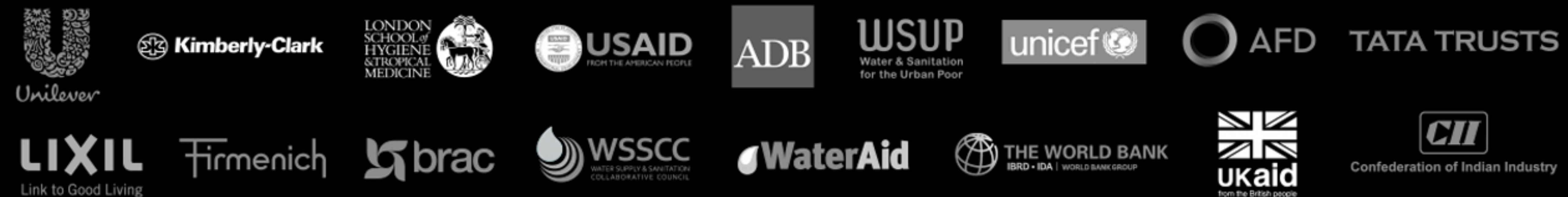


# TOILET BOARD COALITION

African Water Association Meeting  
17 July 2017 - Accra



# A Unique Business-Led Coalition Dedicated to Business Leadership for Sanitation



**OUR GOAL:** To catalyse a robust business sector to deliver smart, sustainable and resilient sanitation 4 all.

**OUR MISSION:** To accelerate innovative business solutions that deliver sanitation at scale, to those who need it most - by innovating at the at the social, environmental, economic & organisational levels.



# Business Leadership on Future Sanitation Systems for All!

## The Business Case

Corporate investment in sanitation - What's in it for ME? (Large Businesses)

### Early business interests

- ✓ **Opportunity** - Accessing the growing BoP customer base (2.4 billion)
- ✓ **Opportunity** - Innovation improved, aspirational sanitation products & services
- ✓ **Opportunity** - Meeting sustainability targets - resource constraints - products from sludge become viable
- ✓ **Opportunity** - Activating the circular economy - waste inputs - closing the loop
- ✓ **Opportunity** - Leveraging mobile & digital & smart megatrend for sanitation for future consumer aspirations & future health information

The design of future sustainable sanitation systems for all is the **business opportunity of the decade!**



