

water & sanitation crisis: innovations from Africa

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Structure of presentation

- Current water and sanitation problem
- How we tend to think about that in Africa
- Is water borne solution part of the solution...or part of the problem?
- Introduction to ecological sanitation framework
- Examples and compelling cases from africa

Nature, Society, Water

- 80% of all diseases and 25% of deaths in the developing world are caused by polluted water.
- More than 90% of waste water worldwide is discharged into the environment either uncontrolled or after unsatisfactory treatment.
- The spectre of water scarcity is creeping across the globe. In Africa alone, 300 million, one third of the continent's population already live under conditions of acute water scarcity.

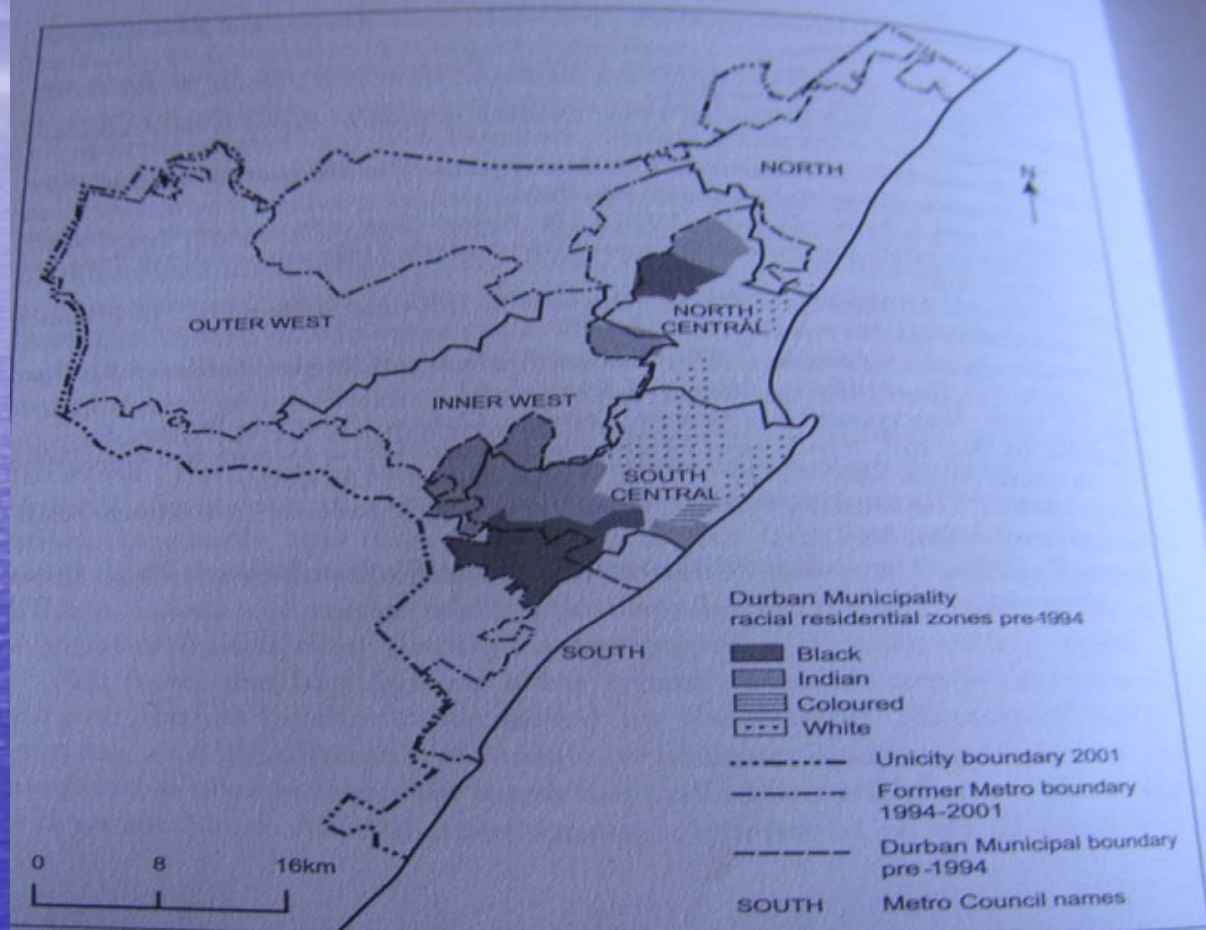


What is the problem/solution?

