

WISA BIENNIAL CONFERENCE
NELSPRUIT
28th MAY 2014



POUR FLUSH SANITATION

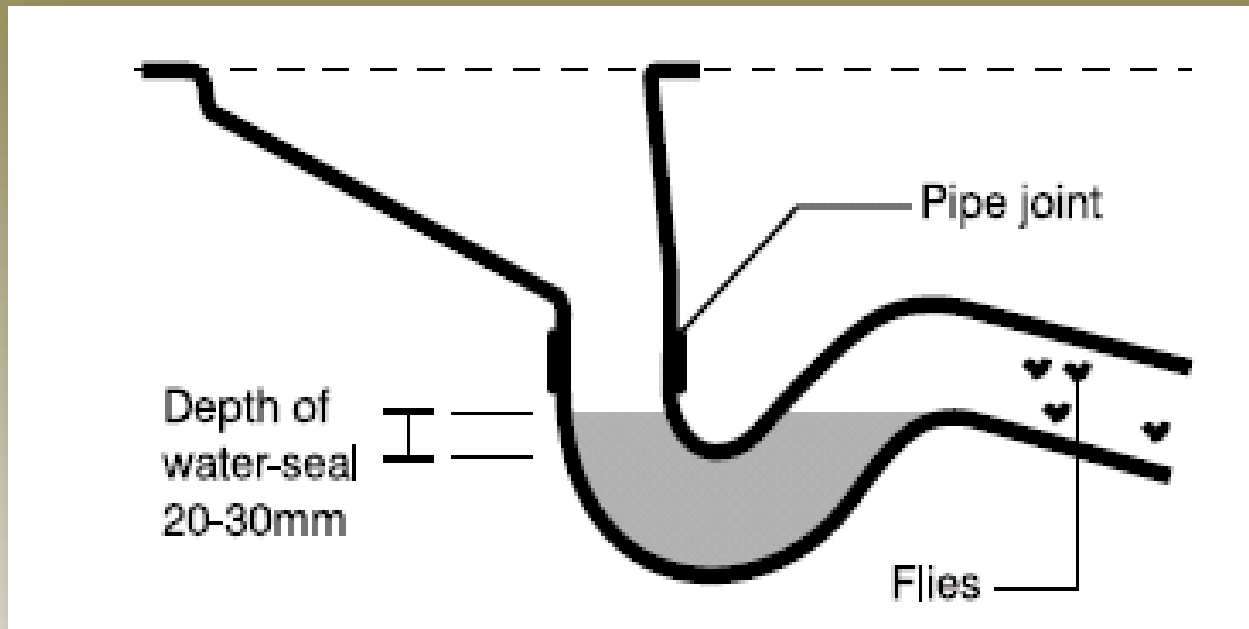
The Future or a 'Flash' in the Pan?



Jay Bhagwan, David Still & Jonny Harris



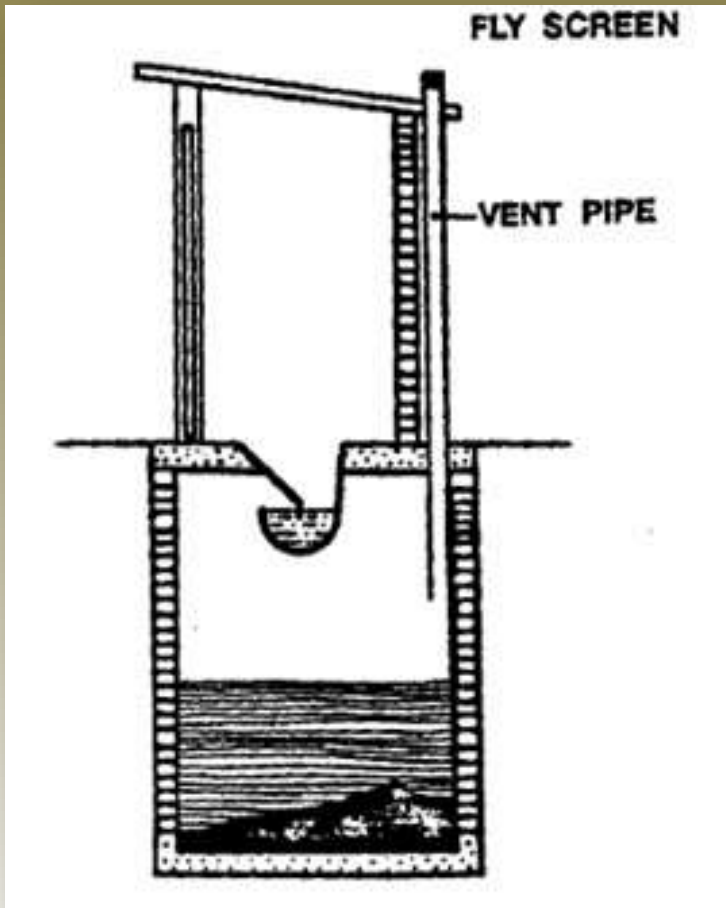
WHAT IS POUR FLUSH?