Demand Creation

Facility & Installation

Cleaning & Maintenance

Collection & Storage

Treatment

Disposal & Recovery

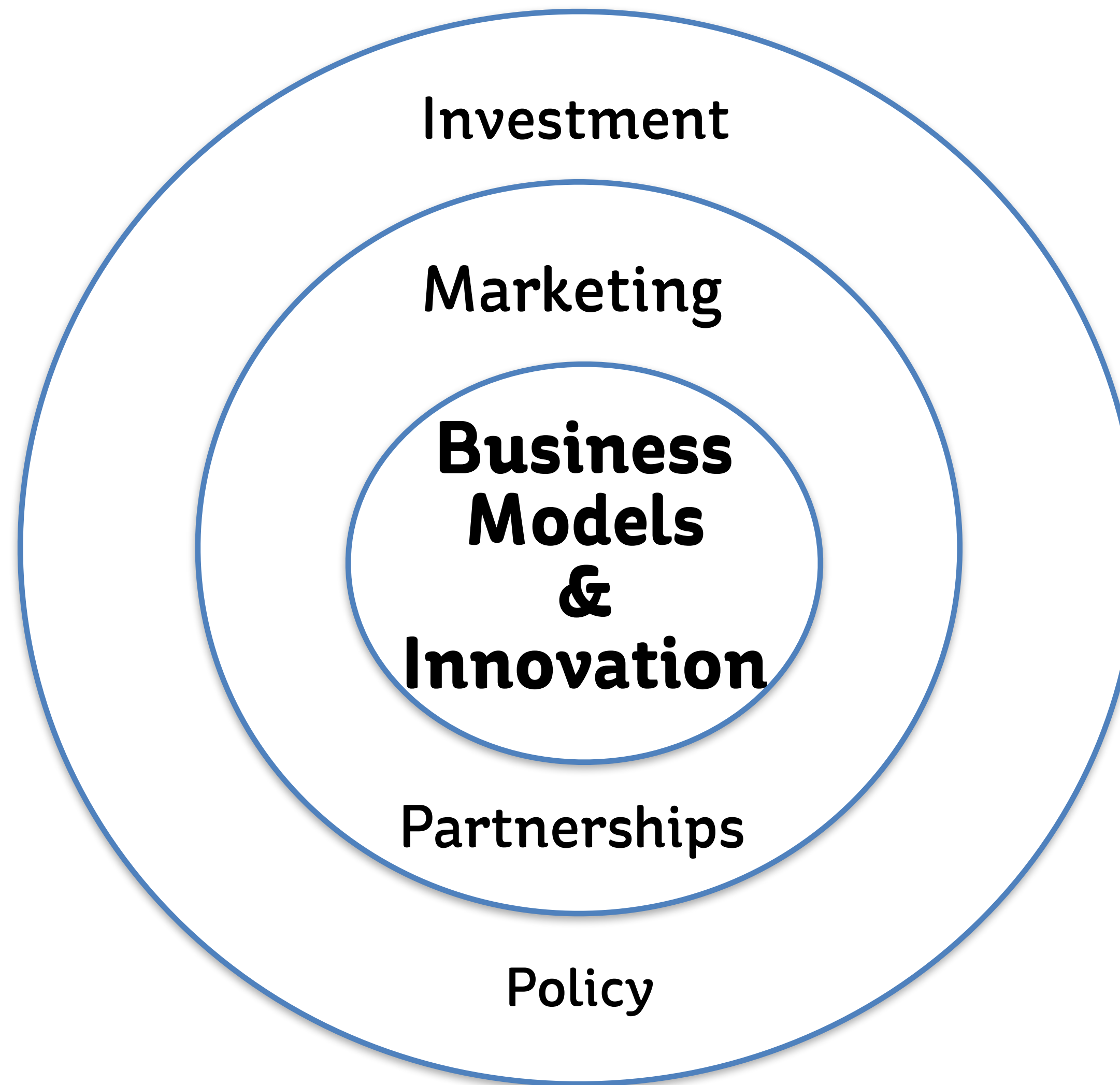
# A GLOBAL PLATFORM FOR THE BUSINESS OF SANITATION FOR ALL





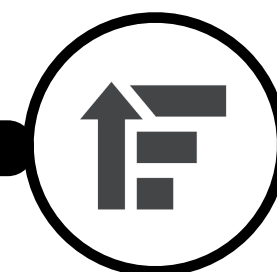
# Toilet Board Coalition Spheres of Influence

Sanitation sector



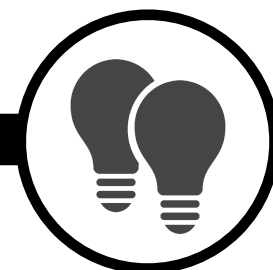
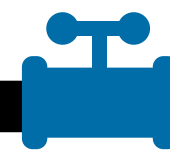
# We are facilitating business to business partnerships to win!

**TOILET**  
ACCELERATOR



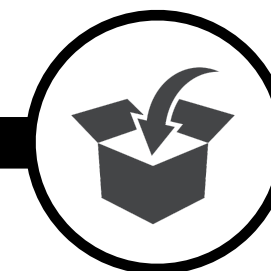
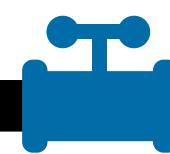
**Accelerating**

supporting **sanitation business needs for scale** & accessing business experts



**Co-innovating**

**partnerships between large & small businesses** with mutual business interest to create new value



**Bundling**

**cross sector partnerships** for access & distribution between businesses targeting the same customers in the BoP





# TOILET ACCELERATOR



**LIXIL**  
Portable Toilet System  
Global



**Clean Team**  
Ghana



**Safisana**  
Ghana



**SVADHA**  
Svadha  
India



**SANERGY**  
Sanergy  
Kenya



**Samagra**  
India



**Sanivation**  
Kenya



**LAGUNA WATER**  
Laguna Water  
Philippines



**THE BIOCYCLE**  
Biocycle  
Durban, South Africa

# 2016 Cohort Results



Last mile distribution of sanitation via bespoke toilet design and innovative financing mechanism to achieve 100% coverage



Business operations efficiencies, sales & marketing expertise yield 200% increase in toilet sales



Collaboration with mobile money experts & PAYG Solar Sector yields 1st mobile money implementation in sanitation



Collaborative innovation process yields new aspirational container toilet design to address malodour, water use, and enable "no touch" cleaning & collection







