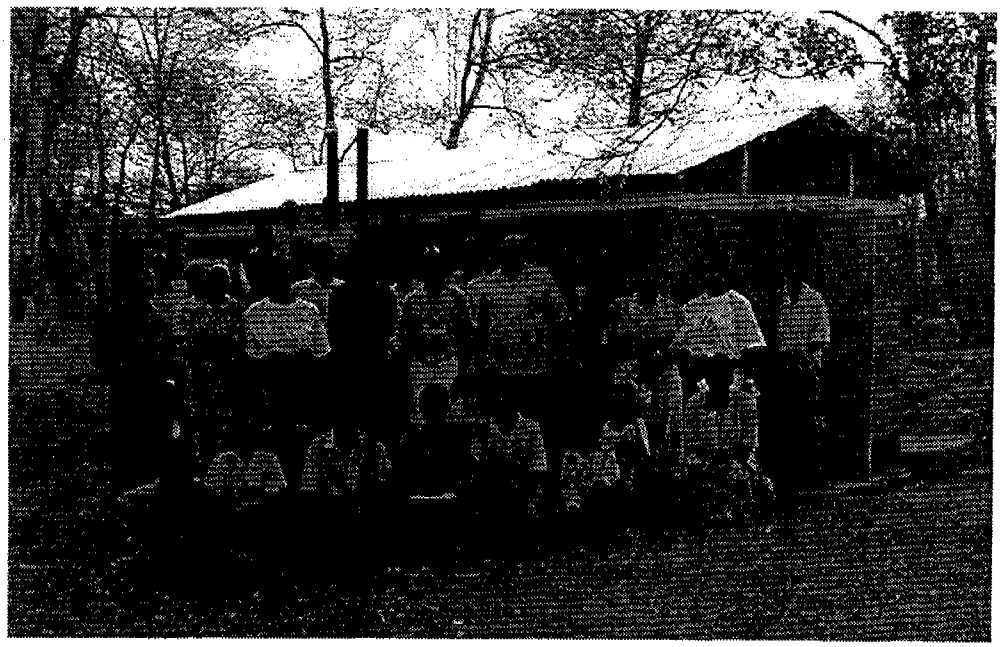
UNICEF - Ministry of Education

Strategic Sanitation and Hygiene Promotion for Schools



Sanitation Technology Options

Part 1
CATALOGUE

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INTRODUCTION

This catalogue is a first step towards a complete manual for building latrines for schools and adjacent communities in Malawi. The catalogue addresses itself principally to headmasters and teachers but also to project field staff who are assisting in the choice of sanitation facilities for the school.

SANITARY IMPROVEMENT IN TWO PHASES

It is recommended that sanitation facilities of the schools are implemented in two phases: 1) Improvement of existing facilities, and 2) construction of new ones. The reason for this is practical and pedagogical. Completion of phase one, improvement of existing latrines, is suggested to be one of the conditions for allocation of building materials and project assistance to the building of new latrines.

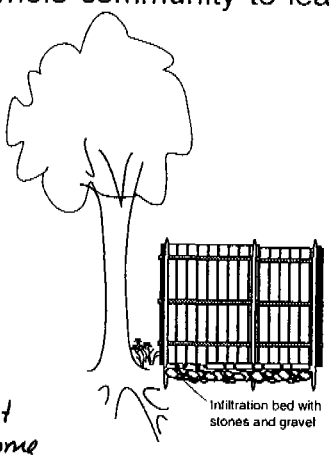
Come to the school and see how
your family latrine can be improved

Improving the old latrines

The practical reason for improving the existing latrines is that it generally takes a full year from deciding to build until the new latrines are ready. In the meanwhile pupils and the teachers need to use the old ones. The pedagogical reason is that improving the old school latrines is an excellent opportunity for the whole community to learn how to improve traditional latrines[1].

Construction of urinals

The fist step in improving the existing latrines is building urinals as the urine is the principal cause of traditional latrines at schools becoming filthy and smelly.



Demonstration latrines and SanPlat production

[1] This could become an income generating activity. (Explain how it can be a income generating activity.

It is difficult for all parties to judge, from drawings, what the new latrines will look like. Schools should also become a learning place for improved Hygiene and Sanitation for the whole community. Construction of demonstration latrines at selected schools is therefore recommended.
Production of SanPlats for the community (by students and the PTA) and the improvement of existing latrines at the schools automatically makes every participating school a San Centre for the community (see below).

The Strategy for Sanitation and Hygiene Promotion
Existing school latrines look like the latrines in the communities. The schools need better latrines and hand washing facilities than the homesteads, but the old ones still have a strategic value as they can be improved while the new ones are under construction. When the new latrines are completed they can become demonstration latrines to show parents how their latrines can be improved. Involving the PTAs or local contractors in the programme allows the programme to extend into the communities. Sale of SanPlats and possibly vent-pipes can become an income generating activity. In the hands of the PTA and the School Health Club, it can become a fund raising activity for the school, serving the community and where the pupils, trained by the teachers, become the messengers of the gospel:

> A modern family has an improved latrine; and
> Improved hygiene protects the family from disease.
> **Come to the school and see**
> **how your family latrine can be improved!**

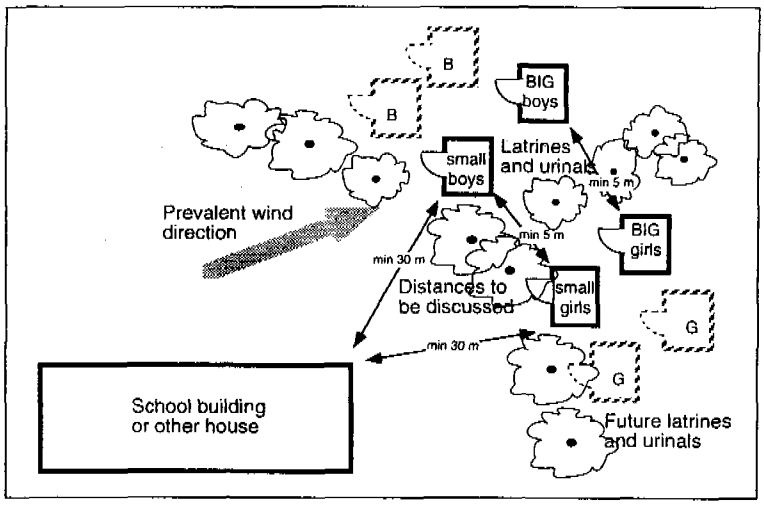
Selecting the builder
It is important that the builder is involved from the beginning. Receiving all the information from the beginning will avoid many problems later as he is getting all the information from the beginning. He may also have important information about soil stability and where to place the building material when the building activities start.

Preparation for building
Make the preparation together with representatives for the teachers, the pupils the parents and the builder.

Start making SanPlats and Leaking Tins
SanPlats will be required for improving existing latrines, both at school and in the community. With the all-in-one plastic moulds, and with some guidance, The PTA and the Health Club can start producing SanPlats at the school[2]. Assuming that SanPlats will be of a very good standard and sold to reasonable prices and that every student will make a Leaking Tin for Hand Washing for his family, the school can have an important impact in the community from the onset of the programme[3].

[2] A set of 5 all-in-one moulds and basic tools is recommended to be provided to each participating school
[3] This is especially important for communities affected by the HIV/Aids pandemic as infected people need better hygiene and better sanitation to protect tem as well as possible from opportunistic infections.

STARTING THE BUILDING PROCESS



Note that the drawing illustrates principles only and that the number of buildings etc will be larger

Checklist for Siting.

Selecting the site

The new latrines should be located downwind from the school, if possible at a distance 30 m from the school buildings. The Junior students' latrines should be at a minimum distance of 5 m from the girls' latrines. Make sure that there is free space for new latrines when the new ones are full.

Selecting the site

1. **Assess the location** of existing latrines and ask for opinions about smell and distances.

2. **Determine prevalent wind direction** by asking people who are familiar with the area. Remember that urinals can be smelly if not washed regularly.

3. **Determine minimum distances** (Standard one)
   - between school building and grade one latrines
   - between latrines for boys and girls of different ages

4. **Assess other factors** which may influence the location of the facilities like:
   - Available space
   - Privacy
   - Neighbouring houses, etc, which may be affected by smell
   - Security of future fruit trees
   - The space for a SanCentre other dev'ts

Security of children.
Passer-bygers.

5. **Select latrine types of latrines, urinals and hand washing facilities** based on user preference and the availability of space

Try out the proposed latrines simulating the use

Simulation (Involve teacher, student & community representatives.
- Get their opions

6. **Set out the latrines, urinals and hand washing facilities** with corner pegs and sisal cords

7. **Discuss alternatives**

8. **Decide tentatively** on where to build

9. **Lay out the latrine** marking positions of walls and doors

10. **Simulate the use** of facilities together with teachers and selected pupils, considering principally the difficulties of disabled students and possible problems of privacy and abuse.

11. **Make corrections** and secure corners with 500xØ8 mm reinforcement rods hammered down into the ground and marked with plastic bags wrapped around the rods and secured with sisal cord.

Approval

12. **Document the proposal** for approval by relevant institution (If necessary).

Start building

Given that this programme is a big learning experience, it is important to start building as soon as possible. Mistakes should be seen as learning opportunities,

rather than as waste of time and material. For mistakes to become learning opportunities it is important that the monitoring and evaluation procedures are in place and being used for systematic feed back from the people in the field.

Learning through Monitoring and Evaluation

As latrines and other sanitation facilities can be built in different ways, a number of choices need to be made by the School Sanitation Committees. This refers in first hand to the type of facility (latrine, urinal and hand-washing facility). After that, the type of technology and choice of building material need to be defined. The Project may discover that a few alternative solutions may fit the great number of sites. Standardised solutions are recommended but should come out as a result of testing, monitoring and evaluation and not be established too early in the programme, as this would hamper the learning process.

Guidelines for monitoring and evaluation will be elaborated later. In the meanwhile report findings to the project management.

Comments on this catalogue

Many new school latrines will be built in Malawi and this catalogue will undergo revisions. Comments and suggestions should be forwarded to:

The Project Coordinator
UNICEF-WES
School Sanitation Project
P.O. Box 30375
Lilongwe 3.

Your contribution is highly appreciated!

SOME SPECIFIC QUESTIONS

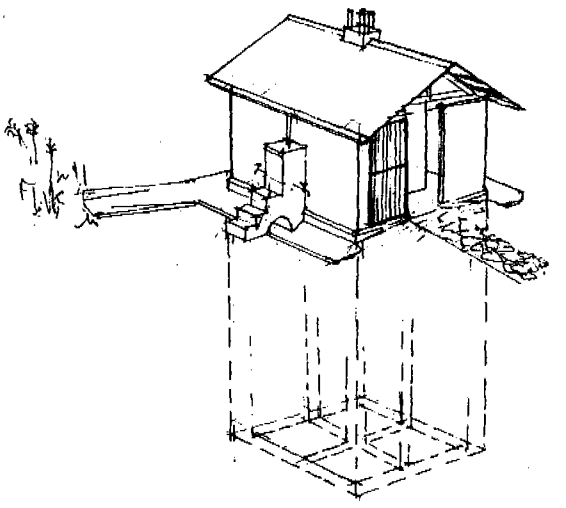
This section gives more detailed guidelines on some issues of special importance.

What to build

Each class should have at least one latrine for boys and one for girls. For a normal school with classes standard 1 to standard 8, 16 single latrines, plus two urinals, one for boys and one for girls, are recommended[4]. This would give them better opportunity to see who is and who is not using the latrines properly. Teachers would also need one or two toilets. Hand washing facilities and urinals are always needed.

Space for replacement latrines

Most latrines eventually fill up[5] and will need to be replaced. When reserving land for latrines, the issue of replacement latrines should be kept in mind.



Four compartment latrine
These latrines require less space and are cost-effective if the pit is given enough volume

Four compartment latrines

The four-compartment latrines are compact and require therefore less space. The compact solution has also led to some cost savings, as less walls are required.