- **Problem:** governance. Those who are politically marginalized are left to fend for themselves. **Solution:** the '(un)developing world' will follow model of industrialized countries, which is to pipe pressurized safe water 24/7 linked to water borne sanitation to everybody

Waterscapes and Socialscapes in Africa

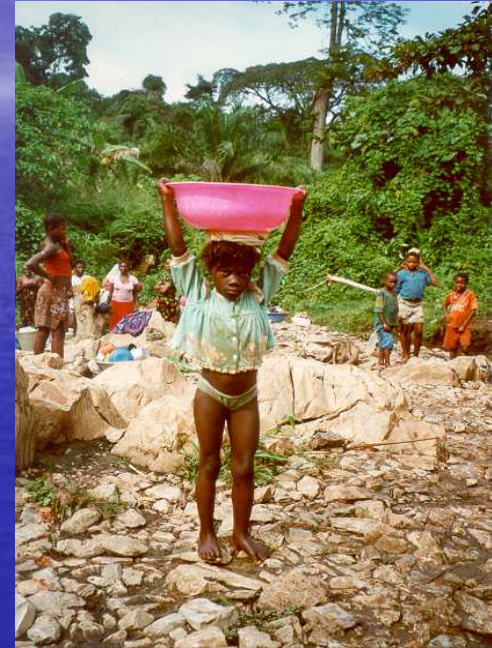
- Colonial municipalities: European-style piped pressured water but not more generally.
- Colonial intent: create and maintain 'health regimes that corresponded to distinctions of wealth and race' (McNeill 2001: 128), thereby scripting those distinctions into the lifecycle of the municipality itself.



political boundary changes in Durban, 1994-2001.

Waterscapes and Socialscapes

Those that have access to **pressurised water and waterborne sanitation** got it because they were comparatively rich, and getting it makes them healthier and richer still. Those who lack it, lack it mainly because they cannot afford it and lacking it makes them sicker and poorer still.

