

COURSE MATERIAL

COMMENTS

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Jonna Heikkilä (ed.)

DRY SANITATION PROJECTS IN SWAZILAND AND ZAMBIA

Final review of experiences from
Msunduza, Kaloko and Madimba



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INTRODUCTION

Jonna Heikkilä

In 2000, global targets for Millennium Development Goals (MDGs) were agreed by the members of the United Nations for a joint struggle against extreme poverty. Within the seventh time-bound target, the proportion of the population without sustainable access to safe water and basic sanitation was to be halved by 2015. While the target for accessibility to improved water resources has been reached five years before the deadline, the goal for sanitation is still lagging far behind and is bound to fail. Globally, approximately 2.5 billion people lack access to safe sanitation facilities. One of the regions struggling with this developmental challenge is the Sub-Saharan Africa. (United Nations 2013)

Dry sanitation is a sanitation method, where water is not needed in transporting the waste into treatment process and where waste is regarded as a resource. It provides a sustainable alternative for safe sanitation especially in regions with scarce water resources, expensive fertilizers and disease-prone areas relating to unhygienic sanitation conditions. Nevertheless, dry sanitation requires adaptation to a different sanitation method and an accepting attitude towards the use of human originated waste e.g. in food production. Dry toilets are a sustainable solution for sanitation and can promote food security, while it also demands correct and safe use and maintenance of the toilet. A lot of research has been made on urine as a fertilizer and on the composted solid material from the dry toilet as a soil enhancement (see i.a. Pradhan 2010, Jönsson & al. 2004), but still a lot of work is needed to ensure the social acceptability, local ownership and hence sustainability of the concept.

The cooperation between Turku University of Applied Sciences and the Global Dry Toilet Association of Finland for promotion of sanitation in Southern Africa has continued for seven years. In Swaziland and Zambia, the organizations are working for improved sanitation facilities and increased awareness on sanitation hygiene by building dry toilets and providing education together with the local partners. The projects are funded by the Ministry for Foreign Affairs of Finland.

DRY TOILET PROJECTS IN SWAZILAND AND ZAMBIA

Swaziland is a small land-locked kingdom located in Southern Africa between South Africa and Mozambique. Swaziland is a lower middle-income country with a population of 1.2 million. The biggest developmental challenges of the country are slow economic growth, weak fiscal management and high prevalence of HIV/AIDS (26.5 % in 2012). (World Food Programme 2013, Basdevant 2011.)

Turku University of Applied Sciences has worked in Mbabane, the capital of Swaziland, since 2004 in projects related to environmental health. In 2007, Msunduzi Dry Sanitation Project was initiated together with the Global Dry Toilet Association of Finland, the Salvation Army of Swaziland as the local coordinating organization and the City Council of Mbabane as the local administrative partner.

Msunduzi is the oldest and largest peri-urban settlement in Mbabane, Swaziland. The population of Msunduzi is approximately 16 000 people and it consists of six subzones. The community is under the authority of the Mbabane City Council, but it is also led by a traditional and elected organization, the Central Committee. The main characteristics of Msunduzi are steep topography, insufficient infrastructure and poor roads. Sanitation solutions are diverse ranging from water closets in the official areas to pit latrines, buckets and flying toilets in the informal settlements. While Msunduzi, through the project and other urban development initiatives, has made progress in recent years in terms of sanitation, roads and water supply, poverty persists and water borne diseases, such as cholera, are still rather widespread especially among the children under five.

Zambia is located in Southern Africa between the neighbouring Democratic Republic of Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia and Angola. Zambia, earlier a British colony, became independent in 1964. The country has about 13 million inhabitants and a surface area of 753 000 km². Approximately 3 million people live in the capital city, Lusaka (Wikipedia). Zambia is one of the Finland's long-term partner countries in development co-operation and currently one of the main receivers of Finnish development aid (Ministry for Foreign Affairs of Finland).

Global Dry Toilet Association of Finland began its first project, namely Dry Sanitation improvement programme for Zambia (ZASP), in a rural area of Zambia in Luansobe in 2006 with the local partner Kaloko Trust Zambia. The

project area Kaloko is approximately 260 km² wide and home to about 12 000 people. The Association's second project in Zambia (Sustainable Sanitation Improvement Project for Madimba Peri-Urban Community Lusaka – Zambia, SSIP) began in 2008 in the capital Lusaka, local cooperation partner being NECOS (Network for Environmental Concerns and Solutions).

In both of the projects in Zambia, hygiene and sanitation conditions have been improved by giving hygiene education as well as building toilets and water sources. Promoting dry toilets and toilet waste recycling as fertiliser has been one of the key elements in the projects. The sustainability of the projects has been improved by using participatory methods and capacity building e.g. with leadership skill and project management exercises and by establishing local committees, clubs and community based enterprises.



PICTURE 1. *Swaziland (in red) and Zambia (in yellow) are land-locked countries in Southern Africa.*

ABOUT THE PUBLICATION

The aim of this publication is to bring forward different experiences related to dry sanitation projects. In seven years of project implementation, both positive outcomes have been reached and diverse challenges have been faced. The lessons learned and the successful efforts in the field are hoped to be utilized by other actors in their valuable work for promotion of safe sanitation in the world. While the three projects in Swaziland and Zambia – on which the publication is based – end in 2013 and are continued in the future by the locals themselves, work in dry sanitation is carried on by both Turku University of Applied Sciences and the Global Dry Toilet Association of Finland. Four new projects begin in January 2014 both in Swaziland and Zambia, where the work is based on the existing cooperation network, skills acquired and the experiences gained in the previous projects.

This publication is a follow-up to *Experiences of Dry Sanitation in Southern Africa* (edited by Leena Akatama, 2008), which reflected the experiences of the projects in their early stage. Now after six years, this collection of articles reviews the projects with emphasis on sustainability, impact and local participation. The articles are written by members of the project organisations and student trainees.

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ABOUT THE AUTHORS

Mia O'Neill is a doctoral candidate at Tampere University of Technology and has a background in environmental policy and environmental engineering. She is interested especially in ecological sanitation. Since 2010, she has been the Chairperson of the Global Dry Toilet Association of Finland. In her article, she discusses the development of the toilet institution towards more sustainable practices.

Anni Salla is a student of Sustainable Development in Turku University of Applied Sciences. She did her three-month practical training for Msunduzi Dry Sanitation Project in Swaziland in spring 2013, during which she also collected information for her Bachelor's Thesis on project sustainability in development cooperation. Ms. Salla worked as the Student Assistant for the project after her return from September to December 2013. Ms. Salla presents different dimensions of sustainability in development cooperation projects in her article with Msunduzi Dry Sanitation Project as a case study.

Silja Leppänen is a student of Sustainable Development in Turku University of Applied Sciences, who did her practical training for Msunduzi Dry Sanitation Project in spring 2013. Ms. Leppänen travelled back to Swaziland in October 2013 to do the final evaluation on the project as part of her Bachelor's Thesis. In her article, Ms. Leppänen introduces and analyses the main results of the evaluation from the community's perspective.

Bhokie Matambo Ngobese is an Environmental Activist and Expert on Permaculture from Msunduzi, Swaziland. He worked as the Field Coordinator for the Msunduzi Dry Sanitation Project from October 2012 until December 2013. In his article, Mr. Ngobese reviews the successes and the challenges of the community based on his experience as the Field Coordinator.

Jari Hietaranta is a Project Manager and Senior Lecturer at the Turku University of Applied Sciences. Mr. Hietaranta has been part of the project team since the initiation of TUAS' work in Swaziland in 2004. In his article, Mr. Hietaranta discusses corruption and the importance of local administration in project implementation and shares experiences on the theme in relation to the Msunduzi Dry Sanitation Project.

Jonna Heikkilä has worked as the Project Manager in the Msunduza Dry Sanitation Project at Turku University of Applied Sciences since October 2011. Mrs. Heikkilä presents the main findings of two project evaluations conducted in 2008 and in 2011. She discusses, from the project management point of view, what the project team will take with it after the project ends.

Emmanuel Mutamba is the Team Leader in Green Living Movement (GLM), a NGO based in Zambia. Mr. Mutamba has worked with dry sanitation projects both in Zambia and Swaziland. Mr. Mutamba introduces the Zambia Sanitation Project in Kaloko and discusses the community and sustainability perspective in the implementation.

Obed Kawanga, is the founder and a president of Network for Environmental Concerns and Solutions (NECOS), a NGO based in Zambia, Lusaka. He has extensive work experience e.g. in research and project management. He has been the local project manager of Sustainable Sanitation Improvement Project for Madimba Peri-Urban Community Lusaka – Zambia (SSIP) since 2008.

Kaisa Piirilä is a BSc. student in HAMK University of Applied Sciences. Ms. Piirilä did her practical training in Zambia during summer 2012, and did evaluation and volunteering in the Madimba project in December 2013. Kawanga's and Piirilä's joint article discusses the role of community based enterprises (CBE's) for sustainability in the Madimba sanitation project.

Sari Huuhtanen has worked as a Project Manager in Global Dry Toilet Association of Finland since 2006, having responsibilities to manage the association's projects for developing countries.

THE CIRCLE OF DEVELOPMENT – WAYS TOWARDS SUSTAINABLE SANITATION

Mia O'Neill

ABSTRACT

Sanitation is a crucial part of every person's life; having access to adequate sanitation facilities defines much of what we can and cannot do in our society. Presence of illness or lack of it can be determined by access to water and sanitation. There is a strong sense of belonging in a society, but it can be said that today we live more in a world society. According to World Polity Theory, the global norms engulf all cultures, and information and customs spread with the help of non-governmental organisations. This development has inspired to examine the concept of toilet as institution – and how sustainable sanitation could be achieved worldwide by following the changing global norms. Practices, policies and attitudes must come together in order for ecological sanitation to become a feasible part of the new sanitation development.

INTRODUCTION

As many other factors in our life, sanitation has evolved from bushes to space age toilet seats and traditional wastewater treatment to nanotechnology. This development can be seen everywhere, and in this article that development is examined.

The development comes to the understanding of the concept of hygiene. It was slowly understood that human excreta can cause epidemics and ruin drinking water. It was cleaner to have one specific place where to do one's business, and later it was discovered that water is a great utility for transporting the waste to some more distant location than one's backyard. It was understood, but bringing the concept into practice was a whole another matter.

As it often turns out, it is difficult to make people do anything unless it is a) profitable, b) beneficial in some other way, or c) made compulsory by law. As the amount of information increases, the legislation must be updated. (Perez 2009.) The sanitation legislation developed and started to require proper latrines, wastewater treatment and other types of measures from individuals and municipalities. However, even legislation does not change by itself and change resistance exists also among the decision makers. Political debate and questioning can be still seen today when discussing sanitation methods and requirements.

Everything started, of course, with the idea of a toilet, more specifically a water closet. The technology developed to meet the standards and the wishes of the people and the state. Waterborne sanitation was already enjoyed by the ancient Romans (Vuorinen 2007). It is unrealistic to have a law that cannot be technologically implemented, so regulations must develop hand in hand with technology development. Meanwhile, people must change to adapt to the new technology – or vice versa.

Change is continuous in natural systems, and only those “living outside nature” can even consider their lives untouched by it. However, humans interact with nature whether they want to or not. Human excreta in the wrong place causes eutrophication in water bodies and can spread disease, while in the right place it enriches the soil with nutrients. This fact cannot be ignored, which is why it is handled in legislation – often after a long political debate.

This article discusses the development of the toilet institution towards more sustainable practices. Development is similar, whether we observe technological development of telephones, from jungle drums to microscopic spy equipment, or sanitation, from bushes to fancy behind-washing-apparatuses and back to ecological dry toilets. Even though development may be cyclical and knowledge of history can be helpful when trying to foresee the next trends, it is important to remember that nothing is ever the same. The dry toilets available at shops today are certainly a far cry from the ancient long drop – only the practice of returning nutrients back to the soil has remained the same. This is because technology develops together with the social values and needs, but at the same time the ecological values (and, indeed, needs) may overcome the seemingly luxurious comfort of water based toilets (as long as the system is functional, mind you). Political decisions and economic incentives, they too have an effect on practices and eventually attitudes – and soon we notice that the values of the future are those of the past.

It is necessary to ponder the history, the current development and the potential future that is desired. It may be necessary to see beyond the development of the society and technology, and look at oneself, because eventually social development and change in attitudes starts from an individual (who is affected by masses – the cycle starts again). Will we see the more ecological sanitation age, or alternatively the development of water treatment facilities and fertiliser industry? How will the sanitation institution develop – and will it develop the same way everywhere? More importantly, will these new developments be sustainable – or something else?

TOILET AS AN INSTITUTION

Initially, the thought of toilet as an institution can appear somewhat fuzzy. Institution as a concept can mean structures of thought, rules or routines, but also more formal laws and standards, or even shared norms or values. Here, the concept of institutionalism will be approached as a theoretical framework, helping the understanding of sanitation and its development as well as its standing in the world society.

Especially John W. Meyer and Ronald L. Jepperson have approached the concept of institutionalism as an application to understand the social actors in the formation of “world culture for social organisation”. The question is of the rationalisation of social life, the social world becoming more systematic and standardised. (Jepperson 2001.) The emphasis of what is called sociological neo-institutionalism is that everything rational is in fact socially constructed – and therefore also alterable. The concept of *institution* refers to structures and patterns which form a relatively stable system of knowledge or institutional matrices. Institutions provide the models of thought for the actors to follow – and to take for granted.

Institutions carry a variety of definitions based on the discipline studying them. Here, the sociological aspect of institutions is embraced. Instead of limiting the definition of *institution* to human designed products, frameworks of rules and arrangements or recognised practices, the neo-institutionalism in sociology approaches the term *institution* as norms, cognitive frames and meaning systems guiding human action, as well as the cultural scripts serving symbolic and ceremonial purposes rather than mere utilitarian ones. (Schmidt

2005). In the light of sociology, institutions are everywhere, as “sociologists view behaviours as potentially institutionalizable over a wide territorial range”. (DiMaggio & Powell 1991.)

In this branch of institutionalism, it is considered that individuals do not choose freely among institutions, customs, social norms or legal procedures – instead of basing the theory on individual choices, it is based on expectations which are taken for granted through socialisation, education and learning by doing. Individual choices are always linked with the cultural and historical frameworks, and so-called rational choices are effected by secular rituals, myths and legitimate constrains. (DiMaggio & Powell 1991.)

According to the sociological view of neo-institutionalism, any behaviour or structures can become institutionalised. Furthermore, it is argued that those institutionalised behaviours and structures are ordinarily slower to change than those who are not. In fact, institutionalised practices are reproduced because “individuals often cannot even conceive of appropriate alternatives (or because they regard as unrealistic the alternatives they can imagine)”. (DiMaggio & Powell 1991.) Institutionalisation is, to be fair, a relative property. It is up to the examiner to decide whether to consider an object as an institution, since whether a practice is an institution is relative to a particular context. (Jepperson 1991.)

Through effect of expectations, institutions become standard activities that are taken for granted, i.e. there is a common social account of their existence and purpose. People may not fully comprehend an institution, but they typically have knowledge of some account of why the practice exists. Institutions are taken for granted in the sense that they are considered as functional elements and fixtures of a social environment. This is to say that institutions are socially constructed, routinely executed programmes or rule systems. Institutions can be cultural, i.e. not monitored by any authority, or they can be regimental, monitored and sanctioned by a “central authority”. (Jepperson 1991.)

Taken these definitions of an institution, it is rather easy to justify the institutionalisation of the toilet facility. The current institution of the Western society is the WC, a flush toilet, which you can access wherever you need to. The institution is the sitting version – trying to squat on a Western toilet seat is not the norm, and most people would discourage you in attempting it. It is also advisable to flush the toilet, clean it after you, and wash your hands once leaving the toilet. In cultures where toilet has not yet become a norm (it may

be an institution in legislation and there may well be authorities regulating the sanitary facilities – but not in practice), the norm may be open defecation. In some countries, where the situation is grave enough, it is not frowned upon to go to the toilet on the street or in a river. These institutions are old, and they have found their place in society; they base their solidity in the fact that humans need to relieve themselves and they also need to keep their environment clean. These institutions also change slowly, because in many cultures discussing sanitation is a taboo, or at least not the favourite topic at the dinner table.

Yet, also in the cultures where sanitation is not well developed and open defecation is practiced, the idea of a toilet (sitting or squatting – in this case it is all the same) is a desirable one. Once knowledge of sanitation and its importance spread to these open defecating communities, a latrine is soon considered as an institution – hand washing becomes a norm. The “Western” style flush toilet becomes the main desire; any other pit or dry latrine is considered equal to poverty, sickness, discomfort and unhygienic practices. This inevitably takes us to the idea of common world culture, world polity.

DEVELOPMENT OF SANITATION IN THE WORLD SOCIETY

When analysing various countries and their habits, it can be argued that countries will go through certain stages of development. In terms of sanitation, we see the path from open defecation to bushes and pits to ventilated improved pit latrines (VIP) and finally to flush toilets – followed by (sooner or later) a sufficient wastewater treatment process. The key observation in this development is that even though countries have different cultural customs and traditions and are in differing levels of development, they do share some aspects in their governmental structure, in their political and economic field as well as in their desire for sanitation. This, argued by the World Polity Theory, reflects the existence of a common global culture. (Schofer 2010.)

In order to understand the development of ecological sanitation (ecosan) globally, it is necessary to review the current development of sanitation. Already at a very early stage of the cultural evolution of humans, detest towards foul smelling, tasting and looking water was an established perspective, and people tended to avoid contaminated water sources. However, as people adopted an agrarian way of life and started to build permanent settlements, the health risk of contaminated water grew considerably. (Vuorinen et al. 2007.)

Still even today, the urban settlements face a problem with their wastewaters. Up to 10 000 people, mostly children and elderly, die daily due to various diarrhoeal diseases which could have been prevented by adequate sanitation. (WHO 2012.) The problems have not changed in thousands of years, nor have the realities: proper sanitation facilities decrease the risk of public health and environmental problems.

Naturally people in many parts of the world enjoy the convenience of a water closet. Since the early 20th century, after long debate, the water closet has been a generally accepted cultural necessity in Western countries (Vuorinen et al. 2007) and by today it has become the general standard across the globe. The water closet is considered to be more hygienic and safer than other latrines despite the fact that the wastewater can end up practically anywhere.

The idea of water and cleanliness go hand in hand, and the idea of water as a medium for bacteria is not as widely acknowledged. Yet, what started as the luxury for the rich has become a generally desired outcome for all – the white porcelain seat that transports the waste away in a single flush has the sense of beauty, purity and wealth. (Vuorinen 2007).

The somewhat recent success of the water closet helps us understand what issues are meaningful in sanitation. Cleanliness, including health and environmental aspects, is a clear variable for the development of sanitation. The main reason behind the first toilets and sewage systems was to ensure clean water for drinking and washing, and to remove the contaminating waste (Vuorinen et al. 2007). Another aspect is financial, as mentioned above: water closet was – and still is – a symbol of wealth (O'Neill 2012). From a society point of view, clean city is also more productive; an individual considers toilet as an investment for health, and for social appearances. Therefore, the third aspect is social value. It turns out that the three main points to influence the development of sanitation methods are the three pillars of sustainability: environmental, economic and social.

