Factors which have influenced the acceptance of ecosan in South Africa and development of a marketing strategy

Richard Holden
The Mvula Trust
Box 32703, Braamfontein, 2017, South Africa
e-mail: richard@mvula.co.za

Riana Terreblanche, Mary Muller, Nawasan
Posbus 621, Springbok, 8240, South Africa
e-mail: rianater@kingsley.co.za

Session B

Keywords

South Africa, social marketing, dry urine diversion

Abstract

This paper contends that the marketing of ecological sanitation is no different for any other sanitation technology. People are motivated by reasons other than health to improve their sanitation such as no smell, safety, security, comfort, privacy, convenience, minimum handling of excreta and the quality of pedestals and structures. At present many promoters of ecological sanitation focus on re-use, as the primary motivating factor for people to adopt the technology. The results of the South African Sanitation Programme, however, have shown that by marketing the product to people's aspirations ecological sanitation can be successfully introduced at a wide scale in a sustainable manner, whilst at the same time satisfying the Governments desire to provide access to sanitation to all. This paper sets out how ecological sanitation was introduced as an alternative technology into the Sanitation Programme in the Northern Cape Province, political support gained, and introduced subsequently into other Provinces.

Introduction

"It doesn't smell!" These are often the first words, which people utter, when literally faced with the mixture of soil, ash, faeces and toilet paper from a dry urine diversion toilet. No one mentions that it looks like good manure or that the separated urine can be used as fertiliser.

The lack of smell together with least handling of excreta; low capital and maintenance costs; security of an indoor toilet, privacy and comfort are the factors, which influence people's choice of sanitation technology. Health is rarely a motivating factor in choosing a toilet and the same holds true for ecological concerns.

The context, therefore, for your normal average householder, in which ecological sanitation is promoted is no different from any other sanitation technology. The contention of this paper is that from the experience in the South African, Department of Water Affairs and Forestry Sanitation Programme, householders do not primarily choose ecological sanitation from the point of closing the loop but from it being the technology that most ably satisfies their aspirations and physical requirements.

Until the proponents of ecological sanitation understand this and let people take informed choices, rather than insisting that it is ecological sanitation or nothing, ecological sanitation will remain an interesting side-show rather than a mainstream solution in the quest for sustainable sanitation.

Context

Ecological Sanitation was not introduced into South Africa as a distinct separate programme, but as part of the Department of Water Affairs and Forestry, Sanitation Programme. This programme is guided by the "White Paper on Basic Household Sanitation", September 2001, which contains the following 12 principles:

1. Sanitation improvement must be demand responsive, supported by an intensive Health and Hygiene Programme
2. Community participation
3. Integrated planning and development
4. Sanitation is about environment and health
5. Basic sanitation is a human right
6. The provision of access to sanitation services is a local government responsibility
7. "Health for All" rather than "all for some"
8. Equitable regional allocation of development resources
9. Water has an economic value
10. Polluter pays principle
11. Sanitation services must be financially sustainable.
12. Environmental integrity

The Sanitation Programme, which targets the poorest households, is based on a subsidy of R600 (recently raised to R900) per household, for materials and labour with the household contributing the remainder in cash, materials or labour. Since the people, whom this programme targets, do not have on-site water the programme promotes dry sanitation. Although the programme was supposed to promote technology choice the reality in most projects was the single pit Ventilated Improved Pit (VIP) toilet with a choice of top structures.

A central theme of the Sanitation Programme has been that good sanitation is required for improved health. Thereby educating people around the dangers of poor sanitation you will get households to construct toilets and alter their behaviour patterns [1]. The programme also made the assumption that people had poor behaviour, from an attitudinal point of view, and it needed to be changed. This attitude has persisted despite the evidence that people do not respond to these messages (Eales 2002 [2]). At the same time the Department of Housing and Provincial and Local Government were also running sanitation programmes. These programmes frequently promoted waterborne sewage without considering the ability of people to pay for such a service.

It was thus in this context that ecological sanitation was introduced, at scale, in South Africa.

Introduction of ecological sanitation into the sanitation programme

Alternatives to the VIP were first sought in 1997 when in Namaqualand, Northern Cape, hard rock on the surface made it impractical to build VIPs. If jackhammers were brought in it would have been too costly and the community could not have replicated the toilets, when the programme finished.

