

Sanitation in developing countries: a bussiness opportunity?

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Outline

- Introduction of organisations
- An example: MobiSan
- Contribution of Dutch private sector to improved water & sanitation services



Lettinga Associates Foundation

Started in 1997 was spin-off of Environmental Technology Dept,
Wageningen University

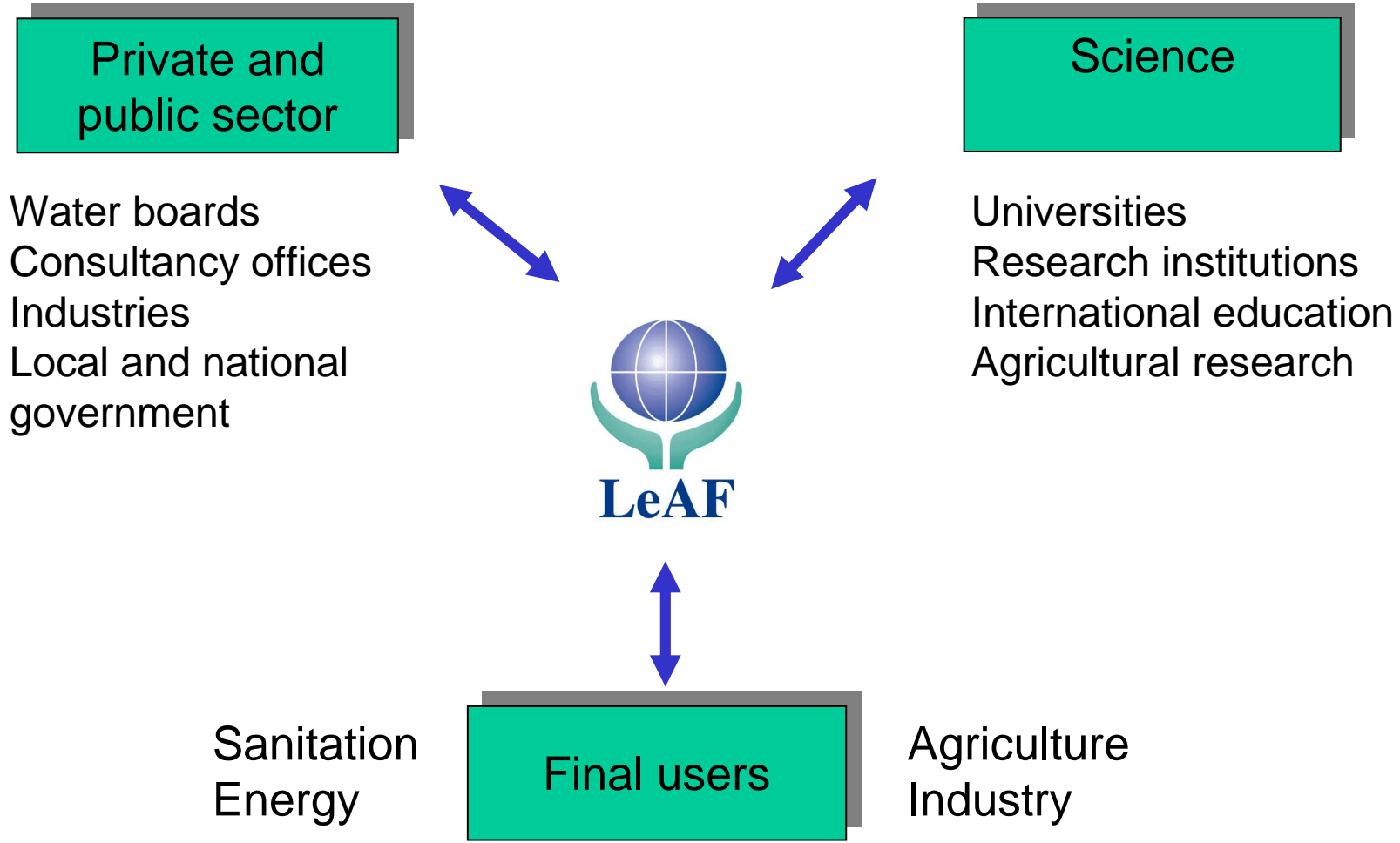
- ❑ Strategic alliance with WUR
- ❑ R&D, capacity building & training, consultancies
- ❑ Fields: anaerobic technology, new sanitation, WaSH
- ❑ Personnel: 10