In the light of the World Polity Theory (see e.g. Beckfield 2010; Schofer 2010), it can then be assumed that the domestication process of the water closet has been successful, despite its shortcomings. As new technology became available, old practices started to change and people's attitudes towards the water closet became more positive. Eventually the authorities started to promote waterborne sanitation and it found its way to legislation – causing severe epidemics in the process before wastewater treatment was sorted (and

even after that). (Vuorinen 2007.). Today, waterborne sewage system is a norm in most countries (see e.g. Water Services Act 119/2001 for Finnish practices, and Water Supply and Sanitation Act 1997 for the Zambian point of view).

The World Polity Theory (WPT) emphasises the influence of norms and culture instead of power. This makes it still a rather new and controversial theory. Power and functional rationality is often seen as the main driver for societal change, and the idea behind the WPT does not support this claim. The theory also recognises the importance of international non-governmental organisations (INGOs) as driving forces in social change. It can be argued against the World Polity Theory that colonial relations and global trends reflect on US hegemony and that they are stronger causes for the current development towards the “Western” ideal of the dominant world culture. This can be the case, but in terms of sanitation, the tendency to favour Western development does not explain the various other norms and developments of the global “sanitation culture”. In fact, world polity research is dominating the fields of evolution of education systems around the world, appreciating the success of the environmental movement and other growing trends, such as human rights. Thus, it can be considered as a suitable theory to be taken into account when observing the development of sanitation, an institution carefully protected by cultural norms and global trends.

ECOSAN AS A PHENOMENON

Ecological sanitation is an old concept made anew in the need of more sustainable practices in water and sanitation, agriculture, energy, environment, and so forth. Several issues have an impact on the emergence and success of ecological sanitation. Sustainability often reflects issues beyond the horizon, the need to look further and wider than the problem at hand. Sustainable sanitation considers issues such as environmental degradation, social distress (need of sanitation, potable water, hygiene), economic downturn (development of new technologies, introducing basic concepts etc.) and many others, all issues relevant to our well-being.

It has become apparent that since Western societies are heavily relying on water borne sanitation, there has been no need to separately discuss the use of dry human excreta. Most of the legislation handled sewage sludge and its potential fertiliser use, while composted faeces and separated urine were not

even considered. It could be stated that the use is not forbidden as such, but the material would have to be commercialised in order to warrant proper chemical analyses to determine the safety of the fertiliser. This makes the entire procedure often too complex for small scale entrepreneurs and producers.

Developing countries, on the other hand, are facing different types of challenges with sanitation. Large numbers of their population have no access to adequate sanitation facilities, and thus improving sanitation coverage is the first of their priorities. Yet, as the sanitation institutions suggest, they are easily convinced that flush toilets are the only or at least the best alternative, leaving little room for further discussion on alternative, potentially more sustainable, sanitation methods. Even though ecosan projects have been successfully implemented and positive results have been gained, the political will does not support the increase of ecological sanitation over the “traditional” norm – the flush toilet. This is true even though the local practices would benefit from the affordable fertiliser, and in rural areas it is next to impossible to build proper sewage coverage, let alone efficient and reliable wastewater treatment and disposal. The political strategy papers and legislation barely mention sanitation methods or fertiliser use of treated human waste.

All in all, it would appear that any change to the institutional norm is difficult to achieve, as countries which have already reached a certain standard of sanitation are reluctant to change their norms, and, furthermore, the countries which still have work ahead of them are reluctant to act differently from the general norm. There is, however, a slight chance of ecological sanitation breaking through in developing countries. First of all, there is more will to tackle the sanitation issue and create more options for the people’s well-being. Second, local and international NGOs operate between grass root level and government offices spreading the word on successful practices and desirable outcomes. Affordable and lasting solutions are sought after and with proper “marketing”, and new methods outside “the box” could very well become more popular. According to the WPT, the powerful impact from the grass root level could be the force changing the global norms, or at least bending them slightly.

Another force driving change is crisis. The challenge is, apart from political will, to affect the attitudes according to which the current system is the best for our needs. Globally, it is slowly being understood that phosphorus is reaching its peak soon. Mining will no longer be a sensible option, and

new methods for recovering of nutrients must be developed. These methods include recovery from sewage sludge and controlled fertiliser use in agriculture, but ecological sanitation can, and should, play a part in it. Especially rural areas without sewage network need sustainable facilities for handling their wastewater. In urban conditions, collection of urine is a feasible option for public bathrooms, but the current infrastructure does not necessarily support this. As old structures are being renewed, the new needs must be considered and, if possible, met with sustainable and functioning technology.

It seems that most of the challenges faced by ecological sanitation can be narrowed down to three categories. Firstly, current policies and legislation limit the sustainable use of human produce. As technologies develop, the treatment and maintenance of dry toilet and low flush facilities becomes easier, and the policies should follow this development. At best, policies will act as guidance methods for people to change their behaviour to a more sustainable direction; instead, the policies often seem to drag down the development and create unnecessary boundaries.

The second point, that is also one reason behind slowly changing policies, is the people's attitudes towards ecological sanitation. Lack of knowledge and prejudices can result in negative attitudes towards anything new or different. Change is difficult for people as it is, but it is also necessary to see that attitudes can be affected by policy guidance as well as bringing more information on successful best practices – the prejudice must be countered by factual information. It is also necessary to remember that policy makers are people too, and their attitudes do affect their judgement. It is easier to go with the flow and follow the norm than make an exception and turn to a new path.

As mentioned, policies affect attitudes and vice versa, but it is also necessary to remember that both of these are affected by practices. If something is not allowed by law, but people do behave in that way, there are usually two options: raise the punishment for unwanted behaviour or make it acceptable. The course of action is naturally determined by the hazardous nature of the practice – which is why it is important to document best practices. The role of (I)NGOs is by no means insignificant as they document the practices, spread the word and bring information to the decision makers. Successful practices change attitudes and policies, but the interaction works both ways: a change in attitudes or policies can increase the number of new practices.

WAYS FORWARD

To understand the type of environment needed for change, an excellent example is made by Lüthi et al. (2011) in their figure of “Enabling environment” framework. There it can be seen how various factors form the environment in which positive change is possible. Government support and legal framework fall under policies, while attitudes cover socio-cultural acceptance. Practices, such as financial and institutional arrangements as well as skills and capacities, cover the final pieces of the puzzle, forming the grounds for an enabling environment. In order to achieve the enabling environment and perhaps some of the more positive outcomes depicted in the scenarios, it is necessary to affect people’s attitudes, general practices and policies.

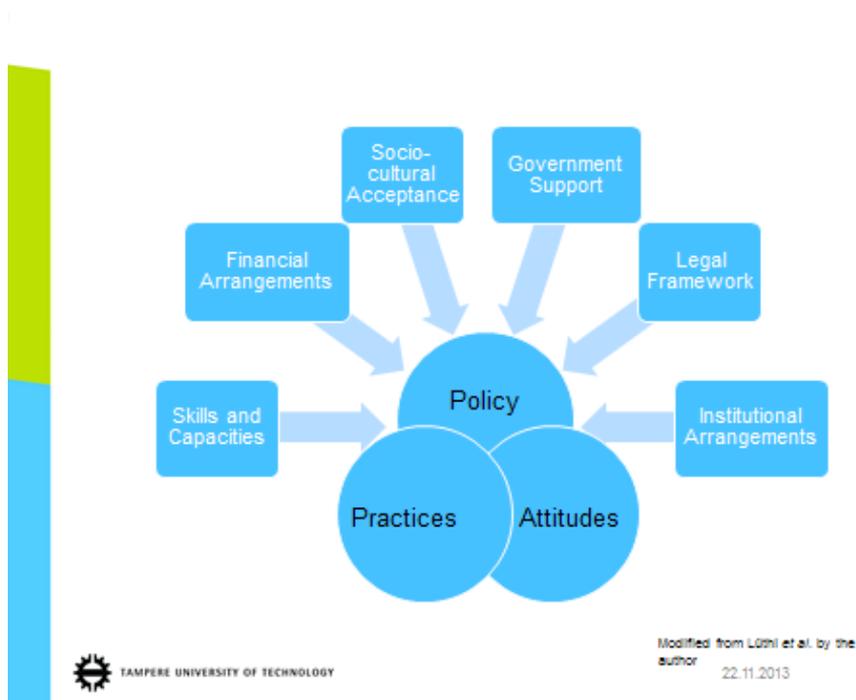


FIGURE I. “Enabling environment” framework. (Based on Lüthi et al. 2011, modified by the author)

Attitudes are formed from early age, and some experts suggest introducing practices at schools so children could adopt new, more sustainable methods, also on sanitation. It is also necessary to understand the socio-cultural framework from which these attitudes emerge as they do vary from culture to culture. If toilet is a taboo, it is more difficult to gain acceptance to use of toilet waste as fertiliser, no matter how well treated it is. Meanwhile, it should be remembered that media has an important role in creating expectations and images in people's minds. Positive and negative reactions are often based on the first reaction of a new phenomenon, and it is difficult to later on contradict the false information the public heard first. Thus, it is not only the media but also the people spreading information who are responsible for the correctness of the facts delivered to the public. Again, the civil society plays an important role here, acting as a mediator between the public and the policy makers.

Policies, on the other hand, could very easily be changed – assuming the policy makers have the necessary information in their disposal. It is unfortunate that much of the research never reaches the decision making bodies as they have no time or resources to familiarise themselves with the latest information (Laurinolli 2013). There is indeed a need for a mediator, and often the task falls to the NGOs and other organisations which are lobbying for their own interest. However, the lobbying is also conducted by companies, for more personal interests, and it might be challenging for the decision maker to identify the factual information for a marketing speech. Furthermore, the attitudes of the decision makers, as already stated, can form a boundary between policy and practice, and personal beliefs can overcome the value of scientific research. It is also important to note that legislation cannot be changed based on light grounds. Thorough research and a sufficient need are required before legal reforms can be performed – it is easier to change future outcomes by gaining the government support at least on policy level.

Finally, it is about the practices. As far as ecological sanitation is concerned, many people globally are aware of the practice and some have even used dry toilets or human urine as fertiliser. Small scale practices can affect the attitudes – for better and for worse – but large scale practice often requires government support in order to be successful. Successful implementation of new methods also requires skilled people to conduct the work as well as experts to research the conduct from an impartial point of view. New practices often need to also be financially lucrative or at least tempting in ways that will make investors willing to participate in them.

A good example of a good practice in terms of ecosan is the Community Led Total Sanitation (CLTS), where people themselves discover the need for improved sanitation, and, with help, make it happen for their own community. In communities, where the fertiliser need is severe, ecosan has been welcomed once knowledge of the safe practices has spread. In terms of financial sustainability, it has already been stated that nutrient recovery will become necessary in the near future.

CONCLUSIONS

Ecological sanitation has been a solution for small scale on site sanitation especially in rural and poor areas for a long time. However, with the increased awareness, improved technological advances and the simple need for sanitation, it has slowly started to look more and more appealing – at least to some. Yet, there are obstacles created by lack of knowledge as well as concrete issues that remain to be solved.

As technology develops, more options become available. Ecological sanitation does not mean (and has never meant) a smelly outhouse and spreading pure excreta or sludge in the fields, but it is about the sensible, safe and sustainable treatment of potentially hazardous waste into a valuable resource. Further study on these technological advances, such as indoor dry toilets, low flush toilets and nutrient recovery methods will be a welcome asset to the development of ecosan.

It should not be forgotten that sanitation is still one of the biggest problems faced by humanity as nearly a third of the world's population have no access to proper sanitation. Disease and death cause deterioration in societies, which leads to economic difficulties and further deterioration of the environment. The vicious cycle continues, unless it is broken and turned into a virtuous one: by increasing sustainable sanitation methods such as ecological sanitation, the various sectors of society can benefit from the few actions that are required. With small investments, great profit can be made – and not only on a financial level.

There is a strong incentive to improve ecological sanitation practices, and to support these practices with policies and legislation. Once the need becomes apparent, the public will realise the potential of ecosan as long as there is

enough information on the success stories – as well as on the challenges. In time, it is very likely that according to the three pillars of sustainability – economic, ecological and social – ecological sanitation will become the logical choice.

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MSUNDUZA

SUSTAINING THE BENEFITS OF PROJECT COOPERATION – PROJECT SUSTAINABILITY IN MSUNDUZA

Anni Salla

INTRODUCTION

*If you give a man a fish he is full for one day,
but if you teach him to fish he can feed himself for life.*

This famous proverb describes and emphasizes the importance of teaching life lasting skills rather than fulfilling one's momentary need. In other words, it means that it is better to teach people to do something than to do it for them. By teaching, people will be able to help themselves in the future without assistance and become more independent; that is what modern development cooperation is aiming for. The practises of executing development cooperation have been questioned, since the results have not always been sustainable and the benefits have tended to fade away during time. In project cooperation, the aspect of sustainability is often included in the project plan and implementation, but the question still remains: are the efforts of sustaining the benefits still rooted enough in the project activities? In Msunduza, the aim was to get the communities to adapt the idea of dry sanitation and continue the activities initiated by the project on their own after the funding ends. Behaviour-related changes are always tricky, but the aspect of achieving sustainability has been included in the project implementation from the beginning.

FROM AID TO COOPERATION

Historical perspectives of development cooperation

The first modern foreign aids were donated in the early 19th century, when the United States passed assistance to Venezuela after an earthquake in 1812 as Act for the Relief of the Citizens of Venezuela. The current development aid originates from the end of the colonial era, when the western countries started to pass funds to their colonies. Great Britain's Colonial Development Act, established in 1929, gave loans and funds for improving the infrastructure – such as transportation, water supply and power – as self-interest aid in order to enhance British industry and employment. In the 1940's, The Colonial Development Act transformed into Colonial Development and Welfare Act, which included also education and other social sector activities. (Hjertholm & White 2000.)

After the Second World War, the concept of aid became clearer when the United States supported European countries in reconstruction. At the same time western countries, especially Britain and France, continued to support their former colonies. The formation of the United Nations and the World Bank pushed the development work forward by starting allowing loans for the European countries and later in the 50's to the developing countries. (Hjertholm & White 2000.) In the 70's and 80's, the main goal of development work was to provide technology and expertise, and the idea of economic growth was strong. Any kind of project work, however, did not have very long term effects at that time, and activities in question were seen to fade away when the resource flows stopped. (Laakso & Iso-Markku 2012.)

Aiming at long-lasting influence

In 1990 and 2000, it became clear that the concept of development work needed reformation. The main goal of emphasizing technology and economic growth changed into an efficient reduction of poverty. Instead of providing comprehensive expertise services, developed countries started to implement project cooperation where donors offered general budget aid or sectoral aid for specific sectors in need of development. Thus, receivers have more power to aim the funds for targets they see the most important. (Laakso & Iso-Markku 2012.) Developing countries were wanted to get more involved in their own development and steer it themselves. Development work separated

clearly from crisis and humanitarian aid in terms of duration. Development cooperation was more of a long-term work with long-term influence, whereas crisis and humanitarian help were there to relieve the consequences of a war or a natural catastrophe.

PROJECT PRACTICES AS FORM OF DEVELOPMENT COOPERATION

Project work has been the traditional and the most known type of development cooperation. It is time and space oriented – it has its start and its end. It has beforehand defined goals and a limited budget, and it is not only monetary help but includes transfer of knowledge and know-how. Projects differ significantly from each other and they can be part of any sector from infrastructure to gender equality. They also function differently and are implemented by different operators. Project practices have been a popular way of development cooperation due to their rather easy measurability. The impacts have been often easy to point out and projects have been branded with their unique identities. (Koponen et al. 2007.)

However, project practices have lost its popularity when budget aid and other newer forms of development cooperation have increased. The biggest problems with projects are connected with the productivity and sustainability. The impacts are better seen in short-term effective projects where the outcome is something more concrete. Long-term changes such as behavioural changes are rarely seen since the project is not usually attached to the receiver's government and does not have enough time to “root” to the systems and institutions. (Koponen et al. 2007.)

Despite of projects losing popularity, they are going through changes in order to adapt the modern conditions in the field of development cooperation. More and more, the practical work has been transferred to the receivers. More often the financial management is run by the locals and the personnel is assembled by the local experts. Donors work as advisors and help in the implementation. Project work has also transferred somewhat from governments and companies to NGOs, non-governmental organizations. (Koponen et al. 2007.) Therefore it can be said that despite the pointed out problems within the project cooperation, development projects are still seen as an important part of the development work.



PICTURE 1. *Msunduzza, 2013. (Picture: Anni Salla)*

PROJECT SUSTAINABILITY

Definition

Different actors in development work have their own definitions for project sustainability, but the general conjunctive idea is connected with the continuity of implemented activities after the funding and other forms of intervention ends. Asian Development Bank (ADB), African Development Bank (AfDB) and International Fund for Agricultural Development (IFAD) do not define it as the actual continuity of the benefits from the development intervention, but as the probability and likelihood of those benefits to be maintained after the monetary assistance has ended. Organization of Economic Cooperation and Development (OECD) presents three dimensions of project sustainability: 1) continuation of positive benefits resulted from the project practices, 2) probability that these benefits and achieved institutional structures will be maintained and 3) the ability to be resistant to risks, both internal and external. (ADB 2010.)

Sectors of project sustainability

The multidimensional term of sustainability can be attached to almost any field and is usually used as a sub-term or as a describing definition. There are seven identified sectors in project sustainability; different operators use somewhat different divisions, but the one presented here is one of the broadest.

Institutional sustainability is one of the most effective sectors. It means the stability of institutional structures that maintain the achieved practices. It refers to the institutional support from the target area, and it ensures that the project activities are ran, planned, implemented and evaluated properly without any outside help. (IFAD 2009, Hietalahti 2004.) Addressing local institutions is important and supporting the connections between the government and non-governmental organizations is essential, since the local institution structures need to adapt the project activities after the phase-out. Identifying factors affecting institutional structure is an important part of the planning and design phases, because social and political sectors are closely attached to the institutional activities. Working culture in general, decision making, financial management, different procedures and responsibilities varies. Relationships with different institutions should be acknowledged as well as the capacity for planning, budgeting, implementing and evaluating. If the target institutions are not found functional enough in terms of capacity, developing them can and is recommended to be included in the project plan. (MFA 2012.)

Economic and financial sustainability is seen as one of the most difficult to reach in development projects. It means the capability for economic independence, ensuring that the project based activities will not end due to any financial constraints and that they are resilient to economic risks. It is also said to reduce household vulnerability. (IFAD 2009.) The possible funding for the activities continuing after the donor's funding runs out needs to be planned well. It has to include financial aspects between different stakeholders and institutions as well as the wider economic situation and the effects in it due to the financial project activities. (MFA 2012.)

Social sustainability, also called socio-cultural sustainability, is connected with the social and cultural issues such as gender and equality as well as general acceptance and commitment to the activities brought by the project. It is connected with the personal level of beneficiaries. To reach such sustainability the project practices should be aligning with the present cultural frames. (IFAD 2009.) The social sector is attached to other sectors since it includes all

institutional practices; economic power, politics, religions, justice, values and ethics. However, it is said that cultural aspects should not prevail over universal human rights. Community participation is one of the most effective ways to ensure social sustainability. It brings out the human based approach and clarifies the present basic human rights in the area such as right to assemble and freedom of speech. Another part of ensuring social sustainability is to acknowledge how the project outcomes will be distributed in the community. The baseline information collection using both statistical and participatory methods gives a wide view on the situation and engages stakeholders in the project planning. (MFA 2012.)