THE ASIAN STANDARD POUR FLUSH PAN

WRC POUR FLUSH SANITATION – THE FUTURE OR A FLASH IN THE PAN? BACKGROUND

Early use in SE ASIA, mid 1900s



WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*

BACKGROUND

Alternating Pit
demo at Sulabh
toilet museum, Delhi
India

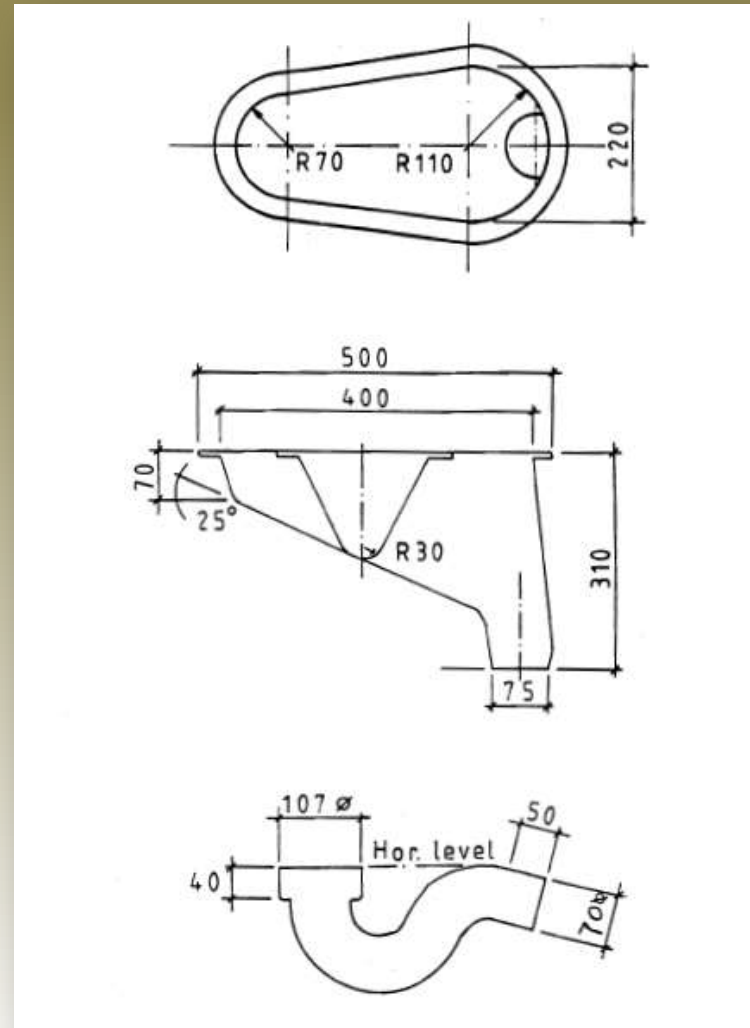


WRC POUR FLUSH SANITATION – THE FUTURE OR A FLASH IN THE PAN?

