

Moçambique WaterAid

EcoSan in Niassa

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INTRODUCTION

This report offers a summary of WaterAid (Moçambique) and partners' initial work in ecological sanitation, and includes a series of "Construction Supervision" and "M&E" Checklists that are being tested by the programme.

Over 100 ecological sanitation latrines will have been constructed in Niassa Province by the end of May 2001, and we are already gaining new insights into opportunities and constraints associated with ecological sanitation.

It should be stressed that WaterAid and partner institutions are **not** promoting ecological sanitation as the only sanitation option/solution for families in Niassa. Instead, as will be shown below, we are creating a situation where families can choose between a range of options. Ecological sanitation systems are therefore just some of a wider array of options available to families, who then decide on the system that makes the most sense for them.

This report highlights some of the key lessons learned in Niassa to date. It should be stressed that the programme is quite new and that we have not reached the stage where families have to switch pits (in the case of the Fossa Alternata), or plant trees (in the case of the Arbour Loo). Our insights into EcoSan will undoubtedly increase considerably once we reach this point.

WaterAid and partners are now working in a range of different environments in Niassa Province. Initial work has concentrated in the rural areas of Maúá district, in the town centres of Maúá and Mandimba, and in Lichinga, the Provincial capital of Niassa Province. Lichinga is actually best classified as a small town, with a population of ~88, 000.

This report covers the following topics:

- Introducing sanitation and letting people choose
- Lessons and Questions
- Appendices: Construction Supervision Checklists and M&E Checklists

INTRODUCING SANITATION AND LETTING PEOPLE CHOOSE

In terms of rural ecological sanitation in Niassa, EcoSan was first introduced into Maiaca, a rural section of Maúá. It is located approximately 80 kilometres from Maúá Sede, and is now cut off because the rains have washed away a bridge. Maiaca participated in the DDOPH/DAS/WaterAid water supply programme in 2000, and the Chefe de Posto Administrativo was interested in exploring why diarrhoea was such a problem in the area.

The Chefe felt that sanitation was a particular problem in the area, so we decided to build some demonstration models and facilitate a short process where people could explore the diarrhoeal problem in greater depth. The Chefe and the Chief (Regulo Vatiwa) of the area had been introduced to a range of concepts in sanitation at a previous workshop. Both had immediately expressed interest in improved latrines (the Chefe had a traditional latrine that was now almost full and the Regulo has no sanitation system at his house). A

sanitation ladder was shown to them, and after some discussion on the concepts behind each latrine they both decided to test the Fossa Alternas.

Demonstration Fossa Alternas were then built at the house of the Chefe and Regulo. The designs of the system are slightly different from the Fossa Alternas used in Zimbabwe. The two pits are contained within one large superstructure made of local materials. As a result, families do not have to move the superstructure but only the slab as pits fill. Attached to the latrine is a washing area as well. This is done because people in Niassa consider a "proper" latrine to have areas for defecation and for bathing. A picture of the latrine built at the Chefe's house is to the right.

A group of 18 heads of households were then involved in a series of PHAST exercises designed to explore local diseases more carefully. A series of exercises were used, including family dynamics, and a sanitation ladder followed by a visit to the demonstration latrines. Participants explored a range of local diseases – ranging from water- and sanitation-related diseases, to diseases associated with stress, physical ailments and sexually transmitted diseases. It was found that the diseases/illnesses that are of greatest concern to the participants at this session were diarrhoea, malaria, hernias, and STD's. When we explored with them the causes of these diseases, many felt that diarrhoea and malaria **might** be related to water and sanitation problems, but they also stressed that they were not sure. Some talked of bewitching, while others made it clear that they were not even sure that diarrhoea is related at all to water and sanitation.

When the sanitation ladder was initiated, there was some interest in SanPlats, acknowledgement about traditional latrines and curiosity about the Fossa Alternas. People said they knew of and had used the SanPlat (Latrinas Melhoradas), which generally includes a 3 metre-deep pit with a SanPlat slab. All were also aware of traditional latrines, and a few of the participants had such latrines. Most use the "cat system" where people defecate and then cover the faeces, but quite a few said that the covering of the stools was not really done that much in practice. Many mentioned that they often step in human faeces when walking to their fields.

We then visited the Fossa Alternas at the Chefe's house. The concepts were explained to all the participants, and the idea that the contents of the pits would, over time, be transformed into compost was well received. Participants saw the logic of this, and felt that such an innovation would be of great benefit to the local community.

