA		↗	RGov			Installed UD at home, starting up an ecosan company		Training community members as part of a community project
Joseph Florence	F	Dir	GM	↗	CG	Ae, Mp, Sr		Training in villages; optimizing composting		Exemplification of ecosan and linking to policy advocacy
Monday Johnson	M	PO		↗	IO	Pd, Cb, Pa, Sr, Ae, Mp		Demonstrating UD in schools		Working on social perceptions, conducted a zonal training on ecosan
Ntayombya, Phocus	M	WSHS	WSHS	↗	IO			Developing national strat. And combine with communication strat.		Ecosan demonstration linked to agric.
Yawodjin Agbemadon	M	Tech Assis	Tech Assis/PM	↗	IO	Pd, Cb, Sr, Ae, Mp			4	
Lee Rosenzweig	F	Dir	Dir	↗	RGov			Urban housing project with potential for future reuse		2 pilot projects for community bath houses in informal areas. Reviewed ecosan e/-learning material with Jan-Olof
Renuka Devi	F			↗	RGov			Promoting reuse, advocacy		Study tours; Promoting reuse in flower gardening
Latin America										
Bertiana Laura	F	WSHC	Tech Assis	↗	CG	Pd, Cb		Dry sanitation project		Continuing with ecosan project In schools
Carla A. Flores	F	S	R	↗	PS	Pd, Sr, Ae, Mp		Ecosan in rural areas		Assessment of water systems in dry areas
Ronaldo da Silva	M	Prof	Prof	↗	RI	Sr		Agricultural growth experiment	10	Managed to include a new discipline with content on ecosan
Botto Marcio	M	T	PhDS	↗	U, NGO	Pd, Mp		Developing research on using urine on custard beans, sunflower, corn		Implementing ecosan course at undergraduate level, finished PhD studies
Ana Claudia Braga	F	Con	M	↗	PS	Pd, Cb, Sr		Construction of UDDTs, research on urine and struvite	1	Collaborating with Paula
Viviana Valencia	F	PM	R	→	RI	Pd, Pa, Ae, Sr		Implementing ecosan at office	5	Planning and implementing biogas project in small city
Jaime Andres A.	M	GM	Tech M	↗	PS	Pd, Cb, Ae, Sr		Including ecosan in ongoing project	1	Actively engaged in water reuse in gardening; Formed ECOSALSA
Marta Lucia Guardiola	F	GH	Prof, R	↗	U	Pd, Cb, Sr, Ae		Introducing use of urine	2	Developing course on env. Eng;
Ana Maria Garzon	F	Tech		↗	PS	Pd, Ae, Mp		Continuing with ecosan project		Growing palms fertilized with ecosan products;

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
		Assis								advocacy for ecosan – promote concept
Marcos Fioravanti	M	Dir	Dir	→	PS			Studying pathogen die-off		Installing UDs, research on waterless urinals, using toilet compost
Carlos Serrano	M	Tech M	T	→	PS	Pd,Cb,Pa,Sr,Ae, Mp			10	
Trejo Castillo Luis	M	Dir	Dir	→	Cons			Low cost sanitation project		Sanitation in rural areas, rainwater harvesting project
Maria Petrowitsch	F	Tech M	Tech M	→	PS	Pd,Cb,Pa,Sr		Agric. And composting	5	Agric. Experiment
Cruz Espinoza Ligia	F	R	PhDS	↗	U	Pd,Cb,Pa,Sr,Ae, Mp		PhD on pathogens, Central America	2	
Mellado Rocio	F	WSHC	WSHC	→	IO	Pd,Ae,Cb,Sr		Implementing biogas project	4	WatSan Research, finished PhD
Yane Quispe	F	WSHC	Sup	→	PS	Pd,Cb			2	
Claudia Lema	F	PO	Dir	↗	PS	Pd,Cb,Pa,Sr,Ae, Mp		PhD studies; Building, maintenance and monitoring of ecosan modules, including training for local government	2	Promotes Ecosan Alternatives for Rural Highland communities in Ayacucho, Peru; Urine re-use training for families and schools

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Pd. Project Development/Design/Implementation
Cb. Capacity Building and Training
Pa. Promotion/Advocacy
Sr. Studies/Research
Ae. Assessment/Evaluations
Mp. Management/Policy-Making