BACKGROUND

The Blueprint

*World Health
Organisation (WHO)
report by DD Mara
1980s*



ADVANTAGES

- Can be built onto or inside a house
- Only a litre or two needed for flushing
- Cheaper to build than a full flush toilet with septic tank – cost not much more than VIP
- Can assist with greywater management
- Not able to flush ‘trash’
- Suited to rural and high density settlements alike



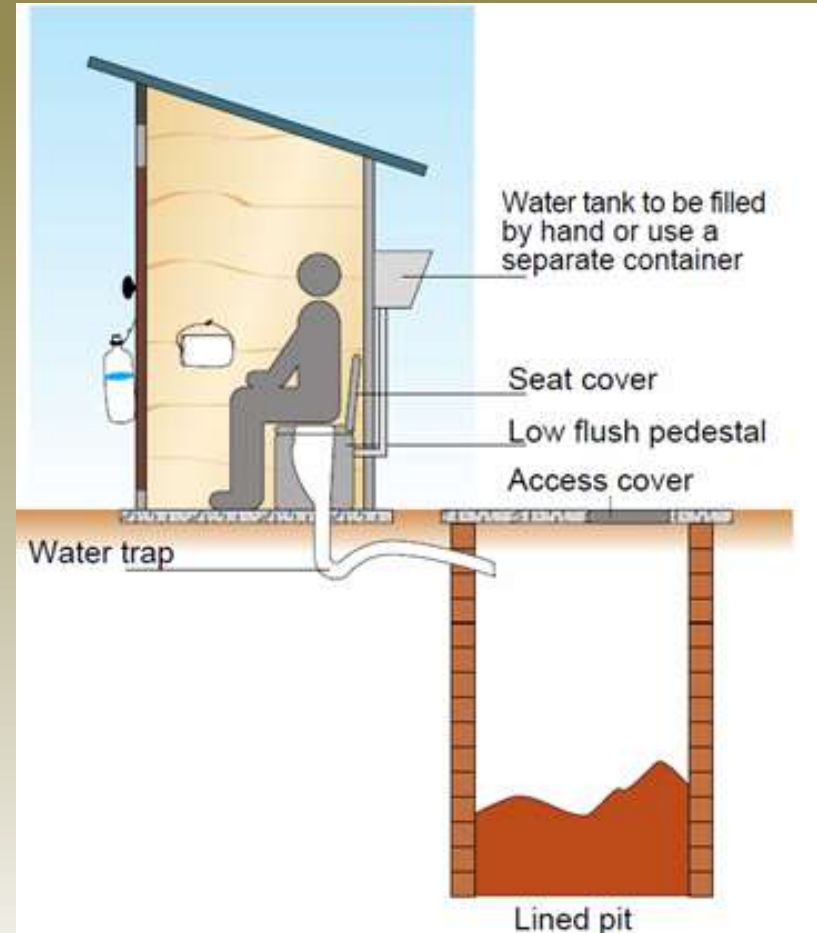
WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*

THE CHALLENGE

pedestal design for pour
flush or low flush in South
Africa

SIT not SQUAT

PAPER not WATER



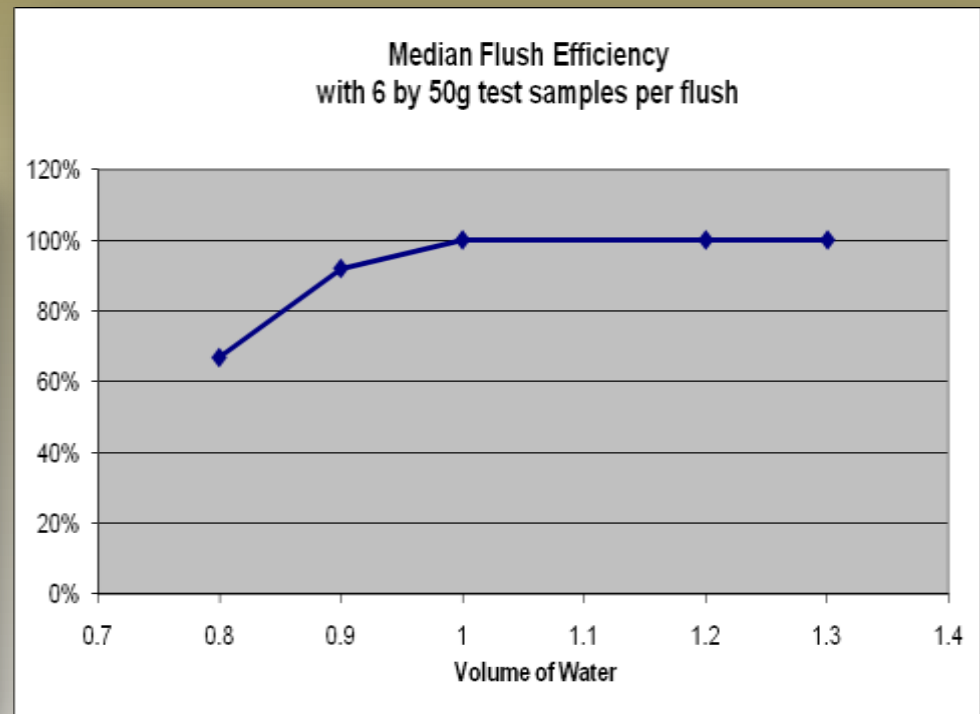
WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*