Emptyable latrines

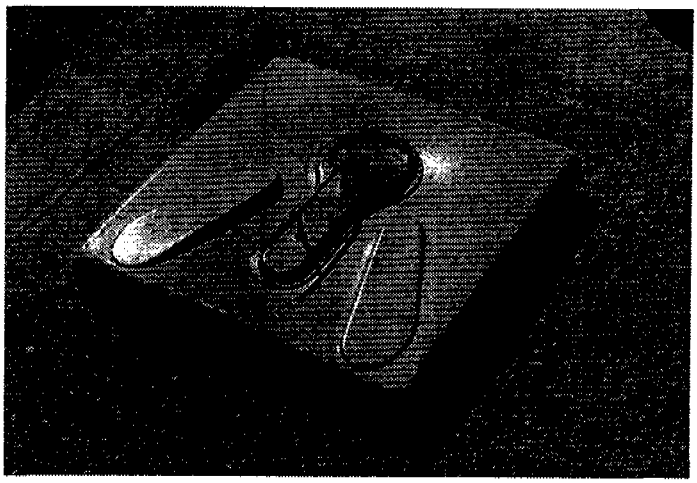
The viability of emptyable latrines needs to be discussed as some resistance may occur. The shallow dept may be an advantage where digging is difficult.

SanPlats

Since the vast majority of users in Malawi prefer squatting, the general use of SanPlats is recommended[6]. SanPlats can be either small or big, flat or dome-shaped. As it is proven that the small SanPlats cast in "all-in-one" plastic moulds are

[4] For bigger schools additional latrines may be required.
[5] Some latrines may be emptied but this often does not happen
[6] Squatting is also a more hygienic method, especially in a school situation.

very attractive and easy to make at school level it is recommended that schools receive the required equipment, moulds and tools, in order to assist the community in the improvement of family latrines. This should be seen as part of Strategic Sanitation Promotion.



The Polished SanPlat
This photo illustrates the finish that can be achieved using the all-in-one SanPlat mould. In this case the surface has been sanded and polished with floor wax.

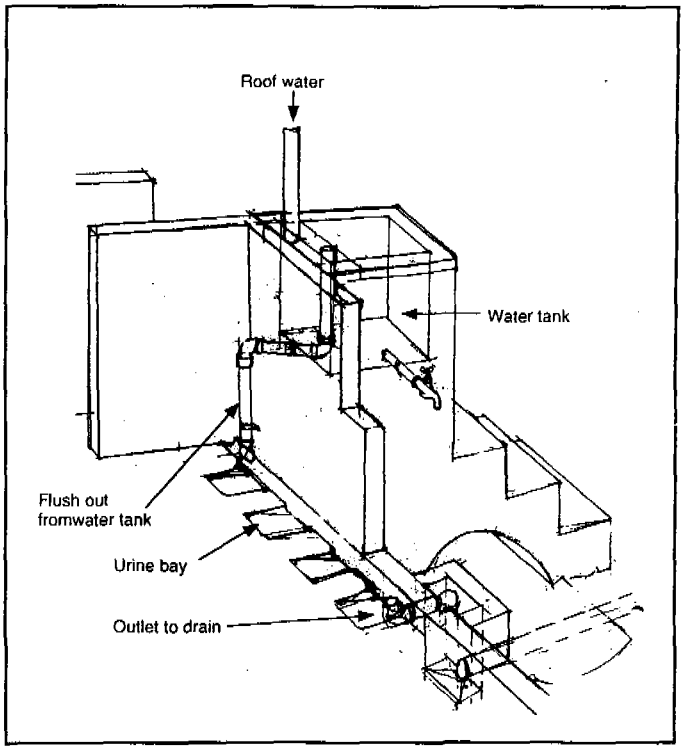
Sanding and waxing is best done before the SanPlat is installed as it makes removal of any stains easier.

The high finish of the SanPlat is easily maintained through re-waxing the SanPlat at intervals as for a normal cement floor. The high finish is also a promotional feature making people appreciate and respect the value of improved sanitation.

For promotion of improved sanitation it is recommended that the Polished SanPlat is introduced as standard in SSHP School Latrines.

Urinals for boys and girls
There is a need for urinals not only for boys, but also for girls[7]. A new design has been developed for both for boys and girls. Fruit trees should be planted outside, but close to, the urinal for the trees to profit both from water and nutrients.

[7] Well designed and well used urinals will reduce the load on the latrines, where there will be less queuing and less nuisance, hence making the concept of hygiene and sanitation more attractive to the communities.



Perspective of a urinal with a hand washing facility
For visibility the perspective is shown with parts of the walls taken away and other part shown transparent

Hand-washing facilities

So far "The Leaking Tin" is recommended as a first option, as it is superior to other options in terms of hygiene and replicability. Comparative evaluation is however recommended. Guidelines for installation in latrines and space requirements need to be elaborated.

Ecological sanitation

Reuse of faecal matter should be encouraged, so far only in terms of planting fruit trees in locations of old latrines and planting of fruit trees close to urinals.[8]

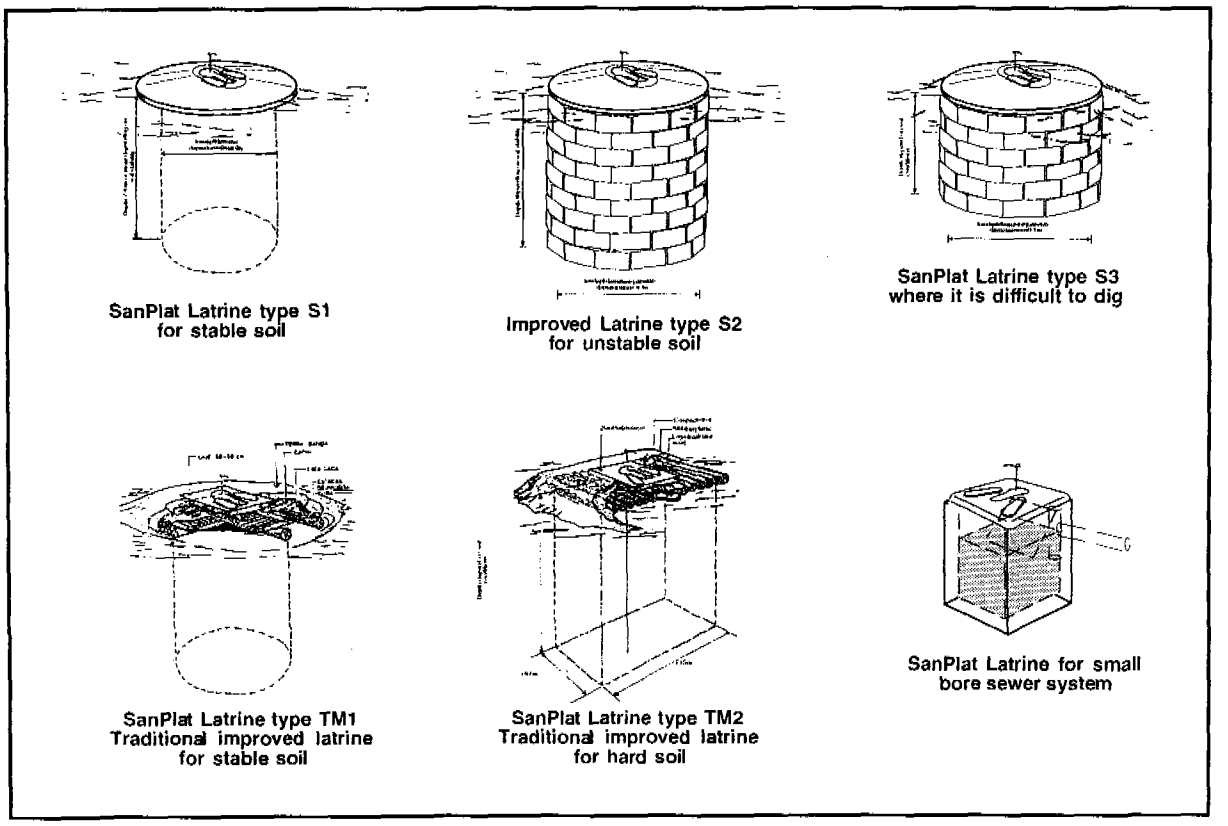
[8] The arbour-loo (the latrine that walks) was voted out as it would use a lot of space and as the old latrine sites and the urinals should give enough opportunities for planting fruit trees. The sky-loo was also voted out in Kasungu as being too complicated in construction and management. It was agreed however, that the outvoted options should be maintained in the catalogue as they might become useful in future discussions.

APPROPRIATE TECHNOLOGY

The choice of technology and materials should favour sustainability and replicability. The pedagogical example for the communities is important. For the same reasons local materials should always be used where there are no strong reasons for the opposite. The use of cement and iron-sheets was encouraged, as long as they were transferable to new latrines by the time the old latrine was filled.

Pits

Where soil stability is a problem round pits should be used, and if necessary lined. Depths should be according to the soil conditions and the security of the person digging. In stable soils narrow rectangular pits are recommended as they are more easily covered using logs or concrete slabs.



Pits for family latrines

Pits for the school latrines can be found in the illustrations to the catalogue

Pit linings

Where pit lining is required, linings can normally be made of local bricks. If the pits are round the pit-linings can best be made in dry bond, that is, no mortar is required in the joints. Where bricks are not easily available or where the burning of bricks is not recommended for environmental reasons[9] cements blocks can be used. If cement blocks are made trapezoid no mortar is required. Even normal bricks can be

[9] Burning of bricks consumes considerable volumes of firewood and is in many setting highly questionable, The use of sand-cement blocks with or without crush should be considered.

made trapezoid for maximum security. Where bricks are abundantly available, pits can be made corbelled (inverted funnel), gradually reducing the top diameter of the pit to the size of a small SanPlat.

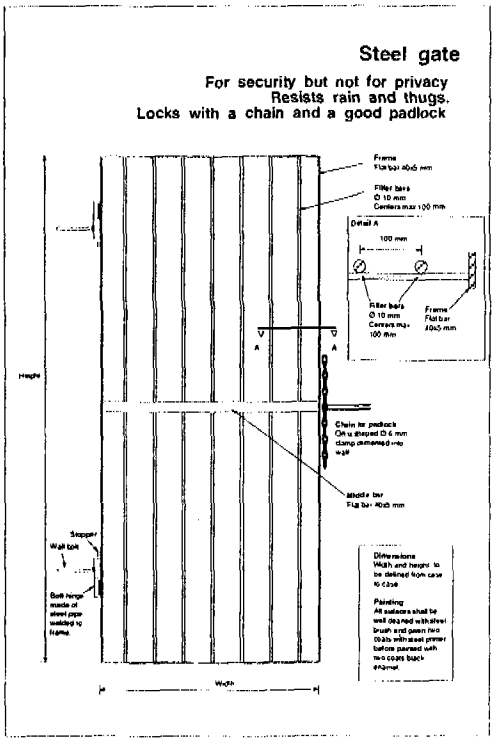
Slabs
Where suitable local wood is available, pits should be covered the traditional way with logs and soil. For school latrines, slabs may be made of reinforced concrete designed in such a way that they can easily be moved from the old filled latrine to a new one. [10]

Floors
Due to the intensive use and need of cleaning in school latrines, the topsoil should be well compacted and given a top screed of cement. The floor surface should be easy to clean, especially as we recommend that hand-washing facilities and use of water be available inside the latrine for girls standard 3-8[11].

Walls
Assuming that the bricks could be re-used when new latrines are built, bricks in mud mortar are preferred building materials for the walls. Due to small dimensions of walls, single width (4 1/2 inch brick wall) is normally sufficient. If required to be more water resistant (driving rain), pointing the joints with cement mortar is recommended. Walls can normally be plastered on the inside with mud mortar and washed (painted) with local lime, so that the interior of the latrine becomes light and pleasant.

Roofs
Where affordable, sheet metal is preferred as an alternative to grass roofs. Roof structures should be ant and insect proof and preferably transferable to the replacement latrines. Roof sheets should be attached in such a way that the risk of theft is minimal. The participants appreciated the idea of transferable roofs in one or two elements. There is always serious damage of the roof sheets (holes) when transferred one by one from one latrine to the other.