Expert opinion promoted the use of double pit VIPs but this proved to be impractical, as a VIP

[1] "Water Supply and Sanitation Policy, White Paper", November 1994: South Africa

[2] Social Marketing and Behaviour Change in Rural household Sanitation Projects in South Africa" Kathy Eales, November 2 002

needs soil surrounding the substructure to allow the liquids to seep away. Also the households rejected them, as the floor was too high above the ground, making entry difficult and exposing them to the world when using the toilet.

In 1997 at the workshop on Ecological Sanitation, held at Ballingsholm, Stockholm, Sweden it was realised that the dry urine diversion toilet, as used in Mexico, might provide the solution. In 1998 a number of moulds were purchased from Mexico and the first units installed[3]. Given the geological conditions the option the community had was either to try the dry urine diversion toilet out or carry on using the bucket system until collection stopped and revert to using the veld. Initially this was the main marketing strategy to the communities, that the urine diversion toilet was the only affordable option available to them given the geology of the area.

The first dry urine diversion toilets installed were generally double pits (either next to each with a moveable pedestal or one pit behind the other with a fixed pedestal) with capacity for several years and the urine was led to a soakaway. Households were encouraged to plant trees around the soakaway to take up the nutrients and moisture. By doing this it was hoped that people would see the effectiveness of the urine as a fertiliser and be encouraged to experiment further (In Namaqualand there is a high degree of mineralisation in the soil and groundwater and plants are naturally salt tolerant). The question of dealing with the faecal matter was left to a later stage when the pits required emptying.

Two methods of dealing with the toilet contents have emerged:

1. To burn the contents: This has been successful due to the very dry climate and the use of hard instead of soft toilet paper; and
2. Composting/burying: This has only been recently introduced as the 1st pits have required emptying. On opening the pits people have realised how innocuous the contents are and have had no problem in emptying the pits. Generally households buried the contents. However after a year people realised that a transformation of the contents had taken place and have been planting pumpkins, potatoes and onions. This step did not take place naturally but occurred due to the strong support and encouragement of one of the fieldworkers, Maria Wildschutte. As a result of the 981 households who have accepted the dry urine diversion technology in the Kammiesberg Municipality, Namaqualand, 50 are now practising ecological sanitation.

An interesting development in Namaqualand was the construction of double VIP toilets against the houses with access from the inside. These have proved very successful. On opening them, however, it was realised that due to the dryness of the area the pits had remained dry and there was in fact very little difference between them and the operation of dry urine diversion toilets. This again made the marketing of dry urine diversion easier as people saw very little difference with what they were accustomed to and what was being promoted.

Another significant event was the construction of social housing in the villages with all the fittings for waterborne sewage but no water connection nor treatment facility for the sewage, either on or off site. A local woman, Maritjie Meyer, after seeing the pictures of Cesar Anorve's bathroom in Mexico, reckoned she had nothing to lose by installing a dry to urine diversion toilet in her bathroom. This inspired all residents with similar houses to install dry urine diversion in their houses, and the National Sanitation Operations Manager of the Mvula Trust to convert his house. This served to demonstrate that a dry urine diversion toilet is a permanent installation inside a house unlike a VIP toilet, which is outside the house and needs to be moved when full (if a pit emptying service is not available, as is generally the case).

All of this was happening at a local level with support from the local politicians (total population of the municipality 11,000). However, for the programme to be implemented on a wider scale it

[3] "Introduction Of Urine Diversion In South Africa" R D Holden & L M Austin, South Africa. 25th WEDC Conference Addis Ababa, Ethiopia, 1999

needed to overcome opposition to dry sanitation at provincial level.

Gaining of political support

Any sanitation programme cannot function without political support. In the Northern Cape the sanitation programme was well supported at local level. The Premier of the Northern Cape, Manne Dipico, however, went on record stating that his objective was to eliminate the 25,000 buckets in the Northern Cape and replace it with waterborne sanitation. He also stated that dry sanitation was a second class technology, which would continue to deprive the historically disadvantaged people of an acceptable standard of living. The Premier was not alone in this view, which was supported by many local government councillors.

This presented a few problems since the communities where buckets were prevalent could not afford to maintain waterborne sewage and often there were not the water resources as well.

A twin strategy was conceived to overcome this:

1. To gain the Premiers support for dry sanitation; and
2. To demonstrate that dry ecological sanitation provides exactly the same level of convenience and service in a middle income house.