Technical sustainability, including equipment but also skills, know-how and methodology, means the continuity of the access to the technical solutions and the suitability of those solutions in the present cultural and environmental conditions as well as political acceptance. It also includes training for maintenance and operations, access to the used materials and spare parts as well as the usage of local materials, labour and other services. Used materials should be simple and durable. (IFAD 2009, MFA 2012.)

Political sustainability could be seen as part of institutional sustainability, but here it is defined as a separate sector. It refers to the commitment from the government and enabling the project practices from that level. It should be made sure that the project implementation is aligned with the politics. (IFAD 2009.) Political aspects are attached to other sectors of sustainability and they affect each other both ways.

Environmental sustainability is probably the easiest to understand due to its current situation in the global forum. It covers all the factors that might have an effect on the natural environment and means that the project activities use the natural resources within the limits of nature's carrying capacity. It also includes resilience to environmental hazards. (IFAD 2009.) During project planning, addressing all the environmental factors and the effects on the project practices should be conducted especially in the areas that are sensitive to climatical variations. (MFA 2012.)

Ownership is seen as a separate sector, although it is closely attached to the institutional sustainability. It means the beneficiaries welcome the activities to their lives and feel committed to the outcomes of project practices in a sustainable way. (IFAD 2009, Hietalahti 2004.)

Sustainability in the project cycle

In order to reach all the sectors of sustainability, it needs to be taken into account during every project phase from planning to phase-out. As stated earlier, sustainability is seen as a weakness in project cooperation.

Specific country strategies should be taken into account in the planning phase. It means setting realistic results as goals, identifying the beneficiaries and aligning the results with their needs and interests. This includes a risk assessment as well, and the sustainability aspect needs to be integrated into all project components already in this early stage of the project cycle. A sustainable project plan is flexible and simple, and it is built on the support of the local and national institutions, which makes the successful phase-out possible and enhances the sustainability of project activities. (IFAD 2009.) A sustainable project plan and design includes all sustainability sectors mentioned above and establishes linkages between different sectors in order to ensure comprehensive sustainability.

A proper exit strategy – a specific plan how to withdraw from the target area – is an essential part of the project finalization. It dictates the final outcomes of the project and has a great influence on the sustainability, since it determines how the project activities will continue after the external financial, human and technical resources ends. The exit strategy should be conducted already in the planning phase of the project and be used as a benchmark during the project implementation. (IFAD 2009.)



PICTURE 2. *Public Toilet at Mntulwini meeting point, Msunduzi. (Picture: Anni Salla)*

TOWARDS PERMANENT CHANGES IN MSUNDUZA

Sustainability through the project plans

Due to lack of access to adequate sanitation solutions and low hygiene awareness in the community of Msunduzi, the need for a dry sanitation project existed. Improved sanitation hygiene, increased composting and home gardening, improved state of the environment and enhanced status of the female gender as the project goals in the Project Plan for 2007–2008 seemed realistic. The problems with sanitation were brought forward by the Central Committee during the baseline study carried out in Msunduzi in 2004. Cooperation with the local partners enabled the project planning. (MDSP 2006.)

The risks compromising the project outcomes were identified in the Project Plan of the first phase. Cultural issues such as attitudes towards dry sanitation and composting were seen as one of the risks to the project, and education

was included in the project activities as a response. Lack of community participation by the community members and local authority was seen as another risk jeopardizing the project outcome. Including them actively in the project decision making, planning and implementation was mentioned being an efficient factor in enhancing local participation. Third risk stated was bureaucratic problems, since enabling the project process is dependent on the recognition of the Central Committee by the City Council of Mbabane. Thus, the cooperation with both of these operators would be active during the whole project implementation, and acknowledging their opinions and suggestions was seen as a way to avoid this risk. The responsibilities on the project activities were planned to be handed over to the community members at the end of the project. (MDSP 2006.)

In the second phase of the project (2009–2011), in addition to the risks mentioned above, a couple more were identified during the two previous years. Conflicts between individuals and organizations took place, and this was seen to compromise the project – thus conflict management training was included in the activities in order to avoid any new conflicts. Vandalism towards public toilets in Msunduza occurred and the responsibility to solve this safety issue was addressed to the Central Committee and the community police. Politicization was mentioned as a risk as well. The concern of the project being involved in politics was acknowledged, and therefore political independence was emphasized. The community members were expected to take more responsibility on their toilets, and the responsibility of the project activities after the end of the project was addressed to the Salvation Army. (MDSP 2008.)

The third phase of the project (2012–2013) was designated to concentrate on the sustainability of the project outcomes, because of the concern of long-term benefits thus far which seemed to look unattainable. In spite of the work in emphasizing community participation, it was still seen as a risk and there was a need for improvements. Capacity building for the community was addressed as a response. Additionally, conflicts were still seen as a risk as well as vandalism towards public toilets. The project was assigned to stay aware of possible political instability as – due to the national revolts in northern Africa – some signs of it were seen in the spring of 2011. Despite the active work in transferring the responsibility of the project from Turku University of Applied Sciences to the Salvation Army and the community, the worry about the sustainability of the project was pointed out. (MDSP 2011.)

Positive achievements

The project work was based on the cooperation between TUAS and the local partners. This and the recognition towards the Central Committee can be seen as a good base for the whole project implementation as all these operators were heard. The project has been actively including community members into the project through education and training. A great number of workshops on different subjects have been organized during the project implementation. Training the Sanitation Experts – a group of local volunteers – to work with the community and educating people on sanitation could be seen as one of the biggest achievements. New skills and knowledge benefits not only the Experts but the whole community, since the Experts are expected to share their knowledge with everybody. Establishing Msunduza Environmental Association has been another good achievement in entrenching the idea of dry sanitation into the community. The association's purpose is to work as an umbrella organization for the planned subzone-specific EnviroClubs and as a universal environmental organization for Msunduza. The aim of the association and the clubs is to activate people in the field of not only dry sanitation but environmental health as a whole in terms of education, peer support and cooperation, which are all tools towards institutional sustainability.

All financial responsibility is now on the shoulders of the community. The Sanitation Experts have great possibilities to financially utilize the knowledge and skills they have gained during the project implementation. Both the Experts and the members of the Environmental Association have attended fundraising and capacity building workshops in order to develop their organizational activity skills. Additionally, all toilet owners have the possibility to sell the compost and urine as well as the extra crop they have if suitable markets exist – this has also been one of the goals in the project.

Gender equality, empowering girls and women, had been included in the project implementation. Three out of the seven current Sanitation Experts are female and female representation in workshops organized by the project has been active. Despite some existing negative attitudes towards using toilet compost and urine, they have been used by some of the community members. Additionally, attitudes towards dry toilets have changed during the project implementation. According to the interviews conducted in May 2013, people are now more acceptable towards dry sanitation and dry toilets than in the early

stages of the project. Through education, people have started to understand the benefits of the dry toilets and are more willing to discuss toilet issues than before.

In dry toilet building processes, local constructors were used in order to support local labour. Now after the project implementation, community members are encouraged to build their toilets by themselves, and they have been educated on the construction work. The bottom part of the toilet is the more essential part as it has to be built properly in order to separate the waste from the ground and ensure the composting process. The top part can be almost any suitable material. The structure of the toilet is rather simple and it can be built from easily available materials.

The project has organized two higher level courses directed to the university, relevant ministries, the Mbabane City Council, local NGOs and other higher level institutions. The idea of dry sanitation has been introduced to the authorities in order to get wider approval for the concept and to enable dissemination to other areas of Swaziland. The City Council is now taking dry sanitation to other areas in Mbabane; this can be said to be a great achievement from the project. During the last higher-level course, the right utilization of toilet compost and urine was introduced while correcting some misunderstandings as well as emphasized the benefits. Based on this, it seems that dry sanitation has generated positive attitudes, support and acceptance not only from the community members but also from the regional authorities.

Dry sanitation itself represents an environmentally sustainable solution. One of the aims of the project is to improve the state of the environment and to utilize the natural nutrient cycle. The built toilets, when used properly, will increase the well-being of the environment, since the human waste will not end up into the ground any longer and digging pits will not increase erosion, which is a common problem in Msunduzi due to steep slopes and heavy rains. Thus it can be said that the environmental sustainability of the project comes “from within”, and it will be achieved in relation to the sustainability of other sectors.

Ownership was addressed above as one of the sectors of sustainability. According to the interviews of toilet owners in May 2013, they all felt as the owners of their toilets. In the beginning they felt that the toilet belonged to the project, but through time they have learned that they are their owners and responsible for them.



Picture 3. A garden in Msunduzi, 2013. (Picture: Anni Salla)

Constraining challenges

Despite the establishment of EnviroClubs and the Msunduzi Environmental Association, the activities within the organizations have still been rather passive. The functions and aims of the clubs are unclear to people, and interest towards the clubs has been low. One toilet owner told that he is a member of a club, but unfortunately the only one. Another owner told about being unaware of the meetings. Msunduzi Environmental Association is still at the starting point and in the organizing phase. There have been efforts in establishing it before, but various reasons had prevented any further activities. The number of active participants so far has been low.

Some of the toilet owners have shown a lack of motivation towards their toilets. Some of them had doubts about dry sanitation and they were not interested in having such a toilet. Unfortunately, at least one toilet has never been used due to this. Some owners have or have had problems with tenants who have not been using the toilet correctly, and this has resulted in the owner forbidding them to use it. Additionally, some owners have not used the toilet properly, which has caused smell and made the toilet unpleasant to use – decreasing

interest towards it. The stigma towards human waste does still exist to some extent, and some people are uncertain of using it as fertilizer due to health concerns and lack of knowledge of how to use it correctly.

The idea of people building their own toilets is hindered by the fact that the toilets are seen to be too expensive for the people to pay for themselves. The community leaders doubt that the people are interested in constructing toilets. Another technical problem concerns the Enviroloo toilets. Since they have more technical parts than a regular composting toilet, some parts have broken and nobody has shown interest in preparing it; due to this at least one toilet is not in use. Additionally, the composting dry toilets have problems with the design of the toilet bowl and the urine separator. It has been noticed that some of the toilets are rather unpleasant to use and the urine separator is not working properly. These technical factors hinder the interest in using dry toilets and the interest in compost toilets in general.

Despite the toilet owners feeling ownership towards their own toilets, the communal ownership towards the project and the concept of dry sanitation is unclear. During the interviews it came clear that the people recognize their responsibility but it often does not result in actions. For instance, instead of repairing a broken toilet by themselves, they expect the project to take care of it.

Sanitation Experts – the link to the communities

The work of the Sanitation Experts has been an essential part of the project. They have been the face of the project and the link between the project and local people while they have taken dry sanitation into the communities and people's minds. People have been educated by the Experts who they are familiar with and in time the Experts have become better known around Msunduzi. Some of the Experts have been involved in EnviroClub activities and some of them are interested in joining a club or even establishing one. They see their role as advisors or as active members of the Clubs. Their skills and knowledge on dry sanitation would certainly be useful as well as their ability and willingness to work with other people.

Almost all of the Experts are prepared to continue their work as Sanitation Experts in the future. The Experts feel responsibility towards their communities and want to make changes towards the better, which also motivates them. The

Experts are happy about the skills and knowledge they have gained during the Msunduza Dry Sanitation Project and are glad of being part of the project. However, they feel rather doubtful about people's willingness to maintain their toilets correctly, in particular independently without help from the Experts. Thus, the Experts feel that their work is still needed. The common opinion within the Experts was that they would all like to see the project continuing in Msunduza since there is still work to do.

CONCLUSIONS

The project has come a long way from the beginning in 2007, and it has achieved positive changes in Msunduza. The idea of dry sanitation has been introduced to the communities, and the problems and risks of inadequate sanitation have been addressed. Community members have been educated on dry sanitation, importance of hygiene and gardening, so they have abilities to improve their living standards in terms of health and nutrition. Still, truly sustaining the positive benefits requires a great amount of effort and commitment from the local people and thus far it is not clear if the number of active people is sufficient. However, if the EnviroClubs and the Msunduza Environmental Association sustain and enforce their activities, and the Experts continue their important guidance work, it would increase the possibility of dry sanitation to root into people's minds and get a permanent status in their lives. A lot also depends on the City Council and the Central Committee and on their continuity in supporting dry sanitation in Msunduza.

The future is now in the hands of the communities, and what is to come depends on their willingness to adapt their responsibilities and to appreciate the benefits that dry sanitation can offer. If the active people around the area are able to inspire other community members to accept dry sanitation, the project has offered a good base for making Msunduza a healthy place to live.



PICTURE 4. *Two Sanitation Experts in Msunduzi. (Picture: Anni Salla)*

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MSUNDUZA DRY SANITATION PROJECT – TAKING A LOOK AT THE COMMUNITY

Silja Leppänen

This article is based on the final evaluation of the Msunduzi Dry Sanitation Project, which was assessed during a three week evaluation trip in October 2013. During the evaluation, various interviews were conducted and a Higher-Level Course on Dry Sanitation, which was held at the time by the project, was observed. The article is focused on the findings at the community level excluding the administration and partnership level. The evaluation is a part of a Bachelor's Thesis for the Degree in Sustainable Development in Turku University of Applied Sciences, which includes aspects from all stakeholders (Leppänen forthcoming).

EVALUATION BACKGROUND AND METHODOLOGY

The evaluator had former experience of the project from practical training in the spring of 2013, which was very helpful in understanding the project and planning the evaluation process. Altogether the evaluation methodology included participatory and qualitative research methods. A wide range of methods were chosen to collect the needed material for the evaluation. Semi-structured interviews were carried out, including a SWOT analysis from each interviewee. A group discussion was held for the group of Sanitation Experts and the Central Committee of Msunduzi. A scoring and ranking activity identifying the key achievements and challenges was carried out at the Higher-Level Course on Dry Sanitation for the participants consisting of the Ministry of Health, the City Council of Mbabane, local NGOs, the Msunduzi leadership, the Sanitation Experts and the Environmental Association of Msunduzi. Additionally, observation was an important method to assess local surroundings during the field walks as most of the interviews were made at

the homesteads of Msunduza. Along with the collected information from the field, there were various other documents which were analysed and reflected when evaluating the project, e.g. two mid-term evaluations completed in 2008 and 2011, project reports and other produced material by the project.

The interviews were carried out for the different target groups and stakeholders of the project. These included the toilet owners and caretakers, the Sanitation Experts, the Field Coordinator, the community leaders, the Salvation Army of Swaziland, the City Council of Mbabane, the University of Swaziland (UNISWA), Green Living Movement (GLM) Swaziland and the Project Manager at Turku University of Applied Sciences. Although the final evaluation includes all the stakeholders and many aspects of the project from community to the administration level, this article focuses on presenting the findings of the interviews, which were carried out within the community. This is to show how important it is to see and understand the results of the project at a community level.

Altogether 31 community members were interviewed individually, including 11 toilet owners or caretakers (approximately one third of the prevailing dry toilets), six community leaders (excluding the group discussion with the Central Committee) – two toilet owners (one owner in Mntulwini as an exception) and one leader of each subzone of Msunduza: Gobholo, Mcozini, Mncitsini, Maqobolwane, Corporation and Mntulwini – seven Sanitation Experts, the Field Coordinator and six other community members and neighbors of homesteads with a dry composting toilet. The interviewees were selected to be different individuals from those who were interviewed in the spring 2013 by Anni Salla who is writing a thesis on Msunduza Dry Sanitation Project as well. Each owner's toilet was also monitored during or after the interview, and the discussions usually carried further from there. Some other toilets were also monitored during the field walks to be sure that at the end of the evaluation trip, there was a good understanding about the state of the built dry toilets and of the toilet beneficiaries' experience in each subzone and the whole community of Msunduza.

PROJECT GOALS AND THE EVALUATION

The direct objective of the project has been to increase sanitation knowledge and know-how of all partners leading to improved sanitation hygiene. The project was implemented in three different phases. The following objectives were established in the project plan of 2012–2013 as the aimed results of the third and final phase of the project. Each of the goals included more detailed objectives, which were divided into qualitative and quantitative goals. This was also helpful when evaluating the project results.

1. Increased number of improved sanitation solutions in the project area

This means both built or repaired toilets that are hygienic to use and safe for the environment and the user.

2. Increased knowledge on sanitation in different levels

This means information and knowledge created in individual, project organization and national level. The individuals in the community need information on safe sanitation, gardening, composting and dry toilet construction, for example. Organizational level refers to the experience and knowledge that the implementing partners gain from the project and that can be disseminated further to wider audience. The stakeholders who get training on sustainable sanitation systems through the project operate on the national level.

3. Increased participation in the project area

This is strongly linked with the prevailing attitudes in the community that the project wants to enhance: to respect ones neighbours by not throwing toilet waste in their yard as well as to respect and take care of the common facilities, such as toilets on meeting places and sports grounds. The community members are also hoped to actively take part in toilet construction, workshops, creating their own gardens, composting and taking care of their living environment.

4. Increased composting and home gardening in the project area

This is linked with the built toilets and the use of composted manure together with other compost in gardening. The manure can also be utilized in landscaping, which would, for example, prevent slope erosion, something

common in Msunduza. Increased gardening would provide the household with extra food and income, which would be important for example to people with ARV medication as lack of food can prevent them to take the medication.

5. Enhanced sustainability of the project

Since the third phase was the last one of the project, throughout the last two years the overall focus has been on sustaining the results and effectiveness of the project in the area. The ownership, responsibility and the role of the local partner, the Sanitation Experts, the local leadership, and the owners and the caretakers of the toilets will be considered and emphasized regarding sustainability and the continuance of the implemented activities in the project area. (MDSP 2011.)

In the final phase, the sustainability of the project was one of the main objectives. The evaluation emphasized it, because sustainability is integrated into many activities in the project implementation. The aim of the final evaluation was to answer the following main questions:

- Has the project achieved the goals established in the project plan?
If not, why?
- Have the planned activities been implemented? If not, why?
- What are the effects and impacts of the project in different levels, e.g. for different target groups and other stakeholders?
- Are the project achievements sustainable?

These questions are answered using both qualitative and quantitative indicators, which acted as a base when forming the semi-structured questions for the interviews. These indicators include dry toilets in use, knowledge on sanitation, proper use and maintenance of the dry toilets, acceptance on the use of the end products, knowledge on composting and the use of the end products in gardens, existing clubs and other activities, the ownership of the toilets, dry toilet construction processes, on-going monitoring results, held workshops and other educational activities, participation numbers, home and community gardening as well as communication and collaboration between the project partners. The first half of the indicators is emphasized in this article focusing on findings at the community level.

RESULTS

One of the project objectives under the enhanced sustainability of the project was to ascertain that the concept of dry sanitation is understood, that the dry toilets are properly used and in use as a whole, and that the activities continue after the project funding ends. The proper usage and maintenance of the toilets is critical to sustainability and that is one of the points the evaluation also concentrated on, taking into consideration all the key issues which have affected the project sustainability.

Out of the 11 dry toilets whose owners were interviewed, three were properly used and functioning well according to the principles of composting dry toilets. Four toilets were in use but had problems like the composting process not being ongoing or the toilet needing fixing before it could be properly used – e.g. the compost chamber was leaking and letting rainwater in, there was excess newspaper in the chamber, or the urine container was missing. Three toilets lacked caretaking and therefore were completely misused, e.g. dry substances were not in use and the urine separation was blocked. One toilet was completely closed since 1.5 years due to a broken mechanism. 13 other toilets in addition to those whose owners were interviewed were monitored. Three out of these at homesteads were in proper use. One was not in use due to a missing key and a pit latrine next to the composting dry toilet was used instead. Nine were public toilets including the meeting point toilets, the toilets in the sports grounds and the toilets in the Msunduza Primary School. All these public toilets were mainly not in use, the most common reasons being vandalism and inadequate caretaking.

