

Questacon

True-blue Loo



Centenary of Federation

An Australian-designed, environmentally friendly toilet will help fight outbreaks of cholera, typhoid and other waterborne diseases.

WHAT'S THE PROBLEM?

In Australia and around the world there are remote communities with poor sanitation and limited sewerage systems. Emergency situations also occur quite frequently around the globe and require the setting up of large refugee and disaster relief camps. In these situations, traditional pit toilets can cause the spread of terrible, life threatening diseases such as cholera and typhoid.

Human waste must be contained and purified to prevent the spread of disease.

Pit toilets are very unsafe. After heavy rain they can flood, spreading disease through the ground water.

Lack of water can also be a problem. In some remote Australian Aboriginal communities expensive flushing systems have been installed only to fail because of the shortage of running water.

The question has been, how can we cheaply and quickly set up safe, self-contained and environmentally friendly toilet systems in remote areas or emergency situations?

A GREAT AUSSIE SOLUTION

Paul Turner, a tropical medicine specialist at James Cook University and Mark Langford, a specialist in waste water treatment with Townsville City Council saw expensive flushing systems fail in remote communities without running water. They came up with a great idea to solve the problem – they teamed up with Gough Plastics to produce a revolutionary, fully-enclosed toilet system which requires no water, and minimal maintenance.



The new, environmentally friendly toilets will reduce disease outbreaks in emergency situations.

The system has been designed so that it can cope with unexpected overloads during busy periods in remote areas, such as National Parks, and in emergency situations such as refugee camps.

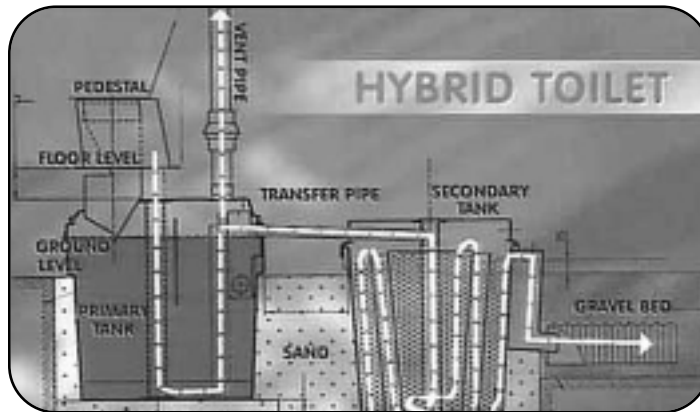
The toilets can easily be transported in large numbers and one complete toilet takes only 90 minutes to assemble.

HOW DOES IT WORK?

The new portable toilet consists of three fully-enclosed parts:

1. a primary tank that separates solids (which are retained for an extended period)
2. a secondary tank where the human waste is broken down by bacteria
3. a gravel bed where the waste is released after purification

Waste can be stored in the effluent tank for up to 140 days so bacteria levels are low by the time it is released into the gravel bed



▲ **Cross section of hybrid toilet – the True-blue Loo.**
Waste is broken down in the secondary tank before safe release into the gravel bed.

THE FUTURE

Officials from the World Bank, the World Health Organisation and the United Nations Commission for Refugees are very positive about the invention and have acknowledged its potential for dramatically reducing the spread of diseases caused by human waste.

Next time you visit a National Park, such as Fraser Island, check out the design of the loos – you may be sitting on a true-blue!

For more details contact:

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FURTHER INFO, FACTS & FUN

- Cholera and typhoid are caused by bacteria.
- Other diseases caused by bacteria include tuberculosis, syphilis, and tetanus.
- The organisms that break down the waste in the new portable toilets, helping to protect us against outbreaks of cholera and typhoid are also bacteria. These are beneficial bacteria.
- Harmless and beneficial bacteria far outnumber harmful varieties.
- Bacteria are employed extensively by humans because they are capable of producing so many enzymes necessary for the building up and breaking down of organic compounds. Examples include fermentation (as in the manufacture of alcoholic beverages, vinegar, and certain cheeses).
- On average we each use more than 100 litres of water per day just flushing the toilet. An average household flushes nearly 50% of the fresh water it uses down the loo! The half flush option on a toilet should be taken seriously!

For more info on great Australian Science check out:

Questacon's Innovative Australians
CSIRO's Australia Advances
The Australian Academy of Science's Nova

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