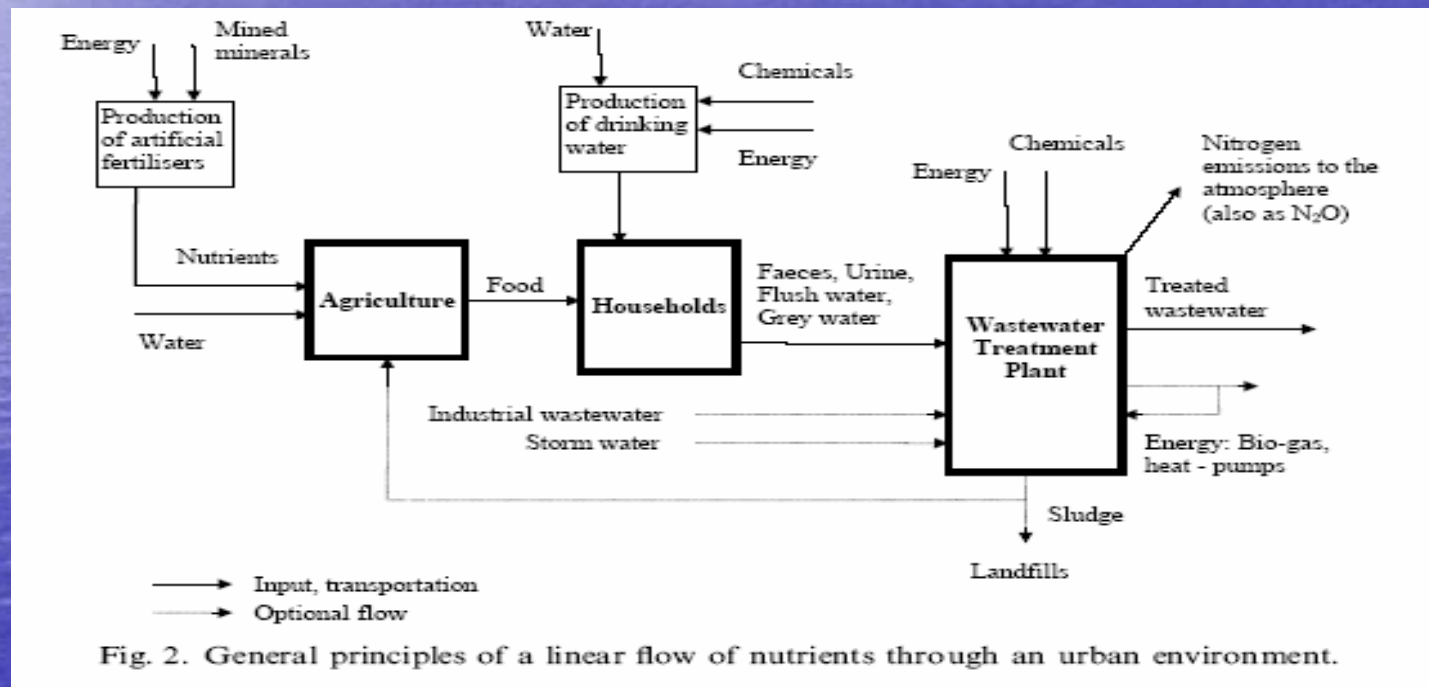


"Those whose job is to select and design appropriate systems for the collection and treatment of sewage ... must bear in mind that European and North American practices do not represent the zenith of scientific achievement, nor are they the product of a logical and rational process. Rather, [they] are the product of history, a history that started about 100 years ago when little was known about the fundamental physics and chemistry of the subject and when practically no applicable microbiology had been discovered.... These practices are not especially clever, nor logical, nor completely effective—and it is not necessarily what would be done today if these same countries had the chance to start again."
(Feacham et al., 1983, quoted in Venhuizen, 1997).

In other words....

"The basis for keeping the present sanitary system lies within a restricted amount of financial resources. Municipalities that have invested in expensive technology, see it as necessary to use it until the economic life of an investment comes to an end."

But...