PROPER USE AND MAINTENANCE OF THE TOILETS

User education and understanding about the composting process is needed for the toilet beneficiaries to see the full benefits of the dry composting toilets. Commitment to proper use and maintenance of the toilets are very important in both homestead and community level. The toilet beneficiaries who had misused the toilet seemed not to understand the full benefits and principals of the composting dry toilet, or they were not even interested in them at all. Some toilets were used as regular pit latrines, which also leads to a question of safety and sustainability as the owners had no further plan

what to do with the toilet once it is full. There were problems with the toilets especially when there were tenants or a big number of family members in the homesteads. In these homesteads, the beneficiaries were not committed to the proper use of the toilets and the users seemed to lack education. In some cases, even if the owner knew how to use and maintain the toilet, the other homestead members, tenants or visitors were not aware of the principles and there were problems in educating them. A very successful example of a well-maintained toilet (built in 2013) showed the following factors which lead to good ownership: the owner participated actively in the workshops and meetings, he had monitored the construction process of his toilet contributing his time and resources such as cement towards building, the owner had bought a truckload of sawdust, the whole family takes part in taking care of the toilet and everyone – including children – has been educated. The owner also speaks for toilet owners' commitment, activity and participation and the discipline of the community towards the proper use of toilets and is willing to teach other people in construction.

USE OF END PRODUCTS

In the beginning of the project, there was a stigma around human waste, but it showed to have been reduced during the project (Kirstinä 2012). The results from the evaluation interviews supported this as the toilet owners mainly knew about the possibility to use the end products as fertilizer and soil enhancement and were open to talk about it. Four out of 11 owners had plans to do gardening and use the end products. Nevertheless, five out of 11 toilet owners had doubts about the end products or did not accept the use at all. The scoring and ranking activity showed that the Sanitation Experts and the local NGOs ranked the acceptance of the community as number one key challenge. The community leaders ranked this as the third challenge, the City Council as the second and Ministry of Health as fourth. The owners who used and maintained the composting dry toilets in a proper way were also more open minded to the idea of using the end products, even if they had not yet used them. There have not yet been many toilet composts ready to be used, but the attitude towards using the end products in home gardens was more positive with those who were content with their toilets and used them properly. Some owners were using urine for different purposes and a few were using the compost. Some misuse of the end products appeared,

which indicates that the owners had not understood or they had not received education on the adequate use of the end products. All the interviewed owners who possessed a positive attitude towards the use of end products wanted to get more education on the applying of the compost in gardens. It seems that the focus on the use of the end products has been insufficient – hence the lack of proper education on composting together with the stigma mentioned above has slowed down the process of community seeing the benefits of the project.



PICTURE 1. *The Msunduzi Community Recycling Centre has a composting dry toilet and the garden is used as a test field to grow maize and other suitable crops. (Picture: Silja Leppänen)*

CRITERIA OF SELECTING THE BENEFICIARIES

The criteria of selecting the beneficiaries are also very critical when it comes to the proper use and maintenance of the toilets and use of the end products. In Msunduza, the selection of the households was shifted more to the Central Committee during the second phase in order to include them more in the project decision making. Thereafter, they were more or less in charge of making the decisions on locations for the dry toilets. Many of the toilet beneficiaries selected were the elderly of the community. The elderly do not always have the strength and capability to do the chores needed when maintaining the toilets, e.g. collecting sawdust, and levelling and emptying the chambers. The elderly might possess challenges in maintaining their gardens. In some cases, the beneficiaries were people who did not have space for gardens, and this is one of the problems when it comes to the benefits and the use of the end products. Although age, level of poverty, number of people living in the homestead and lack of sanitation facility are the criteria for selection, the capability of maintaining the toilet, the further use of the end products and homestead contribution should always be considered when selecting the dry toilet receivers.

LOCAL LEADERSHIP

The community leaders have an important role in selecting the beneficiaries, supporting other decisions together with the local project team, overseeing the community and giving the Sanitation Experts a chance to educate the community. According to the interviews, the leaders' role seemed to vary between subzones. In some subzones, the leaders were supportive in solving issues together with the Sanitation Experts, but in others, the leaders were not actively participating in the project and some personal conflicts seemed to exist. The leaders seemed to rely on the Sanitation Experts on their knowledge and information about dry sanitation. Although the Sanitation Experts and the leaders are working hand in hand, the leaders as a group are not really taking part in the activities such as the project workshops, field walks and education of the community at large. During community meetings, where the audience was most numerous, the Sanitation Experts could have been given ten minutes for their sanitation education every now and then, usually a few times a year. Also the political situation caused obstacles in the project during the final year of the project as group and community meetings were not allowed for some months due to upcoming national elections.

Although education was made at homestead level by the Sanitation Experts and at workshops by facilitators throughout the project, the continuous education of dry sanitation addressed to the community at large is equally important in increasing the public awareness. The Sanitation Experts found it hard to educate in mass meetings and preferred homestead education. This insufficient community education and awareness can be one of the reasons why the public toilets were not currently actively in use. Most of the public toilets have been vandalized, the caretakers are not looking after the toilets properly and there is no common interest of preparing, maintaining and keeping the toilets in use. This is also the case with the two toilets built at the Msunduzu Primary School, both of them broken and not in use. This indicates incomplete commitment and inadequate education at public level, which the local leadership should solve together with the local project team. The City Council of Mbabane, as the authority to inspect and oversee the school facilities, should also take part in preventing the health risks for pupils.



PICTURE 2. *Vandalism, maintaining and caretaking are all problems that relate to the public toilets. Msunduzu sports ground. (Picture: Silja Leppänen)*

COMMUNITY PARTICIPATION

The project has struggled with poor community participation and ownership of the project (Mid-term evaluation report 2009 and 2011). In the beginning, the toilets were fully given to the beneficiaries, which can have led to decreased ownership. In the second phase, commitment agreements were used, and at the end of the project application forms for dry toilets were created to increase ownership. The interviews showed that the poor ownership and community participation are problems in the project on all levels from the homesteads to the leadership. This also affects project sustainability as the community does not have the capacity, the structures or common goals to work together towards maintaining the toilets and developing the sanitation situation when the project ends. A separate capacity building project was started together by a local NGO, Green Living Movement (GLM) Swaziland, and although the organization was not welcomed at first to the community, its role in the project sustainability has been very important. Those leaders, Sanitation Experts and other community members who actively have attended the workshops have gained a lot of knowledge and skills e.g. in leadership, community participation and project planning. GLM Swaziland will continue community development after the Msunduzi Dry Sanitation Project ends, and hopefully the community will understand the value of this cooperation.

In the final phase, the project planned to implement Sanitation Clubs, later revised to EnviroClubs, to increase the sustainability of the project and active participation around the dry sanitation activities. The implementation of the clubs encountered difficulties. The Sanitation Experts had a significant role in implementing and presenting the idea for the community. The main target group was the owners of the toilets, but according to the Sanitation Experts, not many were interested in taking part due to different reasons, e.g. volunteerism, time and doubt. Some clubs took first steps in formation, but there were no active clubs at the time of the evaluation. The youth was another target group, and for a while there was a youth club in Mncitsini concentrating on gardening. According to the interviews, it seemed that together with the doubts about the purpose of the clubs, the club activities and objectives were unclear to the beneficiaries causing misunderstandings among the community and the Sanitation Experts as well. Many of the interviewed owners had heard about the clubs only once. As the clubs did not function, an idea of a top-down approach with Msunduzi Environmental Association was brought up

in the spring 2013. During the evaluation interviews the association was still in a phase of establishment and defining the final constitution, but the plan is to continue the project activities.

SANITATION EXPERTS

Most of the project activities in the community have been actualized by the Sanitation Experts and the students of Turku University of Applied Sciences during their practical trainings. The number of Sanitation Experts has varied from 7–12 during the seven years of the project and they were given a significant role in the project. They have educated residents of Msunduza both at homestead level and at the community meetings with the aim of acting as role models of dry sanitation. Due to reluctance by the local leaders, it was not until the final months of the project before the Sanitation Experts were able to construct their own dry toilets. According to the Sanitation Experts, it raised doubt among the community why they as educators were not using the composting dry toilets. In 2013, the Sanitation Experts were chosen to have the dry toilets after the criteria were considered again, and the owner contribution and lowering the cost of the toilets by almost 50% were emphasized. This was hoped to show an example to other community members and help the community to build and use the toilets properly. Low-cost toilets are very important to the whole community and the sustainability of the project, and the interviews showed that the toilets are found to be expensive among the community.

Most of the Sanitation Experts did not have former experience in educating people and it has been a learning experience for them. The interviews showed that the Sanitation Experts' motivation to work in the project varied from developing the community to receiving the incentives paid by the project. Volunteerism and community participation have been issues to the Sanitation Experts as well as to the whole community. Altogether the Sanitation Experts have gained a lot of social skills and knowledge during the project, it seems that not all of them will actively continue their work after the funding ends. The Sanitation Experts are in a key role in continuing the education. According to them, the sanitation situation has improved and is still improving, yet more education is needed.

CONCLUSIONS

The Msunduza Dry Sanitation Project has managed to increase the awareness and knowledge of good sanitation and hygiene practices in the community. All the toilet owners who were interviewed during the evaluation stated improvement in their family sanitation situation and hygiene. The project has provided toilets for those without a proper toilet. The project has provided sanitation solutions and increased the knowledge of composting dry toilets and their benefits on different levels, in the community and even outside it – on the national level as well. There has been a lot of homestead and workshop education during the project in dry sanitation, health and hygiene as well as home gardening.

Despite the sanitation education, the Msunduza community has low participation in sanitation issues as there are problems with both the public and the homestead toilets, e.g. some of the toilets are not well taken care of and the common facilities are not respected. It seems that the social and cultural acceptability of dry sanitation can still generally be quite low, but at the same time it is increasing and there are several people among the owners, Sanitation Experts and community leaders who have learnt to accept it through education. The full benefits of the project are not yet shown to all of the beneficiaries, but rather to a small group of people. Those who have actively participated in the project activities have gained the most knowledge.

Some community members are active in gardening, yet whether this is connected with the project activities and impacts is unclear. The end products from the dry toilets are not yet in active use in the community due to various reasons shown in this article. It seems that this is especially due to inadequate practices in dry toilet use together with insufficient and belated education on composting, which at the same time can bring doubt among the community towards the safe use of the end products.

The project has provided the type of toilet which has full benefits for those who commit themselves to their proper use and maintenance and are interested in using the end products in home gardening. At the moment the number is quite low, but they are the role models as the project ends, and they will have a chance to continue the work with the active group of community members who are interested in environmental issues and dry sanitation together with those Sanitation Experts who continue their work and in cooperation with

Msunduza Environmental Association and GLM Swaziland. Hopefully the City Council of Mbabane will also include Msunduza when replicating dry sanitation practices to other communities in Mbabane. These are all critical factors in the sustainability of the project; hence it would be interesting to see a further post-evaluation to find out the long-term results of the project.

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WHEN SANITATION IS NOT A PRIORITY – EXPERIENCES, CHALLENGES, BENEFITS AND THE WAY FORWARD FOR THE MSUNDUZA DRY SANITATION PROJECT

Bhekie Matambo Ngobese

This article aims to share experiences both negative and positive from working with the community of Msunduzu Township to promote dry sanitation, a process where human excrement is converted into fertile garden inputs. With a special focus on how community participation can benefit dry sanitation projects at different stages, including the construction of the facilities, their maintenance and correct use, and the utilization of the end products. Community participation is an essential component of a dry sanitation project as converting human waste into fertile soil requires constant maintenance of the dry toilets and attention to correct usage in order to ensure decomposition. It is not a simple process.

In the Msunduzu Dry Sanitation Project, there were many challenges involved in planning, developing and implementing a participatory dry sanitation project in a community burdened by high levels of poverty, unemployment and fertility – and that does not see sanitation as a priority. Encouraging the community to see sanitation as a priority and to achieve a sincere participation of the whole community at all levels of operations was time-consuming and required significant energy and resources. However, participation from different segments of the community at all levels of dry sanitation operations is vital for bringing about commitment and sustainability as well as increasing the probability of success. It provides a foundation for community ownership of the project, which is a fundamental goal of participatory processes, and increases community appreciation and understanding towards dry sanitation.

Community participation also contributes to the right human resources for supporting the implementation of the project. In Msunduzwa Township, it was difficult for the project to achieve community participation and commitment to dry sanitation matters, despite the provision of incentives such as food and financial gains. Poverty and ignorance contribute a lot towards poor participation, ownership and sustainability of the project due to the every-day struggle of survival – and not looking at the bigger picture of sanitation and development as a whole.

PERSONAL BACKGROUND

In October 2012, I was hired as a Field Coordinator for the Msunduzwa Dry Sanitation Project to add efficiency to the implementation of the project as well to fulfil some coordination and communication gaps, which had been identified as challenges of the project. My tasks included coordination of the project implementation “on the ground”, facilitation of sanitation trainings and bringing about the public understanding in usage of the end products from the toilets as soil enrichment. To me as a Permaculture Activist, dry sanitation represented ecology, dignity, convenience, public health, clean water, healthy environment and general well-being of the people, especially in terms of using the end products correctly as a soil enrichment in food production.

Knowing about dry sanitation and compost toilets, I was very happy to be part of the Msunduzwa dry sanitation team, since I was trained around the issues of dry sanitation and also knowing very well that composting of human faeces is one of the oldest traditions. It is about helping nature to safely reintegrate human waste with the soil. The compost toilets are devices, however simple or complicated, which help nature to achieve this in a healthy and safe manner for all life in all its diversity. Knowing that the selection of the most appropriate type and design of compost toilet depends on many factors, including affordability, availability, social and cultural norms, attitudes towards human excreta, existing hygiene and other sanitation practices, sources of water, availability of organic residue, climate, soil type, patterns of habitations as well as local building materials and knowledge, I took the job with great interest. I was trained in England by Keveral Farm, which is a farm located in Cornwall, and throughout my training we were using a compost toilet. We were informed that dry sanitation is an alternative holistic approach

for healthy and economically sustainable sanitation. This approach is based on consistent implementation of the nutrient cycle, where urine and faeces are regarded as resources rather than waste. It is an approach that saves water, protects water quality, prevents pollution and diseases, and returns nutrients back to the soil.



PICTURE 1. Sanitation experts with a demonstration toilet during the Towards a Green City campaign organized by the Mbabane City Council. (Picture: Silja Leppänen)

ABOUT MSUNDUZA AND THE PROJECT

Msunduzi water production and distribution is not yet keeping in pace with its rapid population growth. The greatest challenge lies in the informal settlements, where water sources are often unreliable and sanitation systems are insufficient. To make matters worse, water prices tend to be beyond reach. Residents often rely on shallow wells and springs where chances of cross

contamination are high. Additionally, in some of the formal settlements, sewer burst and blockages are major sources of ground water contamination, waterborne diseases and environmental pollution. A number of areas are in need of improvements in Msunduzu, such as provision of quality water to low income residents, rehabilitation of sewers and related infrastructure as well as development of communal recycling points and other low cost environmentally friendly dry sanitation options. Fortunately, Msunduzu in partnership with Mbabane City Council, other NGOs and foreign development agencies is already taking a number of critical steps to make improvements in its water supply and sanitation systems.

Dry sanitation and other means of ecological sanitation aims to turn all nutrients and energy into cycles. For instance human waste is recycled to compost. Leaves, sawdust, straw and dry grass are raked to be used as biomass. The end product from the toilet is used as soil enrichment. It is important to realize that dry sanitation projects require education to ensure that the above principles of turning nutrients and energy into cycles are achieved. The proper use of the toilet and maintenance are clearly understood and accepted by the user.

The aim of the project is to build and promote dry toilets as an integral part of composting and the use of excreta and urine as useful soil enrichment agents. The project has not only aimed at building of dry toilets but more importantly at spreading knowledge of proper sanitation practices and making the community and users involved at all levels. The project trained local Sanitation Experts, who are actively working in the community helping toilet owners on how to use the toilet properly and at the same time to loosen the social stigma attached to the use of the end product as fertilizers.

Despite the time and the amount of money invested and the efforts made in the project, the number of successful and sustainable activities in Msunduzu is not wholly encouraging due to the following challenges.

Challenges of the Msunduzu Dry Sanitation Project

1. Technical problems originating from initial poor construction, lack of knowledge and know-how from the Msunduzu constructors. To put it bluntly: how can something so simple to understand and build be so difficult to construct and maintain.

2. There is a general lack of sense of ownership of the project by the partners involved, individuals and the Sanitation Experts. This has resulted into conflicts due to poor communication between project partners in terms of who is doing what, when and how. Some of the conflicts are cultural and private.
3. Ownership of toilet users, which is reflected in inadequate operation, maintenance and use of end product. This can be caused by the fact that the users did not choose the technology and/or did not consider dry sanitation as a priority in their lives. Public toilets have been vandalized, abused, abandoned and some toilets have been transformed into something “more useful”, such as storage facilities.
4. Observed is the lack of integrated vision, capacity and commitment caused by the decisions concerning sanitation; who gets the toilet is dominated by politicians, political interest and financial concerns.
5. In Msunduza, very few people or no one has ever used human excreta as fertilizer and/or soil enrichment. Culturally, using human excreta is taken as a lower or taboo practice, or at least as a highly unusual practice. This is perpetrated by poor education that leads to poor conceptualization or understanding of dry sanitation principles.
6. Due to poverty and deep rooted traditional culture, there is less attention towards protecting the environment on a sustainable basis. Sanitation and use of end product is taken as a low priority of development.
7. Lack of well-designed Information Education and Communication (IEC) materials on dry sanitation.

There are also positive achievements and lesson learned, detailed below.

Achievements of the Project

1. Improved understanding of the concept and principles of dry sanitation.

2. Better acceptance of the use of the end products as soil enrichment.
3. Better understanding of the connection between the environment, health and sanitation.
4. Cutting down the toilet construction costs by proper involvement of homesteads and the community in terms of building and contribution to building materials.
5. Promotion for establishment of gardens and improvement in composting knowledge and skills.
6. Increased involvement and participation of women, children, community leaders and individuals in community development and sanitation matters.
7. Recently constructed compost toilets are far better than the earliest model, and they are cheaper.

The Way Forward and Recommendations

In writing this section, I did not narrow the subject matter to dry sanitation in Msunduzi, but instead I am taking a look at the broader picture of dry sanitation and other new projects that can be initiated. Decentralisation of dry sanitation at all levels calls for innovative approaches to ensure necessary technical services and participation. It should not be expected that individuals and homesteads are willing to maintain the system and use the end products as soil enrichments as steps outside dry sanitation are also needed to integrate the proper usage of the end products in agricultural sector and energy sector.

Recommendations

1. Long-term monitoring of existing toilets is needed for measuring real-life performance. Community dry sanitation can work if people are prepared, educated, motivated, and local leadership is participating at every level of operation and development.
2. We need to modernize and improve the current educational materials and training systems to inspire all stakeholders to play their important role towards dry sanitation decentralization.