THE SOLUTION



WRC POUR FLUSH SANITATION – THE FUTURE OR A FLASH IN THE PAN?

MAXIMUM PERFORMANCE TEST (MaP)



WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*

KWA ZULU NATAL PILOT



This pilot was commissioned on 1 Sept 2010. The sewer is over 17 metres long and the first section falls at only 1%. Only one blockage in that time, when kids flushed a plastic bag. This was removed at one of the inspection chambers

Completed installation – note no cistern, no water connection = no 24/7 leakage



Splitter box to enable usage of two leach pits



Leach pit – easy access for emptying





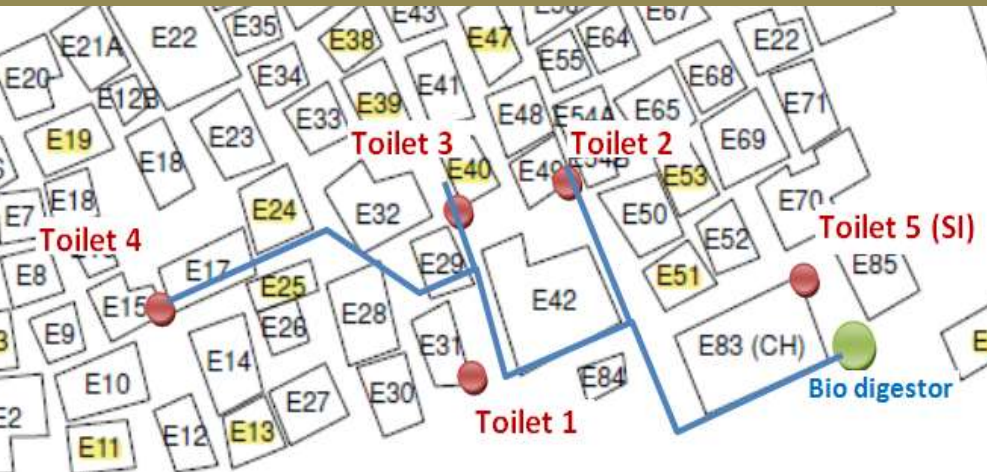
**Leach pits after
installation either
side of tree – no
visible sign on
surface**

This pilot pour flush has been in operation since January 2011. In that time the users have had no problems and are delighted with the toilet. Here the mother demonstrates its use.



WRC POUR FLUSH SANITATION – THE FUTURE OR A FLASH IN THE PAN?

