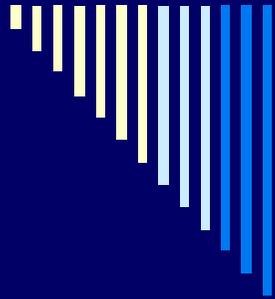


# UD social/ equity issues: Are UDs a dignified form of sanitation?

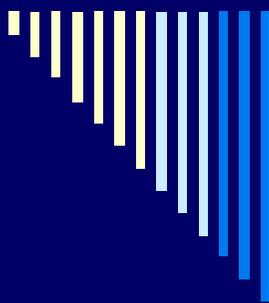
**Dudu Khumalo and Simphiwe  
Nojiyeza, UKZN Centre for Civil  
Society**

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# Positive Effects of UD Toilets

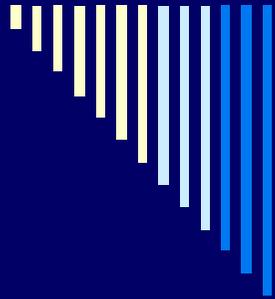
- It improves dry sanitation facilities by:
  - (1) Reducing odours if properly constructed and operated
  - (2) Facilitating maintenance of the system
- It contributes to improved health through:
  - (1) Easier and more hygienic handling of the faeces
  - (2) Reduces risk of pathogen transport to groundwater



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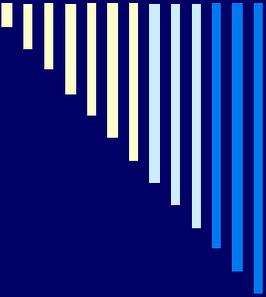
# Positive Effects of UD Toilets

- It can provide more permanent interventions compared to VIPs, chemical toilets, buckets and other inadequate sanitation facilities through:
    - (1) Simplified emptying that increases the toilet lifetime
  - It facilitates nutrient cycling and creates possibilities to increase food security
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# Positive Effects of UD Toilets

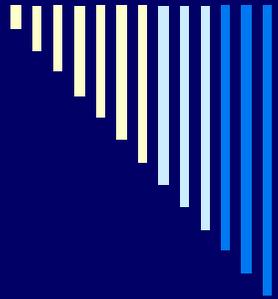
- (1) Urine contains the majority of nutrients found in excreta
  - (2) Urine is an excellent fertilizer, suitable for all crops needing quick-acting nitrogen
  - (3) Urine has an extremely low content of micro-pollutants such as heavy metals
- Urine diversion systems are not expensive than similar conventional technologies



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# Positive Cost effects

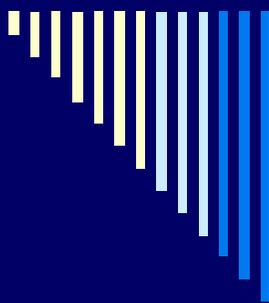
- Dry urine diversion is cheaper to install than VIPs, VIP emptying is expensive and facilities are sometimes non-existent
  - It is the cheapest alternative for on-site sanitation, when it is full, households can build new ones
  - It is estimated that over a ten year period, the full toilet investment can be paid for solely by the value of nitrogen and phosphorus in the urine
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# Environmental and Sustainable Development

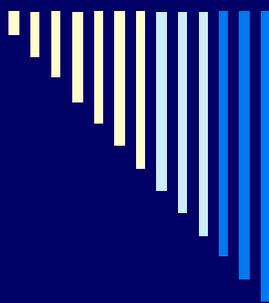
- Urine diversion systems contribute less to environmental contamination than conventional sanitation systems:
    - (1) There is reduced risk of groundwater pollution for dry urine diversion systems
    - (2) There is reduced risk of surface water pollution for water- flushed urine diversion systems
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# Motives for eThekweni to introduce UDs

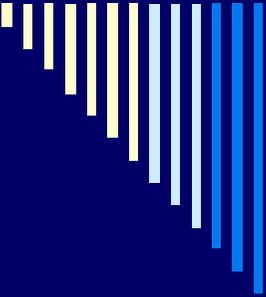
- ❑ There were 140 193 households without adequate sanitation especially in rural areas
  - ❑ The use of VIPs requires mechanical desludging which is expensive, vulnerable to failure, inaccessible (site), unable to cope with heavy sludge and solid waste in pits.
  - ❑ It is unsafe and unpleasant to do manual emptying of VIPs using shovels and buckets
  - ❑ The cost of using tanker emptying of VIPs is around R1536 per pit if the service is subsidized and each household pay R120, possibility of saving from construction additional Waste Water Treatment Plants
  - ❑ VIP latrines are financially unsustainable, especially subsidizing the emptying of such using tankers
  - ❑ UDs are maintained by users themselves, therefore it is cost saving
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## Motives for eThekweni