8.2 International Training Programme (ITP): Ecological Alternatives in Sanitation, 2008/09 September Session

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Asia										
Al Mamun Abdullah	M	Tech Assis		↗	IO			Promoting ecosan in school, motivate farmers		
Liyun Liu Yun	F	M	M	→	RI	Pd,Pa,Ae,Cb,Mp		Wastewater, greywater, rainwater harvesting, solid waste	3	
Fu Yanfen	M	Doc	Dir	↗	PS	Pa,Pd,Ae,Cb,Sr		Developing wet UD for Chinese market	5	
Maria Prihandrijanti	F	R	PhDS	↗	RI	Pd,Ae,Mp,Sr,Cb			3	
Lawin Bastian	M	HD			CGov					
Sahar Dalahmeh	F	R	PhDs	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Greywater treatment, in lab and in Jordan	10	Implementing UDT in own house
Chun Nyo Jo	F	R		↗	CGov			Developing ecotoilet design& biogas unit		Including ecosan in planning (EPP)
Ri Gyong Sim	F	HD		↗	CGov			Developing info. material in Korean for CB		Organising training, campaigns, TV,
Thapa Ganesh Bahadur	M	Eng	Eng	→	Gov	Pd,Pa,Ae,Cb,Mp		Developing user manual for UDTs, ecosan guidelines, studies on impact of ecosan		Training at national level, establishment of ecosan resource center
Kamal Adhikari	M	Soc	Soc	→	Gov	Pd,Pa,Ae,Cb,Mp		Developing user manual for UDTs, ecosan guidelines, studies on impact of ecosan	7	Training at national level, establishment of ecosan resource center
Cora Sayre	F	Dir	Dir	→	PS	Pd,Pa,Ae,Cb,Mp		Promoting ecosan, develop squat pans		Installed 40 UDDTs, 200 arbolooos
Cunanan Soledad	F	HO	Doc							
Analiza Miso	F	S	S	→	U	Pd,Pa,Ae,Cb,Mp,Sr			2	
Kamal Dahanayake	M	Con	Con	→	RGov	Pd,Pa,Ae,Cb,Mp,Sr				
Hanh Hoang Hong	F	Auditor	R	↗	CGov	Mp		Developing research studies on strategies and policies of natural resources and environment in Vietnam. SEA Guideline development for the Fisheries Sector		projects related to strategic environmental assessment (SEA) National Land Use Planning 2011-2020.
Yvette Guanzon	F	GIS Specialist	GIS Tech		RGov	Pd, Pa, Ae		Promoting urine use as fertilizer, working with ecosan toilet design		Plans to engage in ecosan work in the future
Eastern Europe										

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Djana Gumeni	F	Assis	EnvS	↗	CGov	Pd,Ae				
Oksana Savich	F	R	R	→	RI	Ae,Sr		Current activities are not connected to sanitation	3	Current activities are not connected to sanitation
Elmina Ahmetovic	F	Assis	Econ	↗	CGov	Pd,Pa,Ae,Sr		Technology and knowledge transfer		Rallying private sector, etc
Indira Aseyin	F	M	BPres	↗	NGO	Pd,Pa,Ae,Cb,Mp,Sr		Strategies for reuse of waste and wastewater, training and cap. Building		Developing microfinance system for building UDTs
Natalia Salomahina	F	HEnvC		↗	NGO		International networking	Ecosan training, advocacy work with ministries		
Olga Djanaeva	F	Dir/Tr/Con	Dir/Tr/Con	→	NGO	Pd,Pa,Ae,Cb,Mp,Sr		Training of trainers, fund raising activities		Construction of school toilets
Sergiu Andreev	M	Pres	PO	↗	NGO	Pd,Pa,Ae,Cb,Mp,Sr		Created training centre, Training trainers		Accepted for Msc studies at Unesco-IHE – focusing on ecosan
Vesna Nanusevski	F	EnvInsp		↗	CGov			Training of trainers, Regulations for reuse		Include waste water products in water law
Jovana Rašeta	F	Con	Con	→	NGO	Pa,Cb,Mp,Sr		Advocacy for ecosan work	1	Mapping NGOs and inform them on ecosan
Olena Shvalova	F	WSHS			NGO					Gov. approval of ecosan solutions
Berezhia Yuliya	F	PC	PhDS	↗	NGO			Construction of UDTs, info. campaigns, water safety prog. For schools		Finalizing PhD work, Greywater reuse; Eco agric lectures
Gulbakhar Izentaeva	M	PO	Dir	↗	NGO	Pd,Pa,Cb,Mp,Sr		Promoting and implementing UDDTs; include greywater treatment in the future	3	Developing TV adverts on ecosan