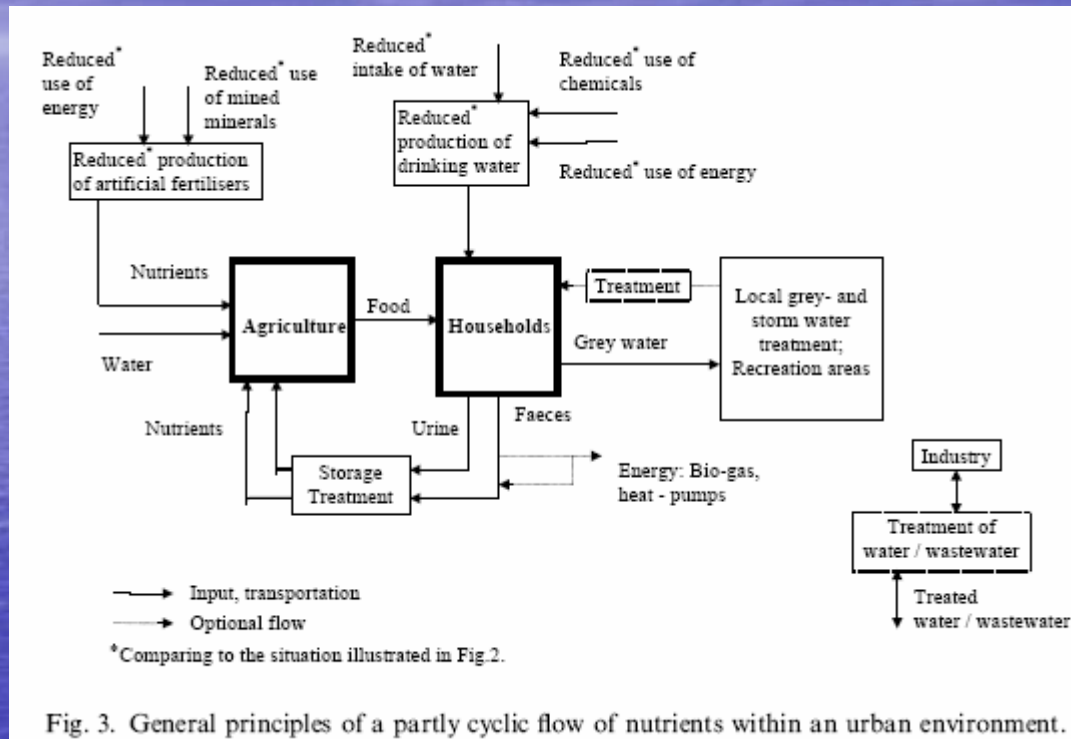
Source: Berndtsson and Hyvonen, 2002

Some Key Concerns

- 1.1 billion people served by sewage systems: only 30% have advanced end-of-the-pipe treatment (secondary level or better) (Matsui, 2002).
- Of 540 major European Union cities, only 79 have advanced tertiary sewage treatment, 223 have secondary treatment, 72 have incomplete primary or secondary treatment and 168 have no or unknown treatment (EU, 2001).
- Uncontained and untreated human excreta pollute groundwater tables, streams, lakes and coastal zones, helping to perpetuate the cycle of human disease and upsetting fragile aquatic ecosystems by nutrient overloading and eutrophication.
- Though the amount of clean water available per capita is gradually decreasing, still large amount of clean, drinkable water is used for water-based sanitation.

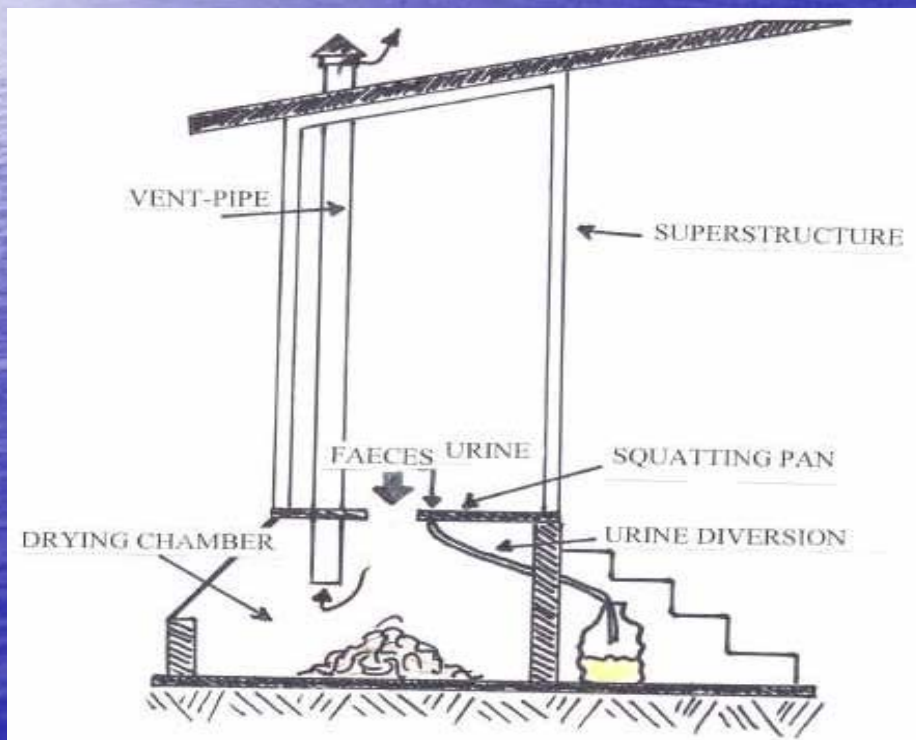
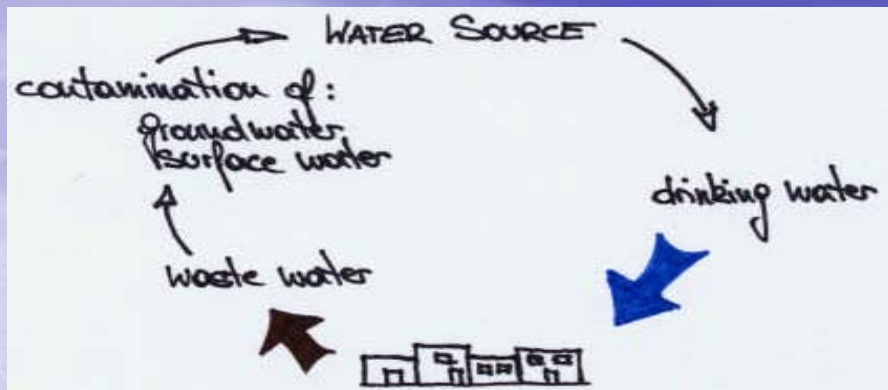
Closed Loop at various scales

see: www.ecores.org for more info



Options? 80% of the people without sanitation, about 2 billion people, live in rural areas





One solution? One provider?