Doors and steel gates
To protect the latrines from passing by visitors and vandalism, doors should be provided with locks. Because of privacy, four-compartment latrines serving menstruating girls (Standard 3-8) have a special need of doors to the individual toilet.
Where there is a risk of theft, steel gates may be a better option. Steel gates are normally recommended for entrances as they are less sensitive to sun and rain than wooden doors.



[10] The principles for this were discussed and demonstrated in Kasungu.
[11] Menstruating girls may need water in the toilets.

Other openings
Light and ventilation are important in pit latrines. A common and good way is to leave a gap between the roof and the wall. Also VIP-latrines fitted with vent-pipes should be made light and well ventilated as the hygienic use of the latrines was critically influenced by the light and ventilation[12]. Windows in latrines are normally not required. If used they should be placed high enough not to embarrass the user.

Vent-pipes
To reduce smell and flies, school toilets may be fitted with vent-pipes. These can be made either with PVC pipes or in brickwork. Vent-pipes should preferably be painted black and covered with a fly screen. Improved traditional latrines for family use are normally not fitted with vent-pipes. To function well the vent pipe should be placed directly over the pit, and there should be one vent-pipe and only one drop hole for each vent-pipe.

Choice of building materials
The choice of building materials will have an impact on a number of important factors like cost, durability, sustainability and replicability in the surrounding community.

Building materials should be[13]:

- found easily
- handled easily
- easily adaptable
- environmentally friendly
- affordable
- acceptable
- manageable and
- suitable

This applies equally for school latrines as for family latrines: "It is the same thing."[14]

Use of cement and iron sheets
Cement is a sustainable building material only if it is transferable from a filled latrine to a new one. SanPlats and concrete slabs were taken as examples. The same applies for roof sheets. To protect roof sheets from being damaged when transferred from one latrine to the other, the use of roof elements, which could be moved in complete sections are recommended.

Environmental friendliness
The participants concluded that use of local materials was always in one way or the other a violation of nature. Burning bricks for example leaves scars in the nature and is a contributing factor in the depletion of forest resources. Grasslands required for

[12] Latrine building manuals commonly recommend that VIP-latrines should be dark inside. Because of hygiene this is no longer encouraged. Many people dislike to enter in dark latrines especially if they cannot se if the floor is clean or not.
[13] List form the Nkhata Bay Workshop
[14] Quote from the Kasungu Workshop

thatching many times may be better used for food production. The reuse of local building material is therefore seen as equally important as for cement and iron sheets.

TENTATIVE PROCEDURE FOR SELECTING AND SETTING OUT LATRINES, URINALS AND HAND WASHING FACILITIES

Selection of latrine types and setting out should be the task of the School Sanitation Committee in cooperation with the implementing NGO in consultation with relevant authorities. The process includes three principal phases: General assessment, Simulation and Approval[15].

It has been assumed that old latrine sites will be used for planting trees.

General assessment

1. Assess the location of existing latrines and ask for opinions about smell and distances.
2. Determine prevalent wind direction by asking people who are familiar with the area. Remember that urinals can be smelly if not washed regularly.
3. Determine minimum distances
    - between school building and grade one latrines
    - between latrines for boys and girls of different ages
4. Assess other factors which may influence the location of the facilities like:
    - Available space
    - Privacy
    - Neighbouring houses, etc, which may be affected by smell
    - Security of future fruit trees
5. Chose tentatively an alternative area.
6. Select latrine types based on the availability of space

Simulation

7. Set out the latrines with corner pegs and sisal cords
8. Look at and discuss alternative locations (if any)
9. Decide tentatively on which alternative to select
10. Lay out the latrine marking positions of walls and doors
11. Simulate the use of facilities together with teachers and selected pupils, considering principally the difficulties of disabled students and the problems of privacy and abuse.
12. Make necessary corrections and secure corners with 500xØ8 mm reinforcement rods hammered down into the ground and marked with plastic bags wrapped around the rods and secured with sisal cord.

Approval

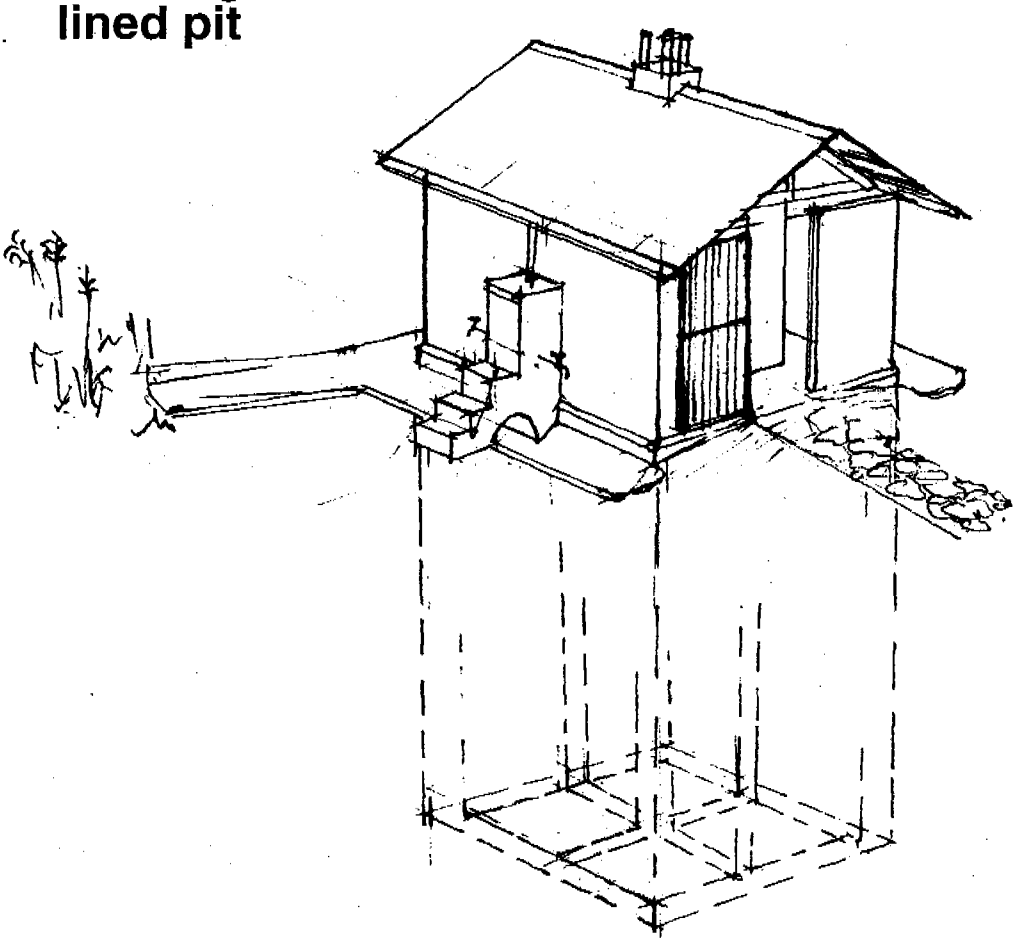
13. Document the proposal for approval by relevant institution.

[15] Exemption from municipal planning permission may be acquired for the entire programme.

"The Four for Four"

Four cubicles back to back with handwashing facility

Perspective of building with lined pit



The Four by Four Latrine
Offers alternative layouts for boys, senior girls and teachers.

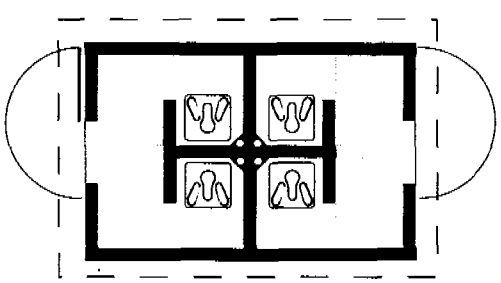
Three functions latrine, urinal and handwashing. It can be used for boys and girls of all ages.

For junior students the doors may be omitted due to soli pressure on the side walls a ring beam with a cross beam has been incorporated.

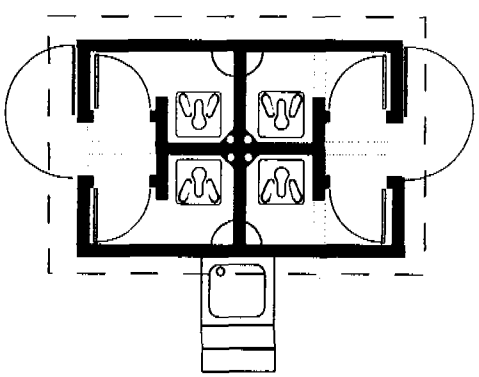
A roof gutter collects rain water to the tank of the hand washing facility.

For senior girls there may be a need of a tank on each side if a tap sold be provided in each cubicle.

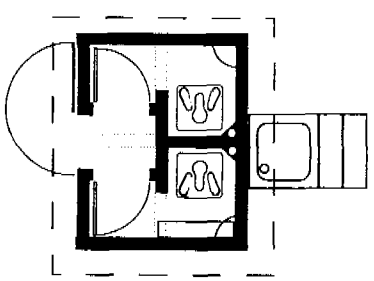
Typical layouts



Boys and Junior Girls
with separate handwashing facility



Senior Girls
With integrated handwashing facility and a door for each cubicle, Outside steel gate is optional

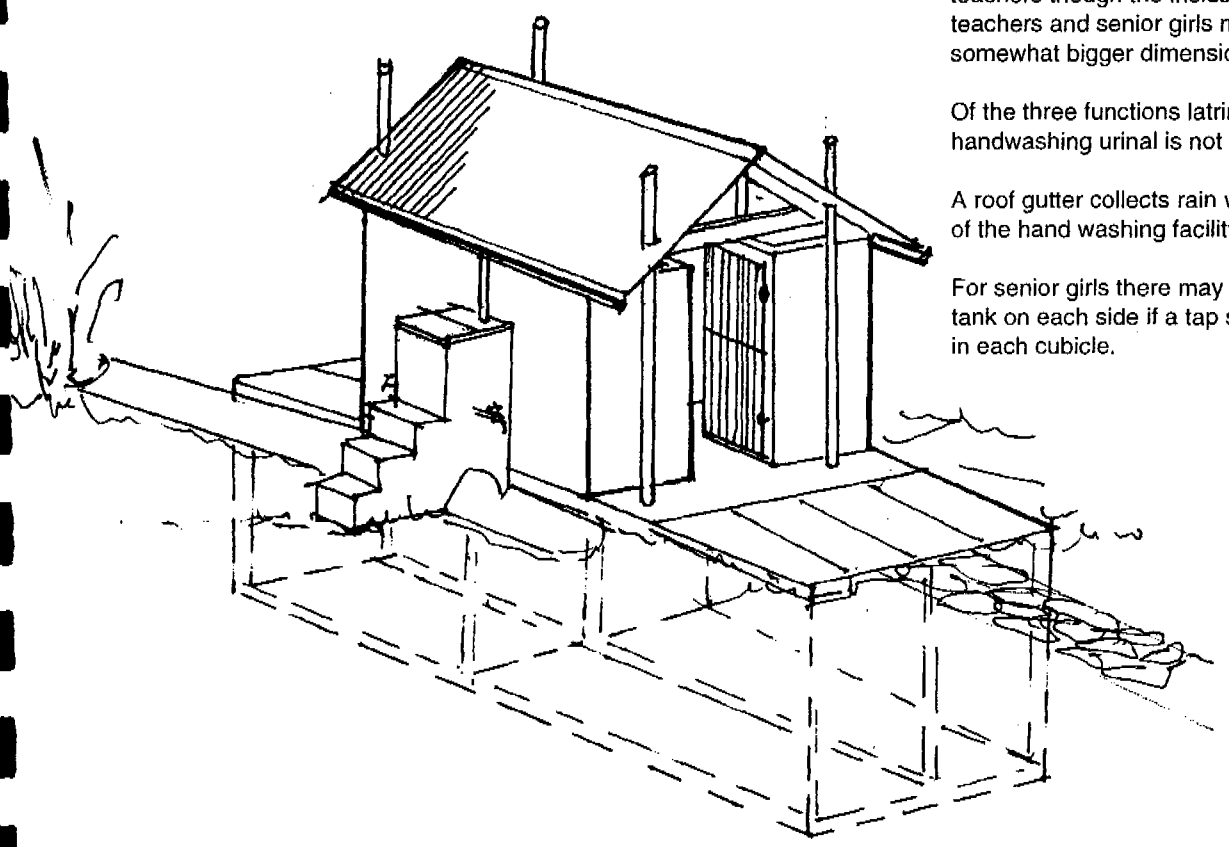


Teachers
With integrated handwashing facility and a door for each cubicle, Outside steel gate is optional

The Four for Four for Ever

Four cubicles back to back with handwashing facility

Perspective of building with lined pit



The Four by Four for Ever Latrine can be emptied and is therefor a permanent solution.