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Pd. Project Development/Design/Implementation
Cb. Capacity Building and Training
Pa. Promotion/Advocacy
Sr. Studies/Research
Ae. Assessment/Evaluations
Mp. Management/Policy-Making

8.3 International Training Programme (ITP): Ecological Alternatives in Sanitation, August 2007 Session

Participants										
	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Africa										
Aluko Olufemi oludare	M	Con	Con	→	IO	Pd,Pa,Ae,Cb,Mp,Sr			2	
Chulu Fidelis	M	WASHC	WASH C	→	IO	Pd,Pa,Ae,Cb,Mp,Sr	Extensive international work on WASH		10	
Dzwaitiro Bloodless	F	R	PhDS	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		PhD studies in water quality South Africa Developing research and capacity development at IWSD Zimbabwe	9	PhD studies
El Gamri Tarig	M	HD	HD	→	RI	Pd,Pa,Ae,Cb,Mp,Sr			10	Networking
Ezeji Joachim	M	PM	PM	↗	NGO		Networking with Envirosan and others	Piloting UDDTs		Ecosan business plan finalist in 2009 SEED Award, PhD scholarship
Haangoma Brian	M	PA or PO			PS	Pd,Pa,Ae,Cb,Mp,Sr				
Nabattu Gorret	M	Soc	Soc	→	CGov	Pd,Pa,Ae,Cb,Mp,Sr				
Nyamori Rose	F	Chemist			CGov					
Ogunjobi Bioye	M	WASHC	WASH C	→	IO	Pd,Pa,Ae,Cb,Mp,Sr	Presented at WEDC conf.		1	
Osiri Josiah	M	ProjC	PA or PO	→	IO	Pd,Pa,Ae,Cb,Mp,Sr				
Shewa Wudneh Ayele	M	GM	ProjC	→	NGO	Pd,Sr,Cb	Involved in an EU funded specific target research project called ROSA	teaching water supply and waste water engineering courses	6	Involved in the University Capacity Building Program (UCBP) in Ethiopia as a freelancer.
Van Rooi Geraldine	F	Planner	Planner	↗	RGov	Pd, Mp			6	Developed web article on ecosan
Zerefu Getachew A.	M	HD			CGov					
Asia										
Balbuena Imelda	F	ComWorker	ComWorker	→	IO	Pd,Pa,Ae,Cb,Mp,Sr			1	
Bashouri Noha	F	HD			RGov					
Bhargava Renu	F	Prof	Prof	→	RI	Pd,Pa,Ae,Cb,Mp,Sr				Includes ecosan in teaching
Creencia Erlinda	F	PA or PO	PA or PO	→	RGov	Pd,Pa,Ae,Cb,Mp,Sr				
Jayakody Priyantha	M	R	AgricE	↗	IO	Sr		Research on wastewater	3	

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
			ng					discharge and waste water use in agriculture		
Kariyawasam Ganga	F	PA or PO	PO	↗	IO	Pd,Pa,Ae,Cb,Mp,Sr			4	Construction of ecotoilets
Le Thi Phu	F	HD	Dir	↗	RGov	Pd,Pa,Ae,Cb,Mp,Sr				
Lei Jun	F	PA or PO	WSHS	→	IO	Pd,Pa,Ae,Cb,Mp,Sr		Piloting ecosan in school		Monitoring application of ecosan products
Morshed Golan	M	ProjC	HProm	→	IO	Pd,Pa,Ae,Cb,Mp,Sr				
Mohammad Niaz	M	Dir	Dir	→	NGO		Installation of UD toilets in 10 schools in the Hajja directorate of Yemen	advocating with the local NGOs for the installation of UD toilets and household wastewater treatment		Reviewed ecosan e-learning material with Jan-Olof. Installed 112 units of dry pit latrines in the southern district of DI Khan in NWFP
Noonin Chalika	F	PA or PO	PA	→	RGov	Pd,Pa,Ae,Cb,Mp,Sr			2	
Paul Reba	F	ProjC	Exec. Sec	↗	PS	Pd,Pa,Ae,Cb,Mp,Sr		Policy development	10	Policy development
Potivichayanon Siraporn	F	T			U					
Pramanik Azahar Ali	M	Dir			NGO					
Rizvi Ehsan Haider	M	M			PS					
Vo Thi Yen Phi	F	AgricEng	R	↗	U	Pd,Pa,Ae,Cb,Mp,Sr			5	
Yuan Yuexiang	M	R			RI					

