Title	**Lessons from a Multi-Country Review of EcoSan Experience in East and Southern Africa**
Keywords	Acceptance, agricultural reuse, replication
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Photograph attached (jpg)	

INTRODUCTION

Authors' Note: This is a shortened version of a WSP-AF publication *A Review of EcoSan Experience in Eastern and Southern Africa* which is available from http://www.wsp.org/publications/af_ecosan_esa.pdf

The scale of the sanitation crisis in Africa is enormous: 43 percent of the population of Sub Saharan Africa – over 303 million people – had no access to basic sanitation in the year 2000. Between 1990 and 2000 the number of people gaining access to improved sanitation failed to keep pace with population growth. The combination of poor progress, population growth, extremely weak economies and sometimes civil strife mean that the MDG targets facing Africa, seem almost insurmountable. This clearly means that 'business as usual' is not an option.

Many governments and agencies in Africa are exploring the role of ecological sanitation, or EcoSan, within their environmental sanitation and hygiene improvement programmes. Despite convincing environmental and economic reasons to support this approach, acceptance of the technology has been very limited so far. This field note reviews experience in East Africa and, with less detail, Southern Africa. The aim is:

- to identify as many successful EcoSan projects and programmes as possible and to learn from these experiences; and,
- to understand why take-up of EcoSan has been so limited, and to use this information to improve future sanitation programmes.

In its broadest sense, EcoSan ranges from simply planting a tree on a disused toilet pit, through to composting human excreta and re-using the products in agriculture, thereby 'closing the loop'[1]. The work of the WSP affirms that there is a role for a variety of EcoSan technologies in sanitation improvement programmes, but this role will vary according to geography, economy, culture etc. However, the first priority continues to be the need to achieve health benefits through hygienic behaviour and improved sanitation facilities; environmental and nutritional benefits can and should follow. This field note reviews what has been achieved to date and identifies some lessons for future projects.

MEASURES OF ACCEPTANCE

The most important factor in assessing the potential for increased use of any sanitation technology is the degree of acceptance in a community, as measured by willingness to adopt or invest in that technology. This field note explores that concept and examines issues that help or hinder acceptance of EcoSan technology. Four measures of acceptance are proposed:

- Are the toilets still in use?
- Are they being correctly used?
- Are they being copied without external support?
- Are EcoSan products being used in agriculture?

Continued use: Many sanitation projects get substantial subsidies to 'kick-start' a campaign and this sometimes leads to participation even when people are not fully convinced of the merits of the technology. Active participation can wane with the realization of the technology's requirements. When inappropriate facilities are installed without consultation or choice they are unlikely to be sustainable.

Correct usage: Some sanitation technologies (and especially EcoSan technologies) are more complicated, or demanding of the user, than others. Incorrect usage can cause anything from a minor inconvenience to a major system failure and/or health hazard.

[1] 'Closing the Loop' refers to the vision of using human excreta (processed in some way) as a fertilizer of crops which provide nutrition for humans.

Spontaneous copying: Success is demonstrable when there is an increased demand for a 'product', or when the 'product' is replicated without subsidies or specialist inputs. This level of acceptance is essential if a new technology is to become widespread in a community.
Use in agriculture: EcoSan technologies in Africa have not been widely embraced for improving agriculture. But some local successes have made a significant difference to the promotion of EcoSan and represent another level of acceptance.

SUMMARY OF FINDINGS

The findings recorded above do not claim to be fully comprehensive report of every instance of EcoSan in the countries reviewed, but they do give a fairly good picture of the order of magnitude of activities and achievements, and problems encountered. Table 1 below attempts to provide a brief summary of the main achievements identified in this review. It is acknowledged that this does not include every EcoSan project in every country in East and Southern Africa, but it probably includes the most significant ones identified for which information was available at the time the research was carried out.

