Bring on the RevoluSAN.....

South Africa's response to next generation sanitation

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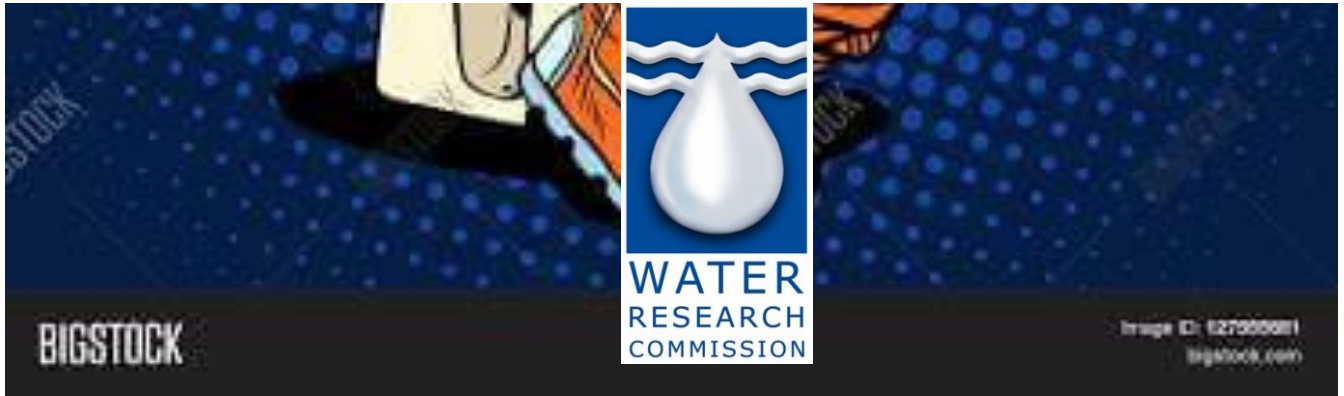
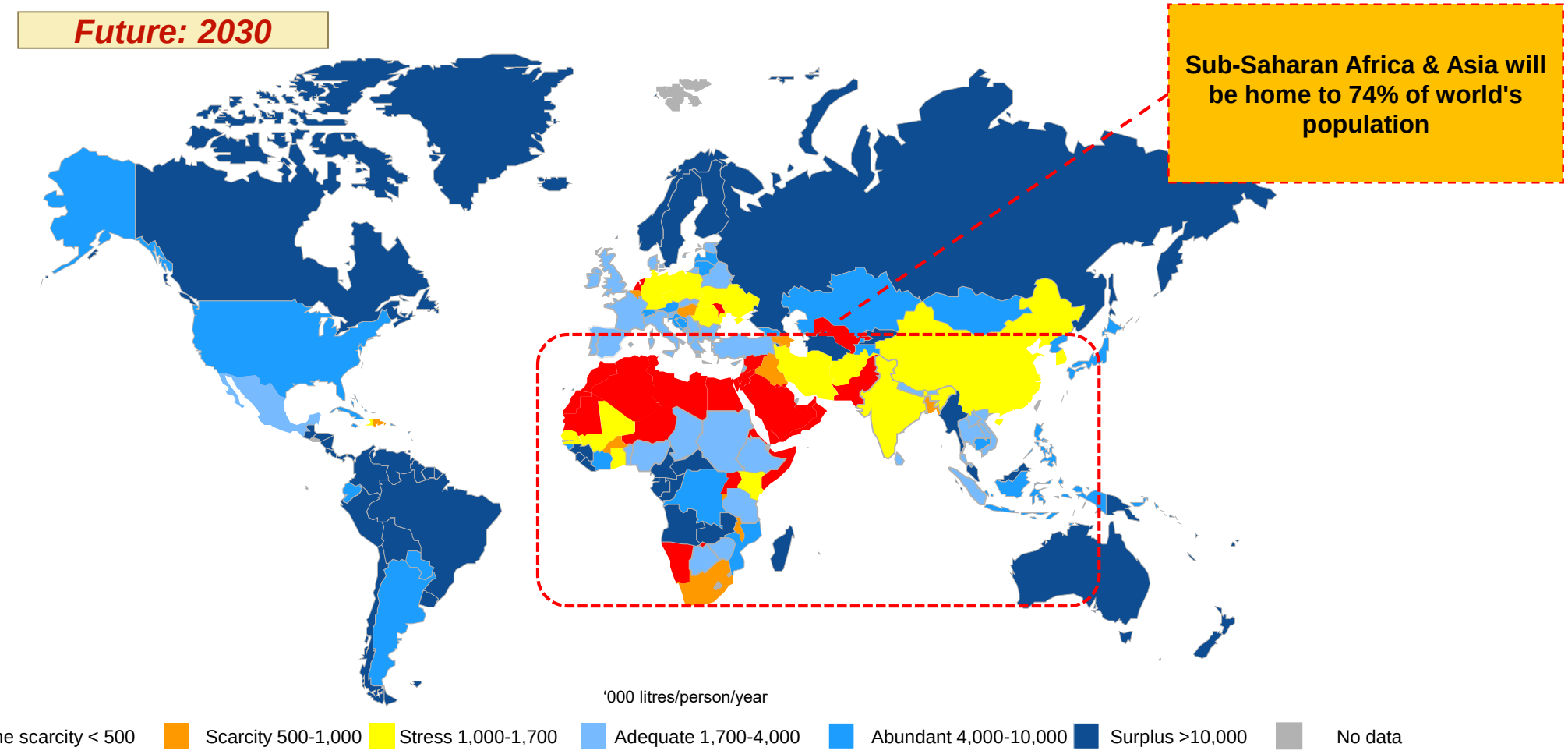
Valerie Naidoo, Sudhir Pillay