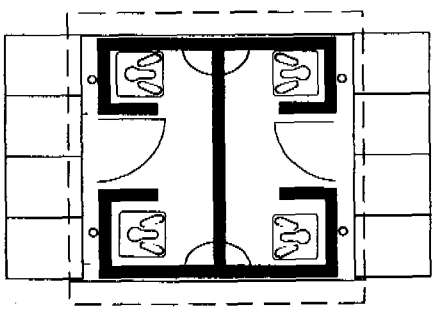
As it is shallow it can be used also where it is difficult to dig because of high ground water tables or rocky soil.

It can be adapted for boys, senior girls and teachers though the inclusion of doors for teachers and senior girls may require somewhat bigger dimensions.

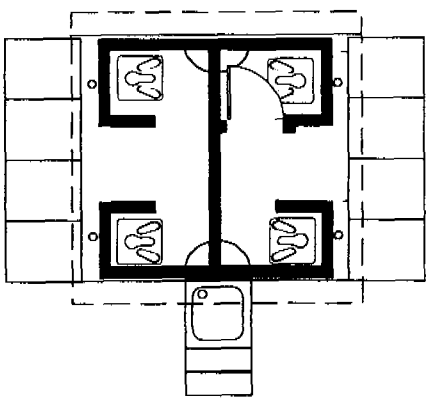
Of the three functions latrine, urinal and handwashing urinal is not included. .

A roof gutter collects rain water to the tank of the hand washing facility.

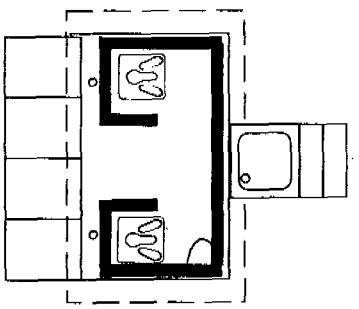
For senior girls there may be a need of a tank on each side if a tap sold be provided in each cubicle.



Boys and Junior Girls
with separate handwashing facility



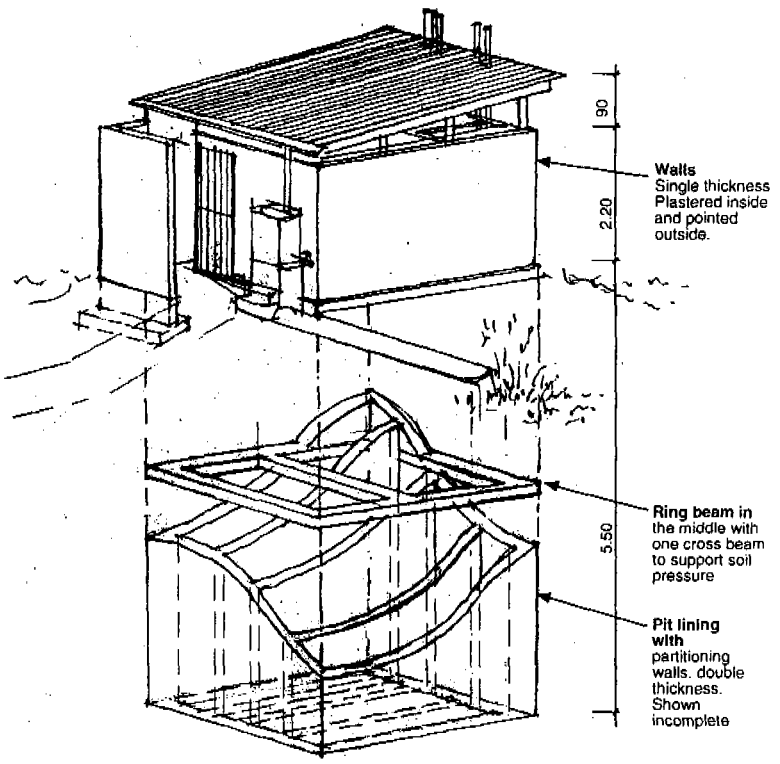
Senior Girls
With integrated handwashing facility and a door for each cubicle, Outside steel gate is optional



Teachers
Withintegratedhandwashing facility and a door for each cubicle, Outside steel gate is optional

The Super Drop

Four cubicles side by side with urinal and hand washing facility



This building encompasses the three functions latrine, urinal and handwashing. It can be used for boys and girls of all ages.

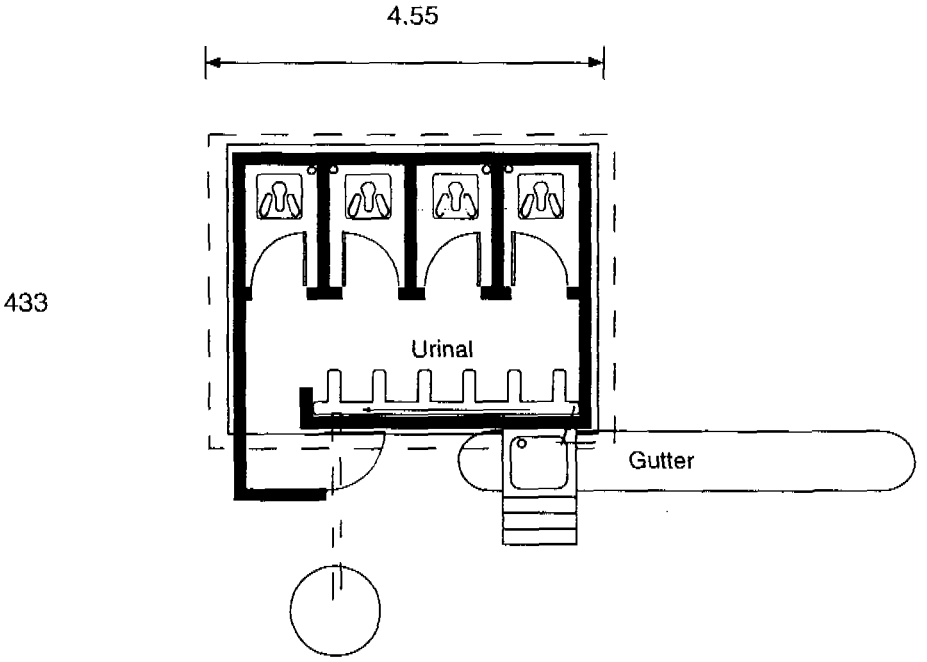
For junior students the doors may be omitted

Due to soli pressure on the side walls a ring beam with a cross beam has been incorporated.

A roof gutter at the lower end on the roof collects rain water to the tank of the hand washing facility.

Excess water can be used for washing out the urinal to reduce smell.

Typical layout



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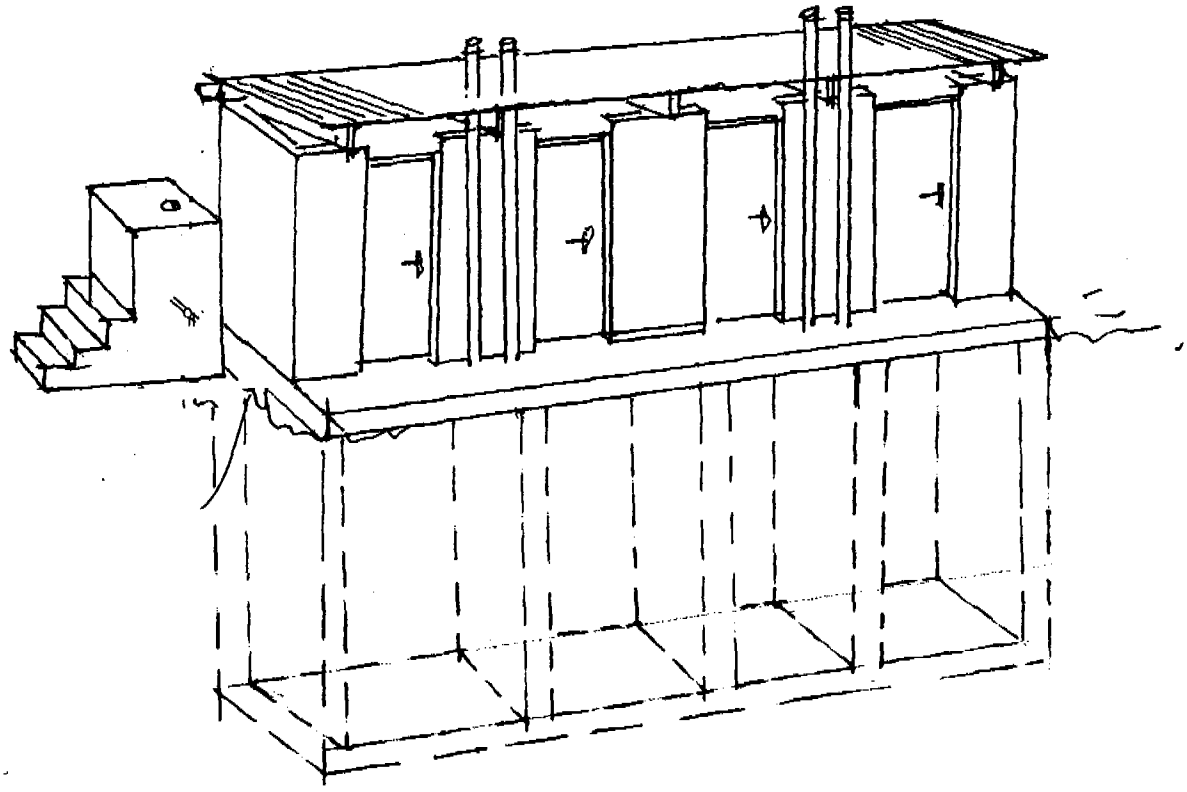
"Four in Line"

Four cubicles side by side

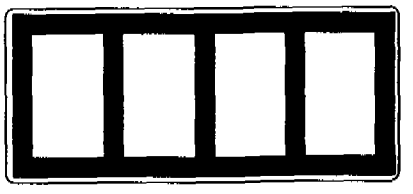


This building
is a conventional school latrine built according to the VIP-system.

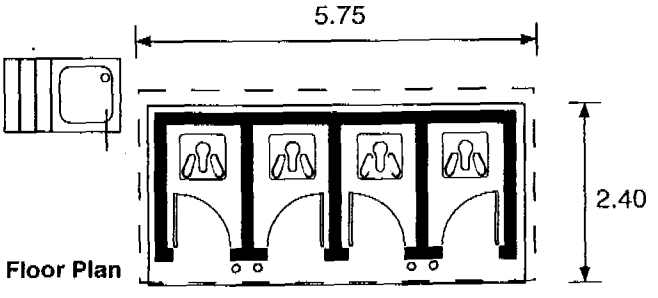
The vent pipe as ben put in front of the latrine avoiding the common problem of roof leaks around the vent pipe. This will require an extension of the pit to form a steppingstone at the entrance where the ventpipe is placed, as always directly over the pit.

A roof gutter at the lower end on the roof collects rain water to the tank of the hand washing facility.

