



**WaterAid**  
**Moçambique**

## **EcoSan in Niassa**

**Number 1, September 2000**

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### **INTRODUCTION**

WaterAid (Moçambique) has spent the past year supporting the Government's efforts to revive a sanitation programme in the Niassa Province, northern Moçambique. WaterAid's main partner is the Department of Water and Sanitation (DAS), but by all accounts, the sanitation side of DAS' work has been neglected.

The reasons for this are complex, but include a lack of support to DAS and in particular DAS staff for the development of a sanitation programme in the Province, and the mistaken view that a slab construction programme in Lichinga (the Provincial capital) constituted a comprehensive sanitation initiative.

DAS approached WaterAid in November 1999 with a view to addressing this problem. DAS rightly sees sanitation development as important, and wants to increase its knowledge and capacity in environmental sanitation so that they can fulfil their mandate to facilitate sanitation promotion in the Province.

The first step in the process was an environmental sanitation and hygiene promotion workshop, hosted in Lichinga at the end of March 2000.<sup>1</sup> The concept of ecological sanitation was introduced at this workshop, and was well received by many participants.

This was followed by a workshop on latrine construction, hosted by WaterAid and facilitated by Björn Brandberg (SBI Consulting – Swaziland). This workshop was primarily targeted at the private sector and focused on institutional sanitation. Ecological sanitation was touched on during this workshop, and some private sector companies are interested in these systems as well.

WaterAid has started testing different ecological sanitation systems in the Province, with a view to expanding this initiative over time depending on the response of local communities to these options.

It should be noted at the outset that ecological sanitation will form part of a more comprehensive environmental sanitation initiative in the Province. WaterAid believes that

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<sup>1</sup> Copies of the workshop report in English are currently available to interested parties. The Portuguese version is still being edited by DAS. Ron Sawyer (SARAR – Transformación, Mexico) and Ned Breslin (CR, WaterAid – Moçambique) facilitated the workshop. WaterAid and the UNDP/SEED Programme funded the workshop.

families should have a range of choices to choose from, and is not of the opinion that ecological sanitation is the **only** solution for communities as diverse as those apparent in Niassa. WaterAid is also exploring ways to upgrade traditional latrines so that these systems – which are in use throughout the Province – can be managed and used in a more hygienic way. VIPs and SanPlats (“Latrinas Melhoradas”) will also form part of this proposed initiative. Communities will be allowed to experiment with different types of systems, and be given the space to evaluate the strengths and weaknesses of each system so that they can make choices that are most relevant and appropriate for themselves.

That said, it should also be noted that the concept of ecological sanitation is gathering momentum in the Province. As suggested below, people who have participated in the construction of various systems have asked questions and thought through some of the ideas in a practical way. Many are now saying “this makes sense to me” and “can we try this at my house”?

The evolution of the sanitation programme in Niassa will be documented, but it was felt that a separate piece on ecological sanitation was warranted at this stage – if for no other reason than to share some experiences and thoughts.

This report therefore focuses on:

- Some initial experiments with ecological sanitation in Lichinga
- Results of a field visit – Zimbabwe
- Current initiatives that could include ecological sanitation
- The way forward

## **EXPERIMENTING WITH ECOSAN IN NIASSA**

Since the March Workshop, WaterAid and DAS have constructed 2 arborloos and 1 urine diversion system – the latter at my house.<sup>2</sup>

The first arborloo is located at a farm on the outskirts of Niassa. This farm has a restaurant and is expanding its tourism links with the Niassa Reserve. The arborloo is next to one of the guesthouses.

The superstructure is made of local wood (pine) and includes an area for a shower as well as a latrine. This has been well received here as many people in Niassa combine their latrines and bathing areas. The pit is 1 meter deep with a ring beam of bricks. The slab is a 60x60 sanplat encased in a wooden frame, which the owners feel will make the slab easier to move.

The superstructure is heavy and will be difficult to move, but the owners are not terribly worried about that as the superstructure is made of the same material as the guesthouse (which is important in their view). They also believe it will take some time for the pit to fill, as there are not many guests staying at the farm at present.

Ash is added after each use, and vegetable matter is sometimes included as well. Smell is not a problem at present.

The second arborloo is on the Kutchinjinji Machamba, which is used by Kutchinjinji (a local NGO) to train farmers from Lago and Sanga Districts in aspects of agriculture and animal husbandry. The arborloo superstructure is made of reeds and includes a roof (which is not

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<sup>2</sup> It should be noted that I have paid for this, not WaterAid.

normal here but important because of the heavy rains that will start in December). The superstructure is easy to move.

The pit is only 0.7 meters, as the staff at Kutchinjinji wanted the pit full by the time the first group of trainees arrives in late September. The pit diameter was also larger than the 60x60 sanplat used, so local wood was used to support the sanplat.