Water Research Commission, South Africa



AfricaSan5 FSM5

WATER SCARCITY IS NOT DRIVING CHANGE !!!!



1. United Nations environment programme
Source: 'Global Water Initiative' (June 2005), GEF International Waters Conference, The Coca-Cola Company, Grail Research, BCG Analysis

Twin challenges

- **Rapid urbanization** – massive growth in cities in the global South; means more water for their needs and more waste
- **Climate change** – increased weather variability
- **Problem** is that our pattern of urbanization and with it pattern of water-waste management is **highly resource intensive; capital intensive**
- Leading to inequity; unsustainability

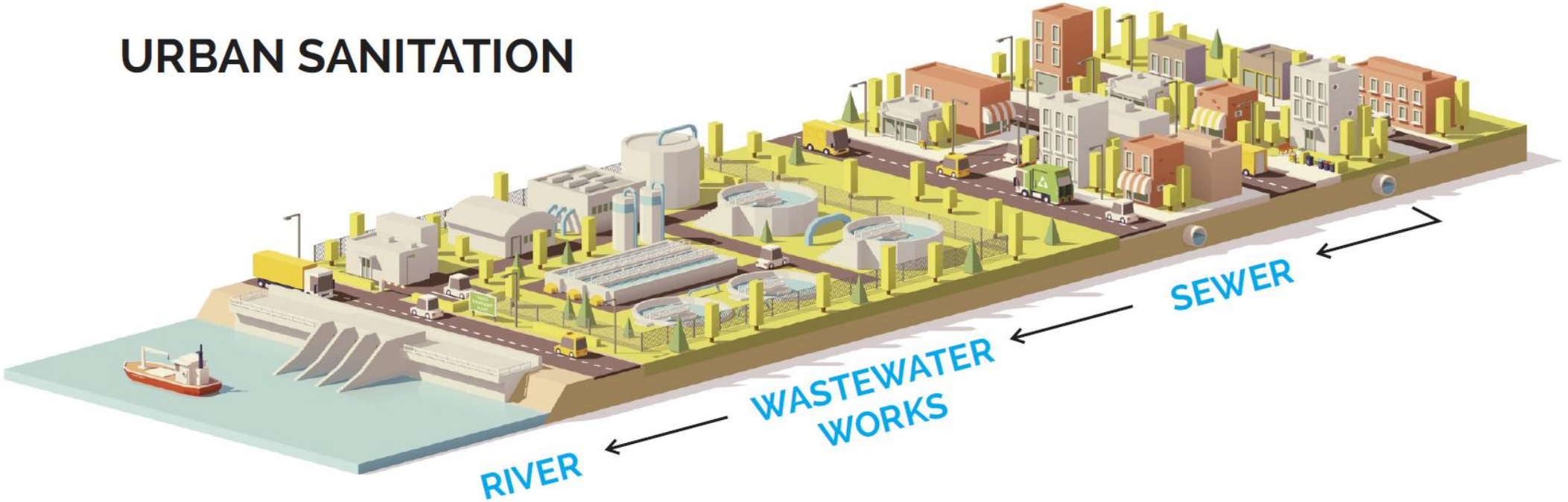
Source: Dr Sunita Narain, CSE India

NOT ALONE

But inevitable?