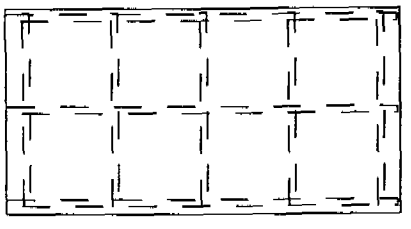
Access water can be used for washing out the urinal to reduce smell.



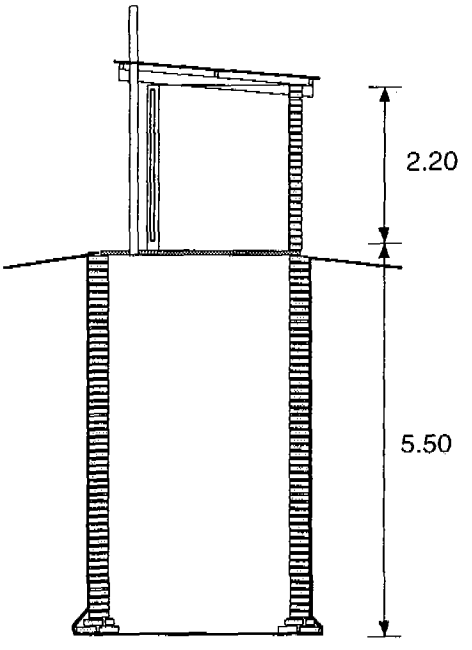
Pit plan



Floor Plan



Roof plan

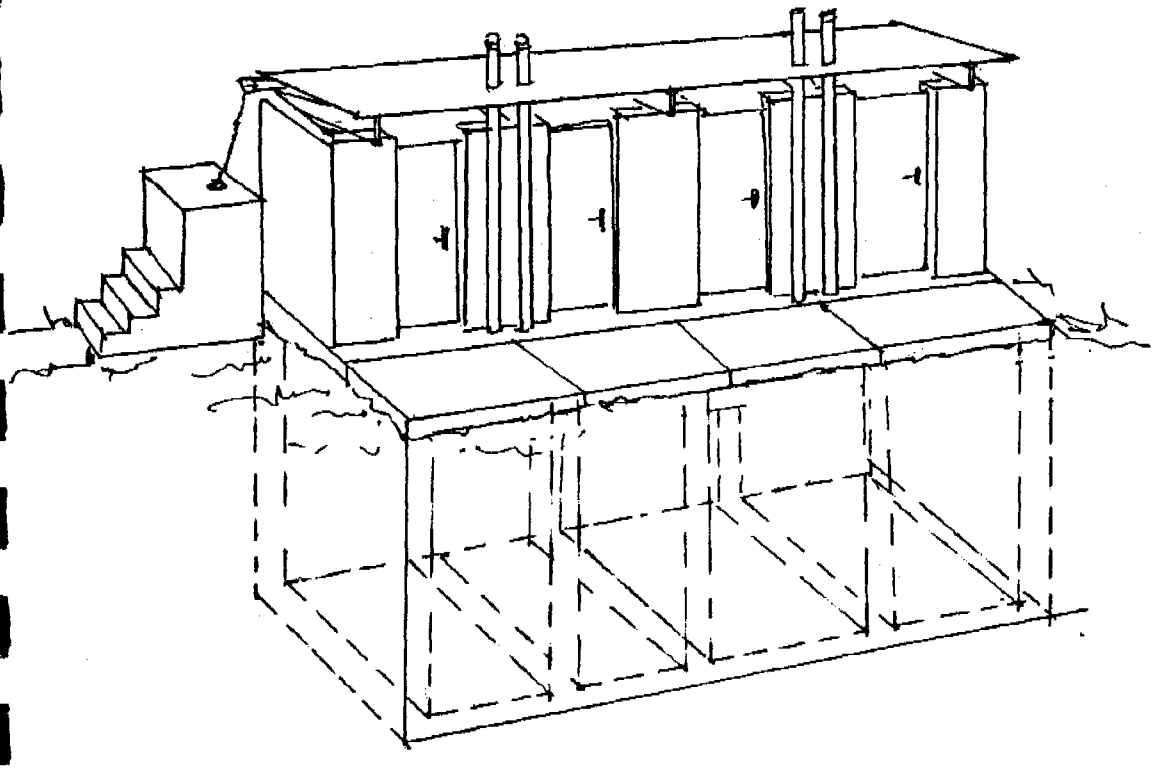


Cross section

Cat 5

"Four in Line for Ever"

Four cubicles side by side

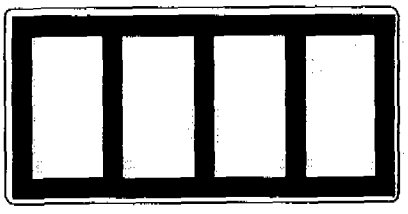


This latrine
is a school latrine built according to the VIP-system with removable slabs in front of the doors

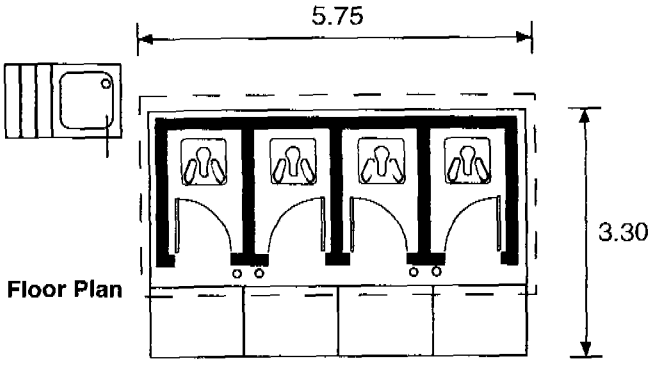
The vent pipe as ben put in front of the latrine avoiding the common problem of roof leaks around the vent pipe. This will require an extension of the pit to form a steppingstone at the entrance where the ventpipe is placed, as always directly over the pit.

A roof gutter at the lower end on the roof collects rain water to the tank of the hand washing facility.

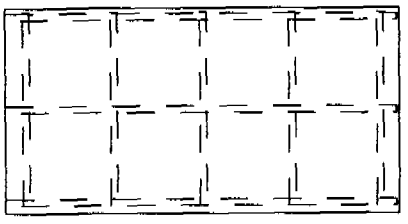
Excess water can be used for washing out the urinal to reduce smell.



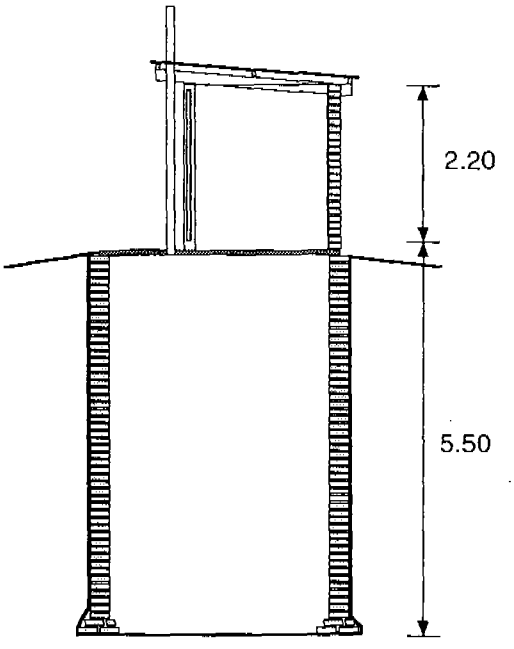
Pit plan



Floor Plan



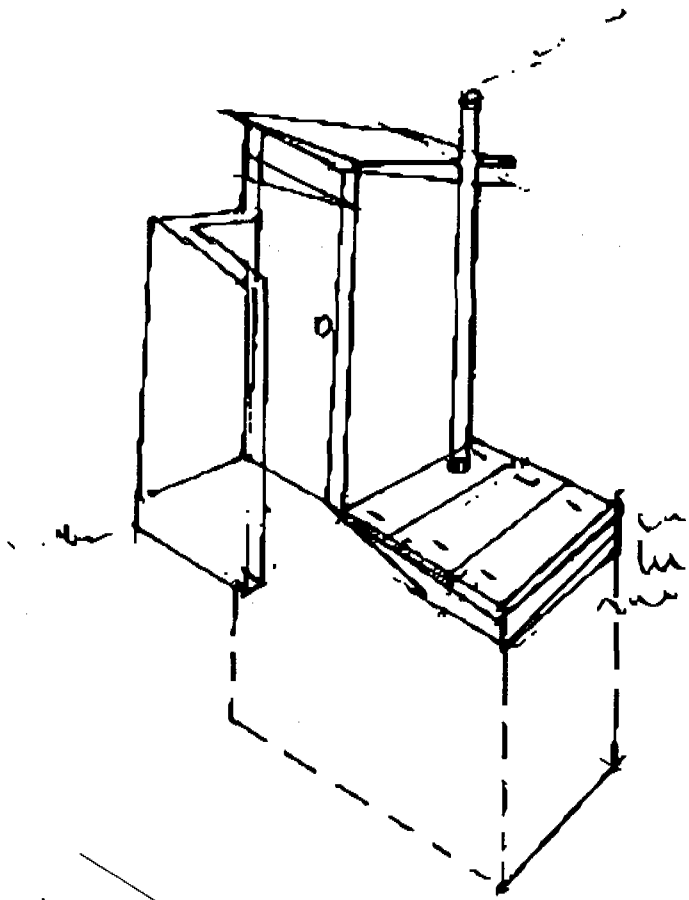
Roof plan



Cross section

"Single for Ever"

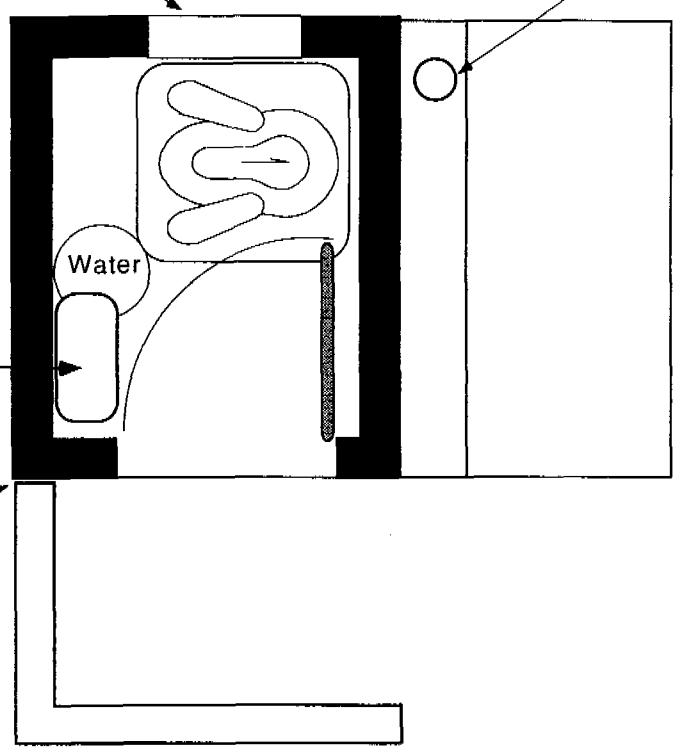
Four cubicles back to back with handwashing facility



Openings
for light and ventilation can be replaced by a gap between roof and walls.

