



Water and Sanitation Program

An international partnership to help the poor gain sustained access to improved water supply and sanitation services

Africa Region



Water, sanitation and hygiene are vital components of sustainable development and the alleviation of poverty. Across Africa, political leaders and sector specialists are generating new momentum in these important areas. This Field Note, together with the others in the same series, constitutes a timely contribution to that work. It is intended principally to help politicians, leaders and professionals in their activities. As the Water Ambassador for Africa, invited by the African Development Bank and endorsed by the African Water Task Force and the African Ministerial Conference on Water (AMCOW), I commend it to your attention.

Salim Ahmed Salim
Water Ambassador for Africa



VIP Latrines in Zimbabwe: From Local Innovation to Global Sanitation Solution



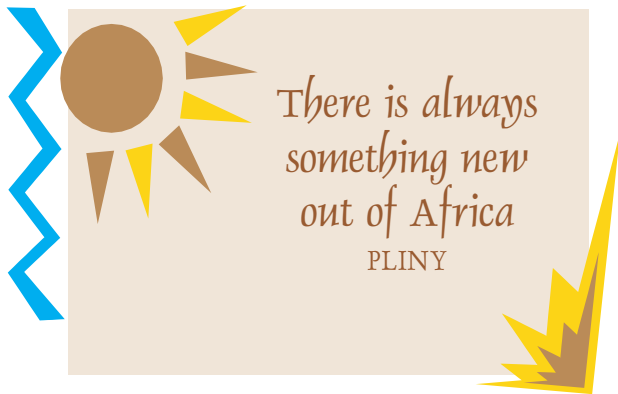
Typical Zimbabwe VIP latrine, showing spiral entrance.

Summary

This Field Note describes the development of the ventilated improved pit (VIP) latrine in Zimbabwe. This innovative latrine was invented at the Ministry of Health's Blair Research Laboratory in 1973, and subsequently adopted as the standard sanitation technology promoted by the Ministry of Health. For some years it was implemented at a large scale by the government's national rural water and sanitation programme, until the decline of the national economy. Despite that decline, however, the VIP latrine itself is still popular and is currently being promoted in various forms by local NGOs and others.

The VIP latrine is known and used in countries all over the world. Within Zimbabwe itself, the VIP latrine is known as the Blair latrine and is a national institution. It is still the sanitation technology of choice for most rural households. Its success demonstrates that well-supported local research can produce innovative technologies that are ideally suited to local conditions, and that home-grown technologies can generate significant political and popular support.

Its inclusion in the school curriculum has meant that an entire generation of Zimbabweans has grown up with an appreciation of the benefits of the VIP latrine. In addition, the involvement of so many government staff in the national sanitation programme, and the training that this programme provided to thousands of VIP latrine builders, have further enhanced its reputation and support.



Background

The Republic of Zimbabwe came into existence after a prolonged uprising against the former Government of Rhodesia, which finally led to elections and Zimbabwe's independence in 1980.

During the long period of conflict and sanctions before that date, Zimbabwe (then Rhodesia) had few friends. However, despite this isolation, the civil service continued to function well, and several innovative rural technologies were developed by government-funded researchers, and implemented in government programmes, during this period.

The Blair Research Laboratory (BRL)¹ was perhaps the most remarkable of the government research units. One of

its lead researchers was Peter Morgan, with a field team headed by Ephraim Chimbunde. The BRL staff were encouraged to search for effective ways to improve rural water supply and sanitation in Zimbabwe, and had some notable successes. There are now hundreds of thousands of Blair latrines and tens of thousands of 'B' type Bush pumps and upgraded family wells in Zimbabwe, all of which originate from work done at the BRL. All are well known within the country, and the VIP latrine has become famous around the world.

The development of VIP latrines in Zimbabwe

The Blair Research Laboratory's work

The first 'Blair latrine' was built in 1973, at the Henderson Research Station north of Harare. This experimental latrine used a screened ventilation pipe to control the flies and odours common in previous pit latrines, and was the forerunner of what is today known throughout the world as the ventilated improved pit (VIP) latrine.