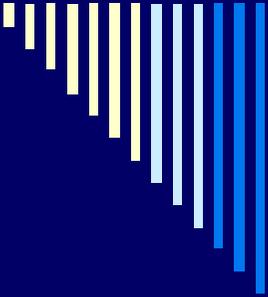
- Replacement of about 100 000 old pit latrines without ventilation toilets with UDs that are allowing faeces and urine to dry and decompose faster
  - In 2006 eThekweni commissioned Pollution Research Group of UKZN to investigate whether UD solid waste can be used as fertilizer, and the results according to UKZN biologist Mike Smith were promising
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# Motives for eThekweni

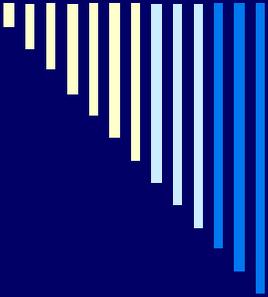
- Another study funded by eThekweni Municipality and WHO suggested a 30% reduction in diarrheal diseases among households with UD toilets compared with similar households using pit toilets
  - According to Stephen Knight of Nelson Mandela School of Medicine access to UD toilets helped avert an average of one diarrhea episode per person every 2 years, with the benefits of good sanitation three times greater for children under the age of 5 than for other age ranges.
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# Challenges of UD roll out

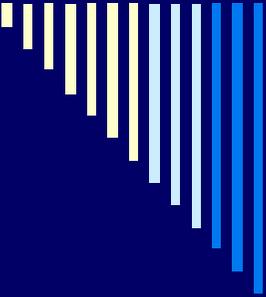
- ❑ Risks associated with UDs is the lack of quality and construction of the toilets and piping systems which result in people reverting back to open defecation and use of traditional latrines.
  - ❑ The focus is on the number of toilets constructed and how closer we are to meeting MDGs
  - ❑ Zero regular health and hygiene education, no operating manuals and instructions, no maintenance guidelines are provided, no spare parts and support is given
  - ❑ Users are not accepting the system because of the top down nature of delivery systems, because in some areas there are different sanitation technologies, some use UD and others ( elite and aristocratic class) have flush toilets
  - ❑ Handling of urine and faeces not explained and also not acceptable to communities
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# Other Challenges

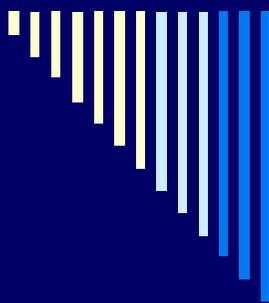
- ❑ No programme to re-circulate urine and faeces to agriculture, operation and maintenance of urine and faeces is more demanding than conventional piping which results in blockages
  - ❑ In most instances , there are no piping, storage and collection (transportation) tanks systems that are put in place
  - ❑ As a user you are on your own, eThekweni is reducing costs and creating health impacts!
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# Other challenges

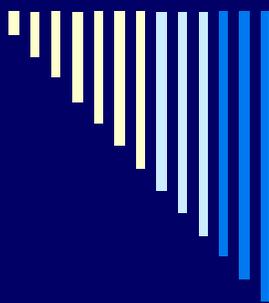
- ❑ Lack of compliance with building codes which results in improper running of the system
  - ❑ The sizing and inclination of pipes, documentation and accessibility are mistakes that lead to failure of the system
  - ❑ No municipal collection of urine is provided for, and therefore urine harvested is not used for agricultural purposes
  - ❑ The construction of UDs did not cater for appropriate collection and storage capacity for the urine.
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## Social costs of UDs

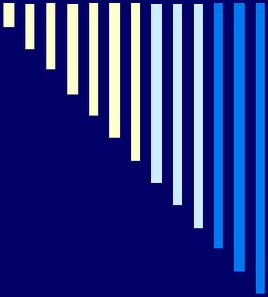
- Although there is minimal risk of disease transmission when urine is used without prior storage in the home garden, the risk could be great due to lack of urine storage guidelines.
  - The waiting period of one month between last application of urine and harvest is not adhered to as education is often not provided
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# Social costs of UD<sub>s</sub>

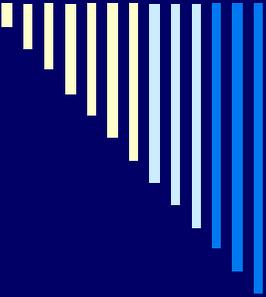
- There is a serious lack of stakeholder participation, which result in UD<sub>s</sub> not being accepted by households
  - The agricultural benefits ( fertilizing effects of urine and faeces) of UD<sub>s</sub> are not properly explained to farmers
  - Most of the UD toilets are becoming storage facilities
  - UD<sub>s</sub> designed so far are not taking into cognizance that men and women excrete urine in different ways
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# Social Impacts of UD Toilets