WESTERN CAPE PILOT – retrofit in HIGH density settlements



PILOT STAGE

- **Kwa Zulu Natal (20 total)**
 - Rural and Peri-Urban
 - Discharge to Soakage Pits
 - All units working well
 - 3.5 years of trials so far
- **Western Cape (15 total)**
 - Peri Urban and High Density Informal Settlements
 - Discharge to simplified sewage and Soakage Pits
 - Trials 16 months so far



KEY FINDINGS

- No problems with flushing toilet paper but even newspaper ok (sometimes needs an extra flush)
- Sludge accumulation 20 litres/c/yr, about half of VIP rate
- Produces good quality trash free compost
- Negligible leaching of contaminants – same as VIP
- Typical water use 1 – 2 litres per flush
- Sewers flow without blockage at gradients at ≥ 1 in 100
- Participants extremely enthusiastic about technology
- Increased interest to install inside the home.
- Reduced hydraulic load complements Biogas Systems



CURRENT ACTIVITY

- Low flush adaptation tested successfully in two homes and 2 schools (8 units in total) in KZN.
- Durban has opted for Pour Flush for the Oakbrook Housing Project (600+ sites, implementation due 2014/15)
- Further demonstration trials under way at schools in Limpopo and Eastern Cape
- Department of Science and Technology funding further demonstrations (1000 units?) in Eastern Cape
- Development of injection moulded pedestal well advanced



Here Mr Zuma, from Azalea, Edendale, PMB, demonstrates how the low flush adaptation of his pour flush works. This was installed in January 2013. He hasn't had any problems with it and is very pleased



This is a test of the prototype which Envirosan has been developing in order to go into production with an injection moulded pour flush pedestal