Source: Dr Sunita Narain, CSE India

URBAN SANITATION



RURAL SANITATION

Current Binary Model

Conventional WWTW

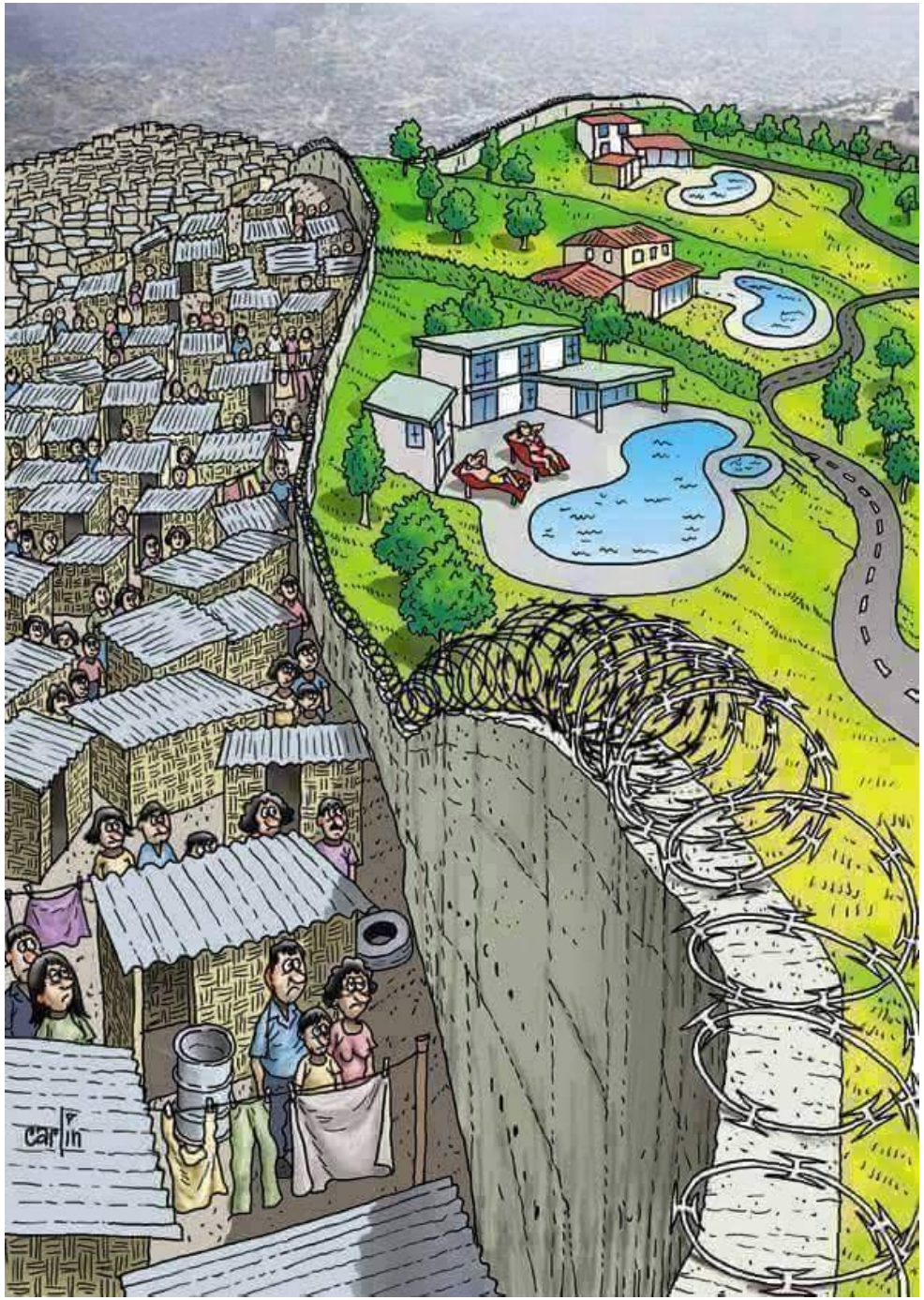
- FLUSH-&-FORGET
- Considered “gold standard”
- Resource intensive (Capital, Sewers, Water, Energy, etc.)
- Challenge to meet urbanisation & population growth
- Expensive & beyond reach of developing countries
- Established technologies (discharge regulations, guidelines, policies, etc.)

On-Site Sanitation

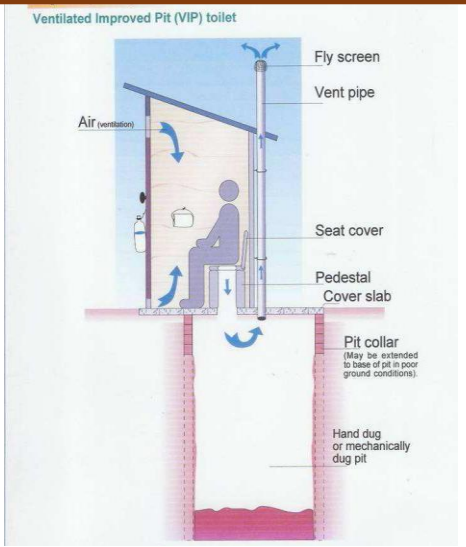
- DROP-&-STORE
- Most prevalent tech in SSA
- Little / no water
- 5-50% cheaper (than activated sludge)
- Can be scaled at urbanisation rates
- Faecal Sludge Management – lack of policies & standards, disposal routes, O&M overlooked.
- Viewed as “temporary” solution

SOLUTION??