Table 1. Summary of findings on EcoSan activities, from the reports reviewed

EcoSan Type	Country	Subsidised Numbers Reported	Non-Subsidy Numbers	Was it well-received	Comment
Arborloo	Kenya (Makueni)	3	54	yes	Semi-arid area
	Malawi (Embangweni)	Portion of 250		yes	Poor soil; desire for fruit trees
	Mozambique (Niassa)	38		yes	
	Zimbabwe (Mvurumanzi)	38			
Fossa Alterna/ Ventilated Improved Double Pit	Kenya (Kusa, Nyando District))	45	3 schools	Little replication at household level; more positive response from schools	Most subsidized toilets were built for schools
	Ethiopia (M of Agric)	8			
	Tanzania (Wanging'ombe)	10,000 VIDPs		Extensive use of contents.	Chosen when reuse potential was recognised
	Malawi (Embangweni)	Portion of 250		Yes	Poor soil & expensive fertilizer
	Moçambique (Niassa)	430		Yes - 2500 requests	Convincing demonstration as fertilizer
	Zimbabwe (Mvurumanzi)	1487 & 27 Blair composting toilets			
Skyloo/ Urine diversion	Kenya (Kisumu)	15	Some	Some abandoned	Attractive in high water table
	Ethiopia (Addis)	300+		Some abandoned, limited use of contents	Suits some farmers but few urban dwellers
	Uganda (Southwest Uganda)	506	52	Accepted as a toilet; little use of contents; some asking for emptying service	Chosen to protect groundwater; also where high water table & rock
	Moçambique (Sofala)	630		Chosen over electricity	High groundwater made traditional pits difficult
	Tanzania (Majumbasita)	95	200		Chosen to protect groundwater; also where high water table
	Zimbabwe (Mvurumanzi)	295			

	South Africa (N Cape & eThekwini)	15,000 single pit UD in N.Cape; + 20,000 double pit UD in Durban		Accepted as a toilet; limited use of contents	Fully subsidised programme; some in-house use

Another set of findings emerging from this review is the recognition that there is a range of sanitation types, which can be categorised loosely in terms of the degree of "user involvement" in the management of each technology. Table 2 (following) briefly summarises the main features of each type, together with the main reasons for its acceptance or "success" in the project areas reviewed and some comments as to their most likely application and potential drawbacks.

Table 2. Summary of Successful EcoSan Types

Successful EcoSan type	Features	Reasons for success	Comments
Arborloo	Simple portable superstructure; use of soil & ash encouraged; one year capacity recommended; move and plant a (fruit) tree	Least expensive hardware; valued in areas of poor soil fertility; fruit trees grow better than in ordinary soil.	"Entry level" EcoSan; introduces the re-use idea and lessens effects of taboos; good in poor soils.
Fossa Alterna	Two pits with movable drop hole; typically with a concrete slab; any superstructure; soil & ash needed; change pits after 1 year; empty contents after 1 year rest.	Limited involvement with contents – sprinkle soil & ash, empty with shovel; permanent location; contents look harmless & do not smell; contents valued in areas with low soil fertility.	"Intermediate" EcoSan; robust and likely to survive ignorant use; needs education & demonstration to overcome taboo on digging out and re-use; good in poor soils and where fertilizer is expensive.
Skyloo / Urine Diversion Dehydrating	Urine diversion pan or drop-hole; needs regular addition of wood ash or lime; single pit/chamber needs emptying for further composting; double pit/chamber avoids this.	Permanent; can be used in-house; can be built above ground and overcomes high water table or rock.	"Full Involvement" EcoSan; valued in difficult ground conditions and harsh climates; so far more success as a toilet in subsidy-driven programmes than as an asset to agriculture; needs considerable user education; users may choose to pay someone to empty and dispose of contents.

PROGRAMME ISSUES

The numerical challenge of the MDG target is daunting, and if current rates of progress do not dramatically accelerate then the target may be unachievable in Africa. Every country needs to rapidly scale up from pilot projects, which test and demonstrate new approaches, to national programmes, which benefit from lessons learned. It is therefore important to evaluate findings that provide guidance for the design of more ambitious programmes. A number of pointers are discussed below.

Promotion: It is clear that the 'one size fits all' approach is not appropriate. Different cultural, geographic and demographic situations produce different reactions to EcoSan technologies. Many communities were attracted to a permanent structure linked with the house, but showed little interest in content re-use; some projects reported an emerging demand for a removal service of some sort. In other situations poor soil fertility may persuade farmers to abandon strongly held prejudices in the light of convincing demonstrations of improved crops. Some communities may only be ready to try a simple Arborloo approach at first. Sanitation programmes clearly need expertise in market research and the design of social

marketing. The promotion of EcoSan may be better done as an option in a range of technologies rather than through a doctrinaire position that 'this is the only way'.