To overcome the first obstacle, in July 2000, the African National Congress caucus in the Leliefontein Transitional Local Council (TLC) invited the Premier to an Open day in Nourivier, Namaqualand to demonstrate to him the success of dry sanitation and request his endorsement and support. Councillors and officials from other municipalities were also invited to share the experience. At the start of the Open Day the Chairperson of the Leliefontein TLC, Gert Maarman stood up and stated that in Namaqualand, where there is little water and little money dry sanitation, is the ONLY solution.This statement might not sound much, but it was made 5 months before local government elections in a climate where everything was being promised free to residents (such as free basic water). After seeing the village and listening to the people the Premier not only reversed his stance but also allocated significant sums of money to dry sanitation. Gert Maarman went on to become the Mayor of Kammiesberg, the new, and very much bigger, local municipality.

The second obstacle was overcome by the National Sanitation Operations Manager of the Mvula Trust installing a dry urine diversion toilet into his own home in central Johannesburg. This installation was coupled with greywater recycling and served to demonstrate that with minimal intervention from the household dry ecological sanitation produces the same level of convenience coupled with significant cost servings. It also demonstrated that on a stand with a garden area of 200m^2 no form of off site treatment is required[4]. Due to the central location of this house it has been visited by over 300 national and international visitors, been shown on national television 4 times and has served as a central point of the advocacy campaign for the acceptance of ecological sanitation in South Africa. An interesting point was at the same time, October 2000, the house was converted another two influential players in the Northern Cape Water Services programme agreed to convert their houses but to date have not. The main reason appears to be psychological (Wilke 2003)[5] and this needs to be noted in any marketing campaign.

Introduction of ecological sanitation to other rural and urban areas

It was recognised from the beginning of the Sanitation Programme that people would not readily

[4] "The use of Dry Sanitation in the Urban Environment" Case Study No.7, 2002: Mvula Trust

[5] "Sanitation And Psychology : A Personal Perspective" Isabella Wilke 2003

accept a new technology and they would need to see the physical toilet, not a model or pictures, before committing themselves[6]. One way of overcoming this is to take people to communities where the technology is already in use and this has been used very successfully in the Northern Cape to spread knowledge about dry ecological sanitation and in other parts of the country, around VIP toilets. Also the technology needed to be introduced to urban as well as other rural areas.

Unfortunately Namaqualand is far from most areas of habitation being 600km from Cape Town and 1200 km from Johannesburg and without any adequate air links. It, therefore, has proved extremely difficult to get people to visit the villages in terms of both time and cost to experience ecological sanitation.

Since it has not been possible to take people to ecological sanitation the focus has been on taking ecological sanitation to the people. Five strategies have been developed:

1. By taking politicians, officials, community members etc. to the house in Johannesburg it has enabled them to gain firsthand experience of ecological sanitation in an upmarket house. Over 300 people have now visited the house, some returning with colleagues for a second visit;
2. By consistently raising, with municipalities, the issue of sustainability of water services, and highlighting the every rising incidence of the failure of waterborne sewage systems, it has encouraged municipalities to look at alternatives. The most notable success has been with Ethikewni (Durban) and Majareng (Warrenton). In Ethekweni the officials came to the conclusion that they could not extend waterborne sewage to all areas and that they did not have the means to empty VIPs. Their conclusion was that outside a set boundary, households would either have to provide and run their own treatment works or accept the dry urine diversion system provided by the municipality. Although their logic in choosing dry urine diversion is impeccable doubts have been expressed about the method of introduction in that households are given no choice about a technology, which many might feel offensive. The test will come in 2 years when the pits will need to be emptied. If the household empties the pits, or they are prepared to pay someone to empty them then it will be successful. If not the technology could easily be discredited. In Majareng there was initially great opposition to anything but waterborne sewage. Officials and councillors, were in fact, some of the first visitors to the house in March 2001 and at stage they were not convinced. They continued to submit applications to Provincial and National Departments for grant funding to expand the reticulation and build a new treatment works. In the Northern Cape, however, the departments have an integrated approach to water services and unless the municipalities can prove, through current payment for services, that they can sustain a waterborne system, capital finance is not granted. After having their application turned down they then started to look at alternatives and now fully support the programme. Their most recent initiative was to convert 2 municipal houses from a flush to dry urine diversion to reduce service costs to the occupants who could not afford the cost of emptying the conservancy tank.
3. When difficult ground conditions, or dense settlements, preclude the construction of VIPs, using the opportunity to introduce dry ecological sanitation. Using this strategy ecological sanitation has been introduced in 5 of the 9 Provinces in South Africa (KwaZulu-Natal, Limpopo, Western Cape, North West, and Gauteng)
4. Marketing dry ecological sanitation around the issues of as no smell, safety, security, comfort, privacy, convenience, quality, minimum handling of excreta and low capital and operation and maintenance costs. This in fact appeals most to households and the difference between a cheap plastic toilet seat and a wooden toilet seat has been used to successfully market ecological sanitation.

