Sanitation in Developing Countries

Proceedings of a workshop on Sanitation held in Lobatse, Botswana, 12 August 1980
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Sanitation in Developing Countries

Proceedings of a workshop on training held in Lobatse, Botswana, 14–20 August 1980

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Pit Latrines in Malawi

A.W.C. Munyimbili

According to a World Health Organization publication produced in 1958, a pit latrine consists of a hand-dug hole in the ground covered with either a squatting plate or a slab provided with a riser or seat. A superstructure or house is then built around it. The pit should be 36–40 in. (90–100 cm) wide, with its length depending upon the number of holes provided. The depth is usually 8 ft (2.4 m) but would vary from 6–16 ft (1.8–4.9 m). In Malawi, at present, 6 ft (1.8 m) would be regarded as being shallow enough to encourage the breeding of flies during the initial stages of use of the pit latrine.

On the day of independence (6 July 1964), it was evident that to a certain extent the pit latrine and its measurements, as mentioned above, were acceptable. Figure 1 shows the design of the few pit latrines that were prevalent in Malawi at that time.

What Went Wrong?

It was not acceptable for a male villager to use the pit-latrine facilities with his female child. It was unbecoming for a father-in-law or mother-in-law to use the same pit-latrine facilities with the daughter-in-law or son-in-law respectively. It should be realized that if you were a son-in-law or daughter-in-law,
your safest time of self-help or attending to
time was when you were free and alone
somewhere in the bush. It should also be
noted that the above traditional education
was the responsibility of the elders of the
villages to inculcate into the minds of the
would-be sons- and daughters-in-law and
the impact of this training was great. In
some communities, traditional religion for-
bade one from possessing a pit latrine.
Thus, traditional culture paid little
interest or attention to community develop-
ment and social welfare services or to any
interrelationship between development and
those persons who tried to initiate changes.

Who Was to Blame?

At the time of Malawi’s independence,
those people advocating the use of pit
latrines presented a distorted image of the
value of the latrines. It was assumed that
what was good for one part of the country
(or one district) was good for the entire
country and all of its people. A villager or a
subsistence farmer was considered a villain,
an inhibitor of change or development, if
they did not possess a pit latrine. They were,
therefore, taken to court and fined or im-
prisoned. Most of the villagers who were
taken to court had not had the purpose and
importance of latrinization properly ex-
plained to them. Consequently, the minority
of early adopters were regarded as agents of
the devil by the majority of skeptics or
traditionalists, i.e., if you possessed a pit
latrine, sanctions were imposed by your peer
group.

Introducing Change

The postindependence government real-
ized that development or change could not
be facilitated unless the people concerned
were involved in its planning and execution.
The government noted that local participa-
tion aroused greater interest, awareness, and
satisfaction among the people. For example,
a man leaving his family to participate in the
deliberations about latrine construction and
use is bound to discuss the subject with his
family and neighbours when he returns from
the meeting. This creates greater awareness
about the program within the community
and the program, therefore, does not come
as a surprise to the people.

At the time of introducing this approach,
government departments such as health,
ariculture, community development and
social welfare, forestry, and veterinary ser-
ices lacked adequate numbers of profession-
als at upper-management levels and
 technologists in the field (front-line work-
ers). To fill this shortage of personnel, the
government embarked upon training pro-
grams (in some cases with external aid) to
such an extent that at present there is a
front-line worker in most of the areas or
communities in Malawi from each of the
above-mentioned departments.

In order to introduce changes, certain per-
sonnel are given the responsibility of diag-
nosing and isolating the priority problems
of communities; helping the communities to
implement changes; helping the community
to accept changes regardless of differences in
acceptance rates; spreading new ideas; and
of providing information to individuals or
families on the health aspects related to the
changes.

Front-Line Workers of the
Department of Public Health

Health assistants and disease surveillance
aides concentrate on, among other things,
sanitation. Thus, they are primarily con-
cerned with the safety of rural water supplies
and latrinization. Rural water supply pro-
tection (as opposed to latrinization) receives
the attention, as well as aid, of various
departments including the health depart-
ment. Latrinization is primarily handled by
the Department of Health through village
health committees.

Cholera Outbreak, 1973

Generally, the Ministry of Health was re-
ponsible for the treatment of cholera cases
during this outbreak. As preventive treat-
ment, antibiotics (e.g., tetracycline) were used and shallow wells were chlorinated with a prepared stock solution. Health education was intensified by front-line workers regarding the provision and use of pit latrines.

It was noted that in districts inland from Lake Malawi, which stretches along almost the entire eastern border of the country, the anticholera measures mentioned above were successful, except in some of those districts that bordered the lake and in which sandy and clayey soils abound, coupled with a high water table. Pit latrines constructed according to the specifications outlined at the beginning of this paper collapsed easily, thus frustrating the efforts of the villagers and encouraging them to use the nearby bush to relieve themselves. As a result, cholera outbreaks in these districts continued to occur.