Gold Standard



Hole Standard




Source: Johnny Miller

Current solutions full of problems

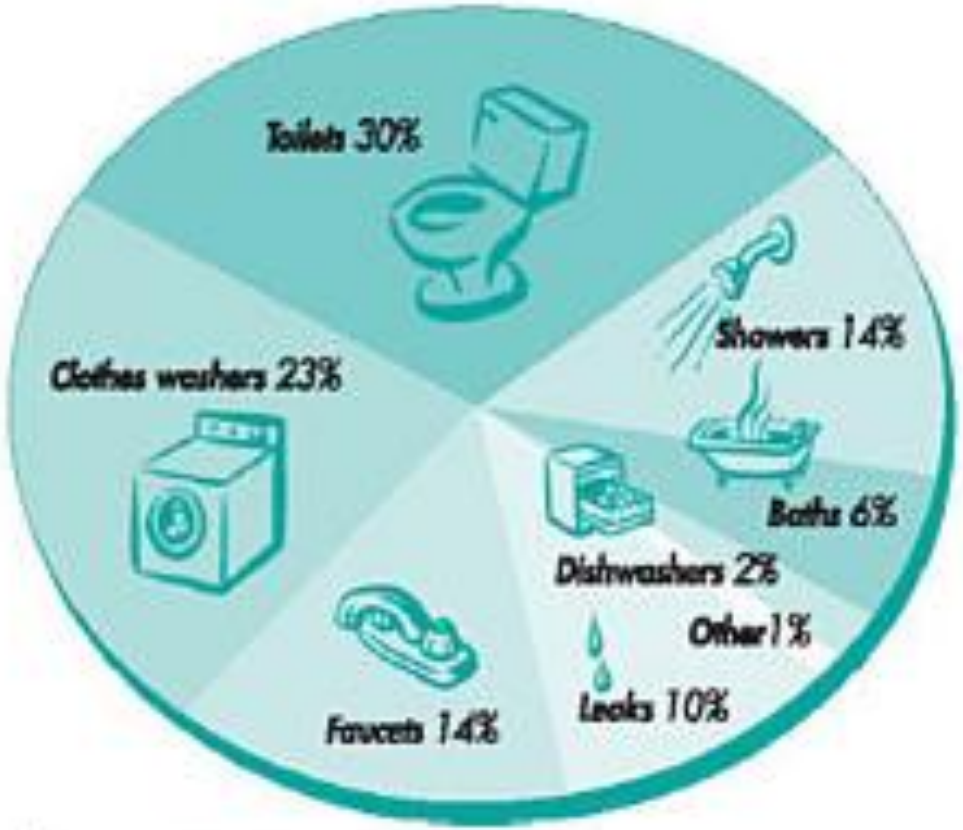
Hanging toilets	Pit latrines	Chemical solutions	Flush: Septic tank	Flush: Sewer
				
Foul odors Poor user experience Potential safety concerns Risk of environmental contamination			Frequent maintenance Poor waste disposal Difficult to retrofit Risk of leakage	Expensive Needs running water Requires infrastructure Time consuming to build