An ash and dirt mix is used after each use, and has – among other things – forced staff to wash their hands after defecating. It is postulated that the ash/dirt mix is helping the cleansing process as well.

Staff at the machamba have been using the system for some time now, and it is being maintained hygienically. There are no odour problems at present.

The arborloo is sited close to a small grove of saplings because staff want to see which trees grow faster – trees planted as in the past or trees planted in the arborloo pit.

The urine diversion system is attached to my house, includes two pedestals (to eliminate the need to switch the pedestals when the pit is full), a urinal and a series of soakaways so that there is no problem with excess urine.<sup>3</sup> Urine can be collected if desired. There are two ventilation tubes as well, and a basin for handwashing.

A private sector firm that has shown an interest in EcoSan is constructing the system, and have tended to go for high cost materials (like a porcelain urinal) rather than use lower cost materials as recommended by me. The problems tend to be the greatest when I leave for the field – upon return I shrug at the cost and extravagance of this system. But people like it – partially because it looks so nice.

Ash and dirt are used as a bulking agent, and I will ensure that the faeces are tested for pathogens at various stages to assess pathogen destruction rates.

We do not have odour or fly problems at present. Importantly, my two children – aged 2 and 4 years – have no problem using the system as well.

Final costs on all these systems will be included with the next report on EcoSan in Niassa.

Interest in EcoSan has grown during the construction of these systems. Debates about the merits and demerits of each system are common, but most discussions tend to focus on the perceived positive benefits of these systems.

Our original concerns about negative local attitudes to the use of human faeces and urine for agricultural purposes are being challenged by a handful of farmers who are building these systems.<sup>4</sup> They are constantly saying, “why is human faeces any worse than the animal faeces we use **and have to pay for**”? Interest in the arborloo is also high because people value fruit producing trees for home consumption and sale.

Many who are participating in the construction are now asking if they can build one at their house (to which we say yes, just buy a slab, dig a small hole like this and make a reed superstructure that can be moved). Some have said that they have a better sense of the

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<sup>3</sup> The toilet mould was brought to Lichinga by Ron Sawyer, and was designed by César Añorve.

<sup>4</sup> Farming is the major occupation of people in Niassa, and most professionals also continue to maintain a machamba to supplement incomes and diets.

possibilities because they have been involved in the construction, and still others want to wait and see the results after the pit contents are put to productive use.

Participants' biggest worry is smell – particularly during the rainy season. People say that the systems do not smell now, but let's see during the rains. This is a fair request.

## **RESULTS FROM THE FIELD - ZIMBABWE**

WaterAid's southern African programmes (Malawi, Zambia and Moçambique, as well as the Regional Manager for West and Southern Africa based in London) met in Harare during the final week of August 2000. We had the opportunity to spend a morning with the Mvuramanzi Trust and an afternoon in Peter Morgan's garden (which is quite impressive as those who have visited can attest).

We had the opportunity to discuss various aspects of Mvuramanzi's work with Ephraim Chimbunde (Project Manager) and Cleophas Musara (Project Manager, Health and Hygiene). Discussions centred on their approach to sanitation, their experiences with different sanitation technologies and subsidy schemes, and family wells.

Peter Morgan clearly demonstrated the various ways ecological sanitation can be linked to agricultural development and forestry.

We were able to see this potential partially realised during a visit to the Hatcliffe Holding Camp, an informal settlement on the outskirts of Harare. Mvuramanzi has supported a sanitation project in the settlement, with a focus on the Fossa Alterna. Mvuramanzi estimates that there are between 1, 200 and 1, 500 household Fossa Alternas in Hatcliffe at present. The superstructures are made of wood, and most (but not all) include pedestals made of cement.

The number of Fossa Alternas evident at the camp, as well as the cleanliness of the latrines, impressed us. We spoke with some people who had moved their latrine from the first to the second pit, and there was some evidence of the use of the compost in gardens and fields. This suggested that at least **some** people in the Holding Camp understood the potential value of the compost for agriculture. We were also told that some people had left the Camp and taken their toilets with them, which was a very positive sign.<sup>5</sup> Mvuramansi staff also suggested that new entrants to the Camp were building Fossa Alternas without subsidies, although this could not be confirmed.

What also struck us was that the latrines did not smell at all – regardless of whether households had included a vent pipe or not. Some said that they smell a bit during the rains, but nobody seemed to suggest that the smell was so offensive that people abandoned the latrines until after the rains.

Mvuramanzi was also quite open about some problems evident at the Camp. For instance, the project was implemented quite quickly, so Mvuramanzi told the initial participants in the project to build only one pit and then when that pit was full they could construct the second pit. Mvuramanzi staff, a local Environmental Health Technician and the Sanitation Committee Chair all suggested that this was a mistake. One outcome of this decision is that some people do not

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<sup>5</sup> Hatcliffe's land tenure situation is tenuous, and has led to a great deal of insecurity among residents. The Fossa Alterna seems to be accepted for a range of reasons, but **perhaps** also because it is portable.

fully understand the principles of the latrine, and others have simply not constructed their second pit.