In an effort to prevent future outbreaks of cholera, district health inspectors were requested to analyze the use of pit latrines in their areas. The survey that was carried out revealed that the major sanitary problems in an area were the existence of contaminated water, bilharzia, hookworm, and cholera and the lack of pit latrines. The reasons for the lack of pit latrines were attributed to laziness on the part of the people, a lack of understanding (health education) on the benefits of latrines, conflict with traditional beliefs and taboos, and collapsing of existing pit latrines. It was determined that collapsing of pit latrines was caused by flooding, high water tables, sandy soil, and poor construction techniques. Thus, the survey indicated that the lack of pit latrines due to their collapsing as a result of poor construction techniques was the major problem within a district.

It was found that the poor construction techniques included problems with construction of the pit, floor, and superstructure and problems with the siting of the latrine itself.

Improved methods of constructing the pit included the use of drums, poles, the Nkhokwe, and construction of a circular pit with smooth straight sides. Some of the improved methods of constructing the floor included the use of medium-sized poles that would extend 1.5 ft (0.45 m) beyond the edge of the pit and the use of good-quality mud for smearing. When constructing the superstructure, the walls should be made of strong poles and be mudded well; the roof should be thatched with thick strong grass and should overhang the walls by 1.5 ft (0.45 m) to repel and keep rainwater away from the hut; and the soil around the base of the hut should be graded to allow water to run away from the hut. In terms of the location of pit latrines, they should not be constructed in the following areas: on old ash pits; on or near old pit-latrine sites; near riverbanks or beaches. If possible, pit latrines should be situated on firm soil overlying weaker soil.

It was found, from this survey, that by focusing attention on improved construction techniques, the problem of a lack of pit latrines could be solved, which, in turn, would go a long way toward combating cholera and all other major sanitary problems within a district. The use of different styles of pit latrines and their results are given in Table 1.

The responsibility of "selling" the improved technology to the public lies with the village health committees. The disease surveillance aides who work at the village level make returns to the health assistants who, in turn, report any sanitary improvements to the district health inspector.

Present observations indicate that round holes and floors made of poles extending 1.5 ft (0.45 m) beyond the edge of the hole are the preferred methods of pit latrine construction. The Nkhokwe construction method is preferred over the use of drums because drums are difficult to obtain. The use of one drum in a square hole with a superstructure of bamboo and leaves has been abandoned completely.

**Ventilated Pit Latrine**

In integrated basic services areas for sanitation and primary health care programs and in land reorganization schemes, village health committees, in consultation with front-line workers from the Ministry of
<table>
<thead>
<tr>
<th>Style</th>
<th>Date of construction</th>
<th>Location</th>
<th>Soil conditions, remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkhokwe, round hole</td>
<td>September 1978</td>
<td>Village</td>
<td>Sandy</td>
</tr>
<tr>
<td>Three drums, round hole</td>
<td>October 1978</td>
<td>Hospital</td>
<td>Sandy</td>
</tr>
<tr>
<td>Pit latrine with poles, square hole</td>
<td>August 1977</td>
<td>Rice scheme</td>
<td>Clay; high water table</td>
</tr>
<tr>
<td>Two drums, round hole</td>
<td>August 1978</td>
<td>Village</td>
<td>Sandy; high water table</td>
</tr>
<tr>
<td>Plain pit, round hole</td>
<td>October 1978</td>
<td>Village</td>
<td>Sandy</td>
</tr>
<tr>
<td>Three drums, round hole</td>
<td>October 1977</td>
<td>Village</td>
<td>Sandy</td>
</tr>
<tr>
<td>Two drums, round hole</td>
<td>October 1977</td>
<td>Village</td>
<td>Sandy</td>
</tr>
<tr>
<td>Two drums</td>
<td>July 1978</td>
<td>Village</td>
<td>Sandy</td>
</tr>
<tr>
<td>Nkhokwe, round</td>
<td>November 1978</td>
<td>Village (poles not available)</td>
<td>Sandy; high water table</td>
</tr>
<tr>
<td>One drum, square hole</td>
<td>December 1978 (rains)</td>
<td>Shopping centre and market (temporary)</td>
<td>Sandy; high water table</td>
</tr>
</tbody>
</table>

Health and Social Services have successfully constructed model (ventilated) pit latrines which are being welcomed by the public at large.

The ventilated pit latrine has either a thatched or iron roof. The walls are Pesse de terre, which makes it possible for the partition wall to be aligned with the vent (bamboo or iron sheet). The floor is a concrete slab with a vent hole provided. A round hole should be dug not less than 1.5 ft (4.6 m) deep
in order to discourage the breeding of flies. The aim of providing a vent pipe is to remove offensive odours from the faecal matter and reduce the chances of flies breeding.

Conclusions

In rural communities, the manner in which people are encouraged to use pit latrines is more important than the latrine itself. Identification of diseases that are brought about due to a lack of pit latrines should, as far as possible, be brought to light by village health committees where local leaders' voices prevail. When selecting an appropriate type of pit latrine for an area, use should be made of local expertise and materials, with little emphasis on services offered from outside. The front-line worker should live in the village with the people and gain their confidence and then work only as a link between latrinization technology and the people. Thus, by involving the community, latrinization in Malawi has evolved as a response to a real need.