Source: BMGF 2014

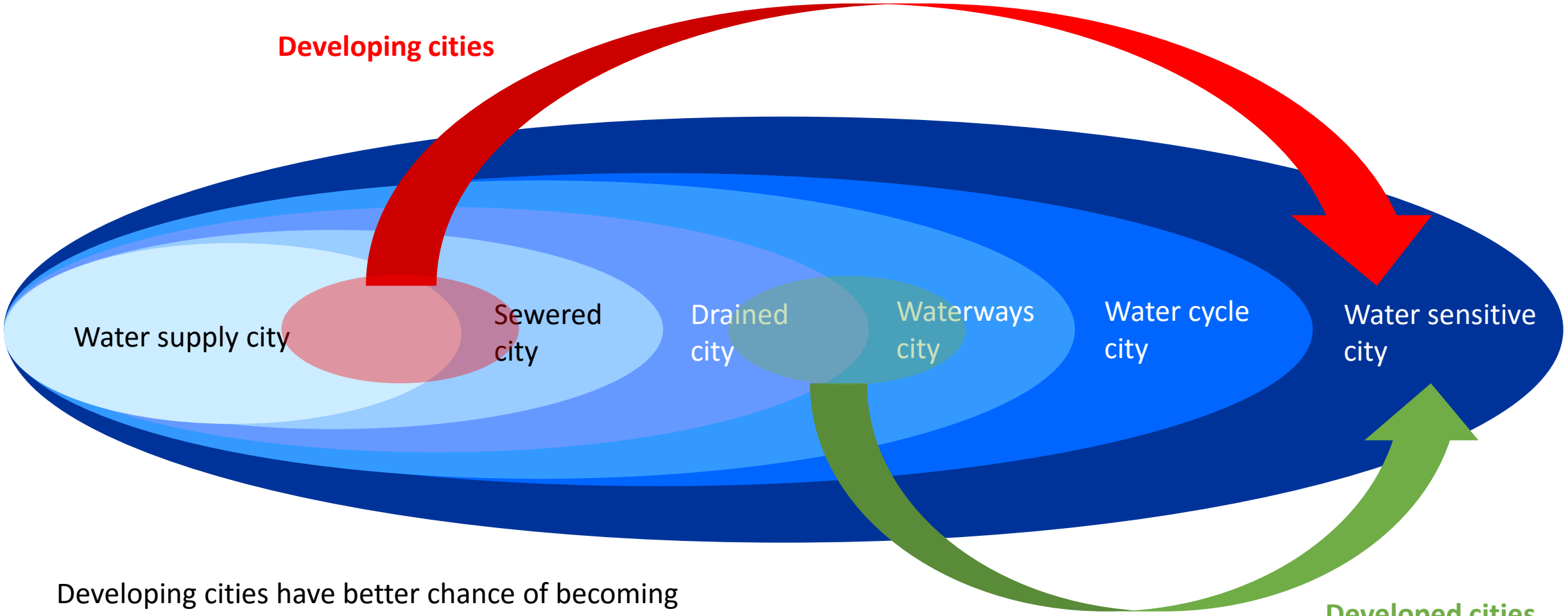
150 to 200 grams

We have subjected nearly 200l per capita per day to pollution

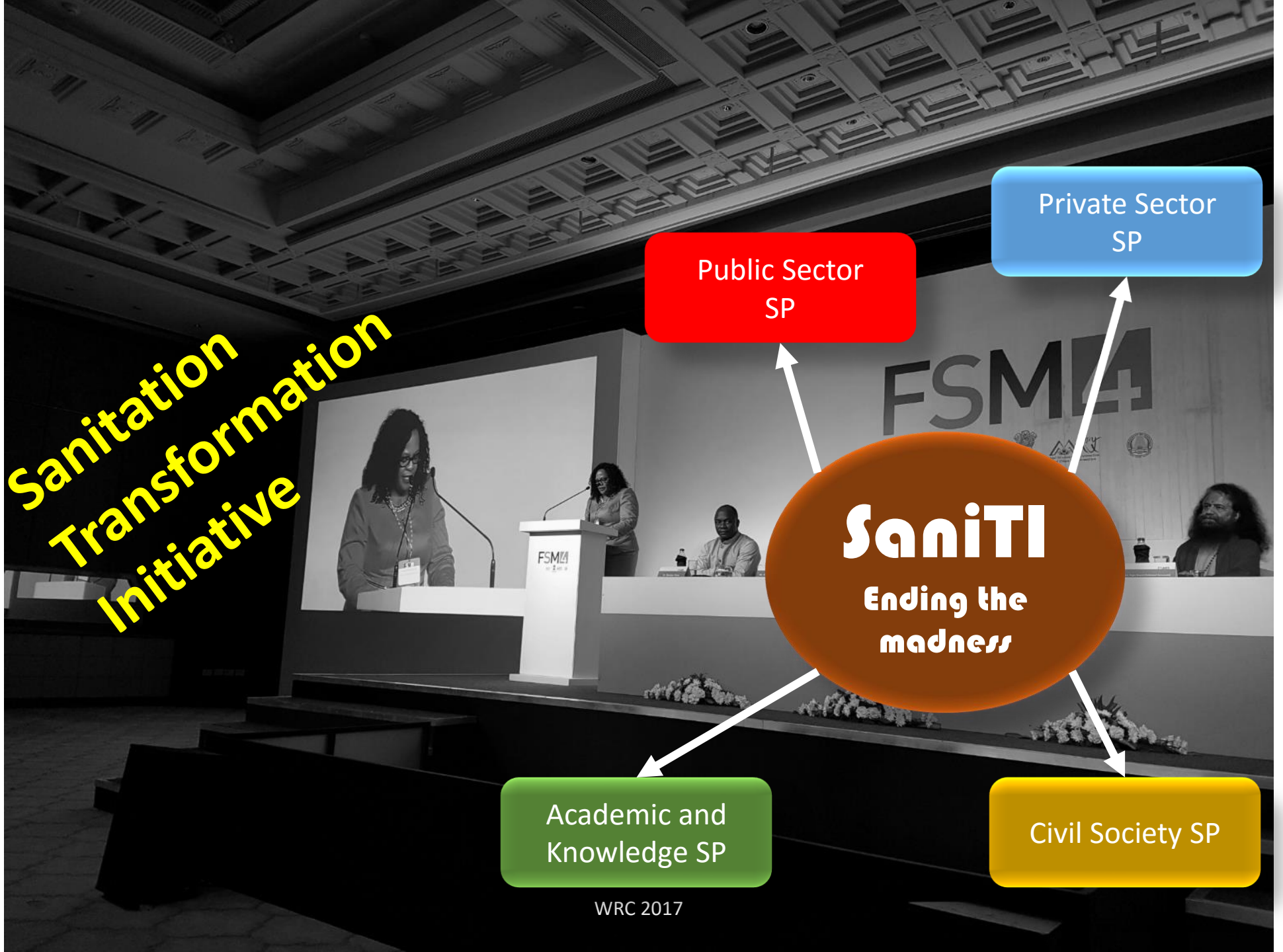
- An individual flushes the toilet on average 6 times a day
- Uses a flush volume from 4 to 13 litres per flush (That's nearly 25 to 35% of domestic use)
- That to move around 150g to 200g of human wastes
- Then we use another 150 to 200l per capita to covey it down the sewer