3. Good practices of dry sanitation should be institutionalized to create a standardized code of ethics that can be replicated, adopted and then scaled up based on the lessons learnt.
4. More research is needed and attention paid to the demands that dry sanitation places upon the population for their safe adoption and to the risks of disease transmission that can result from inappropriate use of the toilet and the end products.
5. The recommendation for Msunduza is that at the moment end products of the dry toilets should not be used as a fertilizer on vegetables which are eaten raw. Use as soil enrichment on e.g. bananas has proven to be a success.
6. A sound technical design of the toilet compost seat that is hygienically safe, socially acceptable, women-friendly, economically feasible as well as appropriate and convenient to use is recommended.
7. Bringing all stakeholders, players and beneficiaries on board so that everyone can play their important roles in future dry sanitation projects.

GOOD GOVERNANCE AND LOCAL INVOLVEMENT IN THE MSUNDUZA DRY SANITATION PROJECT

Jari Hietaranta

BACKGROUND

The impact of corruption on commercial interests is immense. The UN Global Compact cites that corruption adds an estimated 10% or more to the costs of doing business in many parts of the world, and according to World Bank estimates, corruption in the form of bribery has become a \$1 trillion industry. The capacity of the state to deliver goods and services in an effective and reliable way constitutes one of the key variables to distinguish between successful and unsuccessful societies (Laakso 2002).

Swaziland and its capital Mbabane is among the other Southern African countries struggling to improve its local public governance and institutions while trying to establish practical private-public partnerships (PP) and private-NGO (P-NGO) partnerships. This article discusses how the local governance (the Mbabane City Council) is participating in the local development attempts run by local NGOs in Msunduzi Township in northern Mbabane. The township consists of formal and informal parts. Administratively Msunduzi is under the City Council of Mbabane. There is a local committee – the Central Committee – that forms the actual link between the city administration and the local community. The members of the Central Committee are chosen by the local people.

Msunduzi Township has a varying topography with relatively high and rough high hills and valleys dissected by a number of small permanent or non-permanent streams. Furthermore, it has variety of soils ranging from bare rock to valley bottom fertile loam soils. Human impact to environment has been

long-lasting and strong. There have been many NGOs operating in Msunduzi. They cover all current aspects of development including health, education, social development, environment and infrastructure based on innovative and practical procedures. The background of these NGOs is highly variable ranging from religious organizations to international aid organizations.

The article is divided into three parts; firstly good governance is defined and its most important values are underlined. The second part describes and discusses how we have been involved with the governance and highlights the importance of co-operation between NGOs, the public sector and other local stakeholders. The third section assesses the governance and co-operation between the Mbabane City Council and local NGOs in Msunduzi Dry Sanitation Project. Special attention is paid to how local administration was involved with the local project work.

GOOD GOVERNANCE

Good governance is a term that was first introduced in the late 1980's in the development literature as a criticism towards developing countries in respect of their level of governance. Good governance means governance essentially free of abuse and corruption, and with due regard for the rule of law. Myntti (2006) points out that whereas the rule of law is an important component of good governance, the latter term does not merely imply respect for national legal order, but in particular respect for the national legislation that is consistent with the international human rights framework.

Most international organizations provide definitions about governance instead of good governance. World Bank outlines (UNDP 1997a, Weiss 2000, Ladi 2007) three aspects of governance; 1) the type of political regime, 2) the public management of natural and social resources and 3) the capacity of the governance to design, formulate and implement its policies.

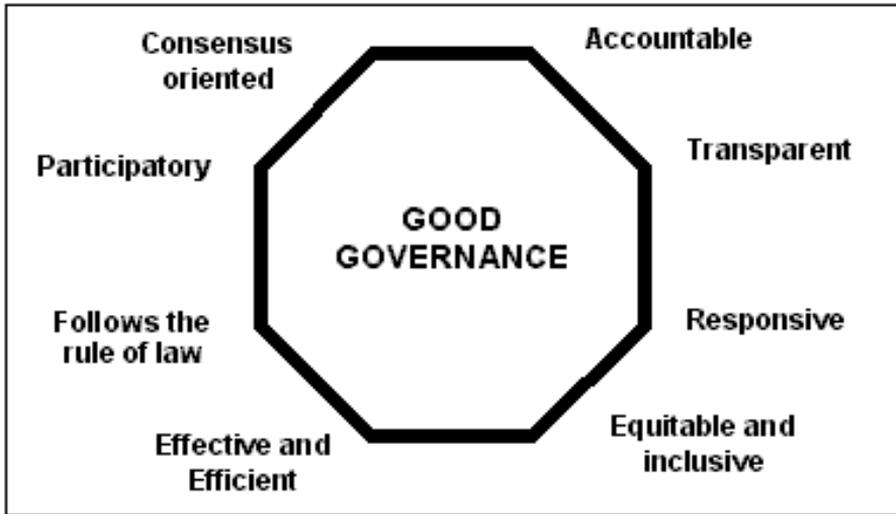


FIGURE 1. *Good governance. (Unescap 2005)*

Recently, the term “good governance” has been expanded to include multiparty elections, wide co-operations between private and third sectors. There are also other criteria like non-discriminant laws, good juridical processes, accountability of decisions by public officers, devolution of resources and decision making to local levels in addition to meaningful participation by citizens and voluntary organizations (see Salomon & Sengupta 2003).

According to Murray (2004), good governance has a number of major characteristics; it is participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive. It assures that corruption is minimized, that the views of minorities are taken into account and that the voices of the most vulnerable in the society are heard in decision making. Good governance is also responsive to the present and future needs of society.

Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives. Participation needs to be informed and organized. This means on the other hand freedom of association, and expression and organized civil society on the other (UNDP 1997a, 1997b).

Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such decisions and their enforcement. Furthermore, it ensures that enough information is provided and that it is provided in easily understandable forms and through independent media.

Through our experiences about developing projects in Msunduzi, it can be seen that good governance means that the society should reach a broad consensus on what is in the best interest of the whole community and how this can be achieved. This requires a long-term perspective on what is needed for sustainable human development. This can only result from an understanding of the historical, cultural and social contexts of the Swazi society. A community's well-being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of committees. This requires all groups in the community, but particularly the most vulnerable, to have opportunities to improve or maintain their well-being. A critical question should be how our development projects have attained these goals (Salomon & Sengupta 2003). As Myntti (2006) points out, good governance means that processes and institutions produce results that meet the needs of the society while making the best use of resources at their disposal. The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.

“Good governance” has thus become more like an elastic term than a concept (Weiss 2000). Moreover, good governance can be seen as a mechanism of capacity building between public and other sectors (Grindle 2004). We see here that the quantity of goals has led in the introduction of the concept “good enough governance” which means that not all the administrative deficits can be tackled at once and they should be prioritized. From these requirements it is easy to see that good government has much in common both with the holistic concept of democracy and the rights-based approach to development (Cuadros 2002). Here, the local involvement is defined according to Suetin (1999):

The participation of interested individuals or organized groups to the identification, planning, implementation or management of various kinds of activities, through a formalized process designed to achieve mutually acceptable benefits.

Definition is imprecise in several respects: who is local and who is not, what kind of activities are covered and what kind of benefits are expected. It should be so that local committees and local city councils should refine the definitions together in a way that balances administrative governance needs and maximises positive outcomes in the community.

MSUNDUZA DEVELOPMENT PROJECTS AND GOOD GOVERNANCE

Communities in Swaziland have undergone various levels of human rights abuse during the last decades that have left individuals and communities demoralized and economically and socially disempowered. Especially the problems with the land ownership policy and public services have formed effective hindrances for development, partly because of this non-good governance. Further disintegration of both social and economic support structures has left many local communities into a vulnerable stage. Through the development projects we have tried to build new and stable connections between the local administration, the local community committee and NGOs. This sector organization of local governance, lack of resources and lack of open discussion has given more responsibility to NGOs and put them into a central role of community development. Our experience from Msunduzi has shown that most of the NGOs operating in the area are well-established and committed to local development and that their relationships to the local society are firm. Most of the NGOs have been present in Msunduzi for decades and they have adapted the responsibilities of public administration.

More transparency is needed between NGOs to ensure the use of human and economic resources in a more efficient way. We see that the role and task of local public administration should be guiding and negotiating towards NGOs so that there is reasonable knowledge and understanding about all the development efforts of a certain area or community.

Local involvement is rarely what project coordinators are hoping or have planned. It is very common, and the Msunduzi project faced the problem too, that there is a lack of involvement of people in general. Who is responsible? Civil council workers put the pressure on the project itself: they have to arrange the participation and establish the links. It appears quite natural, but if there is no

active participation of local administration from the beginning, this may lead to insufficient continuation of the project. The situation is even more alarming if the project leaders are not familiar with the culture or social structure of the community. In both cases project managers face the participation problem either from the public sector or from the local community. It has been said (e.g. Suetin 1999) that the provision of direct benefits is an efficient measure to gain the support and involvement of local people. This kind of beneficiary approach is often effective, but typically only as long as the direct benefits are being provided, not as a result of the adoption of new values. Providing direct benefits may be insufficient to foster support and participation on the long-term. In Msunduzi, there have been direct payments for voluntary people, and future will reveal how the participation will change when the direct support is ending.



PICTURE 1. *Community based urban farming. Sharing the knowledge within community is essential. (Picture: Jonna Heikkilä)*

CONCLUSIONS

Historically, developing countries have been very defensive of the idea of any kind of interference with their political, economic and social choices (Doornbos 2001). The most important outcome of this international and domestic discussion was the outcome of conditionality practise. Since the Berlin Wall, good governance has been on the top of the list together with the human rights.

There are many reasons why local involvement should be promoted in local development projects. In part, it reflects the philosophical position that participation is a goal to be sought in its own right. From the pragmatic point of view, local involvement contributes widely to a more efficient management of the area in question since with participation and empowerment, local decisions made by the local city council will become better informed and more respectful of the concerns, needs and expectations of the local people. There have been problems in Msunduzi when the local committee does not have the full acceptance from city administration and the existing dialogue between all the participants (the City Council, the Central Committee, NGOs, projects) is not well-defined. This seems to be a critical feature in many developing projects; the project organization has poor and unstable knowledge about the entire spectrum in a certain area. Inevitably this will lead to inefficient use of human and physical resources. In addition, the capacity of a given receiving community cannot necessarily handle the numerous NGOs working in the same area. Also, we should point out relating to this case that there should be reasonable knowledge about the actual needs of Msunduzi community, and primary control over all NGOs operating in the area should be in the hands of the City Council.

After seven years of participation with local NGOs, the local committee and the local city administration, we have been dealing with questions linked with good governance. In Msunduzi, straight through from the beginning, the sanitation and environmental health projects tried to establish a link or bridge between the local people's committee and the Mbabane City Council and especially with the Environmental Pollution Unit. The co-operation between the local people and the city administration started and evolved naturally: the goals of the projects were linked with environmental and social aspects, so the co-operation links were natural. To improve the co-operation between local people of Msunduzi and the city administration, different kinds of

voluntary based groups were established to promote the ideas and concept of the projects. This arrangement was not successful in every case. This was partly due to the mental gap between the local administration and the local people being wide and partly to the voluntary groups not always being recognized by their own local committee. Thus, sometimes the disagreement of the local people led to passive attitudes and negligence towards the project. Sometimes it was not clear for civil servants, who was representing the local people and that led to the typical top-down approach. To improve project management in an environmental health education project, the project used the local Salvation Army Office as a local coordinator, and gradually this arrangement worked properly. The problem was that the local Salvation Army was not familiar with these kinds of project themes.

We also hoped that through both public sector's and local people's active participation, local Msunduza population comes to better understand administrative and management decisions, and become supportive to the project goals. Optimally, the typical top-down approach to shanty town development should be inverted and a bottom-up approach adopted, in which the local people become the initiators, designers and operators of projects (e.g. Furze et al. 1996). It can be stated that this bottom-up approach was achieved only partly.

Local involvement in Msunduza informal area is based on participation of individuals in a number of advisory and administrative committees. Because there are many projects running all the time, various kinds of groups and committees established especially for the project in question are numerous. Members are generally selected to represent some special interest group. In many cases, the role of these groups is not clear for the local city council. The scale and activities of the projects that are conducted by volunteers varies greatly, as does their administrative authority.



PICTURE 2. *Msunduzwa Community Recycling Centre. (Picture: Jonna Heikkilä)*

LESSON TO LEARN

The most important action towards the adaption of good governance practices and principles is to find out reliable, long-lasting, transparent and well-defined responsibilities between the city council and the local community. The experience from the Msunduzwa projects was that good governance and local involvement needs a formal participation process. There should be open and innovative co-operation between the third and the public sectors. In the projects, local administration adopted a very active role that brought the community closer to the City Council. Without a clear mechanism by which common interests and goals are identified and prioritized, all project activities are just a little bit more than a collection of appropriate actions led by a coordinated set of individuals. As Chambers (1997) and Burkey (2000) have stated, mutually acceptable benefits and the fulfilment of project objectives become possible when the project actions are adopted by all participants, and when they are prioritized and coordinated in a democratic manner.

Most of the co-operation strategies should focus on recruitment of future civil servants and the training of personnel. Like rational planning, purposeful training and participation methods are needed. The Msunduzi developing projects managed to solve some of their problems with co-operation between civil servants and local community. Towards the end of the projects, there can be seen clear improvement with the networking of all participants. One of the most important development aspects was the establishment of a permanent working group that discusses practical problems of Msunduzi. However, local involvement is not a goal of the project in many cases; instead it can be seen as a tool to achieve e.g. better sanitation, better health or education. But similarly to Steers et al. (1996), the primary goals of the projects have been empowerment, networking or capacity building. In general, the variation relating to how the local governance and the local committee co-operate is the product of several factors: the goals of the project, the capacity of the local people, the level of economy, the level of social development and infrastructure, local and national political systems as well as culture and history.

The success of large scale dry toilet planning and establishment depends most critically on the involvement of all relevant governmental bodies and the local committee. Involvement of the local population is seen critical (Wells & Brandon 1992) and, as Seutin (1999) points out, the “bad old history” also can play a significant role on how the local governance can manage with the local involvement: Additionally, Yukl (1989) reminds that the important role of individual leaders in the initiation and steering of the project should be well-established. External factors, such as changes in political or economic support by the council, often add to this internally generated variability. In summary, local participation and governance is the product of deterministic factors relating to human behaviour, culture and fortuitous historical events (Grenier 1998).

The complexity of factors influencing the co-operation between the local committee and the city council was well-demonstrated in our dry toilet projects. To achieve the goal of an integrated and environmentally sensitive development with dry toilets in the future, large and representative spectrum of city council officers and stakeholders needs to be involved. The identification of all appropriate public and third sector as well as private sector participants is critical. However, it is also clear that there is a huge need to establish a platform for providing links between all the participants. Through the co-operation of seven years between all participants, remarkable progress has been achieved.

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EXCREMENTS AND EXTREMITIES – FINAL THOUGHTS ON THE MSUNDUZA DRY SANITATION PROJECT

Jonna Heikkilä

Msunduz Dry Sanitation Project is ending. As the Project Manager, I have been emphasizing this repeatedly to the people of Msunduz for the past two years and dwelled on how they will cope with this change after seven years of the project. While writing this, I am forced to take the time and consider the same. Apart from project management tasks, relationship to Msunduz and the local people has grown deep since the practical training period as a student in 2008. During the final phase of the project (2012–2013), management and coordination of project activities has been more intense than ever. In this article, Msunduz Dry Sanitation Project and its course of life is reflected upon from the project management perspective. The article presents the main findings and suggestions of two evaluations in 2008 and in 2011, respectively, and considers in what state Msunduz will remain after seven years of sanitation development. Emphasis is made on the main challenges of the project with efforts on interpretation on why they persisted to haunt the project and how they could be avoided in future dry sanitation projects.

EVALUATION BACKGROUND, METHODS AND OBJECTIVES

At the end of the first phase of the Msunduz Dry Sanitation Project (2007–2008), first evaluation was decided to be implemented to assess the results and activities of the first two years. At the time of the evaluation, the decision on continuance of the project was received from the Ministry of Foreign Affairs of Finland, and thus one of the aims for the evaluation was to give suggestions on further implementation of the project.

The four main lines of scrutiny in the evaluation were technology (incl. suitability, sustainability, local skills), society and health education (incl. social mobilization and institutional and cultural aspects), economy (incl. affordability and impact on income generation) and environment (incl. direct and indirect impacts). The members of the evaluation group were Ms. Sirpa Halonen, the Manager in Degree Programme of Sustainable Development in Turku University of Applied Sciences; Ms. Sari Huuhtanen, Project Coordinator at the Global Dry Toilet Association of Finland; Ms. Mari Maasilta, Research Fellow at the University of Tampere and Mr. Pekka Pietilä, Senior Researcher at the Tampere University of Technology. The evaluation group stayed in Swaziland for twelve days in December 2008 to study the field, to visit the built dry toilets and to discuss with the partners and beneficiaries of the project. The team conducted guided discussions, interviews and SWOT analyses, transect walks and reading of written material. (Halonen et al. 2009)

At the end of the second phase (2009–2011), a second evaluation was implemented. This was agreed to act as a follow-up on the first evaluation assessing not only the results gained thus far, but also reviewing whether the suggestions of the evaluation in 2008 were followed and if so, what had been the outcome. The second evaluation was conducted by Mr. Esesosa Okunhon, who acted as a Lecturer at the Department of Sustainable Development in Turku University of Applied Sciences. He had visited Swaziland before the Msunduzi Dry Sanitation Project was initiated and hence the semi-internal evaluation was enabled.

The objectives for this latter evaluation were to ascertain the appropriateness of the dry sanitation project to the community and determine to what extent the project has met the needs of the local people and the local community at large – to determine through site visitation, the extent of changes made as a follow-up of the recommendation made by the last evaluation team in 2008; to ascertain the reliability and sustainability of the project idea, including the ability and willingness of the toilet owners and users to maintain facilities; to determine the acceptability and success of hygiene education, with particular attention to hygiene-knowledge and behaviour (especially appropriateness and use of hand washing materials); to determine the efficiency and effectiveness of the local implementing team, including the capacity building of staff members, and the effective monitoring of toilets by the Sanitation Experts; and to identify current inherent problems linked with the project and bring forward suggestions that could improve project implementation. During the

evaluation, transect walks and interviews were conducted with the members of the community. Community walks included visits both to individual household toilets and to community meeting point toilets. (Okunhon 2011)

RESULTS AND DISCUSSION

Dry toilets – use, maintenance and acceptance

At the end of 2008, there were altogether 16 toilets built by the project. There were three different models for toilets at the time: the EnviroLoo, a ready-made unit with need only for a top structure; a composting dry toilet without urine collection and a composting dry toilet with urine collection. The appliance of different toilet models was significant, because some of the local people as well as the Local Coordinator at the time preferred the EnviroLoo due to its quick installation. Later on the EnviroLoo model was disqualified due to its difficult maintenance of the chambers and easily breakable components. The composting dry toilet without urine collection was constructed in the pilot area, Maqobolwane, by a local constructor who was selected to do the construction after an organized competition in search for local builders. Yet the structure of the dry toilets was not appreciated by the City Council due to its chambers, which were not below the toilet but behind it (Picture 1.), enabling rainwater to get inside. Additionally, co-operation with the constructor in order to develop his model became impossible due to his contract not being renewed. The composting dry toilet with urine diversion was found to be the most usable toilet model, which the project continued to construct during the following phases. All in all, according to the evaluation team, the built toilets were not properly taken care of and the old water toilets were preferred due to their better outlook (Halonen et al. 2009).