# The Utility Model: Key Success Factor

INNOVATIVE  
FINANCING MODEL

BUNDLING WATER &  
SANITATION  
DECENTRALISED  
SERVICES FOR LAST  
MILE CONSUMER



$$\text{Service Obligations} + \text{Expenditures} = \text{Tariff}$$

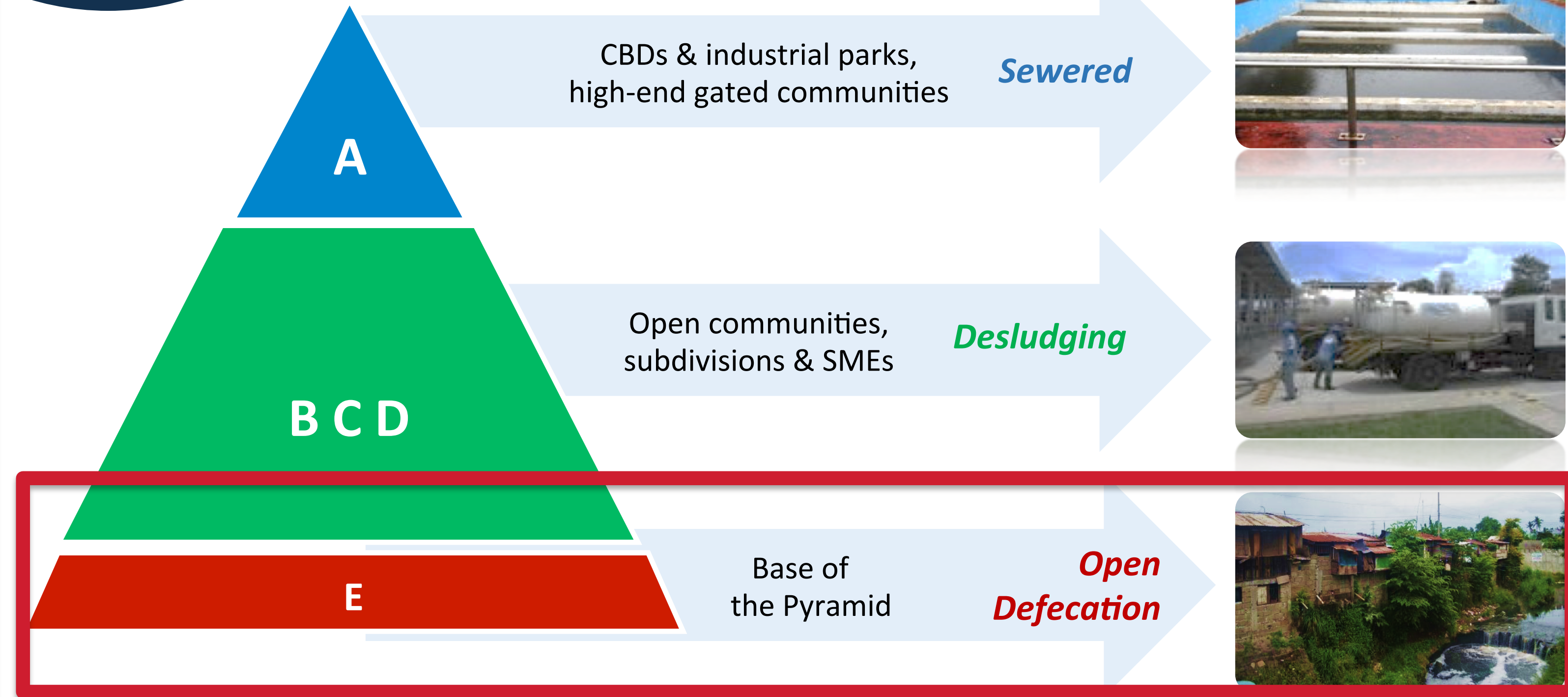


# PTS

## Addressing the Service Gap

INNOVATIVE  
FINANCING MODEL

HIGHER INCOME  
CONSUMERS  