* Source GVRD

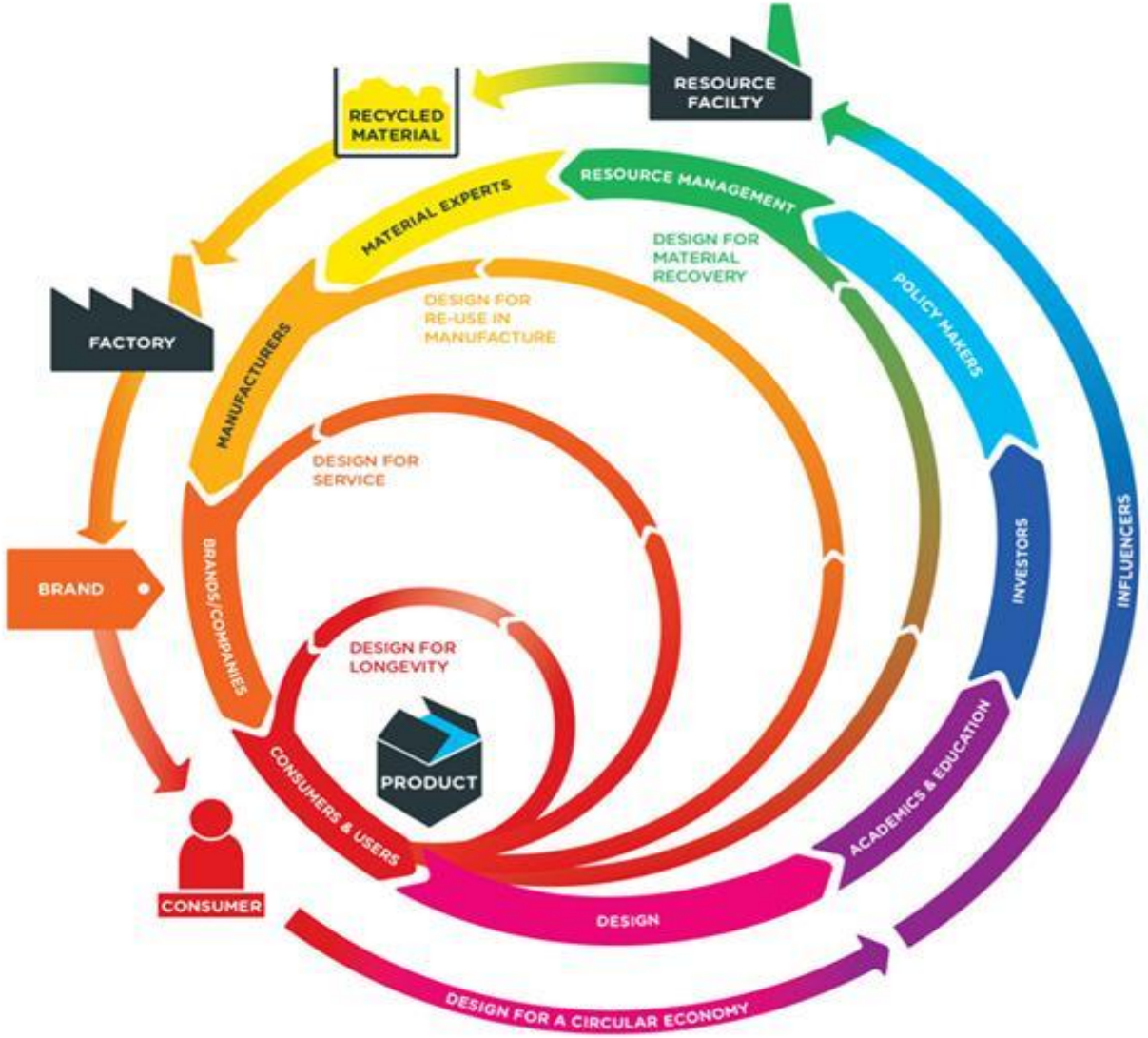


Developing cities have better chance of becoming
Water sensitive since they have not heavily invested
Into old single-purpose systems