[6] "Guidelines Implementation Manual for DWAF Funded Household Sanitation Projects" July 1997: Mvula Trust

5. Introducing the concept gradually and allowing for people to change back. Where people are already on waterborne sewage the first step is to introduce greywater re-cycling and garden composting. This has an immediate financial benefit and they see how the soil is improved. The next stage is to introduce the dry urine diversion toilet. It is, however, imperative to allow for conversion back to a flush toilet so that the resale value of the house is not affected and people do not feel forced into a corner (a re-conversion takes 8 hours).

In Northern Cape all 5 strategies were successful mainly due to the financial support of the Department of Water Affairs and Forestry and the focus on integration and sustainable services with other Departments. Dry sanitation is now no longer an issue and it is estimated that 80% of households choose dry urine diversion over VIP toilets. In other provinces similar success has not yet been achieved for a combination of reasons, the main one being the reluctance of professional staff to accept and promote the technology.

Social marketing to households

Once a sufficient number of dry urine diversion toilets had been installed, including a number inside houses, the principle of how the toilet works can be demonstrated to a wider audience. The technology is then marketed around the advantages of being inside the house and a permanent structure, compared to a VIP.

A dry urine diversion toilet inside the house offers:

1. No smell: To ensure there is no smell from a dry urine diversion toilet the faecal matter must not start decomposing whilst in the chamber underneath. The addition of soil and ash and the use of a bucket to prevent external moisture reaching the faeces ensure this.
2. Safety: Pits are very much smaller than VIPs and children do not have the fear of falling into the sewage;
3. Security: Going to an outside toilet can be dangerous. In rural areas people have a fear of snakes and in urban areas fear of attack (so much so that even where the toilet is flush they will use a chamber pot at night rather than risk visiting the toilet);
4. Comfort: An inside toilet is generally well lit and warm compared to an outside toilet, which in winter is cold and draughty. To ensure that a dry urine diversion toilet offers the same level of comfort the pits have been reduced in size so that the bucket used to catch the faeces just fits and there is no ventilation pipe to produce cold draughts.
5. Privacy: An inside toilet means that no-one sees you going to the toilet and can comment on your habits;
6. Convenience: At night the convenience of an inside toilet is immeasurable. No getting dressed, getting wet if it is raining etc. The only negative aspect of the dry urine diversion toilet, from a male convenience point of view is that a male must sit to urinate unless a separate urinal is provided. The fixed subsidy of the Sanitation Programme overcomes this by simply saying that if a separate urinal is required then the owner must pay for it. For example in the house in Johannesburg a separate waterless urinal of a comparable quality to the rest of the bathroom fittings would have cost R1500. This prodded the males in the household to drop their trousers and now it has become so natural that no more thought has been given to installing one.
7. Quality: In South Africa, it has been demonstrated as has by Cesar Anorve in Mexico, that the quality of installation of a dry urine diversion toilet, is equal to that of a flush toilet. This is a major selling point and is often overlooked when promoting ecological sanitation.
8. Minimum handling of excreta by the household: One of the reasons for preference for VIP and flush toilets is that the household does not handle any excreta. It either drops in a pit,

and the pit filled in hen full, or is flushed away for someone else to deal with. To gain acceptance of dry urine diversion systems have been developed whereby the urine and excreta is handled as little as possible in its raw form, thereby increasing acceptability. To this end the programme now promotes the use of a 45-litre bucket underneath the toilet. This has sufficient capacity for a month and can be easily lifted out compared to using a rake and shovel. In communities where use of chamber pots is prevalent the reality is that they are already handling excreta once a day, generally without thinking about it. Once this is pointed out the resistance to handling faecal matter once a month drops away.

9. Low capital costs. Of all the systems urine diversion has found to have the lowest capital cost R1500 compared with R2000 for a VIP and R10,000 for waterborne; and
10. Low operation and maintenance costs. The external costs of a dry urine diversion system, if a householder is practising ecological sanitation is R0 per annum compared with R200 for a VIP and R1200 for waterborne systems.