SUBSIDISE LOWER  
INCOME CONSUMERS



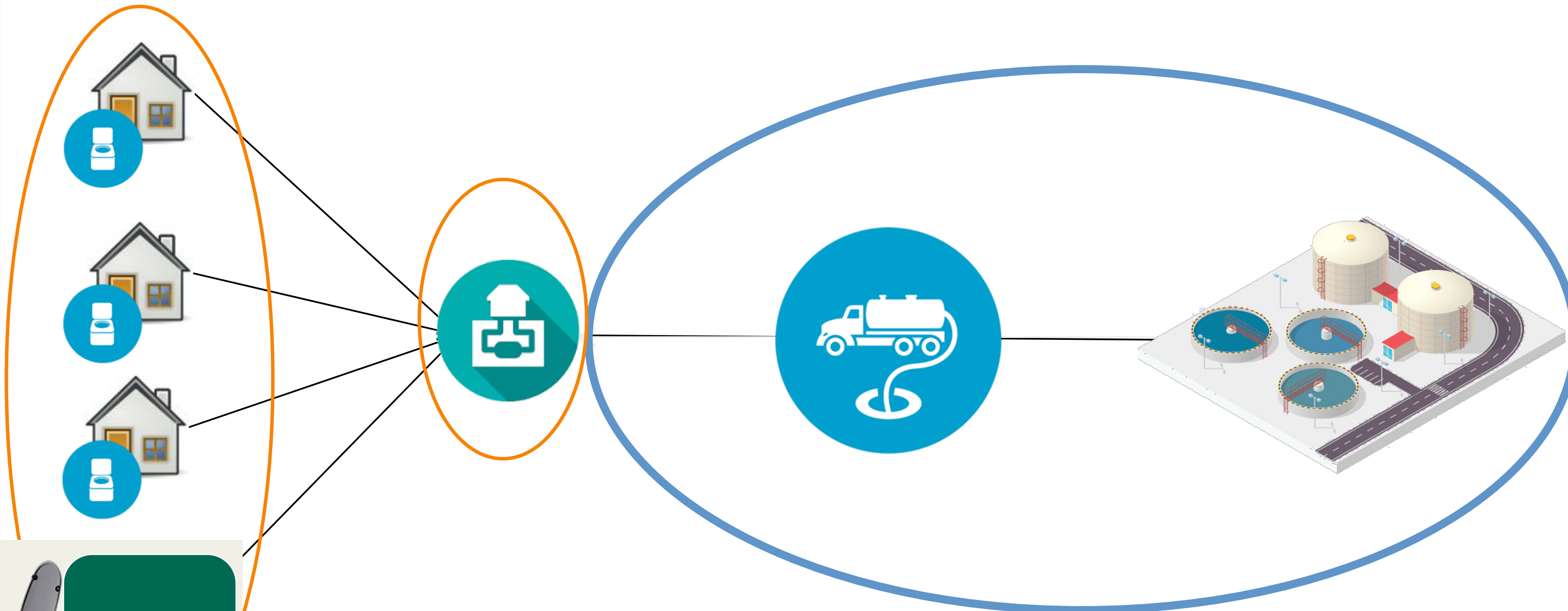


# PTS

## The Operational Model

INNOVATIVE  
PARTNERSHIP MODEL

LARGE BUSINESS,  
SMALL BUSINESS,  
PUBLIC SECTOR  
PARTNERSHIP



Toilets  
Utilized



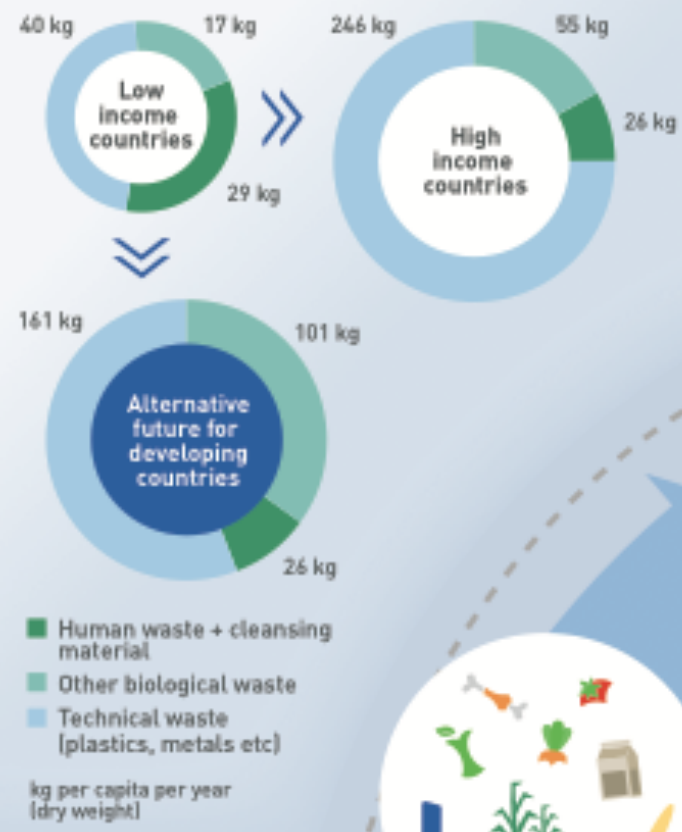
Lixil



Loo Watt

- Vendor (Toilet and Acceptance Station)
- Laguna Water (Collection and Treatment)