Sanitation Transformation Initiative
Public Sector SP
Private Sector SP
SaniTI
Ending the madness
Academic and Knowledge SP
Civil Society SP
WRC 2017


INPUT
WATER
FAECES
URINE
RE-USED
WATER
NEW
TOILET
PROCESS
OUTPUT
VALUE PRODUCTS:
BIOCHAR
FUELS
FERTILISERS

New Sanitation Model CAN STIMULATE A CIRCULAR ECONOMY



MRW 1347893_circular-economy.png

SANITATION ACADEMY
Building the next generation and cohort of sanitation professionals

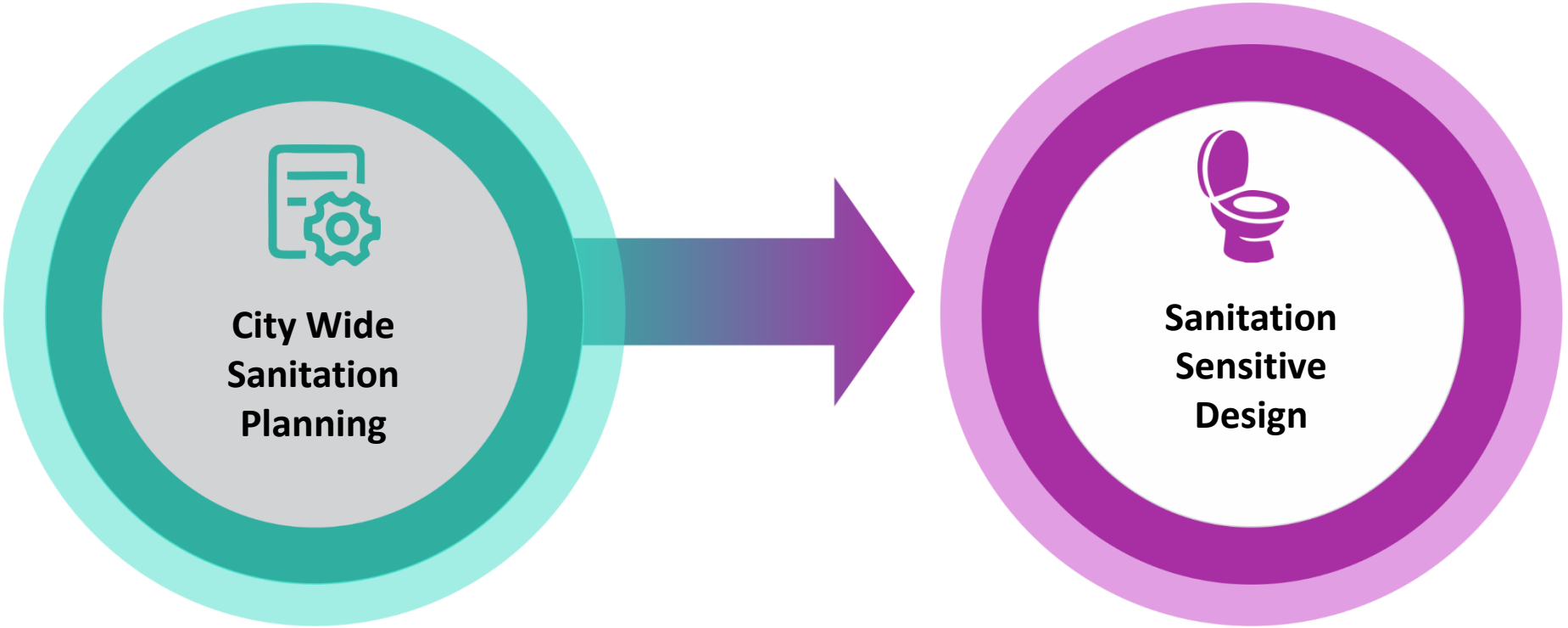
INDUSTRIAL PATHWAY
- Industrial information platform
- establishing manufacturing platforms
- Distribution logistics
- Servicing models
- Creating markets

SASTEP
- EFT
- Demonstration
- Market and manufacturing studies

POLICY
- Sanitation White Paper
- Political will
- IPAP
- WATER RDI

TECHNOLOGY STANDARD & REGULATIONS
- ISO 30500
- SABS Draft
- NBR

Non-sewered Sanitation



- SFD
- SSDs
- New institutional and social model
- Target behaviour change
- Valorisation and beneficiation
- New social entrepreunial pathways