Pour Flush and Low flush at schools



Pour Flush and Low flush at schools



Pour Flush and Low flush at schools

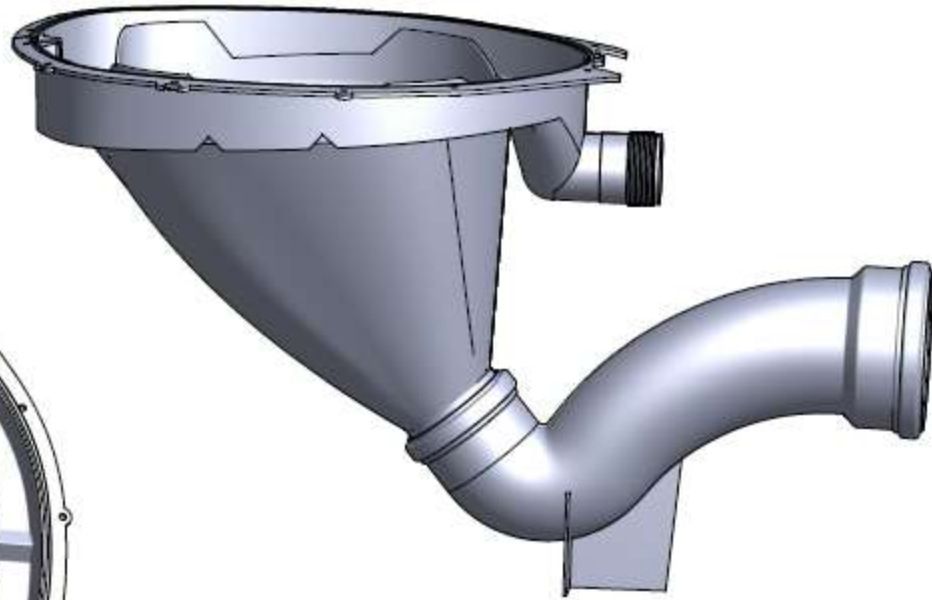


Envirosan's Pour flush / low flush pedestal

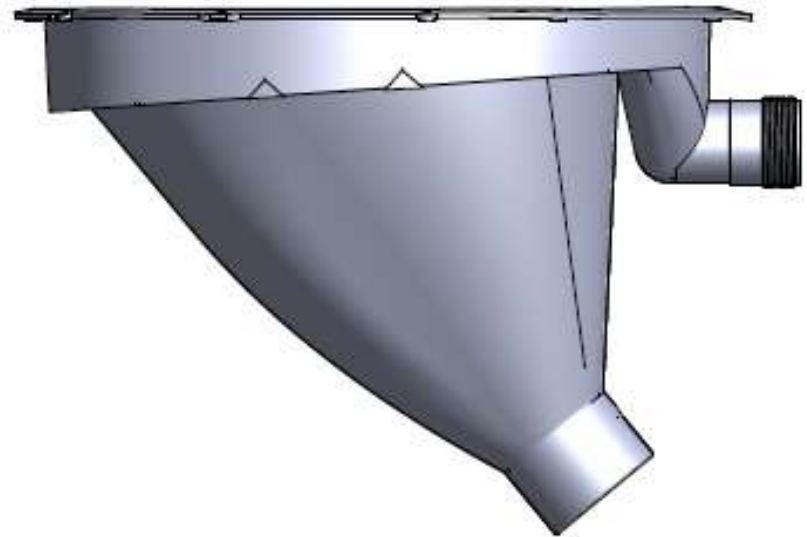


Envirosan's Pour flush / low flush pedestal





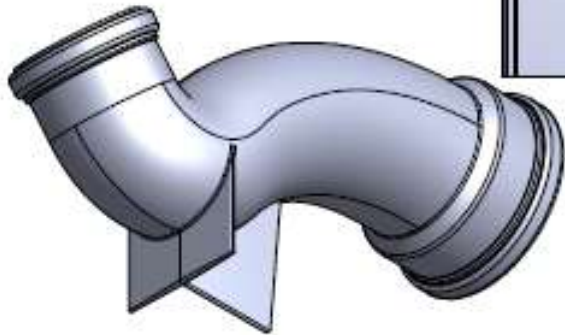
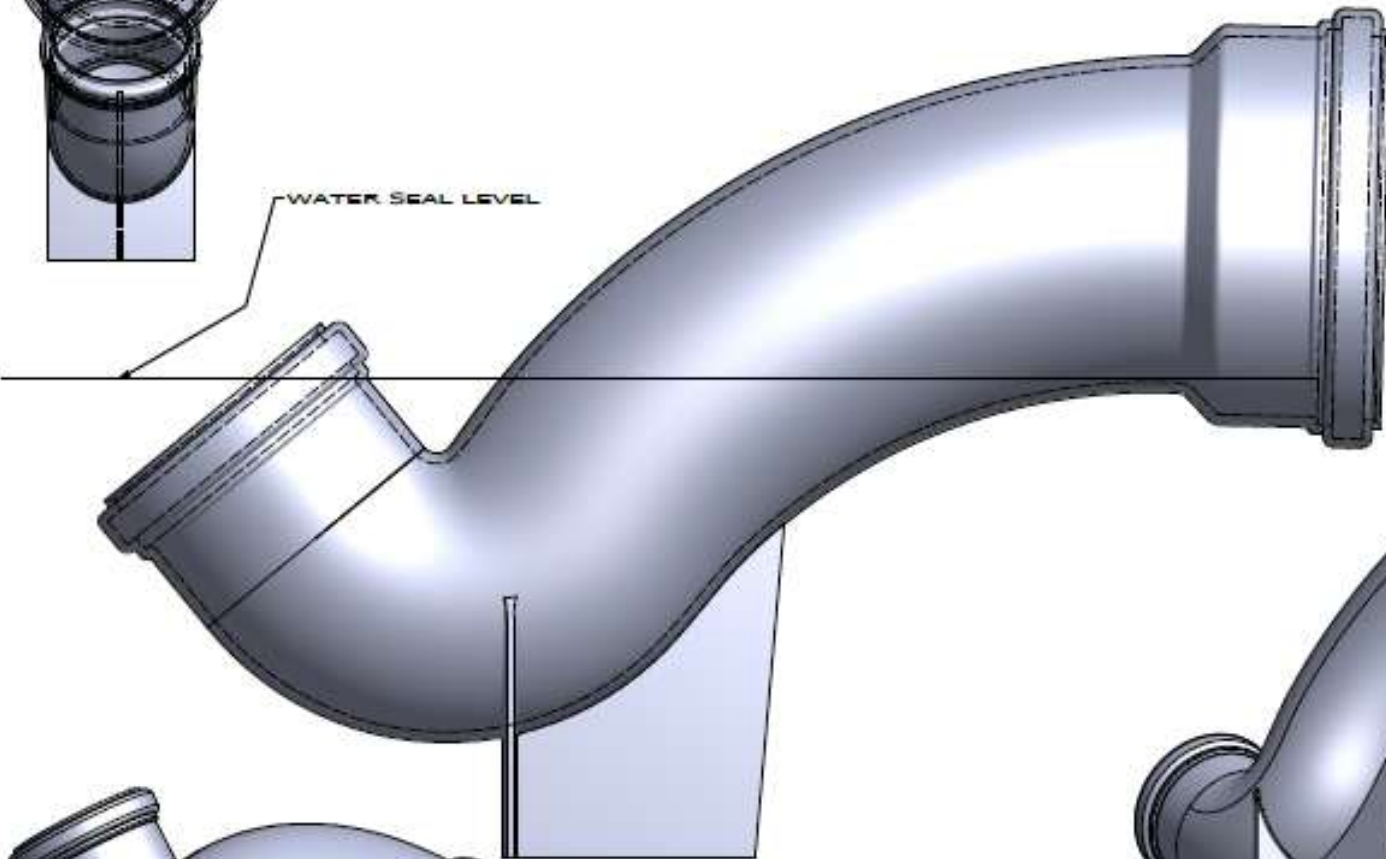
DRAWN		
TYP	2014/05/27	
CHECKED		
QA		TITLE
REV		