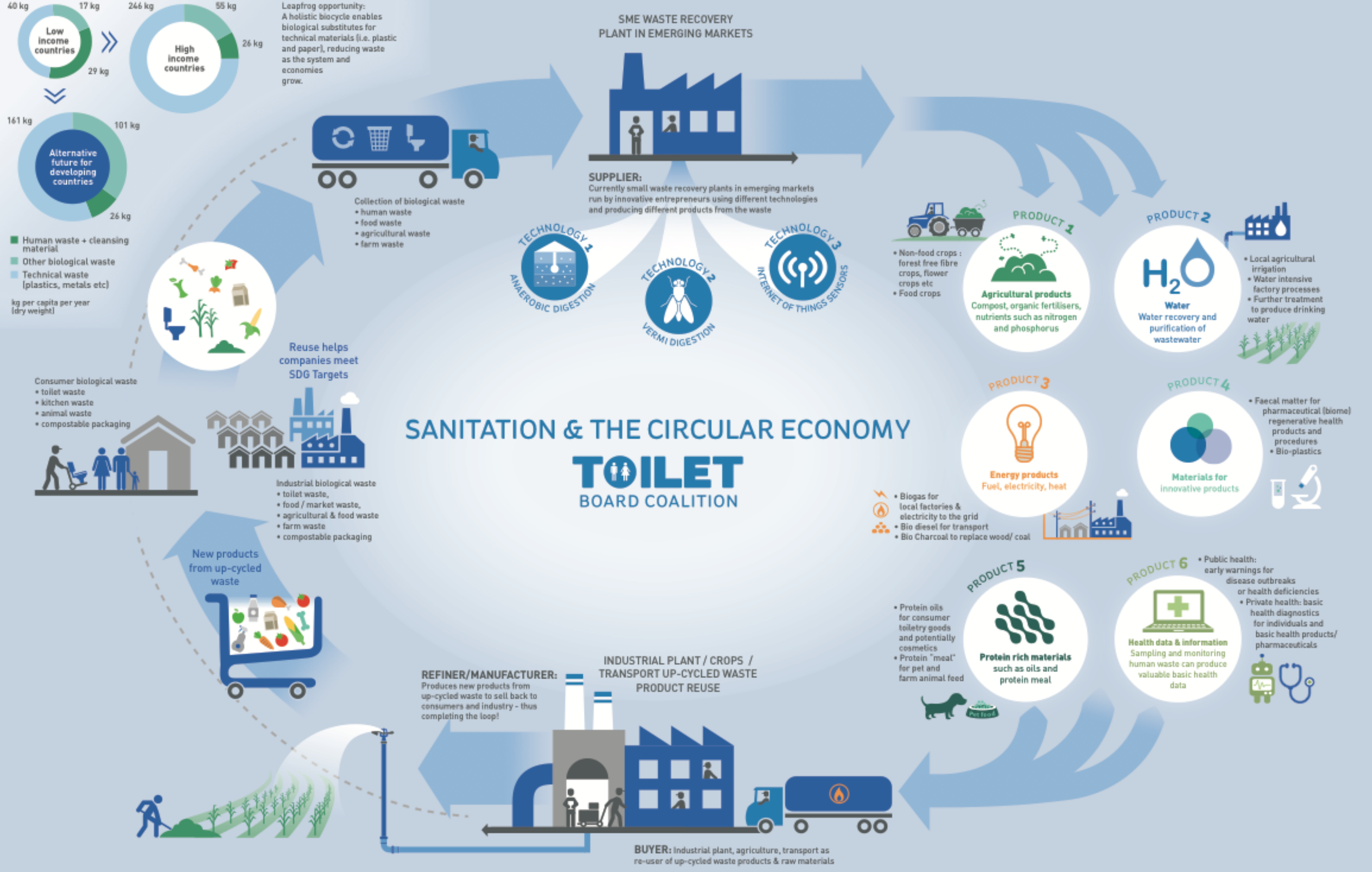
UNLOCKING THE SELF-SUSTAINING BIOLOGICAL SYSTEM



Leapfrog opportunity: A holistic biocycle enables biological substitutes for technical materials (i.e. plastic and paper), reducing waste as the system and economies grow.