PICTURE 1. *In the pilot area, Maqobolwane, the constructor used a dry toilet model with chambers behind the toilet instead of below it. This enabled rain water to get inside. (Picture: Jonna Heikkilä)*

By the end of 2011, there were a total of 29 dry toilets constructed. Most of the visited toilets were found to be in good conditions while in some cases, the evaluator observed poorly fitted covers with missing screws for the EnviroLoos. Additionally, the problem of vandalism and theft in some of the dry toilets at the community meeting points was observed. (Okunhon 2011.)

The attitude towards the project and dry sanitation was found to be highly positive in the second evaluation. The previous stigma reported in the previous evaluation was seen to have been fading away. All of the toilet owners interviewed recalled having been educated by the Sanitation Experts on health, toilet cleanliness, usage and management as well as basic hygiene. What came up as criticism towards the project and the Sanitation Experts was the fact that the Experts did not have their own dry toilets. According to the interviews, the Experts were aware of “the disadvantages of the toilet concepts”, but although “not having one to themselves

[...] willing to impose ownership to others”. (Okunhon 2011.) The issue of the Experts’ toilets has come up repeatedly. Project management has supported the idea, while the local leaders’ perception was that the Experts have already benefitted from the project in the form of financial incentives. The issue was discussed again in the Higher-Level Dry Sanitation Course with representatives from the City Council, Ministry of Health, University of Swaziland, local leaders, toilet owners and the Sanitation Experts. After the course, everyone came to an agreement that the costs of the dry toilets will be reduced through use of alternative material in the top structure and the participation of the Experts in the construction to lower the labour costs, and thus the Experts were granted the permission to get the dry toilets. After the long debate, however, the Sanitation Experts were unsatisfied with the fact that they had to contribute to the construction of the dry toilets while others were getting “fully-paid” toilets. Unfortunately, it seemed that the Experts did not see the gained skill in construction of a dry toilet as a resource and as an investment for the future.



PICTURE 2. *In the third phase of the project, two Higher-Level Courses on Dry Sanitation were organised, bringing together project stakeholders such as local NGOs, Ministry of Health representatives and the City Council of Mbabane. (Picture: Jonna Heikkilä)*

The second evaluation encouraged for transparency in building of the dry toilets via material monitoring by the Sanitation Experts and also by providing them with the skills of construction. A Construction Monitoring Team was organised from the Sanitation Experts during the third phase of the project to ensure the building materials are used efficiently and also for the Experts to learn from the building process. Also, as the second evaluation suggested, a template for all of the dry toilets and their status was designed in order to follow whether the households required more education, follow-up or assistance in toilet maintenance. After the project ends, the template together with the agreements on ownership of dry toilets will be submitted to the City Council, the authority of the area.

Use of fertilizer and home gardening

In the evaluation team's opinion in 2008, the composted material from the dry toilets can be used as a fertilizer in the future instead of expensive chemical fertilizers despite the fact that there are still too few dry toilets to implement this. Yet the interest in home gardening in Msunduza was seen varying as even the then Local Coordinator at the Salvation Army had doubts of the appropriateness of home gardening. (Halonen et al. 2009.)

The second evaluation found that “most of the non-toilet owners interviewed expressed their interest in having their own toilets together with the willingness to learn more about the use of compost from the dry toilets as fertilizers in their farms.” The evaluator emphasised especially the use of fertiliser in home gardening for women as a novel livelihood. (Okunhon 2011.)



PICTURES 3–4. *Spinach fertilised with urine (in the left) has been compared to spinach without any fertiliser in the test fields of the Msunduza Community Recycling Center. (Picture: Jonna Heikkilä)*

According to Oikarinen-Mapengo (2011), the scale of home gardening in Msunduzi is not extensive; it is limited by the small plots of the households and it is mostly done for the households' own consumption. Yet, the author suggests that promotion of home gardening should not be too difficult, since it is already familiar to the residents of the community. Nevertheless, both evaluation teams and Oikarinen-Mapengo emphasize the need for education on the use of fertilizer from the dry toilets to lower the stigma on using human-originated waste in food production. (Halonen et al. 2009, Oikarinen-Mapengo 2011).

The Sanitation Experts' team

The need for Field Assistant was expressed by the evaluation team in 2009. One of the main challenges in the project has been local participation and communication between different project actors, which this was proposed to improve. Also the roles and responsibilities of project workers, especially the Sanitation Experts, were to be made clearer. During the second phase of the project, the tasks of the Experts were defined better and in written form. Additionally, their worksheets were developed to include e.g. the number and gender of the educated people for improved monitoring of their work. They were also appointed dry toilets, whose monitoring they were responsible in addition to educating the households.

The Field Coordinator was not hired until the third phase of the project – in October 2012, Bheki Matambo Ngobese was hired as the Local Coordinator for the project after the previous Coordinator had resigned due to continuance of his studies. Mr. Ngobese was praised by the evaluation team in 2009 and again during the evaluation in 2011. He was stated to be “an inspiring animator who has capacity to mobilize youth and seems to have given his soul for organic gardening. He could be an important resource person for the project also in the future.” (Halonen et al. 2009.) The project benefitted from Mr. Ngobese's previous knowledge on the project as a former Sanitation Expert, his passion for organic gardening and community development, and also the project management's wish to promote a local person in gaining skills and experience in the position. The hiring of Field Coordinator proved to benefit the project tremendously; the Local Coordinator's work load was eased, more regular communication to Finland enhanced reacting to project activities and field work was improved. Yet, it is noteworthy that the Field Coordinator's

work was not an easy task. The Coordinator had to answer to various project partners, such as the Local Coordinator in Swaziland, the Project Manager in Finland, the Sanitation Experts and the Central Committee in Swaziland in addition to the City Council. There were also other complicating factors. Some personal issues among the project partners and workers seemed to affect project implementation, the responsibility towards one's own community and to the project at times was contradicting, and the sudden strong communication with the Project Manager might have made other project partners feel left out of project discussions.

Selection of locations for dry toilets

The selection of the households to receive a dry toilet has been an issue throughout the project. During the first evaluation (2009), “a clear system how to elect and accept dry toilet types, location and owners: that is, who makes a proposal, who decides and who takes the responsibility to make the toilet accepted by the city council” and “written agreements with those families who get the toilets, responsibilities and authorizations well defined, e.g. their own contribution” were suggested. During the second phase of the project, the participation of the local leaders was emphasized, and hence they were included in the selection process. They were, together with the Sanitation Experts, to assess a given household's suitability and need for a dry toilet. Written agreements with the toilet owners were designed, including their responsibilities towards the upcoming dry toilet such as fixing possible flaws, participation in the construction according to their ability and education of the users of the toilet. Despite the contract, very few participated in the construction and when the building of the dry toilets was perceived as business for the constructors more than community development, it was not demanded from them either. Additionally, some toilet owners stated not to have been heard during the selection process by the local leaders on whether they wish to have the dry toilet in the first place, so their ownership was questionable from the beginning.

Partly due to this, an application process was designed during the third phase of the project where the households stated why they wish to have the toilet and what kind of contribution, such as financial input or labour, they can provide to the building process. With this, danger is in not reaching all the households about the possibility for application and that the households with limited funds

or disabilities are discarded. In any case, the criteria for the future dry toilet owners needs to be clear from the beginning of the project to all project actors, including especially the motivation towards dry toilet use and maintenance, space and intention to use the end product from the dry toilets in addition to participation in construction, project workshops and education of others.

During the second evaluation, the criteria for the selection of the locations of the dry toilets by the local leaders were still identified as weak, undefined and unclear. It also stated that the Sanitation Experts themselves were not completely clear on why certain people were selected as the owners. Also the project aim to get people build their own dry toilets was seen to lack mainly due to financial constraints. (Okunhon 2011.) This has been found to be rather difficult to come around due to the expensive building materials needed for the dry toilet and the regulations of the City Council. At the end of the project, the costs have been reduced to approximately 7000 Rands from the original 14 000 Rands. The decrease has been remarkable through the use of alternative material as top structure and labour contributed by the households, but still the amount is a big investment in Msunduza that many cannot afford.



PICTURE 5. *Mr Dlamini is one of the dry toilet owners in Ghobhoho, a sub-community of Msunduzi. (Picture: Jonna Heikkilä)*

Communication

As stated above, communication between different project partners and stakeholders has been something that the project has struggled with throughout its implementation. After the first phase, the City Council felt left out due to their lacking status as an official partner and were unaware of project happenings despite the fact that student trainees working for the project were using their premises. It is descriptive that the representative of the City Council and the Local Coordinator from the Salvation Army met for the first time to discuss the project at the time of the first evaluation after two years of project implementation. Communication improved through various efforts and acknowledgement of the problem, but for instance regular local meetings between the project partners and representatives of project workers were not organised despite encouragement to do so. A lot of miscommunication and misunderstandings could have been avoided and time and resources saved to other project activities if regular meetings on the local level would have been implemented. This would have been especially important when there were three different projects taking place in Msunduzi at the same time, with some of the same people involved, which naturally generated some confusion.

In the second phase, project communication was emphasized and for instance participating in Sanitation Experts' weekly meetings was made mandatory for them. The Local Coordinator participated in the meetings as much as he could, but since the Salvation Army's Clinic is his priority instead of the Msunduzi Dry Sanitation Project, often the meetings were carried on without him. Hence a lot depended on the Finnish students doing their training in Swaziland regarding reporting and answering to Sanitation Experts, even though it was not their responsibility and they lacked any decision-making power over the project. In the final phase, the Field Coordinator had the role of leading the Experts, yet often there was a definite need for presence of the project management.

The evaluation report (2009) states the following:

Co-operation between project partners should be more open. If problems occur, they should be solved as soon as possible by open discussions and by negotiations. In order to improve local capacity and prevent conflicts, it might be useful to organize training about leadership, communication and conflict management skills.

This relates to personal conflicts taking place especially during the first and second phase of the project among the Sanitation Experts. The initial Contact Person of the Sanitation Experts had more working hours than others and thus was paid more by the project while she also worked in another project, which seemed to cause discontent among other Experts. Additionally, Swaziland is a highly male-dominated country, where often men feel it impossible to be led by a female. The situation escalated and the project management decided to organize an election where the Sanitation Experts could, through a closed voting, choose democratically their Chairperson. The oldest male was selected and continued to be chosen as the Chairperson until the end of the project. This led to a division of the Sanitation Experts, which was tried to be solved through various capacity building workshops and team building days, such as leadership skills, communication and conflict management skills trainings. Some progress was made, but the old disputes seemed to come out to the fore from time to time.

The second evaluator stated that the interviewed stakeholders seemed to take the project as a secondary responsibility, while for instance the local leaders was said to undermine their role in achieving the goals of the project (Okunhon 2011.) During the project implementation, local leaders have been more and more involved in the project activities, workshops, courses and meetings. They have also highly appreciated the project in the conducted interviews (i.e. Kirstinä 2012). During the Higher-Level Courses on Dry Sanitation in 2012 and 2013, their responsibility in supporting the local ownership and in integrating the project outcomes into community structures and routines was emphasized. The local leaders have been participating and involved in the Environmental Association of Msunduzi, which was established to continue monitoring of the dry toilets, educating sanitation through the joined Sanitation Experts and doing fundraising for its activities. Furthermore, the leaders' support and promotion for improved sanitation in Msunduzi is essential due to their position and respected authority in sustaining the project results.

During the Msunduzi Dry Sanitation Project, the City Council has been able to focus on the development of other peri-urban areas due to the resources put in Msunduzi. Communication with the City Council has not always been smooth, but towards the end of the final phase improvements were made. It remains to be seen how the City Council continues with its work and what is their contribution to sustaining the results of the project. Especially with the public toilets by the sports grounds, meeting places and a school, where

misuse and vandalism has been a continuous problem and caretakers have been difficult to hold on to, the Council should and could help in the future. It is encouraging that the Council has, as the outcome of the project, promoted dry sanitation into other areas of Mbabane as an alternative solution for sanitation.

CONCLUSIONS

To some extent, both of the evaluations brought forward the lack of community participation and inadequate communication as aspects of the project in need of improvements and emphasis. The evaluator in 2011 also suggested to “mobilize local mass media from Mbabane for publicity and awareness”, to “create an enabling framework for community test fields (possibly one for each of the zones) for the use of compost” and to “create and encourage more learning forums through seminars and workshops to learn from others who are pioneers in similar projects” (Okunhon 2011.)

During the third and final phase of the project, eight workshops and two Higher-Level Courses on Dry Sanitation was organised, where peer experience was received from a Zambian facilitator. Two Sanitation Experts visited dry sanitation projects in Zambia for exchange of experiences and peer review. The project also participated in several awareness raising campaigns and produced educational material for dissemination, held team-building days for the Sanitation Experts who educated approximately 1700 people monthly and was visible through the articles written by the Field Coordinator. Furthermore, the Sanitation Experts and the Environmental Association were able to participate in several capacity building workshops organised by the Green Living Movement Swaziland – a local NGO – as part of their goal to promote the civil society of Swaziland. For two years, that is a substantial amount of project activities and educational sessions to answer to the challenges and suggestions of the evaluations. Still it seems that it was not enough. The Environmental Association is not on sustainable basis, whether the Sanitation Experts will continue their work remains unclear, regular local stakeholder meetings were not integrated to stakeholders’ structures and the ownership of both the local leaders and toilet owners is to be seen. All of the project events were successes considering the partakers’ numbers and the Sanitation Experts were able to educate more people than expected, so it is not necessarily easy to see what could have been done better.

During the project, almost a dozen local volunteers have been trained to act as the educational channels to the community. The Sanitation Experts were trained in sanitation, dry toilets and later on in composting and organic gardening. Due to initial personal conflicts among the Experts, capacity building in conflict management, leadership skills and participatory methods were provided by the project as well. The role of the Sanitation Experts cannot be overemphasized; they were the spokespersons for the targeted community, the educators of the dry toilet owners and the linkage between the City Council, the Salvation Army and the local leaders of Msunduza.



PICTURE 6. *During the project, 7–12 local volunteers called the Sanitation Experts have acted as educators of their communities. (Picture: Jonna Heikkilä)*

Even though the Experts were to be working on voluntary basis, small monetary incentives were paid to them monthly after they had submitted their working sheets. Hence, to them the Msunduzu Dry Sanitation Project was a paid job – and considering the poverty in Msunduzu, their work without any compensation would have been difficult to implement. Yet the incentives seemed to play a bigger role for them than the development of their community. With four original members still working as Sanitation Experts at the end of project in 2013, why was the project not able raise their motivation towards community development and volunteerism? The following raises some possible answers to this question.

1. The Sanitation Experts were not appreciated for their work. Even though various interviews and the evaluation report from 2008 states the City Council, the Msunduzu community, the Salvation Army and the Central Committee appreciated the Experts' work, their own opinion and the reality has not always supported the statements. E.g. the time given for education at the community meetings has been short, the toilet owners have sometimes questioned their work and the incentives have from time to time been paid late. Additionally, the Sanitation Experts and their work have been stated to be undermined by the local authorities, and several arguments and personal conflicts have occurred concerning the subject.
2. The Sanitation Experts did not themselves know or believe what they were teaching. The Sanitation Experts were trained through Training of Trainers method in order to pass on the education to the people of Msunduzu. Some of the Experts seemed to gain self-confidence and were eager to talk in front of an audience while others were much shyer and seemed to try to avoid the situation. Additionally, practical training updates on Sanitation Experts' knowledge on what they were teaching and how could have equipped them better to real-life situations – but due to internal friction between single individuals, capacity building on conflict management and communication had to be emphasized instead.

3. The Sanitation Experts were only working for community development because of the paid incentives. A reference to the paid incentive and the challenge it might create was already identified by the first evaluation: "A problem might be that once the project will be finished the continuation of these employees is not guaranteed." In Msunduzi, where poverty prevails and for instance school fees are very high, voluntarism is very difficult to justify as compared to a paid job. Hence, it is doubtful that the project could have been able to commit the Experts to work on voluntary basis for a long project, but paying of the incentives did create a pitfall as well. The Experts seemed to perceive their job as comprising the same tasks from year to year, and when given new assignments, increase in incentives was asked for. Additionally, the Experts were eager to learn about the construction of the dry toilets, but not so much for community development but to gain the labour costs of the earlier hired constructors. All in all, the Sanitation Experts have gained in skills, self-confidence and capacity building through the project, which they can base their future employment on.
4. The Sanitation Experts' work was affected by personal conflicts and political interests. As stated earlier, the work of the Experts was affected by internal but also external conflicts. A lot of resources were needed to solve arguments between individuals, which could have been used for other purposes. However, it needs to be acknowledged that the position of the Experts was a difficult one, and a lot was expected from them even though they had very little experience if none in working as educators. Political interests affected the project on several occasions as well. Some saw the project as an opportunity to boost their position, while dry toilet ownership was perceived as a status symbol. Also the relationship between the City Council and the Central Committee affected the project, when the Council refused to acknowledge the Committee as an official authority of the area due to postponed elections.

The discussion on what some of the reasons behind main challenges of the project were, and whether they could have been avoided with different approach, is merely guessing at this point of the project. Some of the Sanitation Experts have continued their work after the project ended and act as members of the Environmental Association. The Msunduzi Dry Sanitation Project based a lot of its work on the Sanitation Experts, however, it should be acknowledged that strong local multilevel cooperation is required in order to gain sustainable results and integrate them into the existing routines and structures.

Even though education of dry sanitation is essential in lowering the stigma of human originated faeces in food production, visible and practical benefits already from the beginning are to be included (Heikkilä et al. 2012). Changing attitudes takes a long time, and hence the education needs to be versatile with provision of private and hands-on trainings if needed. Instead of turning masses instantly, change can start with few active and open-minded toilet owners. Through them, e.g. home gardening with fertilisers from the dry toilets can be piloted and tested in household-level and when results are good, word tends to travel fast.

All in all, the Msunduzi Dry Sanitation Project was able to build altogether 47 dry toilets and to reach people of Msunduzi through education in e.g. sanitation, health, composting and gardening. The project supported the establishment of two NGOs (Green Living Movement Swaziland and the Environmental Association of Msunduzi) to continue their work on sanitation challenges in Msunduzi and in Swaziland. The project management team gained wide experience in the implementation of a dry sanitation project in Swaziland, and they will be able to use the created project network, the lessons learnt and the best practices in its future projects in Swaziland and elsewhere.

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ZAMBIA

COMMUNITY PERSPECTIVES AND EXPERIENCES IN DRY SANITATION – THE CASE OF KALOKO SANITATION PROJECT

Emmanuel Mutamba

STATE OF SANITATION IN ZAMBIA

The need for decent and sustainable sanitation facilities cuts across many economically weak rural communities and densely populated urban and peri-urban settlements in Africa. Proper sanitation is even more desirable today than ever before due to overcrowding as a result of growing populations and the failure by many poor African states to provide critical social services to their citizens.

Zambia is one of Africa's least developed countries (LDC). It has a population of 13 million with growth rate of 3.1% . It has 75% of its population living below poverty line. It is becoming increasingly urbanised with over 60% of the population now living in urban and peri-urban settlements. (Central Statistical Office 2012.) The majority of urban dwellers live in unplanned crowded settlements. These areas are often associated with poor and inadequate sanitation. Most of these families depend on shallow wells for drinking water. Outbreaks of diarrhea diseases such as cholera, typhoid and dysentery are often annual occurrences.