After two years of testing and improving the design, the BRL released details of the Blair latrine design to the government. At that time, the superstructure was usually made from ferrocement. In Zimbabwe, rural water supply and sanitation were considered components of primary health care, thus it was the Ministry of Health (MoH) that adopted the technology and began disseminating it.

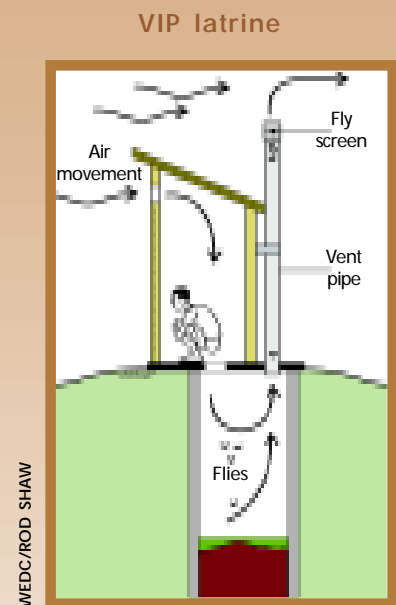
The design of the VIP latrine

The VIP latrine is similar to a conventional pit latrine, but has an offset pit that permits the installation of a vertical ventilation pipe (or structure) beside the latrine superstructure.

The design of the VIP latrine causes air to flow down into the latrine pit through the latrine squat hole and up out of the ventilation pipe, thus removing odours from the latrine. Flies are always attracted by the smell from latrines, but in a VIP latrine they are attracted to the top of the vent-pipe rather than to the latrine squat hole. There they are prevented from entering the vent-pipe by a fly screen fixed across the top of it.

Some flies inevitably find their way into the latrine pit by other routes, and may breed in there. However, flies are attracted to light, and the VIP design makes use of this fact to get rid of them. The interior of a VIP latrine is always kept semi-dark, so that the flies inside the pit are drawn towards the light at the top of the vent pipe, where the screen traps them and they fall back into the pit or die.

The effectiveness of this fly control was demonstrated by an experiment in Zimbabwe, which compared the number of flies found in an unvented pit latrine to that found in an otherwise identical VIP latrine. Over a three-month period in 1975, an average of 179 flies per day were caught in the unvented latrine, compared to only 2 flies per day in the VIP latrine.²



¹ Named after Dr Dyson Blair, a former Secretary for Health, and an early advocate of the health benefits of low-cost and appropriate water supply and sanitation technologies.

² Peter Morgan, 1977: see references.

From the outset, the MoH was enthusiastic in its support for the Blair latrine. Initially the liberation struggle limited promotion and uptake of the technology by rural households, but the MoH mobilised its network of health workers to promote and build Blair latrines on commercial farms and at government offices, health clinics and small towns around the country. As a result, between 1975 and 1980 tens of thousands of Blair latrines were constructed and many government staff became familiar with this new sanitation technology.

After independence in 1980, the new government committed itself to rural development and attracted considerable funding from external support agencies eager to assist in the reconstruction and development of Zimbabwe. Among others, the World Bank's Technology Advisory Group (the forerunner of the Water and Sanitation Program) visited Zimbabwe to see the Blair latrine and devised the now familiar name of VIP latrine.

Despite this support and enthusiasm, the post-independence sanitation programme started slowly. The government was undergoing reorganisation, and new challenges were becoming apparent. The MoH recognised that the ferrocement VIP latrine, used so successfully in public and institutional settings prior to independence, was not the best model for widespread construction under the highly variable conditions found in the rural areas. The BRL examined alternative materials and methods of construction, including low-cost mud, grass and timber models, and more robust brick-built latrines.

MoH officials wanted the latrine programme to have long-term benefits, and they made two decisions with far-reaching consequences. First, they decided to adopt the durable brick VIP latrine design as the national standard.

They hoped that these brick VIP latrines would last a generation and thus provide a basis for sustainable improvements in hygiene behaviour and public health. The only obvious drawback of the brick VIP latrine was its expense. So, secondly, the MoH decided that its sanitation programmes would provide a substantial direct subsidy³ to rural households in order to make brick VIP latrines more affordable for them.