Municipal Managed

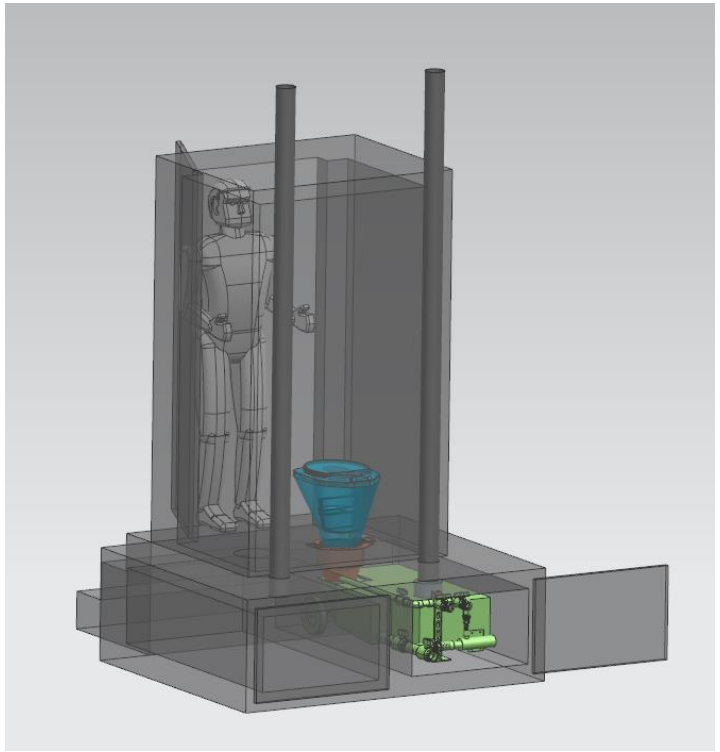
Public driven model

Municipal Enabled

Industry driven model

INDUSTRIAL POLICY ACTION PLAN 2017

- Next Generation Sanitation Cluster Programme
  - The establishment of the next generation sanitation CDP.
  - Development of emerging industry capable to develop new technology, within the framework of localisation.
  - Procurement and policy incentives for improved uptake.
  - Development of high-end skills for advanced thermal sanitation technologies and artisanal skills for operation and maintenance.
  - 20 SMMEs per annum post-implementation.
  - Potential 15,000 jobs at 20% market penetration for the currently unserved.

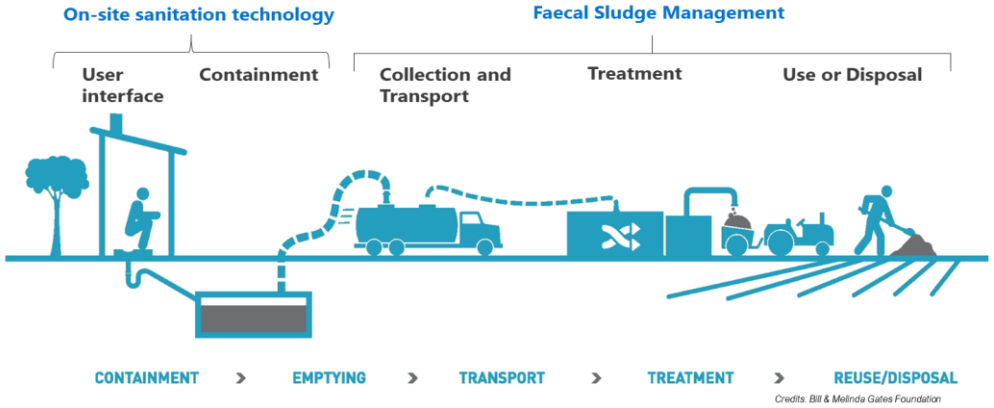


TECHNOLOGY STANDARDS

INTERNATIONAL STANDARD **ISO/FDIS 30500**

Non-sewered sanitation systems — Prefabricated integrated treatment units — General safety and performance requirements for design and testing

Systèmes d'assainissement autonomes — Unités de traitement intégrées préfabriquées — Exigences de performance et de sécurité générales pour la conception et les essais



INTERNATIONAL STANDARD **ISO 24521**

First edition
2016-09-01

Activities relating to drinking water and wastewater services — Guidelines for the management of basic on-site domestic wastewater services

Activités relatives aux services de l'eau potable et des eaux usées — Lignes directrices pour la gestion sur site des services d'eaux usées domestiques de base

Reference number
ISO 24521:2016(E)

Not a Flush in the Pan – There is Impetus

EntrePOOnership

In South Africa we on our way to mine a new gold……

The future is now.....

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