Prof.dr. Gatze Lettinga



Position of LeAF



Examples of work

- Design of UASBs for urban wastewater: e.g. Ghana, Mexico and Arabic Emirates
- Design of reactors for industrial wastewater: e.g. Colombia, France, Netherlands
- ...
- Integrated watershed management, Matagalpa, including water and sanitation for 5000 people (with
- Improvement of prison waster and sanitation facilities, Kenia...
- R&D into system for urine concentration
- Mobile Sanitation for informal settlement in developing countries
- ...



UASB Ghana



Visie op sanitatie

- Drinkwatervoorziening zonder sanitatie is fout!
- 'Apropriate' sanitation
- Zo min mogelijk riolering (duur!)
- Geen verdunning van sterk geconcentreerde afvalstromen
- Hergebruik van nutriënten, biogas en water waar mogelijk
- Mogelijkheden om te komen tot 'cost recovery' noodzakelijk
- Organisatie rondom sanitatie cruciaal punt

Pilot project

Mobile Sanitation Facility for the Informal Settlements in Cape Town

MobiSan®



CITY OF CAPE TOWN | ISIXEKO SASEKAPA | STAD KAAPSTAD



Background

- Innovation & demonstration project 80% financed by Partners for Water
- Partnership between:
- Consortium:
 - Water Services Department Cape Town: beneficiary and local provider
 - Landustrie Sneek: project leader and constructor
 - Vitens-Evides International: local network and experience
 - LeAF: knowledge, network and advise



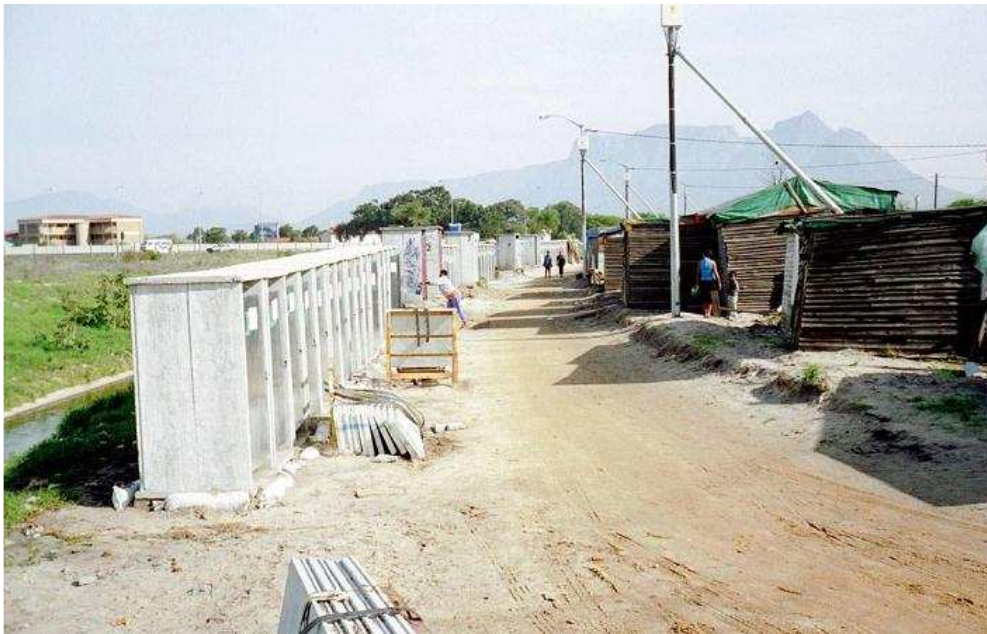


Informal settlements in Cape Town

- ❑ About 3 million 'formal' citizens
- ❑ About 0.9 million people in informal settlements
- ❑ Water Services Department takes responsibility to provide water and sanitation to informal settlements
- ❑ Water through public stand pipes (90%), sanitation: mostly container or chemical toilets (35%)



Container toilet (water tight): 4500 toilets



Container toilet (water tight): 4500 toilets



Problems of Water Services Department

- Budget too low to provide container toilets for all informal settlements
- Operational costs of emptying are high (emptying frequency 1-2 times per week)
- Toilets are shared by 5 families and often not well-maintained
- Private land owners often do not allow permanent facilities
- Which options are appropriate?