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Pd. Project Development/Design/Implementation
Cb. Capacity Building and Training
Pa. Promotion/Advocacy
Sr. Studies/Research
Ae. Assessment/Evaluations
Mp. Management/Policy-Making

8.4 International Training Programme (ITP): Ecological Alternatives in Sanitation, September 2007 Session

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Africa										
Ali Adan Mohammed	M	PO	TechAssis	↗	RGov	Pd,Pa,Ae,Cb,Mp,Sr			3	
Boh Michael Yongha	M	S	S	→	U	Cb,Sr				
Camara Fode Abou	M	R	ProjC	↗	IO	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan advocacy	3	
Chemane Marculino	M	PO	PO	→	IO	Pd				
Egbelakin Temitope	F	PM	PhDS	↗	U	Pd,Pa,Cb,Sr				
Hoossein Shafick	M	Con	Con	↗	U	Pd,Pa,Ae,Cb,Mp,Sr	May further PhD studies in Leeds	Developing paper on professional work	3	Presently working with local government in South Africa. MSc thesis on ecosan
Jabo Joseph	M	Con	PhDS	↗	U	Pd,Sr		PhD studies		PhD studies
Kabange Roland	M	PhDS	R	↗	U					Completed PhD studies in Leeds
Kalandi Sahanoon	M	R			NGO					
Kasisi Imani	M	Dir	Dir	→	NGO			Conducting sustainable sanitation promotion including ECOSAN latrines	4	Conducting hygiene education, promotion of sanitation facilities and construction of demonstration latrines; Conducting hygiene education, promotion of sanitation facilities and construction of demonstration latrines
Keraita Bernard	M	PhDS/R	R	↗	IO		Working for IWMI Africa	Coordination of Environmental Health studies in Ghana		Pathogen die-off in waste water treatment process. studies on food; Safety, risk assessments and risk communication, hygiene practices, household water quality. PhD thesis on pathogen die-off
Lutalo Evelyn	F	PO	PO	↗	RGov	Pd,Pa,Ae,Cb,Mp,Sr		Monitoring ecosan projects	3	Taking an 8 weeks research course in University of Florida
Nelson Ekane	M	PO	R	↗	RGov	Pd,Pa,Ae,Cb,Mp,Sr	Working with EcoSanRes, SEI	EcoSanRes demonstration project in Cameroon	3	Working on the 2nd vol. of the Eawag Sandec compendium on Sanitation Technologies – part of PhD research
Ndesamburo Joyce	F	EnvEng			IO					
Were Elisabeth	F	TechO	PO	↗	NGO	Pd,Pa,Ae,Cb,Mp,Sr		ROSA East Africa	4	ROSA East Africa
Eastern Europe										
Aiylichieva Elmira	F	ProjC	T	↗	NGO	Pd,Sr,Pa,Cb				
Anakhasyan Emma	F	ProjC	HD	↗	NGO	Pd,Pa,Ae,Cb,Mp,Sr	Research at SMI	PhD studies on ecosan	2	School toilet project
Avetyan Narine	F	CommExp			CGov					
Biletchi Lucia	F	R	R	→	RI	Cb,Sr				
Drazdova Alena	F	S			RI					

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Abragimov Shahruh	M	ProjC	ProjC	→	NGO	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan project	2	Ecosan project
Karimove Ismat	M	Dir			NGO					
Khatanbaataryn Altantul	F	ProjC	T	↗	U	Ae,Cb,Mp,Sr		Working to establish the laboratory of "Environmental monitoring and information system training" under the UN-Habitat project.		University had organized several seminars and conferences on sanitation and waste water treatment. Advertising ecological sanitation as well as possible to students, citizens, communities
Knyazkova Tetyana	F	R	Prof	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Project work with ecosan	10	Uses ecosan material in lectures
Mairamkul Turdumambetova	F	WSHC	HD	↗	CGov	Pd,Pa,Ae,Cb,Mp,Sr		Dry sanitation systems for trains		
Moksunova Valentina	F	Dir			IO					Member of Russian Toilet Organisation
Poladova Ayten	F	Con			NGO					
Trenkova Tanya	F	R	EIA Expert	↗	RI	Pd,Ae,Sr		Environmental impact assessment	3	

