Village-level sanitation programmes in Zimbabwe
by Peter Morgan

Zimbabwe has embarked on an ambitious national programme which aims to bring improved sanitation to every rural family by the turn of the century. To achieve success, considerable efforts will be required from the government, donors and rural families alike, as Peter Morgan reports.

THE Government of Zimbabwe places considerable emphasis on rural development, and the provision of improved sanitation has been adopted as one of the priority areas. The Ministry of Health is responsible for planning and executing rural sanitation projects throughout the country as part of its Primary Health Care Programme, which also includes improving water supplies. Many of these projects are assisted by loans and grants from a large number of donor agencies.

All rural sanitation programmes in Zimbabwe are based on the Ventilated Improved Pit Latrine, known locally as the Blair latrine. Since it was developed by the Ministry of Health 12 years ago, this technique has been strongly backed by the government. More recently, it was chosen as the sanitation technology for rural development in the National Water and Sanitation Master Plan. The Plan also endorsed the method of giving each family a subsidy, in the form of materials, to assist in the construction of their own latrine. The aim is to provide access to improved sanitation for every family living in the rural areas. By the turn of the century, 750,000 Blair latrines should have been built.

The technology
The Blair latrine is basically a well-built pit latrine equipped with a roof, and a screened ventilation pipe that acts as a fly-trap and exhaust-pipe. Pits are dug 1.2m in diameter and 3m to 4m deep, then lined with bricks to prevent collapse. Superstructures and vent pipes are also made of brick; lower-cost structures made with poles, grass and mud were rejected by Ministry of Health (MOH) inspectors because of their brief life span. Asbestos, steel and PVC vent pipes are also available; while the brick type is favoured in most rural programmes, the former are generally more efficient. The fly-screen is made from PVC-coated fibre-glass or stainless steel.

The ventilation pipe acts as a chimney; wind blowing across the opening draws air up through the pipe and in through the entrance. The sun warms the air in the pipe, causing it to rise, and draws odours out through the pipe. The structure remains semi-dark because it is fitted with a roof, and flies in the pit are attracted to the light at the top of the pipe, where they are trapped by the screen. Semi-darkness is guaranteed by making the latrines round or square, doorless, spiral structures.

Case study in Chiota
The ward of Chiota West, in the province of Mashonaland East, lies south of Harare and is occupied by 1,300 families. The Chiota Rural Council and the MOH approached a donor, in this case the UK's Save the Children Fund (SCF), for technical and financial assistance to begin a sanitation project. When an agreement was reached, MOH and SCF field officers began an awareness campaign, operating through village committees, and also trained 30 local builders in theory and practical techniques. Each course lasted one month, and each builder was expected to build two complete latrines to the satisfaction of the trainers. On completion of the course, each builder was given a set of tools.

The programme began in January campaigns to motivate the people in a particular village, ward or district. Demonstration structures are made and local builders trained in the best construction techniques. This takes time but is vital to the future success of the programme. Community participation is another essential component if any scheme is to be long-lasting, and is made easier as all rural sanitation programmes are based on one latrine per family.

Community participation
The concept of the Blair latrine is well established in Zimbabwe. It appears in school curricula, is publicized by mobile cinema units, and is actively promoted in the press and by village health workers and other staff operating at all levels throughout the country. Literature on construction techniques is also available. The Blair latrine is well known, and has been accepted by the user community as a valuable and practical means of improving their living conditions. In most communities there is actually a demand for units to be built.

Before embarking on a programme of construction, Ministry of Health workers carry out educational and awareness programs. The programme begins with the local health workers. The Local Health Workers Association of Zimbabwe is the natural interface between the Ministry and the field. The association has a high membership rate across the countryside and is keen to benefit from the national programme. Health workers are involved in the design and planning of latrine projects and are aware of the requirements of a national programme for rural sanitation.
1986 and ended five months later; during this time 622 family structures and eight multi-compartment school structures had been built. In each case, the family was provided with seven bags of cement, 24m of 3mm-reinforcing wire, 2m of 50mm-chicken-wire (6ft width) and a fly-screen, a total value of Z$40 (US$25). Each family provided 1,200 burnt bricks, suitable quantities of pit and river sand, and stone. In addition, the family dug the pit to the required depth and paid a builder a negotiated fee of Z$25 (US$15) to construct the latrine. The contribution amounted to Z$70 (US$43), nearly double the donated subsidy, and demonstrates the willingness of rural people to participate in and contribute to schemes of this type. The square spiral structure was chosen, as it was considered larger than the alternative round spiral and more suitable as a wash-room. Woodland is sparse in Chiota, and there is a demand for the construction of facilities in which defecation and bathing can be undertaken in privacy. One of the advantages of the Blair latrine over other models is that it serves as a wash-room as well as a toilet, a feature which has greatly assisted the promotional campaign.