As a result, all the participants decided they would like to try the Fossa Alternas. To date, 13 Fossa Alternas have been constructed and are in use in Maiaca. A series of follow-up meetings were held with each family who has a Fossa Alternas, emphasising the use of ash and soil after each use and the hygienic maintenance of the system as a whole. Recent M&E visits to the area have confirmed that the people are using the toilets as suggested. And most importantly, demand has grown for Fossa Alternas in the area. Residents without such systems want them as well, and news is spreading about these new systems with little assistance from us.

A similar process is occurring in peri-urban Lichinga, Maúa Sede and Mandimba district. In Maúa Sede, demonstration toilets including Fossa Alternas, Arbour Loos, 3 metre deep latrines with SanPlats and the smearing of a thin layer of cement over the squatting sections of traditional latrines are underway. The process has stopped as the rains have proven to be particularly heavy this year, but one issue that has emerged is that 3 metre pits are proving to be impossible to dig at this time of year because we are entering the rainy season water table. This finding has caused some alarm among residents and partner staff, as it is now realised that 3 metre pits may not be suitable for the area.

In Mandimba, ESTAMOS is linking a reforestation project in the area with arbour loos. A contest is being planned for April/May where residents will be able to choose from a range of different moveable superstructures. Two local artisans were given the task of making a wide range of round and square superstructures out of local materials. They made 10 in all, as shown to the right. All of the superstructures cost less than 200, 000 MT

(US\$10) including labour. The goal was to create a range of options for people to consider that were:

- Durable and would not be blown down by wind
- Could be easily lifted and moved by no more than 2 people
- Were attractive
- Used local material
- Were low cost

A forthcoming paper will outline how the process has unfolded in the peri-urban areas of Lichinga, but ESTAMOS has combined PHAST work with social marketing in an effective way. The PHAST process being implemented in Lichinga is a more complete process than we have done in Maúa, and is being linked to the findings from a socio-economic survey carried out by ESTAMOS in the city. ESTAMOS is also using the radio to great effect in Lichinga. A staff member of ESTAMOS speaks on a regular basis about her Fossa Alternata, and great interest is being generated from this programme. Demand in Lichinga for sanitation, and for ecological sanitation in particular, is growing.

LESSONS AND QUESTIONS

A number of important lessons have already been learned in Niassa. These are briefly outlined below.

First, there seems to be a range of reasons why people prefer the ecological systems we have been experimenting with, including:

- The idea that these systems are **permanent solutions** to local sanitation problems. One of the criticisms made by households who have new latrines is that conventional latrines with 3 metre pits (traditional latrines and SanPlats as applied in Moçambique) will eventually fill, and then people will have to dig new pits. Over time, there is a sense that people's yards will not have more space for new latrines
- **Aesthetics** – people like the design that combines a superstructure with the latrines and washing area contained within. They also like the slab options, and the way the entire system is laid out at household level. There is a sense that the new latrine adds value to their house
- **Potential for Added Economic Value** – there is a sense among users that the products from the latrines are of economic value and that this is useful for household with limited means
- **Simplicity** – the concepts behind ecological sanitation make sense to people
- **Protection of Water Sources** – some, but certainly not all, have stated that the smaller pit depths will ensure that groundwater is not contaminated. There is a sense among many that 3-metre pits are contaminating the groundwater, particularly because the water table rises so high during the rainy season. Many parts of Niassa have been effected by cholera, and quite a few wonder if part of the reason is because of the depths of some pit latrines. These worries have been substantiated to some degree, as we have had to stop the demonstration 3-metre deep pit latrines with SanPlats in Maúa as we are striking water after 1.5 metres.

Second, we have learned a number of lessons that should improve our work over time. Some of these include:

- **Ash and Soil 1** – getting people to introduce ash and soil into pits after each use has proven to be easier than we expected. Problems do however arise in the rainy season, as dry soil is almost impossible to find. The inclusion of ash alone now occurs during the rainy season, which may have some impact on the transformation of the pit contents (if so, we do not know what impact this is having)