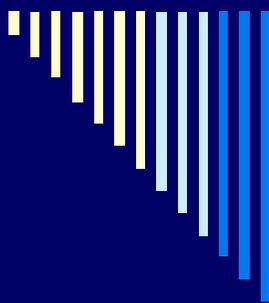
- ❑ The bowls are not designed so that urine is collected in an appropriate way from both women and men using the toilet
  - ❑ Therefore there is a need for designing different urinals for men and women
  - ❑ The current UD is gender insensitive, inadequate and unsafe
  - ❑ Faeces and urine contain low pesticide residues that could harm people if no safe removal devices and storage facilities are provided
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# Informed choice

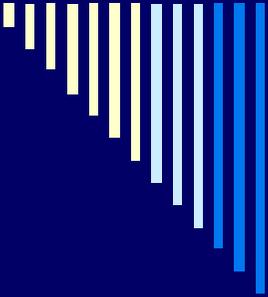
- ❑ In most instances communities did not play any role in technology choice
  - ❑ Double vaults or single vaults were prescribed and communities had no say
  - ❑ UD toilets are situated far away from existing houses and may make users vulnerable to criminal activities when using them at night, the other motivation is that UD toilets smell very bad despite ash and saw dust being used
  - ❑ Most households that have UD toilets complain about responsibilities of emptying vaults, difficulty to operate and maintain, construction mistakes, handling of faeces and their preference of a flush toilet
  - ❑ The vaults are also too deep and difficult to clean, urine pipes often block, Urine is disposed to soaked pits and in few instances it is piped to velds for fertilizer making
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# Economic Issues

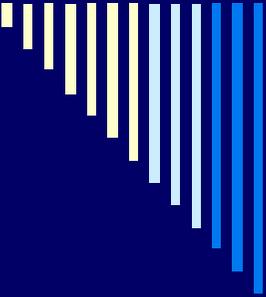
- ❑ The implementation of UD in Durban did not result in improved environment, food security for households and safer handling of waste flow from the households
  - ❑ The externalities are borne by households that operate and maintain their latrines without any form of subsidy
  - ❑ Ashes and sewage dust is not provided, whereas in most rural areas there is electricity and people are no longer using fire for cooking and other domestic services
  - ❑ The double piping system is expensive in terms of installation costs
  - ❑ The costs of removing and resealing the slab of the vault that are borne by households
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# Training and Children usage

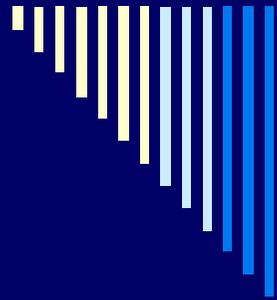
- Training on usage, health and hygiene provided in some instances was not adequate to enhance behavioural change.
  - Children under the age of 10 are not using UD toilets because
    - (1) They are too small and too young to use the seat properly, they might fall in the vault, they may defecate in the urine receptacle
    - (2) They don't know how to use the toilet
  - Failure to use UDs by children resulted in exposing them to health risks as they openly defecate in bushes
  - Some households are neither using ash no soil to cover faeces after defecation
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# Excreta Removal

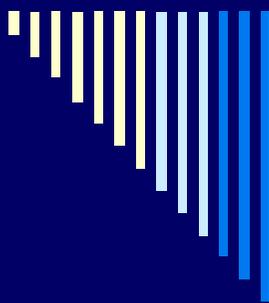
- Most users are objecting to emptying the vault and disposing of the excreta because:
    - (1) They do not want to work with excreta.
    - (2) The municipality must take the excreta away as nobody is willing to empty the vault and handle faeces
    - (3) It is not easy to dispose of the contents of the vault and emptying of the vault is not easy
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## Use of Faeces and Urine as Fertilizer

- Most users are not willing to use neither faeces nor urine as fertilizer because:
    - (1) They don't like to handle faeces.
    - (2) It is unhealthy to use excreta in the garden
    - (3) Faeces smell, no matter how dry they are
    - (4) Urine kills plants
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# Way forward

- ❑ Sanitation committees need to be elected in a transparent and participatory manner, sanitation technology choices made need to meet the needs of the users and not imposed by eThekweni
  - ❑ Currently households regard UDs as punishment for being poor, black and Zulu and some form of degradation and humiliation
  - ❑ Training, operation and maintenance, emptying of the vaults and safe disposal methods to be revisited, health and hygiene education to be given a priority, improvement in construction of UDs need to take place, use of excreta and urine for fertilizer to be relooked
  - ❑ Emptying of vaults need to be subsidised together with transportation for agricultural use of both faeces and urine, gender sensitivity of construction of UDs
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