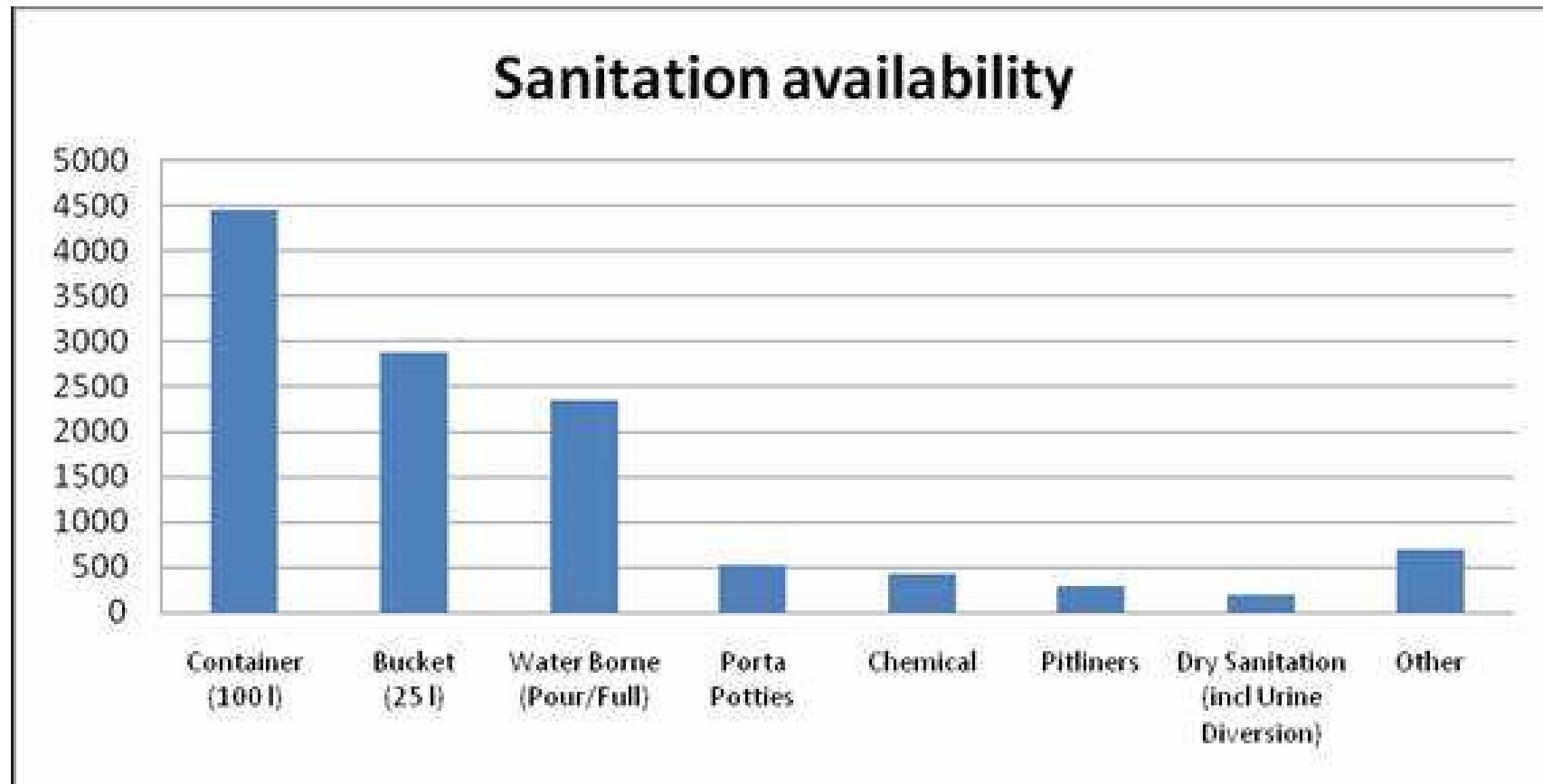


Chemical toilet (water tight)