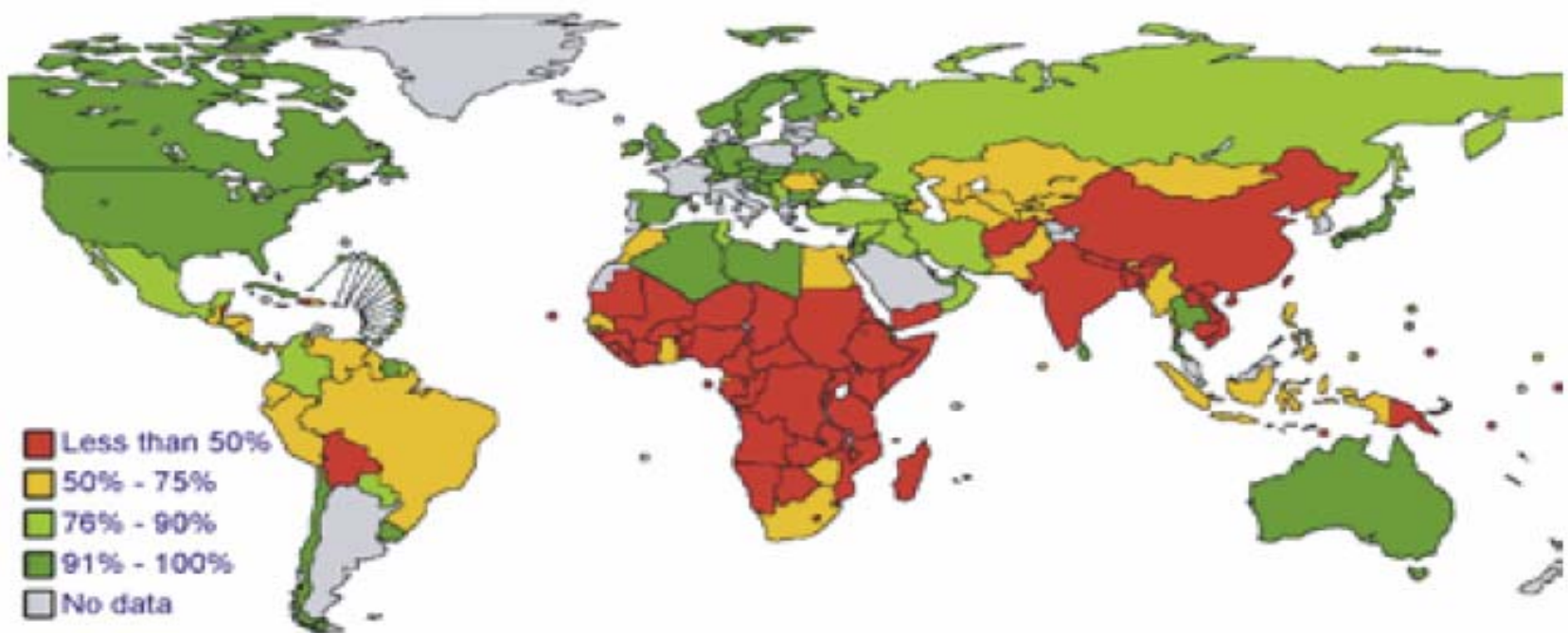
- One-size-fits-all homogenizes the opportunity space, reduces diversity, makes innovation less likely and systems more fragile.



State weakness

- In Accra, around 30 per cent of residential areas are served by solid waste house-to-house collection services (Post 1999)
- only 16 per cent of “households” have access to water closets (WCs), mostly connected to septic tanks (Amuzu and Leitmann 1994).³
- In Kumasi, house-to-house collection is much less, at around 5 per cent (involving 700 houses) (Devas and Korboe 2000).
- In the other main cities of Tema, Tamale and Sekondi-Takoradi less than 30 per cent of the population have an acceptable household toilet facility (Republic of Ghana 1999)...
- In the rural areas the situation is worse.
- Source: Ayee and Crook 2003

(source: ecosanres, 2005)



Sanitation coverage in 2002: percentage of population with improved sanitation (WHO & UNICEF, 2004)



*Is there room for thinking
seriously about alternative
and closed loop systems?*