The Chiota Sanitation Programme is one of a number of successful projects which have been undertaken in Zimbabwe. Over 100,000 Blair latrines have been constructed since Independence in 1980. However, the overall programme is not without its problems. While simple in concept, the Blair latrine only functions correctly when built according to the specified designs. The standards of construction are very high in Chiota, and in many cases exceed the standards of construction of the house itself. While standards are improving nation-wide, many examples could be cited of so-called Blair latrines which are poorly built and which offer none of the advantages of an improved pit latrine.

**Vent pipes**

In some programmes, the brick vent-pipe is built too small to be efficient at drawing air. This means that when the wind blows in certain directions, an odour can be noticed inside. The brick vent-pipe is one of the least efficient pipes and must be large to be effective: an internal size of 225mm by 225mm is essential.

The internal walls of a brick pipe are often rough, causing air turbulence and loss of efficiency. Smaller pipes made of PVC, steel or asbestos are more efficient because their internal walls are smooth. However, when built correctly, a brick pipe functions well over a great range of climatic conditions and is certainly adequate for the job.

**Fly-screen**

If fly control is to be effective a roof must be fitted to the structure and a corrosion-resistant screen fixed to the head of the vent pipe. Screens made of plastic disintegrate within months, and ordinary steel screens last less than a year. In Zimbabwe, PVC-coated fibre-glass screens last for four to five years, and stainless steel is expected to last for decades. It is known that many latrines still have no screens. Right now no suitable screen is made in Zimbabwe, but must be imported. Currently, as many as 40,000 stainless-steel screens are being imported every year for the sanitation programme.

**Base slab**

The construction of the base slab also requires care. It should be made from concrete, 75mm thick, with a mixture of stone (four parts), river sand (two parts) and cement (one part), and suitably reinforced with 3mm-wire at 150mm spaces in a grid pattern. However, the slab is sometimes made by plastering a layer of cement mortar over wooden poles laid over the pit, which makes the life of the slab dependent not on
Lifting the roof slab (made with sand, cement and chicken-wire) into position.

the life of the concrete, but on the life of the poles. This is clearly undesirable.

Latrine floor
One of the best features of the Blair latrine is that it is odour-free inside. This feature is very popular, and results from the passage of fresh air down through the squat hole and up through the pipe. To keep the latrine odour-free, it is essential for the latrine floor to be kept clean and scrubbed. Not infrequently Blair latrines are made without the essential sloping floor; instead the flat cement slab acts as a floor. This can harbour pools of urine and is difficult to wash down, with the end result that an odour will develop despite the pipe. The floor should be sloped towards the squat hole and made of hard cement, with a mixture of three parts sand to one of cement.

Foundations and pits
A latrine is as good as the time it remains standing. Experience has shown that a good foundation is crucial for any structure, and this is true for the Blair latrine as well. The walls of the latrine should be built on proper brick foundations which are offset from the pit itself. Occasionally, latrines have been built on loose soils with the entire weight of the structure taken by the pit collar — a dangerous technique which should be avoided.

With the advent of the double and multi-compartment latrines, it is essential that the pit itself should also be subdivided so that the air-circulation in each unit operates independently. If a single undivided pit is used in combination with several structures, the air pull from one pipe cannot act on a single squat-hole, with the result that air moves about freely from one hole to the next, carrying odours.

Achieving success
It has been realized for some time that the construction problems outlined above are caused by a lack of understanding of the special properties of ventilated pit latrines. In Zimbabwe, considerable effort is being placed in providing an adequate supply of suitable educational literature which explains why the latrine works, how to build it properly and how to maintain it. This campaign will help, but it will never completely replace direct, hands-on training. A mobile training unit is now active and tours the country providing the best training in latrine construction techniques.

Zimbabwe's ambitious national programme of latrine construction hopes to provide all rural families with an improved ventilated pit latrine. The programme is being carried out with considerable financial support from a large number of donor agencies. The emphasis is on village-scale projects in which householders are given a subsidy to assist them in the construction of their own family latrine. Clearly this technique is working well, but requires considerable effort not only from the donor but also from the Zimbabwe Government (which provides technical expertise and transport), and from the family itself. The fact that families are prepared to commit their time, effort and money to the programme gives grounds for hope that it can be sustained in future years, albeit at a slower pace should the flow of donor funding slow. For the time being, however, every effort is being made by government, donors and individual families to make the national rural sanitation programme in Zimbabwe one of the most successful in Africa.

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