Transformation to a Commercially Valuable, Self-Sustaining System

The Toilet Board Coalition  
SANITATION IN THE CIRCULAR ECONOMY



TOILET BOARD COALITION

SANITATION IN THE CIRCULAR ECONOMY

Transformation to a commercially valuable, self-sustaining, biological system

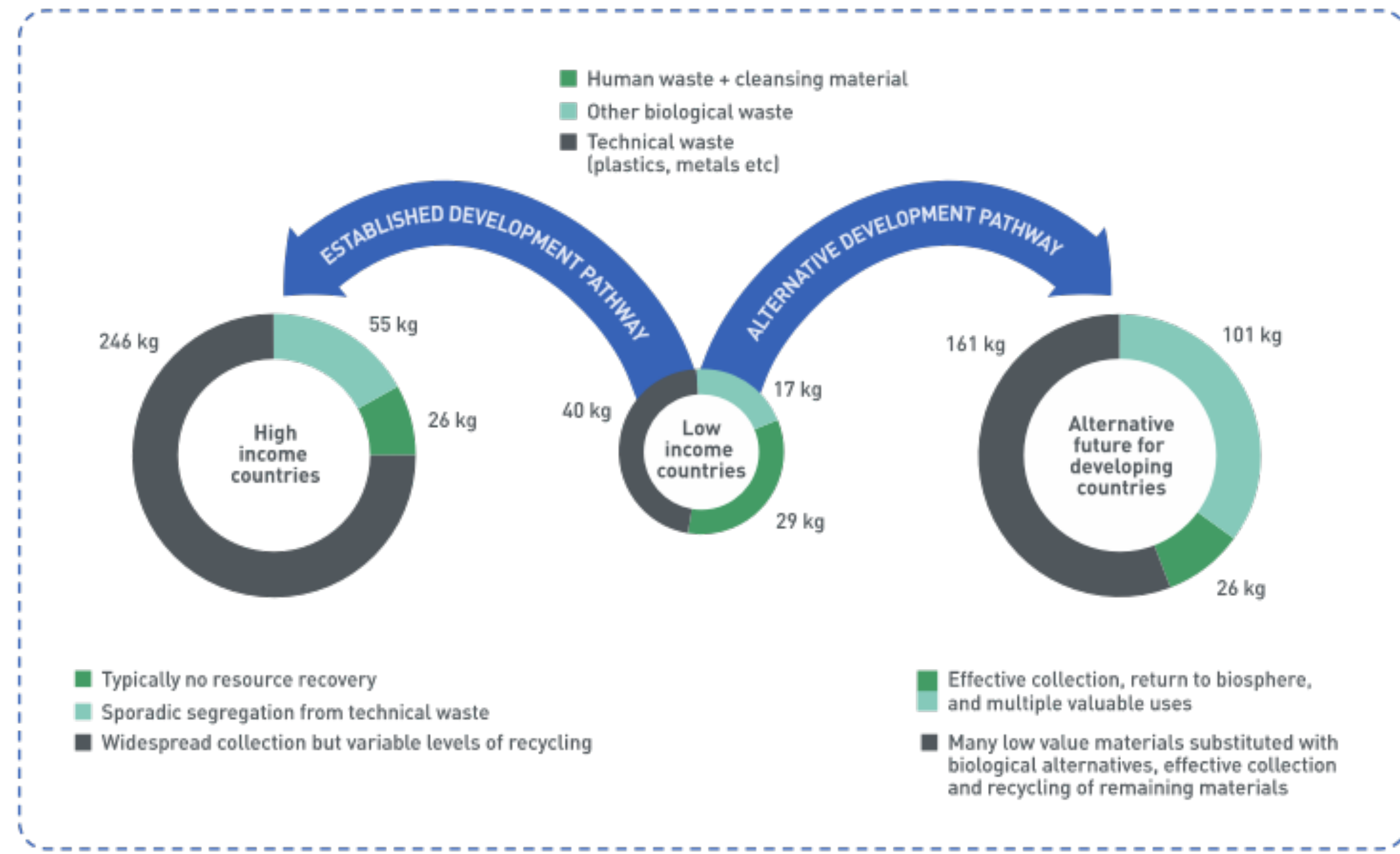
A thought piece from the Toilet Board Coalition  
November 2016





# Leapfrog opportunity in developing economies favouring the Biocycle

Leading to an alternative development pathway



Current waste breakdown based on UNEP Global Waste Management Outlook 2015, and Compendium of Sanitation Systems and Technologies, 2nd revised edition, EAWAG Aquatic Research. Alternative future breakdown based on assumed substitution levels between 0 and 33% for selected technical materials.