According to a recent study by the Water and Sanitation Programme (WSP), poor sanitation costs Zambia US\$194 million each year. The cost is equivalent to 1.3% of the national GDP. (Water and Sanitation Programme, 2012.)

Of the 13 million Zambians, 4 million use unsanitary or shared latrines while 2.1 million have no latrine at all and defecate in the open. Finding a private location for defecation or urination is even more time demanding in the crowded urban and peri-urban areas. Open defecation also has considerable

social costs; loss of dignity and privacy or risk of physical attack and sexual violence, especially against women and girls, may not be easily valued in monetary units. It is further estimated that US\$1 million dollars is lost each year due to productivity loss resulting from poor health associated with poor sanitation. It includes time spent sick while accessing health care from clinics and hospitals. Another cost accrues on time spent caring for young children suffering from sanitation-attributable diseases. (Water and Sanitation Programme, 2012.)

As it has been demonstrated, the most affected are also the poorest. Poverty therefore becomes exacerbated by the vulnerability of the poor to sanitation-related illnesses as the cost of quality medication is often beyond their reach.

The faecal contamination of the environment in Zambia causes an annual average of 3,200 cases of cholera affecting mainly communities in densely populated urban and peri-urban areas. The economic implications of a cholera outbreak go beyond the immediate health system response. There are also costs related to productivity loss and premature deaths, diverting expenditures from other essential services as well as losses in trade and tourism revenue.



PICTURE 1. *Shallow well for drinking water. (Picture: Michelo Katambo)*

According to the Millennium Development Goals (MDGs) Zambia Report (2013), Zambia has observed improvements in the provision of clean water: the proportion of the population without access to an improved water source has decreased from 51% in 1990 to 36.9% in 2010. However, the proportion of the population without access to improved sanitation facilities is not getting any better. On the contrary, it worsened from 26% in 1991 to 67.3% in 2010. Zambia is therefore well off track to achieve the MDG target of 13% by 2015. This is partly explained by the increase in informal human settlements without basic sanitation facilities, the high cost of sanitation infrastructure and the low returns to these investments for the private sector, especially in rural areas, and partly by a methodology change. The report further explains that the need for public engagement and state action in this area is of paramount importance. Massive sanitation infrastructure investments and social campaigns on healthy sanitary behaviour can turn around this trend. Poor sanitation is the breeding ground for day-to-day ill health, low productivity and large epidemics that destroy communities.



PICTURE 2. *A typical toilet in crowded an urban settlement.*
(Picture: Emmanuel Mutamba)

THE CASE OF KALOKO SANITATION PROJECT

The Kaloko Trust catchment area in which the Zambia Sanitation Project (ZASP) was implemented between 2006 and 2013 is a rural settlement located in the north of Zambia. It has a population of 10,000 inhabitants (2010 Census). The Global Dry Toilet Association of Finland (GDTF) supported the project since 2006. The project's overall objective was *to improve the state of sanitation in the Kaloko Trust area*. GDTF partnered with Kaloko Trust (a local Non-Governmental Organisation working in the area) for the implementation of the ZASP. The inhabitants are generally small-scale producers who are largely dependent on government agriculture subsidies (mainly synthetic fertilisers and seed). The soils in the project area are highly dependent on fertilisation for their productivity. Though generally vegetative, the area has in recent years lost significant quantities of forest mainly logged for commercial fuel (charcoal). There are 14 communities participating in the ZASP project.



PICTURE 3. *Charcoal production is one of the main sources of income for some households in Kaloko Trust. (Picture: Emmanuel Mutamba)*

The project has been implemented in three phases. The first phase was implemented between 2006 and 2008. During this period studies were conducted to ascertain local people's accessibility to proper sanitation and safe drinking water. The research established the need for improvement in the state of sanitation and accessibility to safe drinking water in the area.

The second and third phases of the project were implemented between 2009 to 2011 and 2012 to 2013 respectively. The main targets of the project in this period were to increase community interest and consciousness on sanitation and hygiene. Practical intervention areas during this period included sanitation education, community sensitisation on dry toilets, construction of dry toilets, installation of water pumps and establishment of organic gardens, orchards and establishment of sanitation groups. Capacity development for sanitation groups in the later part of the project included group development processes, leadership and conflict management skills, entrepreneurship and basic financial management. By the close of the project in December 2013 fourteen (14) communities had joined the project. With the average group membership of 25 households per community group, the project directly reached at least 350 households. As the number of participating communities grew, a decision was reached to form the Central Committee, an umbrella organ with representation from all community project groups. The purpose of forming the Central Committee was to oversee the operations of the affiliate community groups and coordinate their activities. In order to attain legal status for the purpose of sourcing external resources, the Central Committee was registered at the Zambian Registrar of societies under the Societies Act.

The report of the 2006–2008 survey made reference to above indicated that the majority of the people in the project area accessed their drinking water from shallow wells and streams. It was on the basis of this knowledge that the project undertook to support community sanitation improvement initiatives by installing mono pumps. A total of 10 mono pumps were installed in the project area during the project life span. A tool kit for maintenance and repair of the pumps was acquired and members of 11 sanitation groups were trained in repair and maintenance. The ZASP further entered into an agreement with the Kaloko Trust health centre to take over the management of mono pumps installed earlier by government, which were at the time under the responsibility of Kaloko Trust health centre. Most of the pumps were not functioning due to lack of funds for repair works. Repair works on old pumps were undertaken through the water committees.



PICTURE 4. *A newly installed mono pump. (Picture: Michelo Katambo)*

CONTROVERSY

Of the project activities undertaken, it was the construction and use of dry toilets that brought controversy. Community members perceived the dry sanitation concept as alien. Nearly all community members initially had misconceptions about dry toilets. They felt that it was inconceivable that human excreta could be used for growing food crops meant for human consumption. One community member commented:

The dry toilets project is ill-conceived and out of step with our cultural and traditional values. It has no place in our society. The aspect of collecting human excreta is an alien practice which is at variance with our culture.

In an effort to encounter the stigmatisation that tagged the project, several strategies were devised. They included sustained sensitisation and education, community awareness meetings, drama performances and documentaries. The project also used research on dry sanitation to allay health fears community members had, associated with the use of dry toilet urine and composite as manure. Soon the situation started changing; more members of the community started showing interest in the project and joining the sanitation groups. One community member later commented:

Dry toilets are a great product. They are permanent, don't smell and we get cheaper fertiliser.

Later the demand for dry toilets by community members grew. This led to the project designing a cheaper model so that more people in the project area could afford a dry toilet. The cheaper model reduced the cost from \$1200 for a standard dry toilet model to \$600 for low cost model. Over 60 standard and low cost dry toilets were built by end of 2013. The project was quickly shedding off its stigma tag and gaining community support. Effective monitoring and evaluation played a key role towards project acceptability as it ensured decisions were made in a timely manner. Demonstration gardens were established by most of the project groups, where urine and compost from the dry toilets were experimented. Communities from other parts of the country visited the project area to learn about dry sanitation. This further inspired project members who were at hand to explain project activities and benefits.



PICTURE 5. *A urine fertilised banana orchard. (Picture: Michelo Katambo)*

SUSTAINABILITY

It had become clear during the implementation of the project that there was need to devise sustainability mechanisms to guarantee project continuity beyond 2013. Lessons had been learnt from previous projects that had been implemented in the area but had failed to survive beyond their funding periods. The installation of water pumps discussed earlier, for instance, was not new as

over 16 mono pumps had been installed before in the area by government and other development agencies. At the time of the installation of the new mono pumps by the ZASP, only two of the old pumps were working. This situation was attributed mainly to the high costs of repairing the pumps, which were way beyond the ability of the community members. A key lesson picked up from this experience was the need to ensure communities were able to finance the costs of repairing the pumps – hence the formation of community water committees whose primary objective was to raise funds for the maintenance and repairs to the pumps.

The project also invested in community capacity development interventions. This was meant to transfer project management responsibilities to the communities and to build a sense of community ownership. Some of the key capacity development and skills development interventions were

- Project management
- Leadership, Community mobilisation and Conflict management
- Project proposal writing
- Marketing skills
- Fundraising and Financial management
- Design and construction of low-cost dry toilets
- Use and management of dry toilets
- Exposure tours
- Hosting research students.

The project witnessed a lot of sustainability innovations from the community groups during the course of implementation, such as establishment of orchards and rearing of small livestock (chickens, goats, sheep, pigs etc.). In all project activities, the principles of participation and volunteerism guided community engagements. Participatory Monitoring and Evaluation (PM&E) exercises coordinated by the Central Committee ensured that all stakeholders were kept aware of what was happening so as to ensure timely decisions were made.

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SUSTAINABLE SANITATION VALUE SERVICE CHAIN THROUGH INTEGRATED LIVELIHOODS SUPPORT BY CBES – TRANSFORMING WASTES INTO RESOURCES IN MADIMBA

Obed Kawanga & Kaisa Piirilä

This article provides an overview of Community Based Enterprises (CBEs) as a part of a dry sanitation project in Madimba peri-urban settlement in Lusaka, the capital of Zambia. The CBEs have been formed during the project implementation in order to create Madimba Sustainable Sanitation Value Service Chain, through an integrated livelihood support. The project has been implemented during years 2008–2013 and in the end of the project, the CBEs also act an important role in ensuring the sustainability of the project achievements.

Global Dry Toilet Association of Finland (GDTF) and Zambian non-governmental organisation Network for Environmental Concerns and Solutions (NECOS) have been implementing Sustainable Sanitation Improvement Project (SSIP) in close partnership since year 2008. SSIP is GDTF's second ecological sanitation project in Zambia, following the Dry Sanitation Improvement Project for Zambia (ZASP) located in Kaloko, Copperbelt Province. The main contributor of the project funding is Ministry for Foreign Affairs of Finland.

Zambia is one of the countries in Sub-Saharan Africa where the lack of adequate sanitation services or supply of clean and safe water is alarming. According to the report by National Water Supply and Sanitation Council NWASCO, the investments in the water supply and sanitation sector in Zambia have concentrated on the water sector leaving sanitation with less

attention. Majority of Zambians still lack the basic service of adequate sanitation. People face several challenges due to lack of adequate sanitation, e.g. health problems, loss of income, inconvenience and indignity. Over 60% of urban population in Zambia live in peri-urban and low cost areas. The stage of sanitation is especially poor in those areas where most latrines are un-improved. Typically peri-urban settlements are unplanned residential areas with inadequate or non-existing water supply, sewerage, roads, storm water drainage and solid waste disposal. Pit latrines, bush facility and “flying toilets” (plastic bags, which are used for defecation and thrown into the environment) are the most common sanitation facilities found in peri-urban areas. These sanitation facilities often have several problems, like smells, collapsing and filling up of pit latrines. Also contamination of ground water occurs in these areas because of the poor construction of the latrines. (National Water Supply and Sanitation Council NWASCO 2013.)

The project area Madimba is located 10 kilometres from the town centre of Lusaka. It has an area of 1.2 km² which is 0.33% of the total area of Lusaka District. According to estimations, Madimba has a population of over 6000 people. Living standards and sources of income vary a lot among the residents of the area. (Kawanga 2004.)

According to research by Finnish student interns in 2010 and 2012, self-employment with unsteady income such as selling vegetables, groceries and snacks is common in the area. Other economic activities include block making, transport and hair salons. Also unemployment or being a housewife is common in Madimba. It is estimated many people in the area live under the UN poverty line of 1,25 USD per day. (Lepaus & Tsang 2010, Piirilä 2013.)

The area is not serviced with drinking water supply or sewerage systems. During rainy season water soaks yards and roads due to lack of drainage in the area. Also one challenge in the area is that the ground water level is close to the surface, which leads to a situation where ground water is easily contaminated by the pit latrines. Poor stage of sanitation is the major cause of human infections in peri-urban areas of Zambia, and Madimba is not an exception. Residents of Lusaka's peri-urban areas have been suffering from regular cholera epidemics during rainy seasons.

The long-term development objective of SSIP project is to upgrade the peri-urban community of Madimba into an eco-village model and improve livelihood among residents. Like other ecological sanitation projects by Global

Dry Toilet Association of Finland, the SSIP project is improving environmental health and living conditions of local people by providing hygiene education, access to clean water and sustainable sanitation solutions.

During the six years of project implementation, dry toilets have been constructed, old pit latrines repaired and improved into more safe and hygienic ones, and water kiosks constructed to provide clean and safe drinking water. Hygiene education has been provided, solid waste management system developed and backyard gardening promoted in order to increase the household food security. Also the building capacity of the local small-scale enterprises has been an important part of the project not just to achieve the goals but also to sustain these achievements. CBEs formed during the project are supporting the sustainable sanitation value service chain, where wastes are transformed into resources, and the enterprises also provide income for the local community members. In addition to actual enterprises, there are also other community based actors like Madimba Water Trust, Madimba Women's Group and Real Hope who have been participating in the project activities. Typically the CBEs and other community based groups are small-scale enterprises formed by local community people and operating within the same community.

The CBEs in Madimba have recorded noticeable achievements during the six years project implementation period. These are not limited to water and sanitation, promoting of dry toilets and ecological sanitation, solid waste management, dry toilet construction, permanent change in mind-set through sensitization, physical environmental change and livelihood support activities. CBEs formed to implement the integrated community livelihood projects are working for example with dry toilet construction and maintenance, solid waste collection and provision of clean and safe drinking water. Some of them are detailed in this article.

SUSTAINABLE SANITATION VALUE SERVICE CHAIN

Madimba Sustainable Sanitation Enterprise is a community based enterprise, which is trained to construct dry toilets as well as to provide toilet maintenance and toilets emptying services for the households who are not able or willing to utilize the compost and/or urine from their dry toilets at their own gardens. The CBE handles dry toilets applications, site identifications and siting of dry toilets, conducting routine inspections as the way of monitoring the

operations and maintenance. The application of the Geographical Positioning System (GPS) is proved to be effective and efficient way to monitor the toilets. The use of GPS by the Madimba Sustainable Sanitation Enterprise enables the CBE to identify the physical locations of the toilets and the approximate time when the toilet will get full and when it is likely to be emptied. Based on this GPS system, the CBE has managed to empty approximately 250 bags of manure (50 kg each) from the dry toilets (about 20–25 different toilets). There are four types of dry toilet manure with generic name of the added cushioning materials. The picture is showing manure types with generic names, emptied from dry toilets.



PICTURE 1. *Type of Manure from Dry Toilets by Generic Cushioning Materials.*
(Picture: Obed Chibwe Kawanga)

The Madimba Sustainable Sanitation Enterprise is formed by three components, namely Dry Toilets Artisans, Wood Carpenters and Dry Toilet Emptiers. Artisans are a group of dry toilets bricklayers who are trained to construct dry toilets. They are responsible for handling of dry toilets applications forms, site identifications and the siting of dry toilets as well as their actual construction.

Wood Carpenters is a group of qualified wood processing carpenters who are responsible for all wood work, such as dry toilets' chamber doors and frame work, urine chamber doors and cover as well as the main door and frame in the dry toilet. They also ensure that the required plank sizes and wood preservatives are applied accordingly.

Dry Toilets Emptiers is a group of dry toilet emptiers who are trained to conduct routine inspections as the way of monitoring the operations and maintenance of dry toilets. They are trained to apply GPS for the effective and efficient monitoring of the emptying interval of the dry toilets based on the number of users. The use of GPS by the enterprise enables them to identify the physical locations of the dry toilets and the approximate emptying intervals. The emptying service is provided at a fee.

These three agents are part of the sanitation value service chain and interlinked to each other. In the case of Madimba, the re-use aspects of dry toilets product (manure) is applied at the NECOS demonstration farm and the household backyard gardens of the local people. These structures are working to promote household food security, livelihood and improved living environment.

The household backyard gardens have managed to produce various vegetables at different urban households in Madimba community. The dry season resilient vegetables have been promoted and are now grown to a greater extent. This increases household food security and improves household nutrition status especially among children. Anyhow, all of the dry toilet owners are not willing or able to utilize the dry toilet end products in their own gardens.

The NECOS demonstration farm was established near by the project area in order to provide space for the utilization of dry toilet end products, but also to test and demonstrate the use of dry toilet fertilizers in food production. These results are shown to the community members to increase the knowledge on dry toilet fertilizers and also to reduce the stigma towards using human manure, which still seems to exist among some of the community members. The demonstration farm has created employment for workers during the past 3 to 4 years it has been working on a rented piece of land. Different types of vegetables have been grown in the farm.



PICTURE 2. *Vegetables and urine tank in Madimba demonstration farm. (Picture: Obed Chibwe Kawanga)*

SOLID WASTE COLLECTION AND SOURCE SEPARATION PROMOTION IN THE PROJECT AREA

Among other challenges typical for informal peri-urban residential areas, Madimba has also been suffering from inadequate services of household solid waste collection. Papers, plastics, bottles and other solid wastes produced by the households of the area are commonly burned, buried into pits or illegally dumped into the environment. These practices are harmful for the environment and also a health risk for the local people. Solid waste management has been improved during the SSIP project, and nowadays Madimba Solid Waste Management CBE is acting in an important role in providing a good and healthy living environment for the residents of Madimba.

The Madimba Solid Waste Management CBE was formed to carry out primary solid waste collection by the use of the push cart to collect waste from households to the communal skip. Lately the tractor was introduced to collect household waste weekly with the carrying capacity of 10 tons. The tractor also makes it possible to transport the household solid wastes straight to the city dump site instead of collecting them to the communal skip. The solid waste collection service is operating in a strong relationship with the local authority Lusaka City Council.



PICTURES 3–4. *Waste push cart and poor road network in Madimba.*
(Pictures: Obed Chibwe Kawanga)

In addition to the household waste collection, the CBE has recorded a number of achievements in waste source separations, resulting in the increase in the knowledge and involvement in waste source segregation at community and school level. The principle based on 3Rs (Reuse, Reduction and Recycle) of waste has been introduced to selected local schools aiming to attitude change and equipping the people with knowledge as well.

The Solid Waste Management CBE also conducts activities to promote biowaste composting, which turns biowaste into compost. These promotions are carried out at the demonstration farm and at household level within the community. The compost is utilized at the farm, where different crops are grown. The other use of the manure is at selected local schools, where it is used to the newly established School Parks. More than 1,000 trees have been planted both in schools and in the community in the Urban Greening project also implemented by NECOS.

CULTURE, CLEAN WATER AND INCOME GENERATION THROUGH CBE'S

Other CBEs operating in Madimba work e.g. on hand washing facility production, block making, cultural activities and running the community water kiosk. The Ntampwa Community Enterprise is responsible for the community's water quality monitoring (quick test and biological water analysis) operating via two kiosks that were constructed in 2010 and 2013 by the SSIP project. Block making also takes place in Madimba community, which makes it possible to construct dry toilets using local materials while supporting the businesses of local people.

Cultural activities and drama performances have also taken place after the introduction of dry sanitation in Madimba community. A local Culture group of young artists has taken care of the sensitization during workshops and educational events organized by NECOS. The main activities of the Culture group consist of performing at festivals, weddings and other events, teaching school children through drama performances about various topics like Zambian culture, AIDS, environmental protection, gender issues and gender based violence as well as teaching traditional dances to them. The Culture group was established in 2000, and it has been working in co-operation with

NECOS for 1.5 years now. They have been sensitizing people e.g. about ecological sanitation and tree planting at NECOS events. The Culture group currently has 10 young members. Most of them are still studying and using the income generated through drama performances to pay their school fees.