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Pd. Project Development/Design/Implementation
Cb. Capacity Building and Training
Pa. Promotion/Advocacy
Sr. Studies/Research
Ae. Assessment/Evaluations
Mp. Management/Policy-Making

8.5 International Training Programme (ITP): Ecological Alternatives in Sanitation, August 2006 Session

Participants										
	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Asia										
An Thi Thu Tran	F	Proj. Assis	PO	↗	IO	Pd,Pa,Ae,Cb, Mp,Sr		Cooperating with private sector for ecosan promotion	8	Building biogas latrines in schools; Developing guidelines for use of urine in agric
Che XiuZhen	F	EIA		↗	NGO			Control and monitoring quality of greywater treatment methods		
Chreary Pom	M	Dir			CGov					
Kong Yuan	M	PO		↗	CGov		Worked with Ecosan conference in Erdos China	Producing a plan based on ecological alternatives combined with env. Protection plan		Initiating ecosan demonstration projects in China, Conducting outreach
Kongmany Sisamone	M	Dir		↗	PS		Dengue research at SMI	Dengue research at SMI		
Kumar Sunil	M	Scientist		↗	RI			Water management and coastal development		Capacity building of local staff
Ly Kongmeng	M	Env Eng	Env Eng	→	PS			Investigating groundwater quality , ecosan demonstration at home		
Posadas Eduardo	M	HO	HO	→	Gov			Constructing ecosan toilets, pilot school project,		Conducting sanitation survey in elementary schools, Spreading ecosan concept
Sevevirathne Delgollage	M	Soc		↗	CGov			National legislation for ecosan		
Shrestha Prem	M	WSHC	Eng	↗	CGov	Pd,Pa,Ae,Cb, Mp,Sr		Developing user manual for UDTs, ecosan guidelines, studies on impact of ecosan	1	Training at national level, establishment of ecosan resource center
Siriarayaporn Potjaman	F	Epid		↗	CGov			Assessing ecosan options and approaches,		Awareness program, constructing toilets
Ubaidha Abu	M	WSHS	TLead	↗	PS	Pd,Pa,Ae,Cb, Mp,Sr		Introducing ecosan toilets in schools, Ecosan raining	6	Held ecosan awareness workshop
Wah Sim Juek	M	Dir	Founder (WTO)	↗	PS	Pa,Mp	Among 10 environmentalists in the world by Time Magazine; World Toilet Summit and Expo	World Toilet Association; World Toilet Summit and Expo; Creating Sanipedia	3	Capacity building, promotion and media exposure; Business oriented sanitation promoter in Campuchia
Xu Zhe	F	Eng		↗	RI			Project evaluation		Introducing and promoting ecosan
Latin America										
Bonilla P. Mauricio	M	T	Dir	↗	PS	Pd,Pa,Ae,Cb, Mp,Sr		Editing an environmental paper		Writes articles on ecosan
Calle Pablo Luis	M	ProjC			IO					
Castro Rolando	M	WSHC	Dir	↗	NGO	Pd,Pa,Cb,Mp, Sr			4	
Diaz Monica	F	PM	ProjC	→	PS					

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
André Dos Santos	M	ProjC	Prof	↗	U	Pd,Pa,Ae,Cb, Mp,Sr		Leading a research group on EcoSan at the University of CEARA , Brazil	4	Organized the Brazil conference together with Paula Paolo
Farias Asmus Andrea	F	S	R	↗	U			Urine research – hygienisation of urine		Urine research. PhD thesis on hygienisation of urine /Organized ecosan session in ABS conference with 6000 participants
Lema Claudia	F	PO	Dir	↗	NGO	Pd,Pa,Ae,Cb, Mp,Sr			2	
Madera Parra Arturo	M	Prof	Prof	→	U	Pd,Pa,Ae,Cb, Mp,Sr			4	Organized ecosan conference in Colombia
Mora Jobita Ludena	F	Tech Assis		↗	NGO			Working with ecosan project		
Nolasco M. Antunes	M	PojC	Prof	↗	U	Pd,Pa,Ae,Cb, Mp,Sr		Teaching ecosan to students at USP in San Paulo ,Brazil	1 0	Exchange of ecosan/ecosan research in between Brazil and Colombia
Ruibal Conti A. Laura	F	R	PhDS	↗	RI			Material flow analysis		
Sandoval B. Iris	F	Eng	Eng	→	PS	Pd,Pa,Ae,Cb, Mp,		NGO promoting and building ecosan toilets for indigenous people		Active member and promoter of EcoSan in the Colombian network for EcoSan
Sandoval Claris	F	PO	Con	↗	IO	Pd,Pa,Ae,Cb, Mp,Sr		Developing institutional plan for reduction of C footprint	2	Planning to install ecosan at PAHO/WHO