Vent-pipe
ø110 mm

Plan

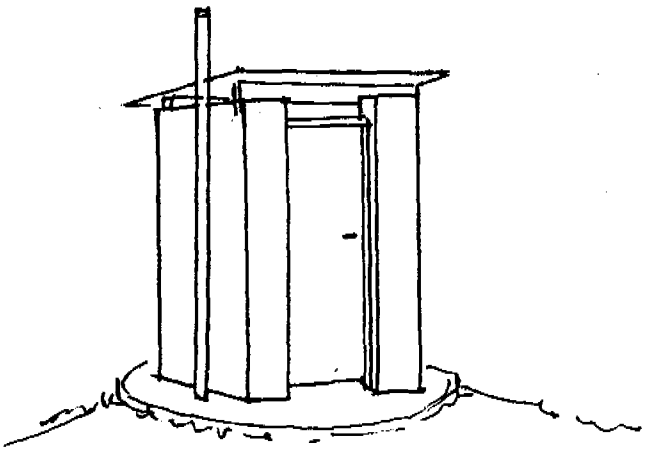


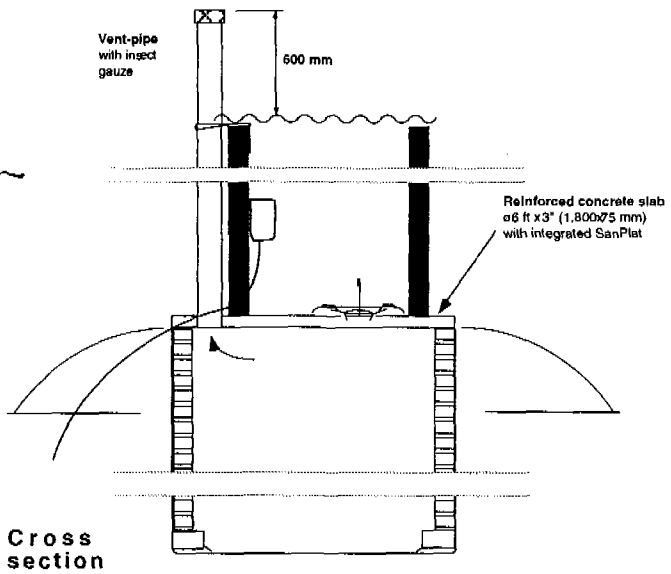
Handwashing facility

Gap
To avoid cracking

Teacher's paradise

Single cubicle with handwashing facility

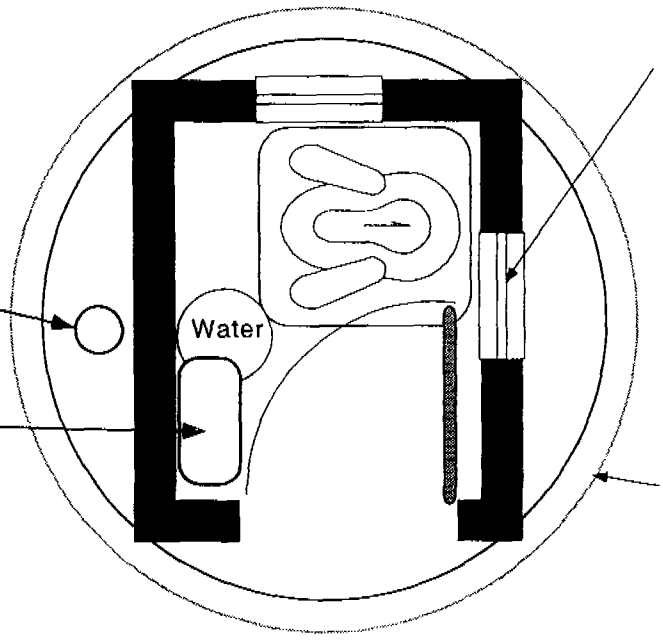




Cross section

Notes for schools
This single toilet is good as a teachers toilet, but can also be used as a class toilet.

The lining is only required in sandy soils, provided that the water is led away to a separate soakaway.



Openings
for light and ventilation can be replaced by a gap between roof and walls.

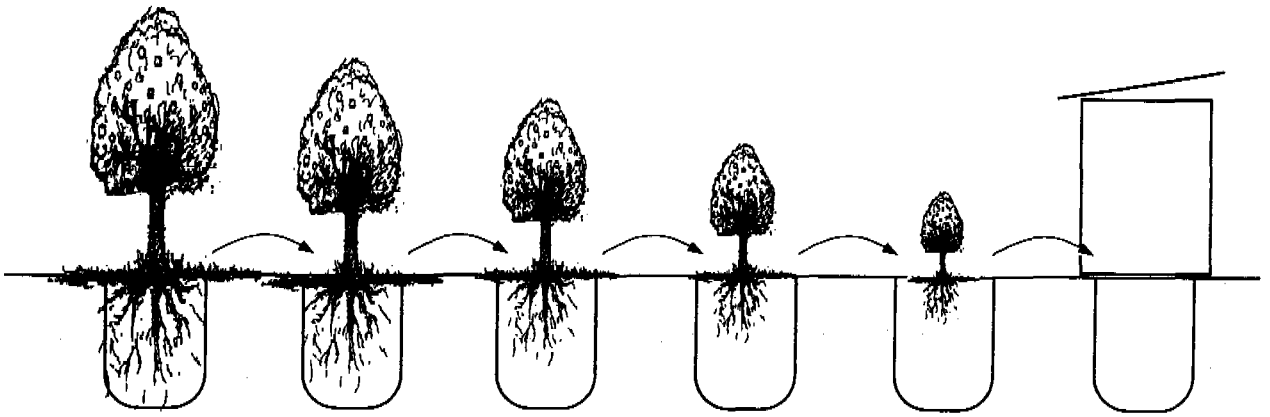
Vent-pipe
ø100-150 mm

Handwashing facility

Plan

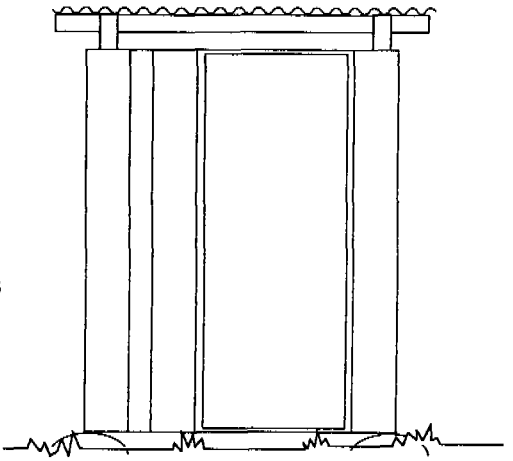
Pit lining
Given that the pit lining is round it can be made with 4.5 inch brick.
Horisontal joints with mortar. Vertical joints should be left open.

The arbor loo
"The latrine that walks"



Arbor is latin and means tree. The arbor loo is the "tree latrine".

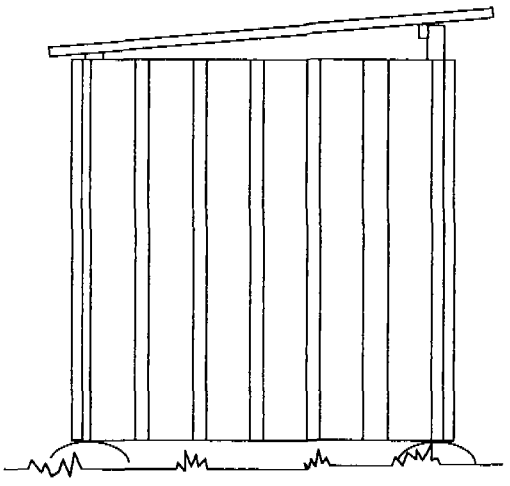
This latrine is basically a simple pit which is gradually filled with a mixture of soil and human waste, as the user covers his/her faeces with soil after each use. When the pit is almost full the superstructure is moved to the next place and a fruit tree is planted on top of the filled pit, to profit profit from the fertility of the pit contents.

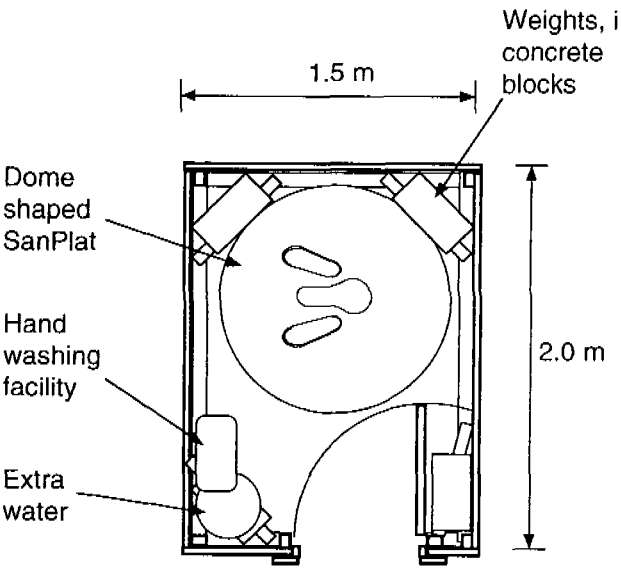


Suitable trees are paw paw, banana, guava, mulberry, avocado and mango. Citrus trees like orange and lemon seem to prefer normal soil.

The slab can be a dome shaped SanPlat or a wooden slab. As the faeces are covered with soil there is normally no problem with smell and flies. Adding ashes will improve the fertile value and reduce smell.

The superstructure can be of any kind as long as it is easy to move. The example shows a movable wooden structure. Weights, like concrete blocks, may be needed in the corners to prevent the superstructure from being turned over by strong winds.





Note for schools
This is an excellent solution to show the fertile value of the latrine contents. The fact that nobody touches the pit contents makes it a very safe solution.

The latrine produces a lot of trees and fruit for the school. Space is however a requirement.

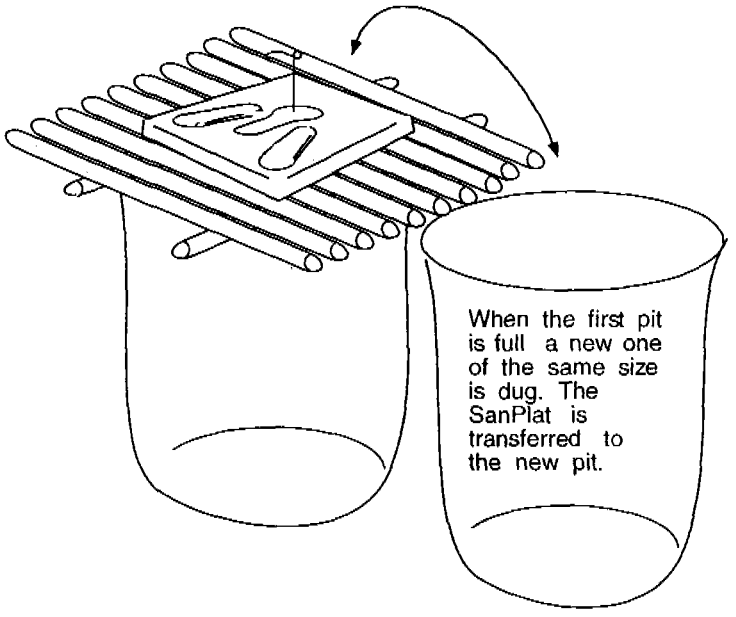
Simplified Fossa Alterna

A low cost ecological and relatively safe latrine

Using the pit as a clock.

This latrine is designed specifically for the owner who wants to use the latrine as a means of producing a fertilizer without spending more time and money on construction than absolutely necessary. The superstructure could consequently be a simple fence to provide privacy when using the latrine. The SanPlat is understood to be provided by the programme as the minimum level of subsidy (encouragement).

For a more status minded family a movable superstructure with a proper roof and a door on hinges may be appropriate.



Note:
To show the construction of the pit and the cover, the soil has been shown as transparent.

Alternating pits
A simple pit dimensioned to last 2 years covered with logs and soil (the soil is shown transparent in the picture) and a SanPlat
Volume: 30 liters per person and year (± 1 m3).

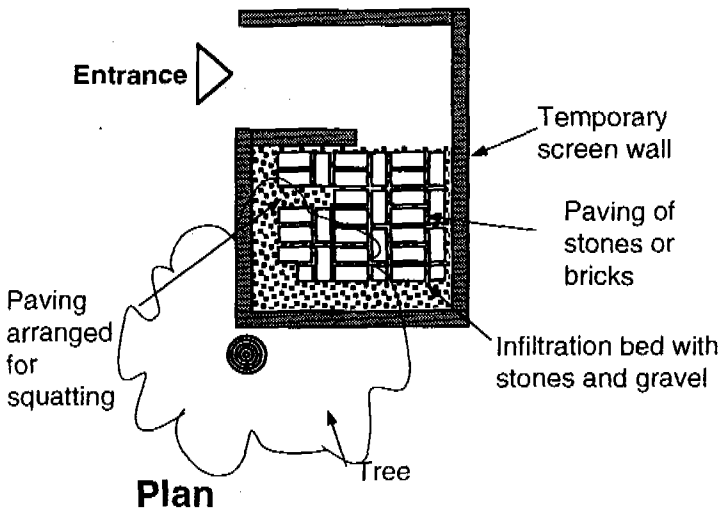
When the pit is full, it should be covered with soil and an other one dug, the SanPlat and the superstructure moved to the new one.