PICTURE 5. *Madimba Culture and Theater Group.* (Picture: Noah Chongo)

Community members have also participated in the project through Madimba Women's Group, which is not an enterprise but a group of local women who wanted to create a way to share experiences and educate each other in order to fight the challenges women living in peri-urban areas like Madimba are facing. The aim of the Madimba Women's Group is to empower women living in Madimba, build capacity among them and increase the food security in the area. At the moment, there are 31 women in the group and about one third of them are vulnerable, e.g. elderly, physically disabled and widowed. The group is raising funds e.g. by baking and selling scones and samosas and making door mats. They have also been involved in NECOS activities such

as tree planting and helping at the community greenhouse. It is planned that Madimba Women's Group will take up some activities aiming to ensure the sustainability of achievements of NECOS projects. The group has already been trained to take care of the community greenhouse.

STRENGTHENING THE CBES TO SUSTAIN THE PROJECT ACHIEVEMENTS

During the next three years, a new ecological sanitation project will be implemented by NECOS in selected peri-urban areas of Lusaka. During this project, even more capacity will be built on the CBEs for sustainability purposes. The sanitation value service chain will be strengthened in order to optimize the operation and maintenance of sanitation facilities. The CBEs have great potential to develop their services and the enterprises are also motivated to take up responsibilities to ensure sustainability of the SSIP project activities as long as these activities are also supporting their livelihood. In peri-urban areas, many families are struggling with inadequate income and constantly seeking for income sources such as part-time jobs. Some of the CBEs were interviewed during the evaluation of the SSIP project in December 2013, and it seems that the main challenge the CBEs in Madimba are facing is that at the moment they cannot yet offer sufficient income for the people working in the enterprises. Especially the Solid Waste Management enterprise is at the moment not making any profit, because all the money collected from their customers has to be spent to cover the transport expenses and dump site fees.

According to an interview with two members of Solid Waste Management enterprise, all the money collected from customers has to be paid for Lusaka City Council for the tractor hire, fuel and fees for the dump site. In addition to being too expensive, the transport offered by City Council cannot meet the needs of Solid Waste Management enterprise. There are lot of customers in Madimba, and there is need for driving two different routes, but the City Council is only able to offer the tractor and driver for one route each week, so usually the other side of Madimba has to be left without the service. According to Mrs. Mubitelela working in the enterprise, the residents of Madimba are "more than willing to pay for the service", but the enterprise cannot meet the demand because of the transport problems. At the time of the interview, they were looking for an alternative transport to solve the problem and start

making income. Otherwise, the future of the enterprise seems bright if they can only overcome the current challenges with the transport. The members of the enterprise also see solid waste collection as an effective way to prevent diseases like cholera from spreading.

For some CBEs, the challenge is that the demand for their services is seasonal and therefore offers the employees irregular income. For example the Culture group told that the profits from drama group activities vary depending on the period as some months are busier than others because of events at schools, weddings etc.

Anyhow, the future of the CBEs seems promising as many of them have gained the experience needed to continue independently in addition to a good customer base. Some of the enterprises are actively seeking for new customers or co-operation partners. The enterprises and other community groups can also consult NECOS if they are facing challenges. For example, NECOS has offered their expertise in project application writing to help Madimba Women's Group to apply for funding for a capacity building project. The establishment of CBEs is an effective way to involve community members into project activities and also to offer them new possibilities for income generation. The activities of CBEs and other community based groups like the Madimba Women's Group and Culture group formed by young artists have also positively contributed to empowering the youth and vulnerable members of Madimba community.

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CHALLENGES AND OPPORTUNITIES – EXPERIENCES OF THE DRY TOILET PROJECTS IN RURAL AND URBAN AREAS IN ZAMBIA

Sari Huuhtanen

INTRODUCTION

This article discusses the projects the Global Dry Toilet Association of Finland has been involved with in Zambia and the lessons learned from the projects. The article also discusses the sanitation situation in Zambia, showcasing projects, the measures taken and the results achieved, and examines the factors that have contributed positively or negatively to the progress of the projects. The summary in the end of the article outlines the different conclusions of what should be taken into account in ecological sanitation projects and how similar projects should be developed in the future.

There are several reasons why the global sanitation situation is still so bad. According the UN Development Programme, the lack of political leadership is one of the biggest reason (UNDP 2006). Other reasons include lack of water, institutional fragmentation, poor national planning and the low political status of the activity. The families' cycle of poverty is also one of the factors affecting the situation as families cannot afford to invest in improved sanitation facilities, and therefore sufficient demand is not being created. Sanitation is also a very cultural and gender-specific issue, so its development is more difficult than those relating to water for example, which are very universal. All in all, the sanitation sector has suffered from insufficient business investments, lack of actors, and lack of well-designed strategies on both national and international levels (UNDP 2006).

SANITATION SITUATION IN ZAMBIA

According to the WHO / UNICEF JMP (Joint Monitoring Programme for Water Supply and Sanitation), 48% of Zambians had access to improved sanitation (table 1) in 2010. In the cities, the situation is somewhat better than in rural areas, where only 43% of the population had access to the improved sanitation.

Following methods are considered as improved sanitation facilities:

- flushing toilet connected to a public sewer or septic tank
- pit latrine with slab
- VIP latrine (ventilated improved pit latrine)
- composting toilets.

TABLE 1. *Zambian sanitation coverage (WHO/UNICEF 2012).*

Zambia	Sanitation coverage					
	Rural (%)		Urban (%)		Total (%)	
	1990	2010	1990	2010	1990	2010
Improved facilities	61	57	37	43	46	48
Shared facilities	25	24	7	8	14	14
Other unimproved	12	17	16	22	15	20
Open defecation	2	2	40	27	25	18
Total	100	100	100	100	100	100

GLOBAL DRY TOILET ASSOCIATION OF FINLAND'S PROJECTS IN ZAMBIA

Global Dry Toilet Association of Finland began its first project in rural area of Zambia in Luansobe (Masaiti District, Copperbelt province) in 2006. The local partner, Kaloko Trust Zambia, is originally a British organization that has operated in the area for about 20 years, developing the region as a whole. The

project is funded by the Ministry of Foreign Affairs of Finland (85% of the budget) and the associations' self-financing – with the help of private donors, e.g. so-called toilet godpersons.

Luansobe project area (Kaloko) is approximately 260 km² wide and a home to about 12,000 people. The area is divided into 12 areas, which in turn are further divided into smaller villages. The majority of the population still lives in traditional mud huts or locally made burned brick houses. There is no significant industry or other job opportunities in the area, only some small-scale business (for example, small shops), so most of the families' income is based on small-scale farming or charcoal burning. Sanitation has been traditionally dealt with pit latrines or just “using the bushes”. In general, in these pit latrines there have not been any protective structures in the ground or even a slab. Some of the families have built some kinds of superstructures or some kinds of shades, but some of the toilets have just been nothing but holes in the ground. After these toilets have been getting filled up, they have been abandoned and new pits have been dug. Without the protective structures, the toilets have been dangerous for both the users and the environment. In particular, the areas where the water table is high or rainwater drains to the pit, the toilets have been sources for many diseases.



PICTURE 1. *“Toilet” in the community school in the beginning of the project.*
(Picture: Sari Huuhtanen)

The association's second project in Zambia began in 2008, in the Zambian capital city of Lusaka, Madimba compound. Madimba is the area of 1.2 km² and a home to approximately 6,000 residents. The local cooperation partner is NECOS (Network for Environmental Concerns and Solutions), whose members are themselves living in the area and have been working to develop the area to be healthier and safer for the people and the environment.

Lack of infrastructures like water and sewage lines, rainwater drains, roads, waste management etc. has caused lot of problems in the Madimba area. A particular challenge in the area has been the high level of water table, why especially during the rain season the water floods the area. It also creates an additional problem, because in the open stagnant water mosquitoes can breed freely, causing severe malaria epidemics and also increasing the spread of pathogens. Challenging environmental conditions connected with poor sanitation and water supply, which have been mainly based on pit latrines and unprotected shallow wells, have formed a major health risk to the residents of the area. Groundwater throughout the area contains a lot of faecal pathogens and annual epidemics of diarrheal diseases, including cholera, have been very common in the area. Both of the projects have been aiming to improve the sanitation in their respective areas and thus develop people's health and environmental conditions.



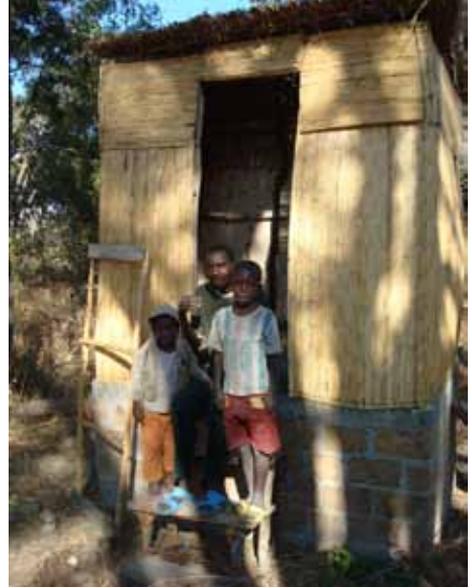
PICTURE 2. *Madimba during the rain season. (Picture: Sari Huuhtanen)*



PICTURE 3. *Pit latrine in Madimba. (Picture: Sari Huuhtanen)*

CONSTRUCTION OF DRY TOILETS

Since the beginning of the Zambia projects, around 180 dry toilets and 12 water points have been built in the project areas. The toilets built are urine separating dry toilets (UDDT's) in different sizes. Both public and household toilets have been built, of which the pictures below show examples. Some of the models in Lusaka have also a bathroom that has been built at people's own expense. Toilets are also facilitated with a hand-washing possibility, e.g. a separate hand-washing scaffold. In Kaloko, some household low-cost model toilets (images below) have been constructed, in which the project has built the chambers of the toilet and the households themselves have made the superstructure with locally available material. Both in Lusaka and Kaloko, some of the toilets have been financed entirely by the project and some have been also financed by the beneficiaries. This cost-sharing has enabled the construction of more latrines than originally planned. With the self-financing, the sense of ownership of the beneficiaries has been growing, usually resulting in improved toilet usage and maintenance.



PICTURES 4-7. *Different dry toilet models built in the Zambia projects. (Pictures: Sari Huuhtanen)*

TRAINING AND ACTIVITIES TO ENSURE SUSTAINABILITY

As with many projects around the world, the local participation is found to be a key element in the project success. If the residents are not involved in the project at every stage – planning and implementation as well as the withdrawal phase – the projects do not achieve the desired sustainability and long-term goals. Only the construction of latrines is therefore not enough: a lot of training and a variety of ways to reach people is needed. Because composting toilets and human waste utilization has been a concept formerly unknown in Zambia, it has been important to take into account the local people's culture and other aspects that affect the people's acceptance of and attitudes towards the projects.

Thousands of people have participated in training courses and workshops in various project phases. In particular in the project's first phase, more resources were used for training than construction. People were reached and approached e.g. through community drama groups and participatory methods (such as PHAST). The topics covered were related to hygiene, prevention of the spreading of diseases, dry toilets usage and maintenance as well as water source protection and maintenance of boreholes. The use of toilet outputs as fertilizer was taught and in Lusaka also some waste management themes were included. Project management as well as capacity building themes such as leadership skills and income generation activities were taught as well.

To ensure community participation and sustainability, village sanitation clubs which would later on, in connection with the water committees, manage and maintain the dry toilets and water points in the area were decided to be set up. Without these groups working in the area, sustainability could not to be achieved. At the end of the project, Kaloko had 12 active sanitation clubs with a total of about 200 members. Some of the clubs have meetings on a regular basis, for example every two weeks, but some of the clubs still require some encouraging. In addition to the operations in their own areas, the clubs also make exchange visits to other clubs and share their experiences with each other. The clubs engage in fundraising activities such as selling of the products grown by using human fertilizers in their fields and membership fees collection.



PICTURES 8–9. *Luansobe sanitation club and the club's field. (Pictures: Sari Huuhtanen)*

In order to enhance the activities of the clubs, the local residents decided to set up the Central Committee with two members from each sanitation club. The Central Committee acts as the umbrella organization for the clubs and helps the clubs to deal with their problems and challenges as well as share good experiences among its members. The Central Committee also has its own fund-raising activities.

In Lusaka, the sustainability of the project and the involvement of the residents have been improved by establishing local small-scale businesses (Community Based Enterprises, CBEs). They work e.g. in waste management, water kiosks, dry toilet services and as community drama groups for training and sensitization. Collectively, these businesses already employ dozens of locals and operate in the project area mainly without any support from the project. This is a very good signal for the sustainability of the project – if these enterprises improve livelihood it proves the fact that improved sanitation does not only generate healthier living conditions but also creates income and more jobs in the area.



PICTURES 10–11. *Sanitation and hygiene training in Lusaka.*
(Pictures: Sari Huuhtanen)

The primary feature of the Lusaka project has also been advocacy and political lobbying. Training sessions have not just been organized at the local level but also the government and district level. The aim has been that dry toilets would be included as a formal method of sanitation, especially in sensitive areas where pit latrines are not suitable. Co-operation in the advocacy has been engaged in with e.g. NGO WASH Forum and with the local University of Zambia (UNZA) in order to create a curriculum for ecological sanitation to train e.g. environmental health students.

CONCLUSIONS

During the implementation of the projects a lot of experiences have been gained of the activities that have been inspiring the people in the project areas. On the other hand, the projects have had challenges from which can be learned in the future. It is important to find the factors and ways to encourage residents to improve their sanitation. In the Lusaka project, it has been remarked that the people are really eager to get a decent toilet, which has also been seen as a source of pride for the families. In Lusaka, health concerns seem to be an important factor in the improvement of sanitation, and people understand the importance of good sanitation and its connection with the prevention of disease. This view is definitely created by many people's personal experiences, for example the annual cholera epidemics.

In rural areas, health concerns – unfortunately – do not seem to be as important a factor in motivating residents. Instead the free fertilizer available from the toilets has been of most interest, which can be explained by the fact that most of the income of the families in Kaloko is based on small-scale farming. On the other hand, the prices of commercial fertilizers have been rising remarkably in recent years and many small-scale farmers no longer afford them. Despite this, in the projects to come the importance of good sanitation and health aspects, for example health and hygiene training, should still be emphasized.

Although many sanitation clubs have been established in Kaloko – and some of them have been very active – people's participation in the project activities is many ways a challenge. Others do not necessarily see the benefits of the sanitation improvements or other new activities in the community. This is understandable, because the families are very poor and their daily livelihood largely depends on their employment with the family in the field. In particular

during the growing season, people are hard to reach or get into the meetings. Also fund-raising for example for water source maintenance or club operations has been very challenging. It is therefore necessary to find motivation methods that are attractive, innovative and inspirational but that are also perceived as useful to health, worth the time and improving the livelihood in general.

Toilet construction, operation and maintenance have had its own challenges especially in public places, where there have been – at its best (or worst) – hundreds or even thousands of users for a single toilet. Technology must be simple, durable and easy to operate and maintain. It also has to be applicable to the local culture and customs. The construction costs should not become too high in relation to income of the families. People want to have a good and permanent toilet instead of the existing pit latrines, but it should not be too expensive. It is therefore necessary to find a balance between durability, usability and other factors in relation to the price.

The toilet compost and urine usage as a fertilizer has to be planned carefully, and people need to be sensitized and educated properly. If the guidance is not sufficient, it may cause crop losses or even health problems, for example if the compost fertilizer is applied too raw. In the worst case scenario, this can completely terminate the results of the whole project. Since human fertilizer use is always a culturally sensitive thing, approaches to training should be carefully designed, taking into account local customs and cultures. It is clear that the more training people get, the more willing they are to accept the dry toilet as a concept (see figure 1) and to use dry toilet fertilizers in farming. This was already seen in the early stage of the project (Paju 2008). In the final evaluation of the project in December 2013, all the respondents answered that they would be ready to use toilet fertilizers without hesitation, when in 2006 only half of the respondents were willing to use toilet waste (Pollari forthcoming).

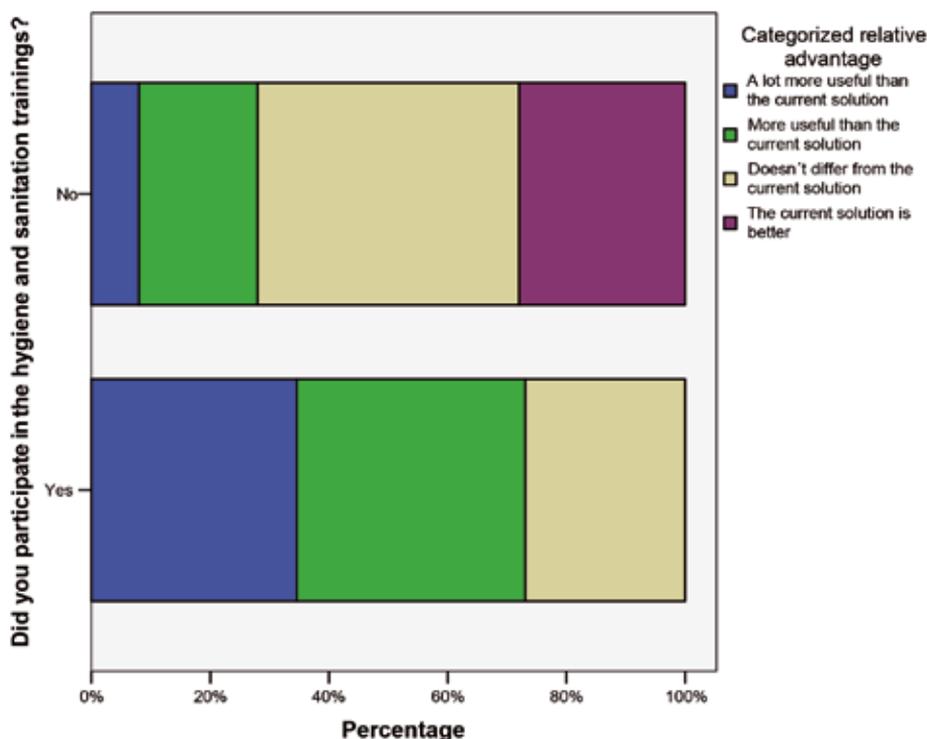


FIGURE I. *Effect of sanitation training on perception towards dry toilets compared to the traditional pit latrine option. (Paju 2008)*

The entire chain from the toilet to the end users must be designed so that it is made sure that toilet waste is used for the right purpose and thus ensure all the benefits from the fertilizers. If the fertilizers cannot be used in the family garden, people can for example hire a local business or a farmer to handle the product.

Long-lasting results cannot be achieved without local people. This applies both to local residents, authorities, central government and the other stakeholders. A sense of ownership requires payment towards the cost of the latrine, at least in part or at best completely, by the beneficiaries. Positive attitudes and a positive political climate from the government, government agencies and policy makers are very important for long-term results. Laws and policies should be clear and encourage for better sanitation. Everyone should be aware of what is going on and what is intended to be achieved. The projects should influence the residents and decision-makers, both locally and nationwide.

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