Newer participants in the project were encouraged to build two pits, so this lesson seems to have been “learned” by the Trust.

The project was also heavily subsidised at first, but this is clearly changing as Mvuramanzi’s support decreases.

I certainly left seeing clearer possibilities to introduce EcoSan here in Niassa, and believe that a basket of sanitation choices that included arborloos and Fossa Alternas would be well received by residents of this Province.

### **CURRENT INITIATIVES THAT COULD INCLUDE ECOSAN**

At present, there are a range of initiatives that are either on-going or planned where ecosan can be included.

On-going work includes:

- **Health Programme – Lichinga**: the first phase of this programme focused on the infrastructural and management needs of Lichinga health posts so that they could provide more effective care for their patients (specifically water supply, institutional sanitation, washing slabs and hand washing facilities, as well of the proper management of these systems). The second phase of the programme is to focus on the needs of Lichinga residents who lack effective environmental sanitation. The programme could be a model for other small towns in Niassa, and is funded by WaterAid. Ecosan will be included as an option for households who currently do not have sanitation facilities.
- **Pilot DRA Programme – Maúa and Nipepe**: WaterAid is helping DAS implement the new water and sanitation policy in two remote districts (Maúa and Nipepe) in Niassa. The programme is designed to stimulate demand for water supply and environmental sanitation support. Initial findings show that demand for improved water supply and sanitation is evident, so capacity is being built to respond to this demand. The programme is funded by WaterAid.
- **Agro-Forestry Programme – Mandimba**: ESTAMOS, a local NGO, is initiating a reforestation programme in Mandimba, a district that borders Malawi. The programme will include arbor-loos as a viable way to promote agriculture and forestry development in the district. The initiative is funded by Irish Aid.
- **Piloting Sanitation in Small Towns**: SAS (Holland) have agreed to include a sanitation component to their pilot small piped systems programme in Metangula, a small town on Lake Niassa. Interest in sanitation is high in Metangula (and seems to be more pressing in some areas than water supply provision), and there is a clear opportunity to include EcoSan here as residents are interested in the potential linkages between EcoSan and agriculture. The programme is being managed by DAS and WaterAid.

Proposed work that could explore the potential for EcoSan in the Province includes:

- **Sanitation Study in Mandimba and Lichinga**: ESTAMOS is putting a proposal together to do a comparative study of peri-urban sanitation problems and possibilities in Lichinga and Mandimba Town. The study is seen as particularly important as it will give us new insights into the challenges of peri-urban sanitation development in Niassa. A series of questions/participatory activities will be included that explore opinions and perceptions to possible eco-san interventions.

- **Agricultural Development – Lago and Sanga Districts:** Kutchinjinji have expressed interest in linking eco-san with their on-going agricultural and livestock support programmes in two of the largest districts in Niassa. Kutchinjinji is supported by Concern Universal, who have also expressed their support for eco-san in Niassa.

## **THE WAY FORWARD**

WaterAid hopes to move forward in 3 definable phases.

First, SIDA has generously supported a field visit by Peter Morgan to Niassa for a preliminary visit to assess the potential for ecological sanitation in the Province. The field visit will occur in the second week of October 2000. Activities will include:

- Assessing EcoSan work done in the Province to date
- Getting a better sense of the natural resources in the area, and the possible linkages between EcoSan, forestry and agriculture
- Constructing a series of demonstration models (Fossa Alterna, arborloos and sky loos) in different parts of the Province (hard soil areas and sandy soil areas). Efforts will be made to test different slab designs, pit linings and superstructure designs based on locally available materials
- Helping think through ways to evaluate these systems with users and to document the lessons learned in the process

WaterAid (Malawi) will also participate when Peter comes to Niassa, as the potential for EcoSan in Malawi is also considerable.

Second, WaterAid programme and partner staff from Malawi, Zambia and Moçambique have scheduled a trip to Zimbabwe in the later part of February 2001. The purpose of the trip is to introduce staff and partners to a range of projects that have been operational for some time. The Mvuramanzi Trust has agreed to host this group, which is greatly appreciated. Details still need to be finalised but it is envisioned that staff and partners will be exposed to family well projects and a range of sanitation projects in Zimbabwe (including but not limited to EcoSan). We also hope to spend an afternoon in Peter Morgan's garden. The experience should help further inform our planning and experimentation efforts in Niassa, Malawi and Zambia.

Finally, plans to host a sanitation-planning workshop are envisioned. The intention would be to develop a more comprehensive strategy for environmental sanitation development in the Province, and focus on how ecological sanitation can be introduced in an effective way as part of this initiative.

Discussions are underway with Ron Sawyer (SARAR – Transformación) and Peter Morgan to facilitate this workshop.