The marketing of the toilets has been around giving households information about the different technologies and allowing them to make a choice depending on their individual circumstances and preferences[7]. When presenting the different sanitation technologies the most frequently asked question around the dry urine diversion toilet is around smell and the handling of the faeces. This is understandable given the desire of people to handle excreta as little as The most effective way to answer this is to have samples from the toilet and the compost heap available so that people can physically smell (or not) the faeces and see how it decomposes. Once they are satisfied that there is no smell and the job of emptying the toilet will not be unpleasant then they are willing to accept the technology on the basis of the above points rather than marketing it around the reuse of excreta.

Impact on health

The emphasis on social marketing has lead many people to ask if the programme has lost sight of the main objective of the Sanitation Programme, that is improvement in health.

The question on how to measure the impact of the Sanitation Programme on health has bedevilled it since its inception since no reliable statistics have been available at project level, nor in many cases at hospital level. In many settlements people do not visit the public health system but use traditional healers for reasons of proximity and respect. Also to carry out detailed epidemiological studies per settlement are not achievable nor cost beneficial.

By taking a leaf out of the water industries book, where multiple treatments, (barriers) are used to prevent transmission of disease, a simple survey has been developed which measures the number of barriers to transmission of disease in a household. The more barriers the more difficult for disease to be transmitted. This survey can be administered at the beginning, during and at the end of the project to assess the impact of the project. The information is valuable for the communities in deciding what interventions to target in order to improve their situation.

The findings have been remarkable:

1. The survey is simple to administer. In Thukela 18,000 households were surveyed in 3 weeks and in Jo'burg 4,000 households in 4 days with the community members themselves conducting the survey and capturing the data.
2. In many cases the survey showed that households were already doing the maximum they could, given the conditions they lived under. To improve health required an infrastructure intervention rather than a behaviour change. The results below are from the baseline survey, Baldaskraal, KwaZulu-Natal. They show that BEFORE any project intervention over

[7] "Position Paper On Sustainable Sanitation", R D Holden, Appropriate Technology Conference, Johannesburg, 2001

72% had an acceptable score (more than 8) indicating that with the majority of people hygiene awareness was not a problem. This allows the intervention to be focused on the households at greatest risk rather than scattering a broad message, which would be rejected by most as patronising, across the community.

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No. of HH	0	2	5	6	12	12	22	23	57	51	51	33	16	5	10	0	0
Distrib.	0%	1%	2%	2%	4%	4%	7%	8%	19%	17%	17%	11%	5%	2%	3%	0%	0%

Table 1: Results of Household Survey, Baldaskraal, KwaZulu-Natal

Results

Since 1994, in the various sanitation programmes, in South Africa, approximately 170,00 dry toilets have been installed of which 160,000 are Ventilated Improved Pit toilets, and the remainder various proprietary and dry urine diversion (approximately 4,000) systems. Most of the dry urine diversion toilets have been installed in the Northern Cape where there has been strong political support for the programme.

Although the initial marketing approach was offering dry urine diversion as the only alternative in difficult geological conditions households are now choosing it for other reasons, mainly because it can be built inside a house. Very few of the households intentionally practice ecological sanitation, that is the reuse of the excreta to close the loop. Where reuse does occur it is by default during the disposal of the excreta rather than a deliberate act. However since the decomposed faeces are returned to the soil and the urine disposed of in the root zone where it can be taken up by plants the same effect is achieved. This success has been achieved by marketing to people's aspirations rather than promoting reuse of excreta, which is a major turnoff to most people.

Conclusion

The introduction of ecological sanitation, in the form of the dry urine diversion toilet, has been achieved on a large scale in South Africa by marketing it around social factors rather than the benefits of the reuse of the excreta. The wide scale acceptance is attributed to the fact that householders were given a choice of technologies and because ecological sanitation satisfied the social requirements the best, given the water, geological and cost constraints. A further factor, in its acceptance, has been the long-term support (4-5 years) provided by the programme to ensure the cycle is completed before households are left to their own devices.

Although the programme has been largely in rural areas the concept is now being introduced into the urban areas and it is found that the same factors influence its acceptance. To gain wider acceptance a broad marketing campaign is required promoting its social advantages rather than the ecological advantages.

Although it is difficult to compare the South African Sanitation Programme to individual projects in other countries, it is believed it is significant that a technology, only introduced at a large scale in 2000 has captured 2.4% of the market, with people choosing the technology, rather than be told what to accept.

The recommendation from the South African Sanitation Programme would be to market ecological sanitation through its social advantages rather than reuse. This experience mirrors the Bangladesh sanitation programme, which achieved a high rate of coverage through social marketing[8] rather than health promotion.

[8] "Private Sector-just a new (hope)?" Report on the 15th AGUASAN Workshop. June 1999