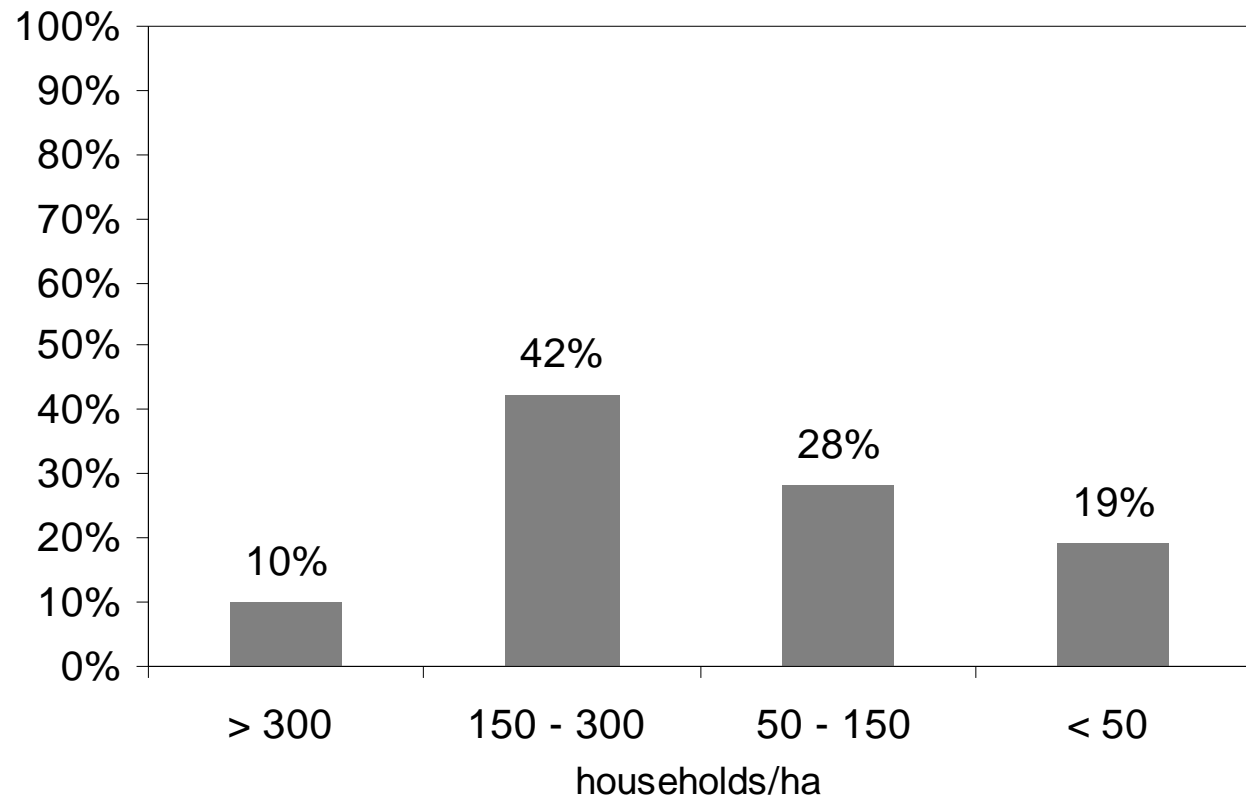




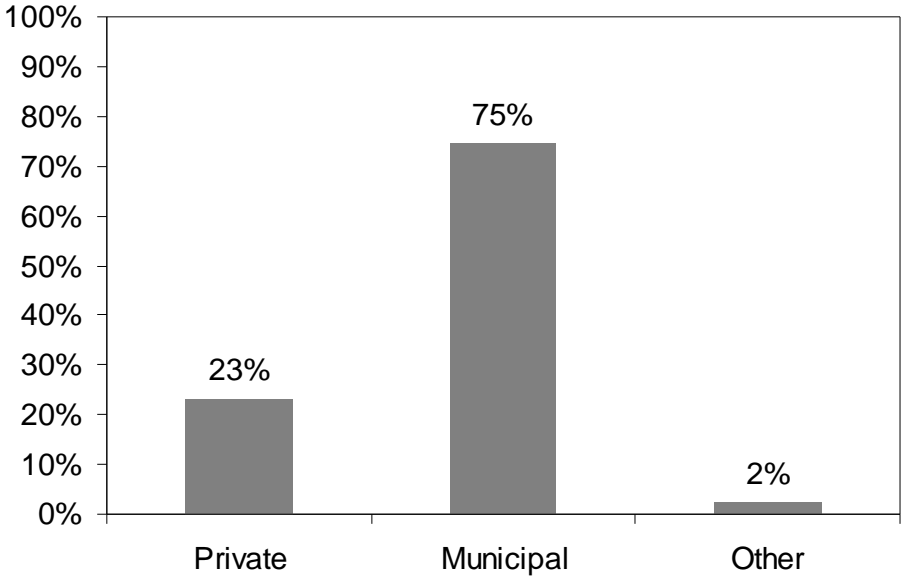
Approximately 35% of population informal settlements has a basic facility