DRAWN	2014/05/27		
TIM			
CHECKED		TITLE	
QA			
NRG			
APPROVED			
		SIZE	DWG NO.
		C	
		SCALE	SHEET 1 OF 1

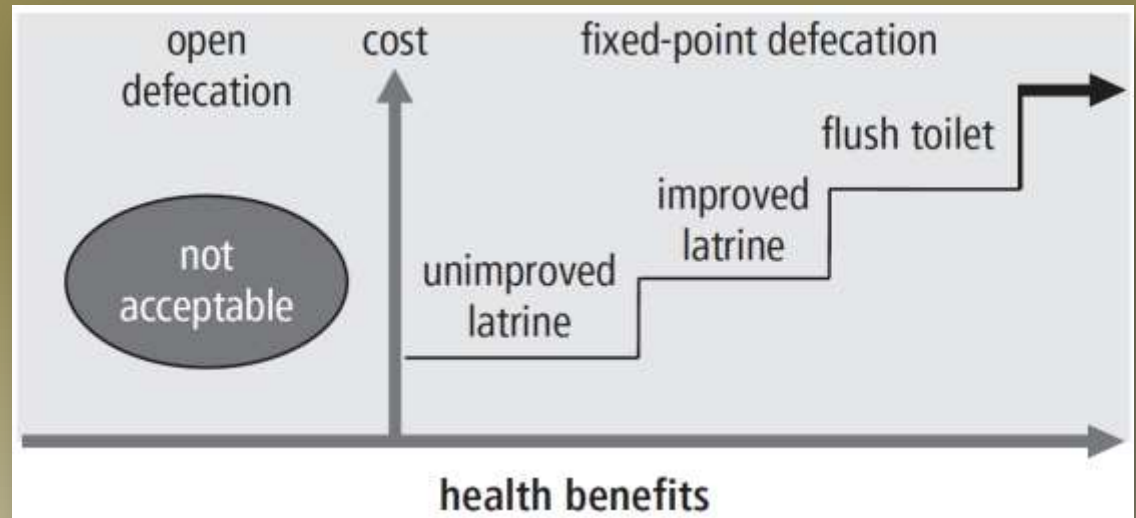


WATER SEAL LEVEL



DRAWN	2014/05/27			
TIM		TITLE		
CHECKED				
QA				
ENG				
APPROVED				
		SIZE	DWG NO	NO
		C		
		SCALE		

WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*



Pour Flush

- Stepping ‘up’ the ladder:
 - Does not have to cost more
 - Does not have to use more water
 - Will increase convenience and therefore health benefits
- Allows an Incremental upgrading approach

The Sanitation Ladder

(Source: Morella, Foster, and Banerjee 2008)



WRC POUR FLUSH SANITATION – *THE FUTURE OR A FLASH IN THE PAN?*

*The future
of on-site
basic
sanitation?*

THANK YOU

jayb@wrc.org.za

dave@pid.co.za

jonny@malutiwater.co.za