After an other two years, when the second pit is full, you can empty the old one and use it as a soil conditioner.

The urine can be used immediately.

Note for schools
This solution is similar to "The Arbor Loo" and is suitable where the produced soil should be used for gardens and not trees.

Wood producing urinal and shower unit for family use



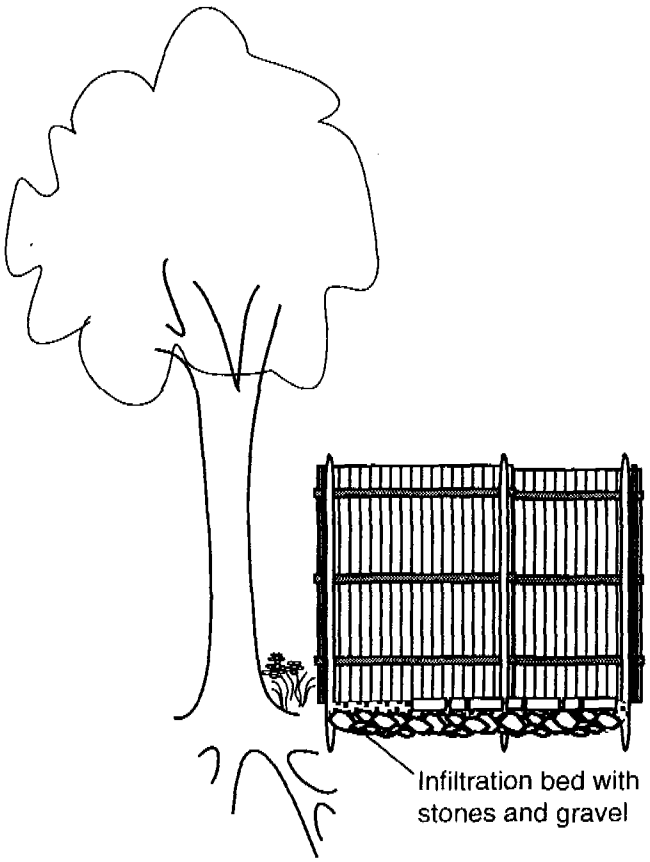
Plan

Combined urinal and shower unit

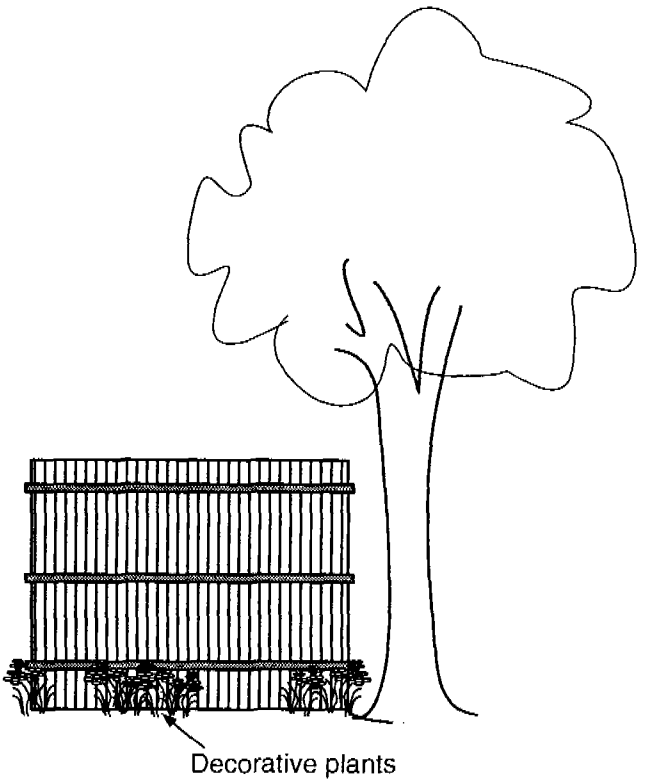
This wood producing urinal and shower unit has been designed for family use with the possibility for adaptation to school use.

The type is ideal as a temporary solution for the school until the final latrines and urinals have been built.

For schools it is normally not used as a shower unit. For demonstration at the SanCentre it would be good it it could be used as a shower as well.



Cross section

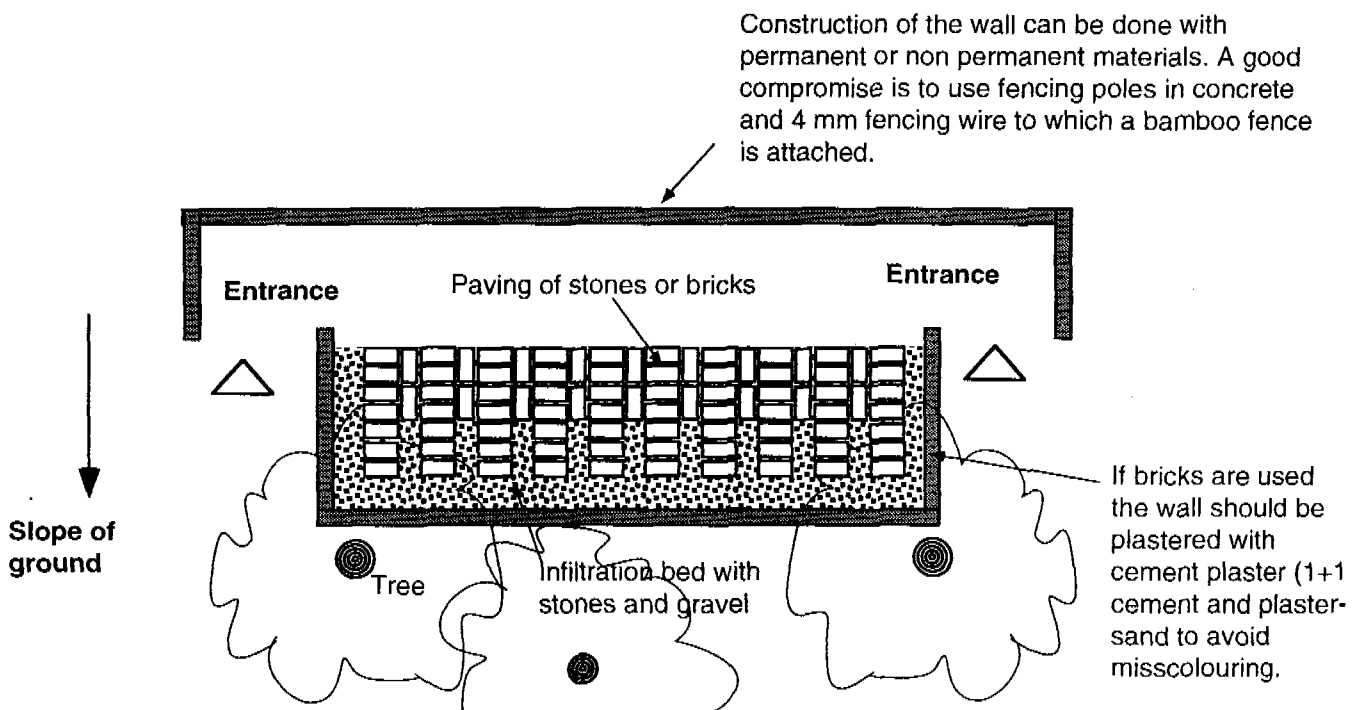


Exterior

Fruit or wood producing urinals for schools (boys AND girls)

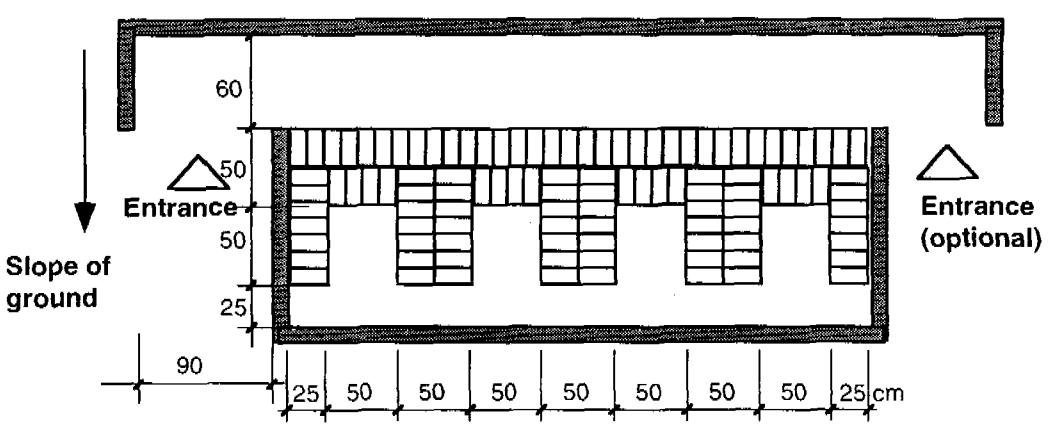
This temporary fruit or wood producing urinal for schools has been designed with possibility for adaptation to family use.

The urinal should be oriented in such a way that the drainage bed and the trees are at the lower side, hence receiving both water and urine/fertilizer.



School urinal for girls AND boys

Both girls and boys can have the same type of urinals with bays for urination.



School urinal for girls AND boys

Principal dimensions

Urinal with water tank

Handwashing facility and urinal with flush out system an rain water collection

Water tanks if not emptied regularly (at least once a week) and completely will create breeding conditions for malaria transmitting mosquitoes (anophiles).

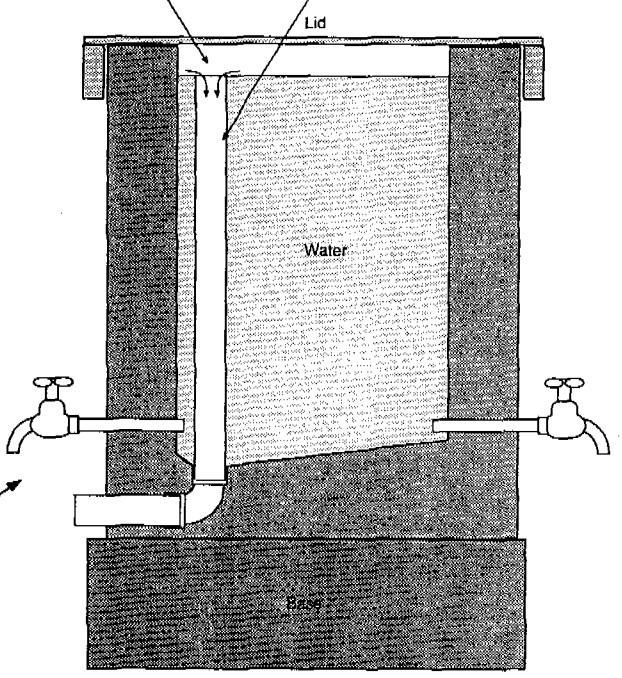
Well built, this tank has a flush out system which rapidly empties the tank completely in a minute. If connected to a roof collection system the overflow system will help to remove mosquito eggs floating on the surface. Which reduces the risk further.