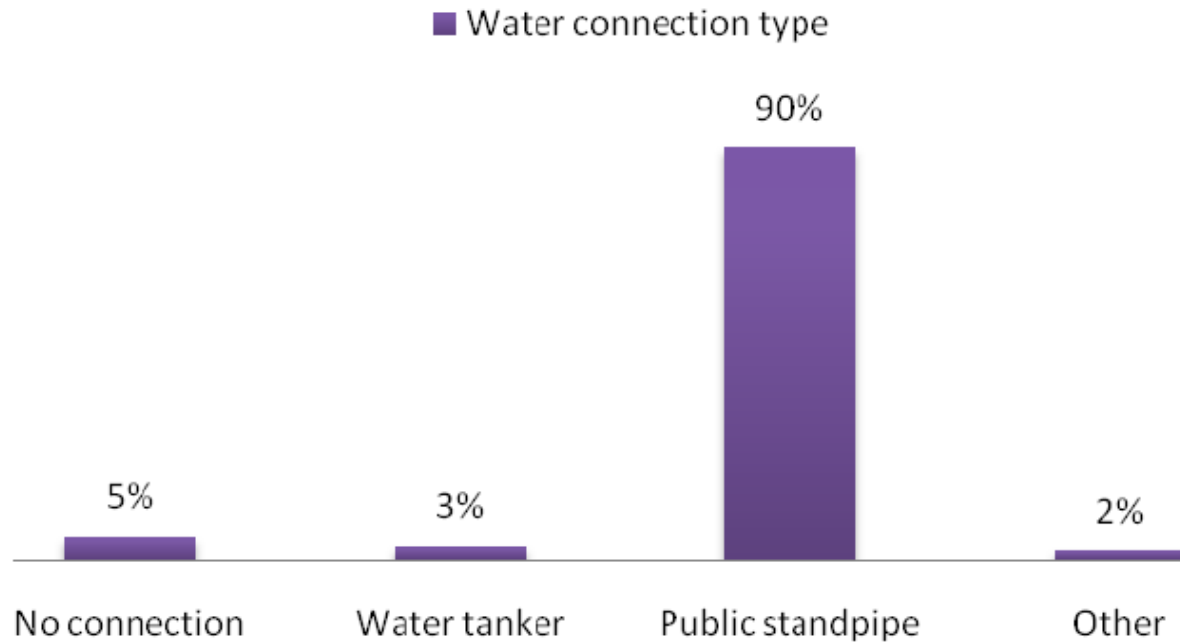
Housing Density



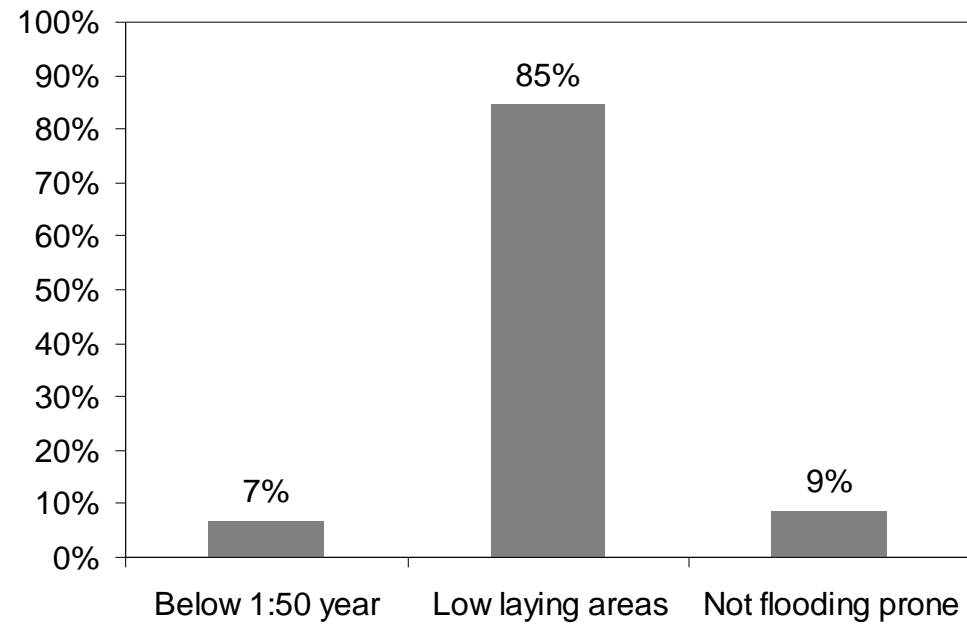
Land ownership



Water Supply Availability



Flooding Prone Areas

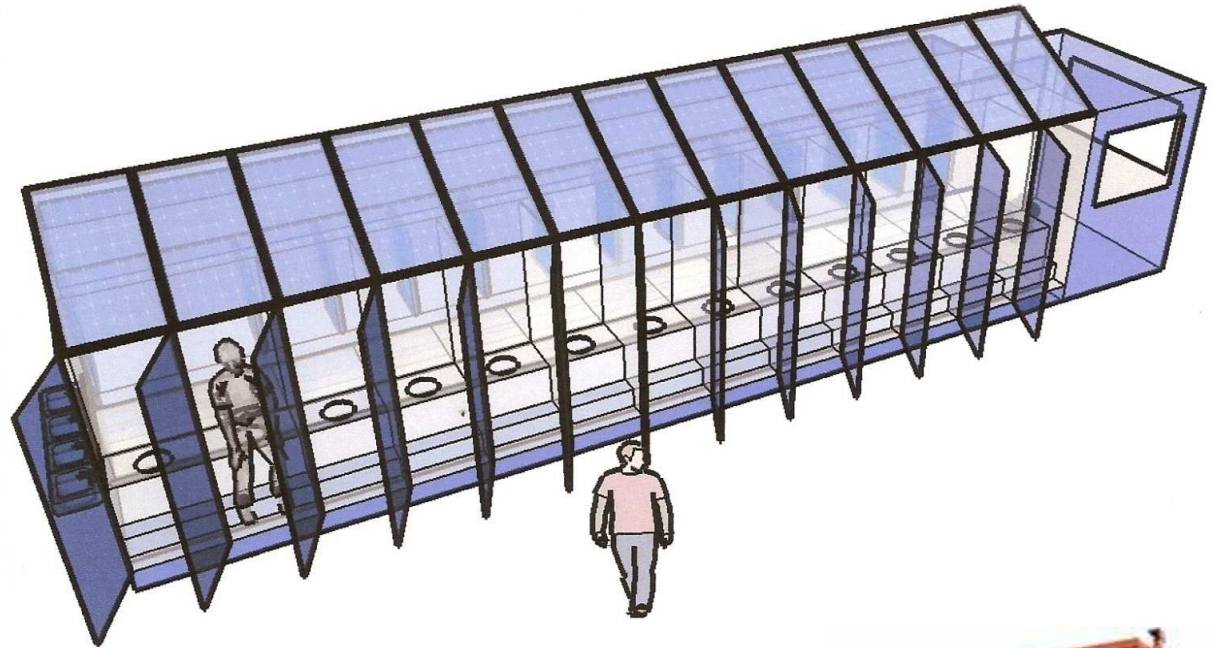


Demonstration project (2008-2009)

- Provide a Basic Sanitation Facility to serve approximately 500 people in informal settlements
 - Low operation and maintenance requirements
 - Competitive in price and costs
 - Open 24 hours
 - Run by a caretaker
 - Producing a potential fertilizer
 - Not dependent on sewer networks, water supply, groundwater table, type of soil or cleansing materials
 - Matching the characteristics of the informal settlements: temporary, dynamic, emergency services or unsuitable land



MobiSan®



MobiSan unit under construction

- 13 toilets and 13 men urinals (future option: showers)
- Treatment and production of potential fertilizer:
 - Urine diversion and storage
 - Composting system
- Emptying service required once every 6 months
- Removal of urine once every 1 month
- Care taker/shop room available
- 10-20% cheaper than current container toilets



Sanitation: bussiness opportunity for the private sector?