- **Ash and Soil 2** – we found that many people did not put enough ash and soil in the pit after each use when we started this initiative, leading to smell problems. We are now recommending that people put in enough so that they no longer see the excrement_
- **Smell** – there is no question that the management of ecological sanitation options increases during the rainy season. Smell becomes more problematic, especially as water seeps into the pits. People have to apply more ash during this time of year
- **Factors Affecting the Time Needed to Fill a Pit** – one interesting aspect of Niassa is that many people live away from home, at their farms, for a good portion of the year (as much as 3–4 months). As a result, the time that it will take to fill a 1.2 metre pit is extended. This also – to some extent – reduces the problem of pit management and smells that is characteristic of the rainy season
- **Fossa Alternas in Rural Areas** – we are finding that Fossa Alternas are quite popular in rural parts of Maúa. There has been a sense among some that the Arbour Loo is a better rural option but this is not proving to be consistent with local people's views
- **Linking Participatory Methodologies and Social Marketing** – we are finding that the combination of participatory work and social marketing principles is a useful combination in sanitation work – regardless of which systems are being explored at local level. The increasing demand for sanitation in Lichinga is the result of word of mouth, pride on the part of new owners who like to talk about their new latrines and show them to neighbours, radio and active participatory work at local level
- **Roof Design** – we have been experimenting with a range of roof designs. A roof is considered important during the rainy season to prevent water from entering the pits. We are adding plastic sheets to the roofs to enhance their effectiveness. We are also finding that the slope of the roof has to be away from the entrances or the rainy will make the entrance extremely muddy and hard to navigate at times. This addition of course pushes up the cost of ecological sanitation systems
- **Ways to Reduce Costs** – we are finding ways to reduce costs, including: 1.) Reducing the size of the superstructure while not compromising on the space required for people to excavate the pits; 2.) Using as much local material as possible; 3.) Decentralising slab production, which has local economic spin-offs as well
- **Costs During the Rainy Season** – we are finding that the cost of a Fossa Alterna more than doubles during the rainy season (from ~US\$18–25 during the dry season to ~US\$50 during the rainy season). This is due to the cost of finding local materials that are suitable for these toilets during the rainy season (capine and bamboo, and the transport necessary to find these materials). It should be noted that these costs include local labour for activities such as excavating pits

Finally, some of the questions that we are currently asking include:

- **Will people actually excavate their pits when the time comes?** This is a normal question, and is to be expected at this stage of the project. The concepts all seem accepted but more time is needed to verify whether people will actually excavate pits that have been filled with human excrement
- **Will people use the transformed faeces/urine in Fossa Alternas for agricultural purposes?** Again, time is needed to assess whether people will actually use the products of a Fossa Alterna in their fields
- **What kind of subsidies will we offer?** Moçambique no longer has a clear sanitation policy following the closure of the "Project for Improved Latrines", which generally consisted of centralised slab construction points and hygiene promotion in cities and some small towns in Moçambique. As such, there is no clear government policy on subsidies and sanitation promotion. Rural sanitation initiatives of this nature are also extremely new in Niassa, so in some senses we are entering an area where there is little local experience. There are conflicting views of subsidies as well within the partners – some considering subsidies as poverty alleviation tools, others seeing them more as

incentives and ways to promote new ideas. It should be noted that the first range of latrines constructed were almost completely subsidised as we wanted to learn – among other things – the true cost of such systems in different contexts, and whether such systems would be acceptable to people in a variety of settings

- **Can we add "Sky Loos" to the mix?** We are working in some areas with very high water tables, and some have expressed interest in urine diverting systems. The management and use of these systems is considerably different than the Fossa Alternas and Arbour Loo, and there is some concern about whether we have the capacity to provide the necessary follow-up support to ensure such systems are used properly
- **Can we find ways to reduce the cost of latrine slabs?** We are faced with a dilemma in slab design. To date, people with Fossa Alternas have chosen square slabs (1 m x 90 cm) over larger circular SanPlats. The problem we face (because of the types of soils available in Niassa) is that we need reinforcing for these slabs. And this reinforcing is proving to be the most costly part of the slab and the most difficult to find in terms of supply. We have found that the 60 x 60 square SanPlat slab is excellent for the Arbour Loo but not very good for Fossa Alternas (as it is hard to dig pits of sufficient depth with smaller slabs). Greater work is needed here so that we can further reduce the cost of a latrine
- **How will we sustain a latrine programme of this nature in rural areas like Maúa and Nipepe?** WaterAid is worried that the programme in Maúa and Nipepe will most likely not be sustained once WaterAid leaves these areas (our initial programme is for 5 years in these areas). There is almost no commercial sector in these areas, roads are in poor condition and transport rarely enters the area. Concrete is not available in Maúa Sede, and if it is it is in small quantities and at high prices. How such an effort will continue after WaterAid ends its support to the district is at this stage unclear
- **Can we develop monitoring systems that can be managed at local level?** WaterAid is investing time and resources into the monitoring of sanitation in Maúa and Nipepe (ESTAMOS will likely do the same in Lichinga and Mandimba). At some point our capacity to effectively monitor sanitation over a wide area, with dispersed settlement patterns, will be insufficient. The challenge we face (in all our work) is to identify informal capacity that can effectively do this work at local level