The VIP latrine and the National Sanitation Programme

In 1985, Zimbabwe launched the Integrated Rural Water Supply and Sanitation Programme (IRWSSP).⁴ This programme aimed to provide universal access to safe rural water supply and sanitation facilities, and included the target that every rural household should have a VIP latrine by 2005. It was estimated that 1.4 million VIP latrines would need to be constructed to achieve this ambitious target.

The IRWSSP was implemented by existing line ministries, the major changes being that cross-linkages were encouraged between water supply, sanitation and health

VIP latrine designs in Zimbabwe

The first VIP latrines built in Zimbabwe in the mid-1970s were rectangular with wooden doors, but wood was expensive, and the doors were often left open, with the result that the latrine interior was not kept dark and fly nuisance increased. Consequently, the superstructure was modified into a spiral shape, which provided privacy and shade without the need for a door.

The superstructures of these early VIP latrines were constructed in either ferrocement or wooden poles plastered with mud. However, with suitable wooden poles becoming scarce, and the ferrocement model proving expensive to construct in the rural areas, brick VIP latrines soon became the favoured option. Cheaper materials did exist, but most low-cost latrines had short lives and required frequent maintenance. In contrast, brick VIP latrines were long lasting and required little maintenance. Bricks were readily available in most of the country, and this design had the additional advantage that it did not require a ventilation pipe, as ventilation could be provided by a brick chimney built into the superstructure.

The VIP latrine design continues to evolve and improve to the present day. Notable developments include the design of a fully recyclable VIP latrine (the brick superstructure can be taken apart and rebuilt on a new pit in only one day), and the provision of hand-washing facilities as part of the VIP latrine. Most recently the VIP concept has been linked to the re-use principles of Ecological Sanitation. Meanwhile, superstructures are now frequently built from various materials that are cheaper than bricks. The VIP concept has proven to be more adaptable than it seemed during the peak of the standardised national programme.

³ Typical material subsidy = five bags of cement, fly screen and reinforcing wire (approx. 30% cost of latrine).

⁴ See the WSP-Africa Field Note *The Zimbabwe Experience: Lessons from a review of 15 years of the Zimbabwe Integrated Rural Water Supply and Sanitation Programme*, May 2002.



Constructing VIP latrine superstructures.

education, and that service delivery was centrally funded and co-ordinated. In keeping with this approach, the IRWSSP continued to promote the MoH brick VIP latrine design, and to provide the same material subsidy.

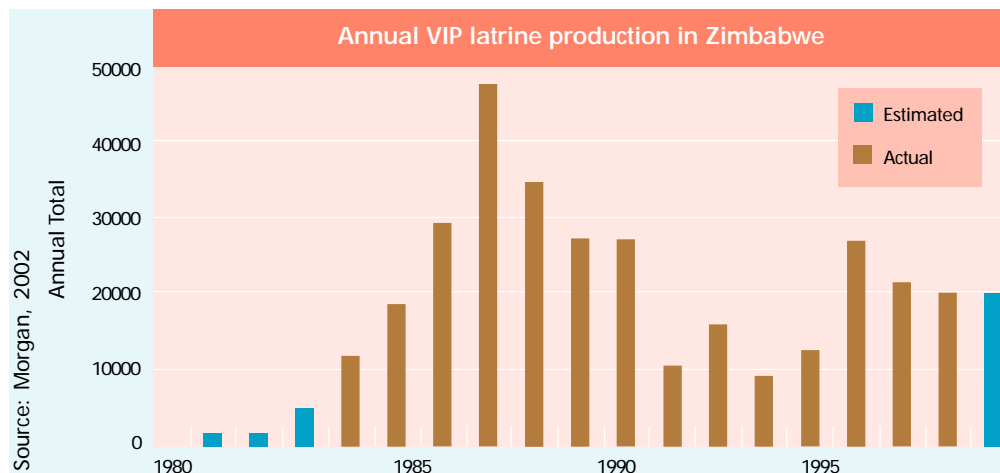
Initially, while the IRWSSP was being established, the MoH remained in control of latrine provision. There was great enthusiasm for the VIP latrine among MoH staff, especially the Environmental Health Department, whose officers had all been trained in its construction, and latrine production increased rapidly. It peaked in 1987, when nearly 50,000 VIP latrines were constructed. There then followed

a period of transition. Larger ‘integrated district projects’ were introduced, and the IRWSSP’s central co-ordination bodies began to assume more control of RWSS provision. Latrine production slowed, and the MoH’s engagement in the programme began to wane.