Yes, however:

- It requires tailor made solutions and not just transfer of 'our' approaches
- Intensive cooperation with local partners and possibly joint ventures
- Careful thinking
- Support by investing organisations (in our case: PvW)



Opportunities

- Cooperation with local governments, increasing dedication to MDGs
- Connection with agricultural sector, African countries lack fertilizer
- Urine and feces can be an interesting and financially attractive fertilizer
- Product form and transport needs re-thinking and R&D (Concentrating? Struvite?)
- Marketing requires a lot of attention



Landustrie Sneek BV

- ❑ Started in 1913
- ❑ Mechanical contractor
- ❑ Fields: communal WWTP
- ❑ Personnel: 140



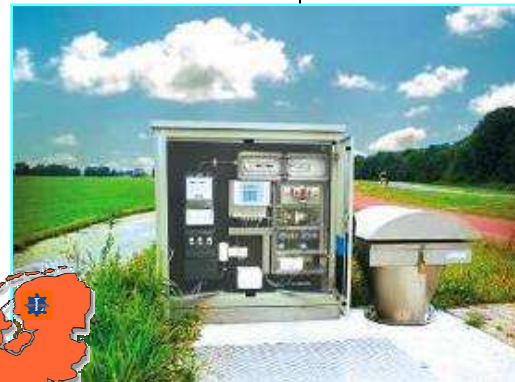
Landustrie Sneek BV

Productgroepen

LANDUSTRIE



Zuiveringstechnische
Installaties



Pompen en
Pompinstallaties

Landustrie Sneek BV

Decentrale afvalwaterbehandeling:

 DeSaH-project in Sneek (blackwater treatment)



Landustrie Sneek BV




Decentrale afvalwaterbehandeling:

-  DeSaH-project in Sneek (blackwater treatment)
-  Decentral MBR (DWA treatment)



Landustrie Sneek BV





Decentrale afvalwaterbehandeling:

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Landustrie Sneek BV

Decentrale afvalwaterbehandeling:

-  DeSaH-project in Sneek (blackwater treatment)
-  Decentral MBR (DWA treatment)
-  MobiSan
-  Extension DeSaR with greywater treatment



Landustrie Sneek BV

⚙️ **Decentrale afvalwaterbehandeling:**

- ⚙️ DeSaH-project in Sneek (blackwater treatment)
- ⚙️ Decentral MBR (DWA treatment)
- ⚙️ MobiSan
- ⚙️ Extension DeSaR with greywater treatment

• **Blue Energy**

- Desk-study naar haalbaarheid
- Pilot installatie Frisia



Ukrain






✿ DeSaR for holiday parc (Crimea):

- ✿ 1000 ie
- ✿ Private investor
- ✿ Ecological building method
- ✿ Luxury houses
- ✿ Blackwater and greywater treatment



Ukraine





Black Sea region:

-  Touristic area
-  Highly polluted
-  Potable water production
-  Often swimming restrictions
-  Untreated discharges of wastewater



Ukraine






Characteristics:

-  Primary treatment or no treatment
-  If wastewater treatment plants; bad maintained
-  High water consumption by irrigation
-  Very low water tarif



Ukrain




Challenges:

-  High investments for potable water production plants necessary
-  High spoilage of potable water
-  High investments for communal wwtp necessary
-  Decrease in energy demand of industrial wwtp's
-  High economical growth



Ukraine

Options:

-  Private investors of luxury housing estates
-  Industry, based on decrease of energy demand
-  Decrease of water spoilage



Interesting markets for Dutch companies?

⚙️ Options:

- ⚙️ Delivery of key components
- ⚙️ Assembly by local companies
- ⚙️ Operations and maintenance by local entrepreneurs
- ⚙️ Sustainable solutions, environmental + **economical**