Demand Creation

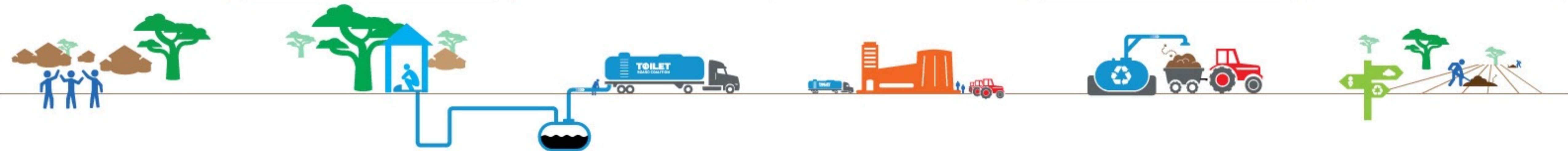
Facility & Installation

Cleaning & Maintenance

Collection & Storage

Treatment

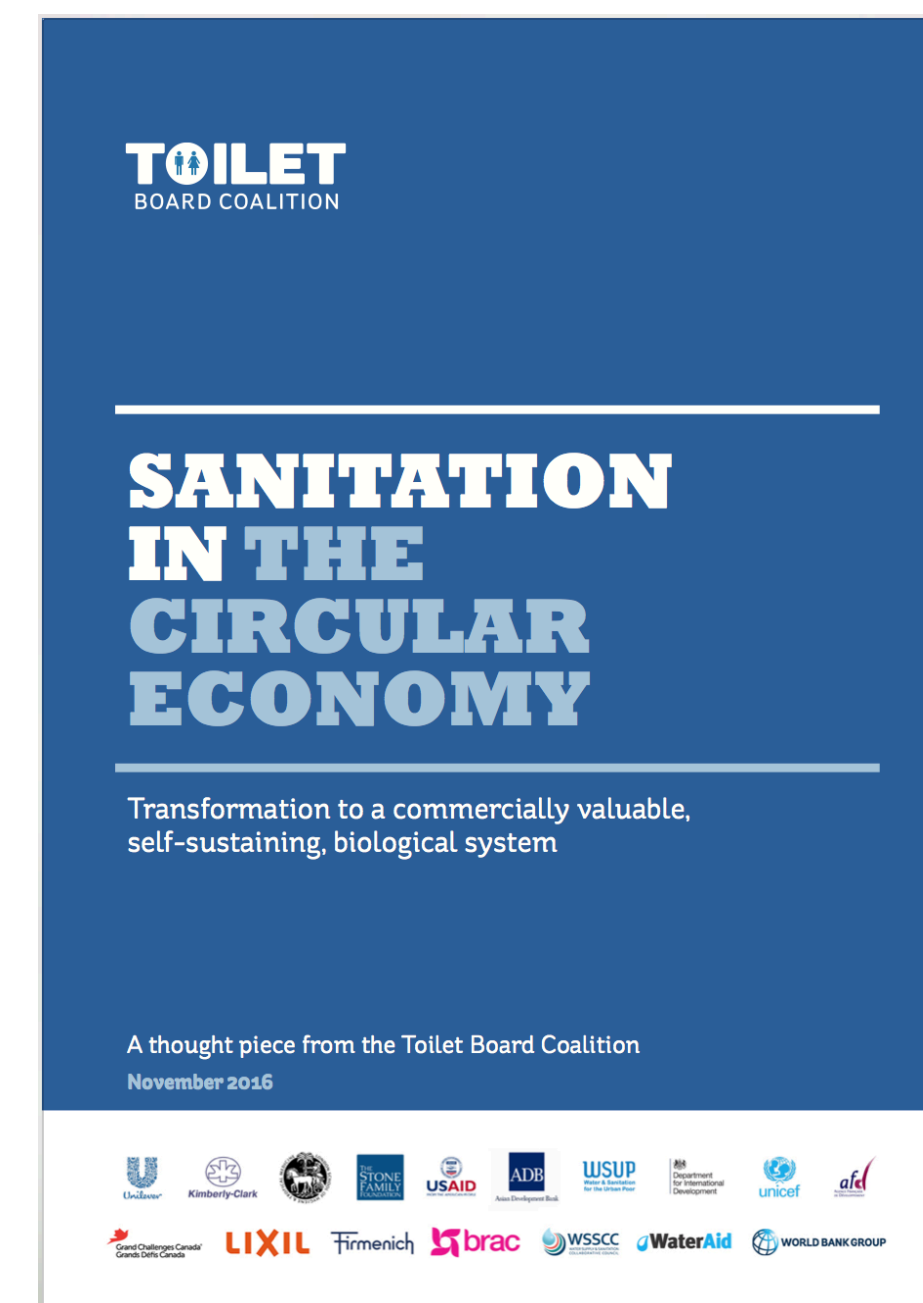
Disposal & Recovery

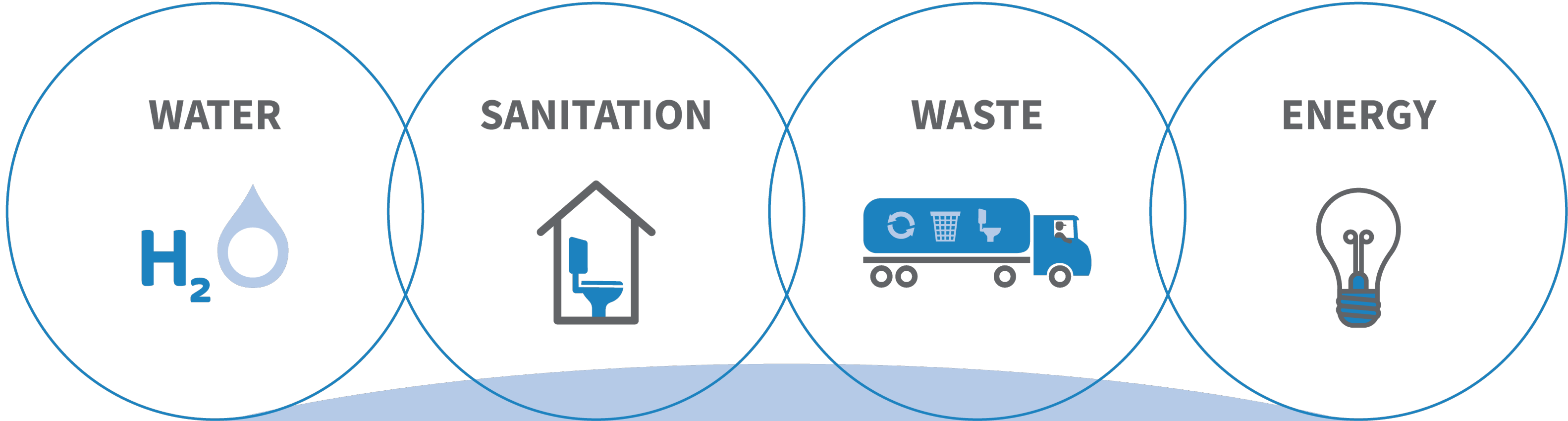


# LANGUAGE MATTERS!

~~Human waste~~