Between 1991 and 1994, the Zimbabwe Government decentralised the delivery of services to rural district councils (RDCs). However, many of the RDCs lacked the experience or capacity to manage RWSS service delivery, and VIP latrine production decreased to a low of around 10,000 per year as decentralisation was carried out.

Zimbabwe’s economy was also in decline, and the combined effects of inadequate government funds, constraints associated with the unwieldy IRWSSP, and problems in decentralised service delivery greatly reduced the number of VIP latrines constructed during the 1990s.

Fortunately, two factors had positive impacts on the progress of VIP latrine construction



towards the end of the 1990s. The first was greater recognition of the importance of hygiene promotion. But perhaps the main factor was the increasingly significant role played by NGOs, especially in introducing lower-cost VIP latrine designs.

Hygiene promotion

Health and hygiene education has been central to the impact that the VIP latrine has made in Zimbabwe. Appropriate technologies and improved sanitation facilities are a good start, but they do not necessarily lead to improvements in the users' health. It is now recognised that health benefits derive from improved hygiene behaviour, and that behavioural change requires more than just the provision of appropriate and affordable facilities.

The MoH had been providing health education and promoting sanitation in Zimbabwe for many years, but the advent of the VIP latrine led to a significant acceleration of these efforts. The MoH trained its extension staff in hygiene promotion and in latrine construction; distributed promotional materials in local languages; built demonstration latrines; and included information on the construction and use of the VIP latrine in both primary and secondary school curricula.

Recently, more participatory methods of hygiene promotion were adopted, with notable achievements from

the Community Health Club approach⁵ pioneered by the NGO ZimAHEAD. Community Health Clubs have been so successful in improving hygiene behaviour and generating demand for sanitation facilities that, in some areas, agencies managing sanitation programmes have decided that latrine subsidies are available to those who complete the health education courses run by their Community Health Club.

VIP latrine achievements

The VIP latrine has been an enormous success. More than 500,000 have been built in Zimbabwe since 1975, and it is still the preferred sanitation technology of most rural households. The government's decision to standardise its VIP latrine design in bricks and mortar has meant that many of the original latrines are still standing, and that these latrines have given lasting benefits to millions of Zimbabweans.

The widespread acceptance of the VIP latrine in Zimbabwe derives largely from its simple and effective design and from its similarity to traditional pit latrines. The VIP latrine is a familiar technology for rural users, and the use of locally available materials and construction skills make it low cost and easily replicable.

The utility and popularity of the VIP latrine are not in doubt. However, after twenty-five years of latrine building



Block of VIP latrines at Zimbabwe school.

⁵ See the WSP Blue Gold Field Note: *Hygiene Promotion in Burkina Faso and Zimbabwe*, August 2002.

in Zimbabwe, only 31% of the rural population have access to adequate sanitation. This low coverage is probably related to the high cost of the standard VIP design.

Is the VIP latrine too expensive?

One of the criticisms of the VIP latrine has been that, for a low-cost technology, it is relatively expensive. Points raised in favour of this argument include:

- The standard brick VIP latrine, as adopted by the MoH and the IRWSSP, is beyond the price range of much of the population. A typical brick VIP latrine uses up to six bags of cement and more than fifteen hundred bricks, amounting to as much as US\$80 in total (at 1998 prices). For households lucky enough to receive a subsidy, and prepared to provide the labour themselves, their cash contribution may be reduced to just less than US\$50. However, in a country where more than 40% of the population has to survive on less than US\$1 per day⁶ this represents a barely affordable expense.
- The government's latrine subsidy system has proved to be neither sustainable, nor capable of achieving universal sanitation coverage. Both the size of the individual subsidies, and the overall cost of the subsidy programme, have been too high. The number of VIP latrines constructed in Zimbabwe over the last two decades may have been limited by the selection of the expensive brick design, and by the size of the subsidy required to make this design affordable.