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Pd. Project Development/Design/Implementation; TLead: Team Leader,
Cb. Capacity Building and Training
Pa. Promotion/Advocacy
Sr. Studies/Research
Ae. Assessment/Evaluations
Mp. Management/Policy-Making

8.6 International Training Programme (ITP): Ecological Alternatives in Sanitation, September 2006 Session

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Asia										
Ahmed Shafiul	M	Dir	R	↗	U	Pd,Pa,Ae,Cb,Mp,Sr	Firm won UNICEF contract to promote ecosan in Bangladesh	Piloting ecosan toilets. Installing 100 ecosan toilets with funding from UNICEF	6	Building network, conduct advocacy and research for ecosan
Ghosh Mulik Soma	F	WSHS			IO					
Beilei Shi	F	ProjC	PM	↗	NGO			Building ecosan toilets		
Choe Jong Hye	F	T			U					
Ekanayake Mangalika	F	Dir	M	→	Gov	Pd,Pa,Ae,Cb,Mp,Sr				Organized health sector in Sri Lanka; Got ecosan in national legislature
Farsimonfared Shahla	F	Dir	Dir	↗	PS	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan public toilets	1	
Issa Rima	F	EnvEng, T			U					
Jong Gyong Hye	F	T			U					
Madieh Gassan	M	Eng			IO					
Nawab Bahadar	M	PhDS	Prof	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Running the department and Sustainable Sanitation Program	7	Teaching ecosan at university level. Establishing sustainable sanitation research centre
Nghiem Duc Thi	F	ProjC	ProjC	↗	IO	Pd, Pa, Ae			2	Developed business plan for ecosan solutions; collaborating with Jack Sim
Nguyen T. Phong Lan	F	R	PhDS	↗	RI					
Parambil Rajeevan	M	PO	HD	↗	PS	Pd,Pa,Ae,Cb,Mp,Sr		Self sustained ecovillage project	2	
Subburaman Marachi	M	M	M	↗	NGO			School/ individual toilet project		Revolving funds, ecohouse
Talawat Jaruwan	F	T			RI					
Tippamongkol Jarinporn	F	PO			Gov	Pd,Pa,Ae,Cb,Mp				
Vajpai Bhawna	F	WSHS	WSHS	→	NGO	Pd,Pa,Ae,Cb,Mp,Sr			1	
Zhang Yan Li	M	Eng			RI					
Eastern Europe										
Andreev nadejda	F	PhDS	PhDS	→	U			PhD studies		
Bakashova Aijamal	F	ProjC	ProjC	→	PS	Pd,Pa,Ae,Cb,Mp,Sr				
Balashova Irina	F	R	R	→	U					
Bardarska Galia	F	Prof	Prof	→	RI	Pd,Pa,Ae,Cb,Sr	Working with Global Water Partnership project		6	Organized an ecosan meeting