Appropriateness: Some of the problems described above such as abandoned new toilets or poor operations and maintenance are the result of poor programme design and inappropriate technology. These difficulties are hardly unique to EcoSan; for example, there is a well-documented record of the failure of numbers of communal toilets, often installed as demonstration units in public places or schools, where inadequate attention to operations and maintenance has actually put people off the idea of toilets. Market research needs be used with an open mind, and not accompanied with a 'hard sell' of the supporting agency's favourite technology. The best indication of demand is to offer a range of toilet types in the context of limited, or at least similar, subsidies and to see what people choose. Potential users need to be aware of the degree of user involvement required; otherwise there may be complaints and later problems, such as subsequent requests for a removal service. Culture plays a large part. Throughout Africa there are taboos against the handling of faeces and its possible re-use. These do not break down easily, whatever people might say when a heavily subsidised toilet is being offered. In some areas both Christians and Moslems have successfully managed EcoSan toilets; in others Moslem use of water for personal ablutions has caused problems. Gender and age are also big issues; women need privacy and space, and ways of dealing with waste items related to menstruation, which could have a big impact on potential re-use. The very young and the very old also need special provision.

User education: Every sanitation technology needs some user education and EcoSan needs even more. The simplest is about the use of soil and ash after use. Alternating pits should be rested for at least a year before digging out for compost. The contents of a Skyloo need to be kept dry, preferably in an alkaline medium (by adding ash or lime) and carefully composted, if they are to be safely used after only three months, as claimed by some EcoSan promoters. Public health practitioners are well aware of the simple challenge of instilling the practice of hand-washing with soap and water. EcoSan introduces another level of complexity and public health risk. Sufficient resources are needed to make users fully aware of their responsibilities, and provide for follow-up visits until operational requirements have become common knowledge.

Technology: Approaches to technology must be more flexible in terms of choice of toilet type and use of materials. Over-designed, expensive or imported components make replication difficult without subsidies. Problems such as blocked urine diversion pipes, stolen jerry cans, children unable to use urine diversion etc units can quickly create failure.

Role of subsidies: Most of the projects described in this Field Note have used some form of subsidy to promote or support widespread use of new technologies. Most of the subsidies have been so large as to be unsustainable for a regional or national programme. In some cases the subsidy has even persuaded people to consider a technology that they are not even sure they like. All sanitation technologies, but especially EcoSan with its greater demands on the users, require some form of "buy-in" from the users. Subsidy approaches must avoid distorting decision-making to the extent that wrong choices are made. Hardware subsidies should be governed by a clear subsidy policy with explicit objectives and political commitment to the total amount of funds that would be necessary if the programmes were scaled up.

CONCLUSIONS

This review of EcoSan technologies and approaches in East and Southern Africa reveals slow progress towards solving the sanitation and environmental challenges of the region. Over the last two decades, despite many projects financed by NGOs and international agencies, with one or two remarkable exceptions, relatively few households have been persuaded to re-use excreta in agriculture. Since the development of more rigorous approaches in the last decade, the number of EcoSan toilets built has only recently risen into thousands, largely as a result of heavily subsidised South African programmes. Apart from the ten thousand in Tanzania, the number of households practising EcoSan agriculture may still remain in the hundreds.

Current approaches must be more sensitive to what local economies and customs can embrace. EcoSan may simply be inappropriate for widespread use in some localities where soil fertility is still good. In others, sensitive introduction of EcoSan in response to local conditions, as an option alongside other technologies, could provide much needed economic and health benefits.

The use of extensive but unsustainable subsidies may have achieved some short term gains but appear to militate against long term affordable solutions of the type that will be necessary to achieve meaningful progress towards sanitation coverage for half the world's population by 2015. A better alternative is to design pilot projects from the beginning with approaches that can be sustained in the long term and to use marketing to encourage the spontaneous copying of technologies beyond the constraints of project resources.

The limited but encouraging experiences reported from Malawi and Mozambique suggest that a sensitive response to local conditions may produce sustainable and replicable results, but the principles and methods of such approaches need to be tested in other environments before their widespread application can be guaranteed.

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