Case Study:
eThekwini, KwaZulu-Natal, South Africa

1.

This presentation is a case study of a low-cost water supply and sanitation programme, in the municipality of eThekwini in the province of KwaZulu-Natal in South Africa.

2.

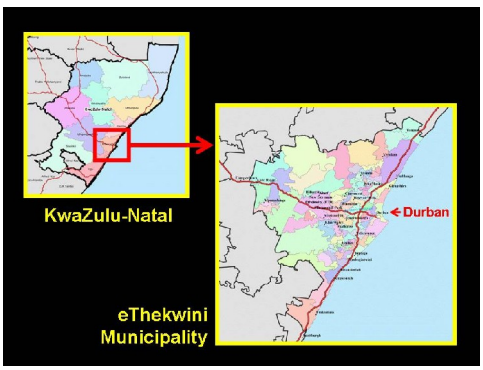
The Government of South Africa has a 'free water' policy. Every household in the country is entitled to receive 6 kilolitres, that's 6 m^3, per month absolutely free. For the average household size of 8, this equals 25 litres per person per day – not a lot, but enough to meet basic needs.

The Government also gives a subsidy of around 3000 rand for the construction of a sanitation facility.

3.

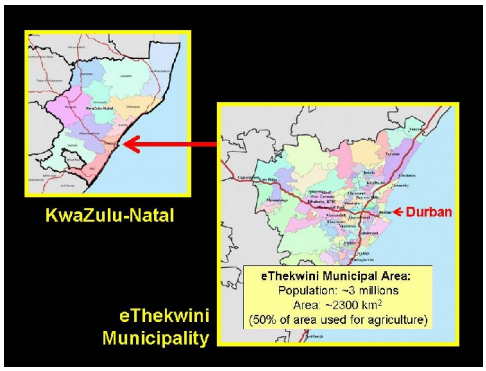
eThekwini is a relatively new municipality centred on the city of Durban in KwaZulu-Natal in the east of the country.

4.



It was made up from the city of Durban and quite a large area around it.

5.



eThekwini has a population of around 3 million, and roughly half its area of 2,300 km^2 is used for agriculture, so the municipality has a large rural area, in addition to its urban and periurban areas.

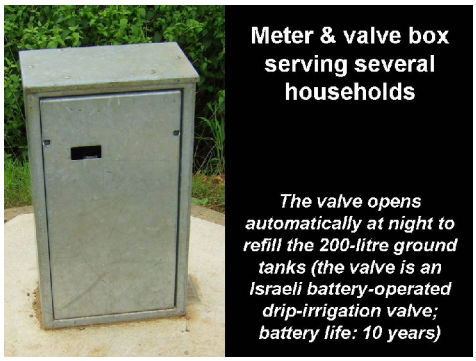
6.

eThekwini Water Services, which is part of the municipality, has developed a very successful programme to bring affordable water and sanitation to poor households in its area.

7.

There are basically three water supply options. The first of these is a "ground tank" supply. The plastic tank, which sits just above ground level, has a volume of 200 litres. It's refilled every night, so this is the daily water volume available to the household. Two hundred litres a day is 6000 litres a month, so this system supplies the household with its free water allowance, but no more.

8.

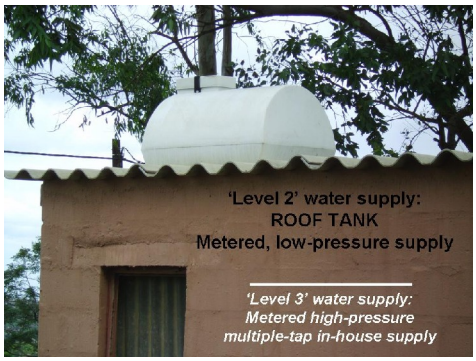


This slide shows a water meter and valve box which serves a small group of households with ground tanks. The valve to each tank opens automatically at night and delivers 200 litres, so every household wakes up in the morning to a full tank of water.

9.

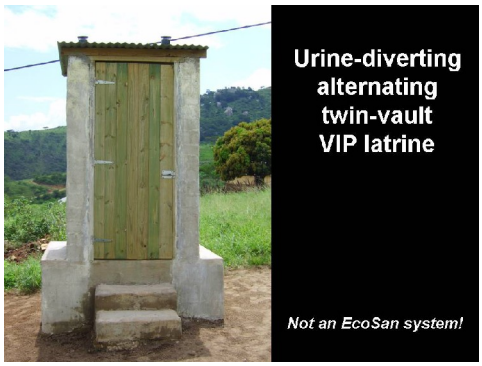
The second level of water supply is the roof tank. This is a metered, low-pressure supply. The household pays for the water it uses, but of course the first 6000 litres a month are free.

10.