There are, however, counter-arguments:

- Despite the high cost, there has always been a demand for VIP latrines in Zimbabwe. Evaluations of the IRWSSP state that demand often outstripped supply, with households mobilised to dig latrine pits, only to discover that there were insufficient funds for their subsidy, or that there was a cement shortage. This suggests that the main constraint to expanding sanitation coverage was not the cost of the chosen technology but the subsidy system and the culture of dependency that it fostered.
- The criticism that the VIP latrine is too expensive does not apply to other versions of it. The two essential features of the VIP latrine, namely some form of screened ventilation and a superstructure capable of keeping the latrine interior reasonably dark, are not intrinsically expensive. Recognising this, NGOs in Zimbabwe have developed lower-cost VIP latrine designs, without sacrificing the durability of previous models. They are also experimenting with smaller subsidies, arguing that linking these reduced subsidies to effective hygiene promotion efforts enables their investments to provide wider coverage and greater health benefits.

For example, the Mvuramanzi Trust has promoted a cheaper VIP latrine design and also asked households to contribute more towards their latrines. This latrine design requires one less bag of cement than the standard model,

and the household provides one bag of cement and some of the other materials previously provided in the subsidy. This approach has managed to reduce the latrine subsidy by as much as 50% and, when combined with good promotion, has been very successful.

VIP latrines outside Zimbabwe

The visits to Zimbabwe in the early 1980s of external support agencies such as the World Bank's Technology Advisory Group were mentioned above. They immediately recognised that the VIP latrine would be one of the sanitation technologies most widely adopted during the International Drinking Water Supply and Sanitation Decade (1981-90). They therefore publicised and advocated it vigorously to other organisations involved in water and sanitation in developing countries. The VIP latrine quickly entered standard textbooks and educational courses.

VIP latrines are now found all over the world, and the technology is commonly acknowledged as effective and appropriate. However, the appeal of the VIP latrine has not been universal. For instance, the VIP latrine has been less successful in poorer African countries, such as Mozambique and Malawi, than in Zimbabwe's relatively rich neighbours such as South Africa, Botswana and Lesotho.

This is partly due to the higher subsidy that the richer countries are able to offer,⁷ although in Lesotho large numbers have been built with no direct subsidy.⁸ But there are also more complex factors at work. In Mozambique, for example, the materials needed to construct a VIP latrine are generally neither cheap nor readily available, and some field workers have also observed that it may be culturally inappropriate to defecate in a roofed building. A different sanitation technology of simple, low-cost slabs to upgrade traditional latrines⁹ has become very popular.

These examples suggest that the uptake of appropriate technologies depends on more than just their cost, or their technical advantages. Clearly, the success of sanitation technologies, such as the VIP latrine, is heavily influenced by cultural differences, by local building practices, and by 'ownership' of the technology.

Lessons learned

Sound design, good planning and staff training are important

The design of the VIP latrine looks deceptively simple. But it is the result of thorough and careful design and development by professional researchers. It was then put into practice by field workers, mainly the Ministry of Health's environmental health extension staff. They were trained to

⁶ World Development Report, 2000.

⁷ Over 80% subsidy in South Africa; approx. 70% subsidy in Botswana.

⁸ See the WSP Blue Gold Field Note: *The National Sanitation Programme in Lesotho*, August 2002.

⁹ See the WSP Blue Gold Field Note: *The National Sanitation Programme in Mozambique*, August 2002.



VIP latrine under construction in Lesotho.

promote the VIP latrine. This training gave their work a strong sense of focus during the 1980s, a focus that was absent after their working structure was decentralised.