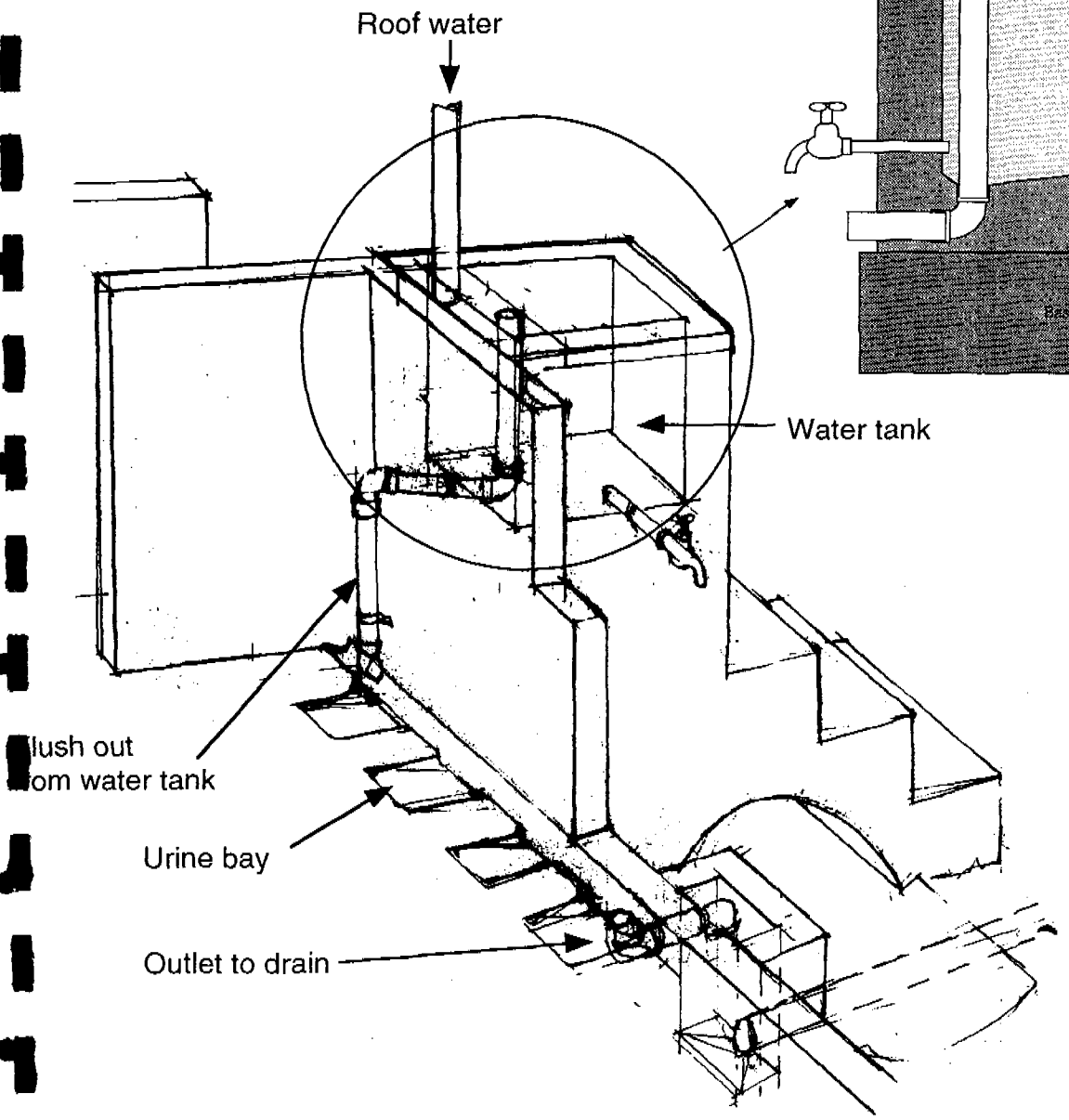
Still it should be emptied every week.

Water tank with flush out system

The overflow system will help in removing mosquito eggs from the surface if

Removable 50 mm PVC pipe which serves as overflow **and** bottom plug for the flush out system.





Leaking tin for hand washing

Should be used at SanCentres for demonstration as the same principle can be used at home

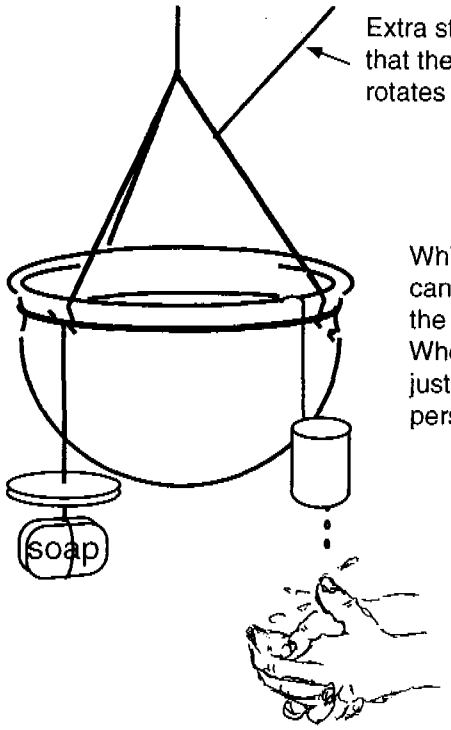
Problem: Hand washing facility for public and institutional latrines in places with no piped water.

Reality: Hand washing after defaecation is absolutely necessary to prevent fecal borne diseases. The effect of hand washing depends more on amount of rubbing than on how much water is used. Sand and ashes are almost as effective as soap.

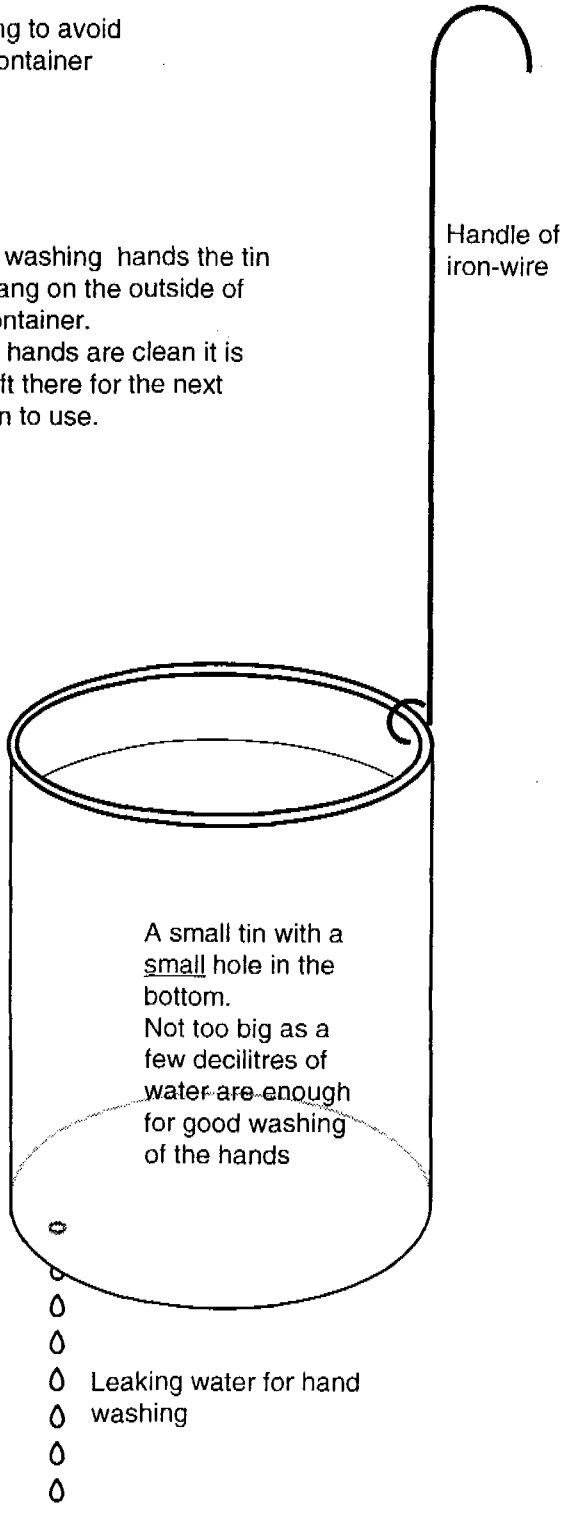
Solution

A tin with a small hole in the bottom can be used for hygienic hand washing using very little water. The water in the container will also be kept clean as only the top of the handle needs to be touched by dirty hands.

Note
The container should be emptied regularly to avoid mosquito breeding



While washing hands the tin can hang on the outside of the container.
When hands are clean it is just left there for the next person to use.



The container can be made in any material like an oil drum cut in half, an old plastic container or of cement. Given that a clay pot can be appropriate at family level the same option has been chosen for the schools.

Select a place for the hand washing facility where it its likely to be used and where the spill water from washing hands and draining the tank will be useful. Under a fruit tree may be an appropriate place if found close to the latrine.

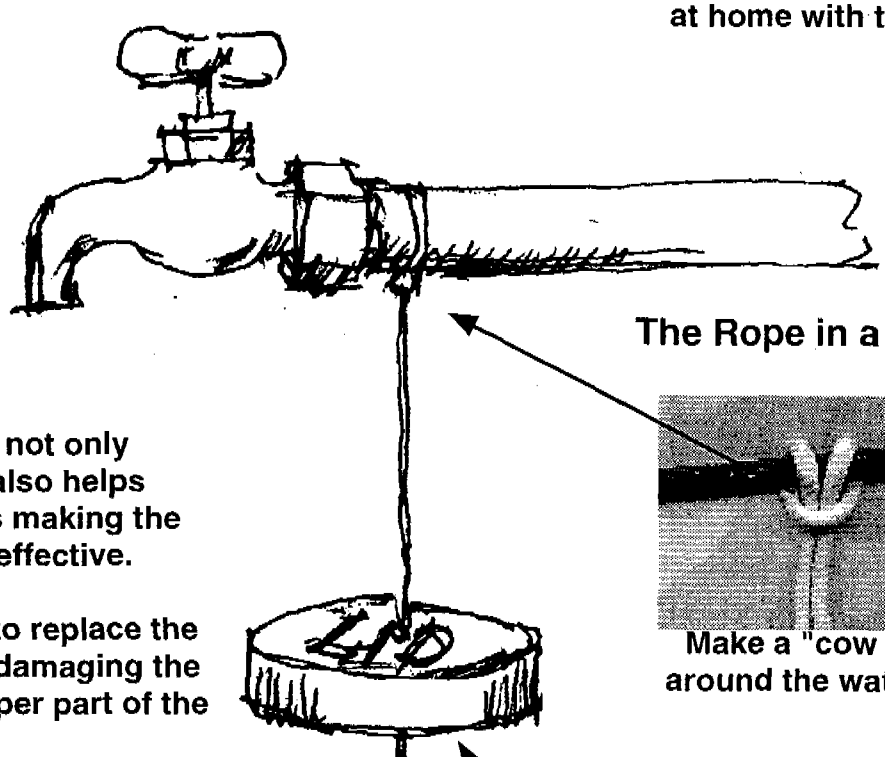
The edge of the container should be high enough to avoid that people wash their hands in the container, but low enough to draw water with the tin on the handle. Try 1.40 m from the ground.

Soap on a Rope in a Loop

A way to keep the soap clean and in place when you need it

Handwashing and latrine building is the best one can do to control diarrhoeas and other faecal borne diseases and soap makes the washing more effective. Putting the soap in a bag of plastic net (from fruit bag) and hanging it on a string form the tap is a good way to keep it in place where it easily is found and kept clean.

The same system can be used at home with the leaking tin.



The Rope in a Loop

Make a "cow hitch" around the water pipe

The plastic net does not only contain the soap. It also helps scrubbing the hands making the washing even more effective.

You should be able to replace the soap easily without damaging the bag. A slot in the upper part of the bag is one way.

The lid is resting on a not protects the soap from rain

The Loop

An other way is to tie the soap-bag to the string so you can open it again is to start with a loop:

Cut the string to the double length you need between the soap and the tap. Tie the ends together and you get a loop.

Tie the bag to the string by inserting the end through the net and make a number of turns around he end before you tighten it together.

Insert the lid and tie the loop over the tap with a "cow hitch" or just let it hang there.

For top of the bag you insert the end of the loop through the net and make a number of turns around the end before you tighten it together.
Secure with a hitch around the end

For the bottom of the bag tie it with a simple knot and secure with a flame to melt it together.