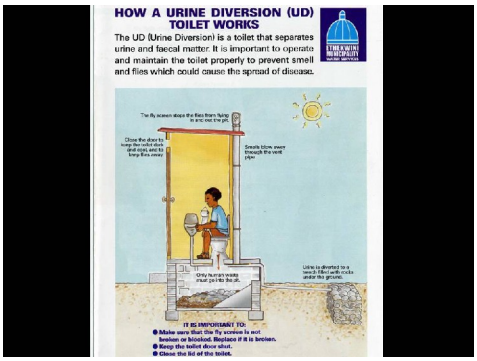
And the third level is the conventional multiple-tap in-house supply, which is a metered high-pressure supply; so it's for non-poor households.

11.



In areas served by ground tanks the most commonly used sanitation facility is the urine-diverting alternating twin-vault VIP latrine developed by eThekwini Water.

12.



This poster explains how the system works. It's like a VIP latrine in so far as it's ventilated. But it has alternating twin vaults, rather than alternating twin pits, and the urine is diverted to an adjacent soakaway in order to keep the vault contents from becoming too wet.

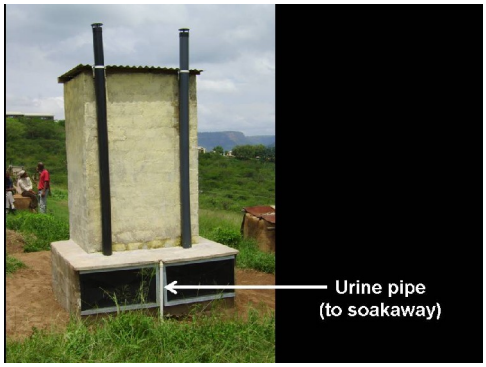
13.

This slide shows the inside of the superstructure. You can see it has both a urinal and a pedestal-seat toilet.

14.

The toilet is in fact a urine-diverting toilet. Urine enters the front part, on the right, and faeces are deposited behind into a chute which directs them into the vault in use.

15.



This is a view of the rear of the superstructure, and you can see the white plastic urine pipe which takes the urine to the soakaway. The two black rectangles below the cover slab …

16.

can be slid out to the side to allow access to the vault when it's time to empty it. The householders do this themselves once a year and the material they remove is commonly just buried on site.

17.

This is a poster in Zulu explaining to the users how to use the urine-diverting toilet. The pictures are a series of "do's" (the green ticks) and "don'ts" (the red crosses); and, providing this advice is followed, the system works extremely well, and there's no smell or fly nuisance.

18.


Traditional alternating twin-pit latrine

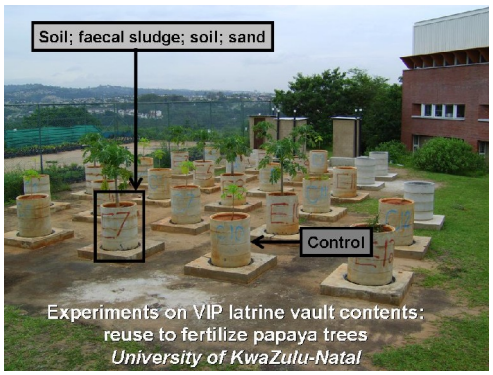
This slide shows a fairly typical traditional on-site sanitation system used in the rural areas of what is now eThekwini. Of course it's pretty rudimentary, but interestingly it's actually an alternating twin pit system, but an unventilated one.

19.


Experiments on VIP latrine vault contents:
reuse to fertilize papaya trees
University of KwaZulu-Natal

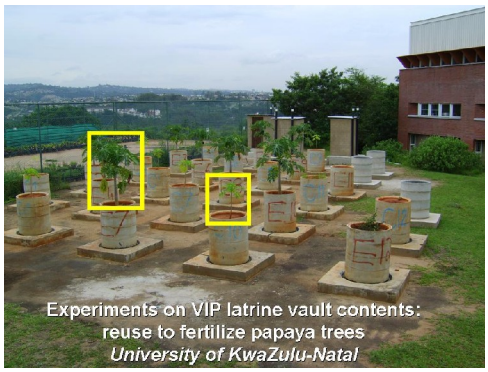
This shows some rather good experiments on the reuse of the vault contents, that is to say, the composted or at least partially composted faeces, being done at the University of KwaZulu-Natal in Durban.

20.



The compost is used to fertilize papaya trees. On the left you can see a papaya tree growing in a large pot which was filled with a layer of sand, then a layer of soil, then a layer of composted faeces, and then with a top layer of soil. In the centre is a control pot filled with a layer of sand and then just soil.

21.



If you look inside the yellow boxes on this slide you can see that the tree growing in the pot with the compost is growing extremely well with, in fact, large fruits; whereas the tree growing in the control pot is barely growing at all.