People identify with home-grown technologies

Sanitation technologies need to suit local materials and building practices, local economic conditions, and local cultural practices and beliefs. In this way, many practical problems can be avoided, and 'ownership' of the technology is more likely to develop. Technical solutions to the problem of safe excreta disposal do not translate easily from one country to another, however similar these countries may appear: this lesson is clear even in the case of the VIP latrine, which is arguably the most widespread low-cost sanitation technology in the world.

Different people want different latrines

Latrine programmes need to provide a range of options. Standard designs (such as the brick VIP latrine) are often comparatively expensive because they have to function in a variety of conditions, and so they seldom cater for all the population. The most important people for whom a standard design may be inappropriate are the poorest households.

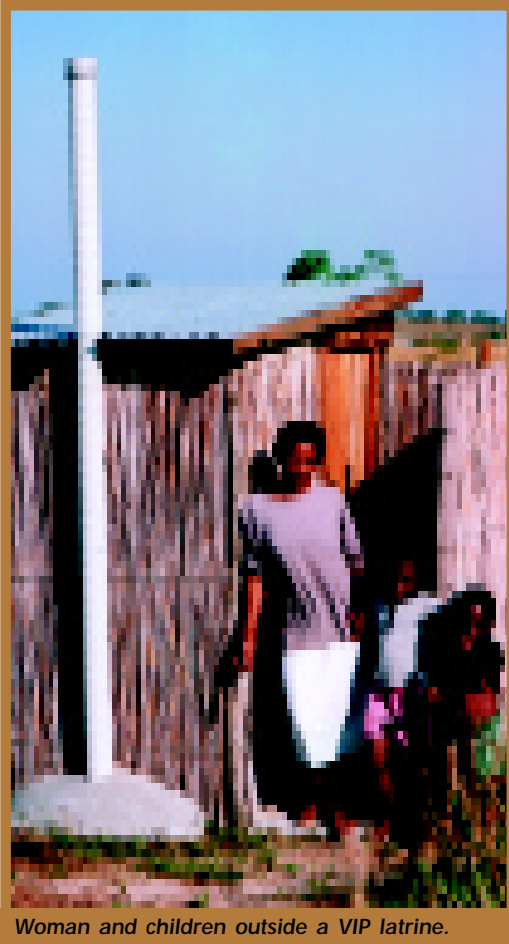
They want basic, upgradeable latrines that are affordable. The availability of several different types of latrine, with systems to upgrade from low-cost models, allows incremental demand to develop and encourages lower-income households to invest in improved sanitation.

Hygiene promotion is essential

Sanitation facilities rarely improve health or hygiene on their own. However, hygiene promotion can change people's hygiene behaviour and translate water and sanitation investments into health benefits. In Zimbabwe, effective health education and hygiene promotion (initially by the Ministry of Health, and more recently and notably in Community Health Clubs) have been found to improve hygiene behaviour, to encourage the proper use and maintenance of sanitation facilities, and to generate strong demand for improved sanitation facilities.

Sanitation subsidies need to be carefully designed

Nowadays many sector professionals oppose direct subsidies for individual latrines, partly because these are private expenditures as opposed to the community



Woman and children outside a VIP latrine.

expenditures of water supplies. In Zimbabwe, however, direct latrine subsidies have been the accepted norm for many years – both in recognition that people’s health depends on their neighbours’ sanitation and because subsidies can assist in expanding latrine coverage rapidly. However, the cost of the standard Zimbabwean subsidy system affected the sustainability of the national programme, which was heavily dependent on finance from external support agencies. Also, without careful targeting, subsidies are often captured by those who can afford to be first in the queue or those who are well connected. In Zimbabwe, efforts are now focused on reducing VIP latrine subsidies so that more people benefit, and access to safe sanitation can increase more rapidly.

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Water and Sanitation Program-Africa Region (WSP-AF)

The World Bank, Hill Park,
Upper Hill, P.O. Box 30577,
Nairobi, Kenya

Phone: (254-2) 260300, 260400

Fax: (254-2) 260386

E-mail: wspaf@worldbank.org

Web site: www.wsp.org

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