Participants	Gender	Previous position	Present position	Self Impact	Affiliation	Kind of work	External impact	Projects	Articles	Others
Bitsadze Lasha	M	Reinsurer	Proj. Writer	↗	NGO	Pd		Biogas project		
Gamisonia Nino	F	Specialist	Proj. Assis	↗	MGov	Pd, Cb, Pa				
Gudkova Nataliya	F	R	R	→	IO			Sustainability issues		
Hadim Davor	M	Assis	HD	↗	RGov	Pd,Ae,Cb,Mp,Sr				Advocacy on ecosan – contacted the largest daily newspaper
Iskreva Idigo Diana	F	M	Dir	↗	NGO	Pd,Pa,Ae,Cb,Mp		NGO promoting Ecosan toilet project	1	Active SuSanA member
Naumenko Tatyana	F	M	M	→	RI	Pd,Pa,Ae,Cb,Mp,Sr	Poster session at the Ministerial Conference on Environment and Health, Parma, Italy	To develop quantitative criteria and to determine risk influence of the ecological-climatic factors on the population health	10	Advising students on ecosan. Develop and to introduce methodology of a complex risk assessment of air pollution on the population health
Sharshenova Ainash	F	HD	HD	→	CGov					
Vlasic Alena	F	Assis Prof	Assis Prof	↗	U	Pd, Ae, Cb	Advocacy for ecosan, outreach			Includes waste reuse (ecosan) in lectures
Zubcov Elena	F	R	HD	↗	RI	Pd,Pa,Ae,Cb,Mp,Sr		Research on ecosan		

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8.7 International Training Programme (ITP): Ecological Alternatives in Sanitation, 2005 Session

Participants	Gender	Previous position	Present position	Self	Affiliation	Kind of work	External impact	Projects	Articles	Others
Latin America										
Aragundy Jenny O.	F	ProjC	Eng	↗	IO	Pd,Pa,Ae,Cb,Mp,Sr		Current activities have nothing to do with ecosan	10	Current activities have nothing to do with ecosan.
Barbosa Shaer M.	F	R	PhDS	↗	U			Ecosan project in a dry area		
Buenfil Jacinto	M	WSHS	Con	↗	PS	Pd,Pa,Ae,Cb,Mp,Sr			1	
Cordero Yadira	F	M		↗	PS			Ecosan project		Ministry of Environment
Ernesto Gil	M	C	Arch	↗	MGov			Drawing Suburaman's ecohouse		
Ingallinella Ana Maria	F	Dir	R	↗	RI	Mp, Ae, Cb, Sr		Research		Co-writer with Graciella Sanguinetti for EXPO Zaragoza 2008
Matiz Maria Inez	F	ProjC	Dir	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Evaluation of school toilets		Organize the Colombia ecosan conference in 2008/2010 Ecosan network Colombia
Orlando Ugo	M	Dir	Dir	↗	PS			Waste water treatment		
Paulo Paula	F	R	R	↗	U			Struvite research, ascaris research, die-off		Teaching and advising on ecosan
Pena Angon Fidel	M	WSHC			IO					
Peralta Elizabeth	F	EnvM	EnvM	→	PS	Pd,Ae,Mp		Greywater treatment		Established ecosan engineering group
Sanguinetti Graciela	F	HD	Dir	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Investigating about the inactivation of pathogens under different conditions of temperature and relative humidity	7	Won the Bieize at the ExpoZaragoza 2008; ecosan teaching
Sosa Caceres Roberto	M	HD		→	RI			Biogas project		
Africa										
Abature Ali Baba	M	PO			MGov					
Ahmed Zaroog Sayed	M	M			CGov					
Chinamo Elias	M	HD	Assis Dir	↗	CGov	Pd,Pa,Ae,Cb,Mp,Sr				
Dahab Safa	F	T	Assis Prof	↗	U	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan teaching		
Gebre Getaneh	M	HD	R	↗	CGov	Pd,Pa,Ae,Cb,Mp,Sr			4	
Herselman Jacques	M	Assis Dir	Assis Dir	→	RGov	Pd,Pa,Ae,Cb,Mp,Sr		Reduction of volume of urine		
Kanowa Lytone	M	Eng	Eng	→	CGov	Pd,Pa,Ae,Cb,Mp,Sr			5	
Moilwa Nancy	F	Scientist	R	↗	RI			Ecosan research	1	
Nekesa Jacinta	M	M	WSHS	↗	IO	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan projects		

Participants	Gender	Previous position	Present position	Self	Affiliation	Kind of work	External impact	Projects	Articles	Others
Niang Seydou	M	M	R	↗	RI	Pd,Pa,Ae,Cb,Mp,Sr		Ecosan research	10	
Okioga Teshamulwa	M				U					
Omwodo Oketch M.	M	PO			CGov					
Ortmann Cynthia	F	Hydrologist			CGov					
Saidi Shamba	F	WSGS			PS					
Sidibe Daouda	M	R			RI					
Tirivarombo Sithabile	F	L			U					

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