Toilet Resources





**Connecting  
business sectors...**

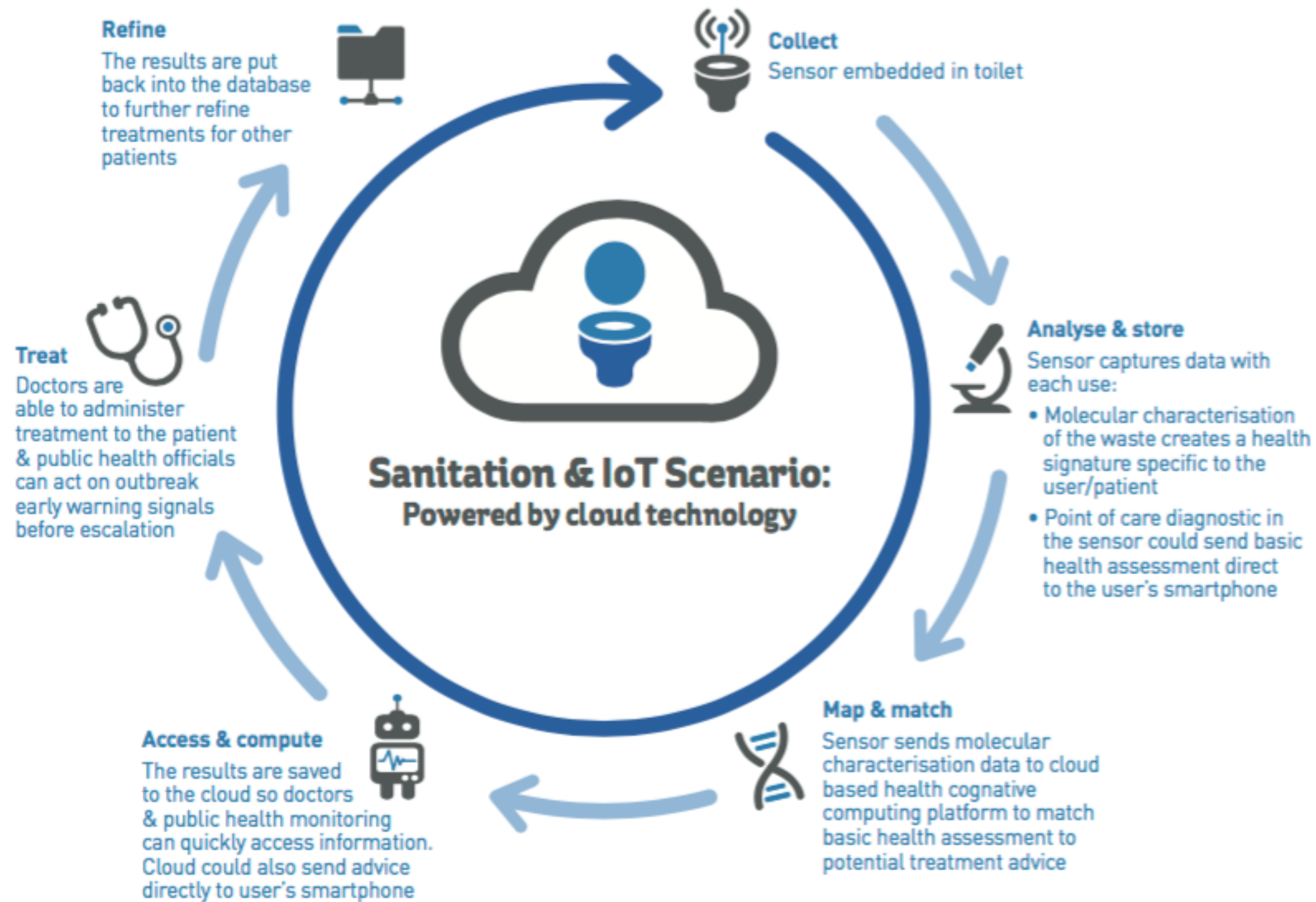


**... with an  
action-focused  
approach**





**Figure 2:** How it works: Sanitation & IoT Scenario



**TOILET**  
BOARD COALITION

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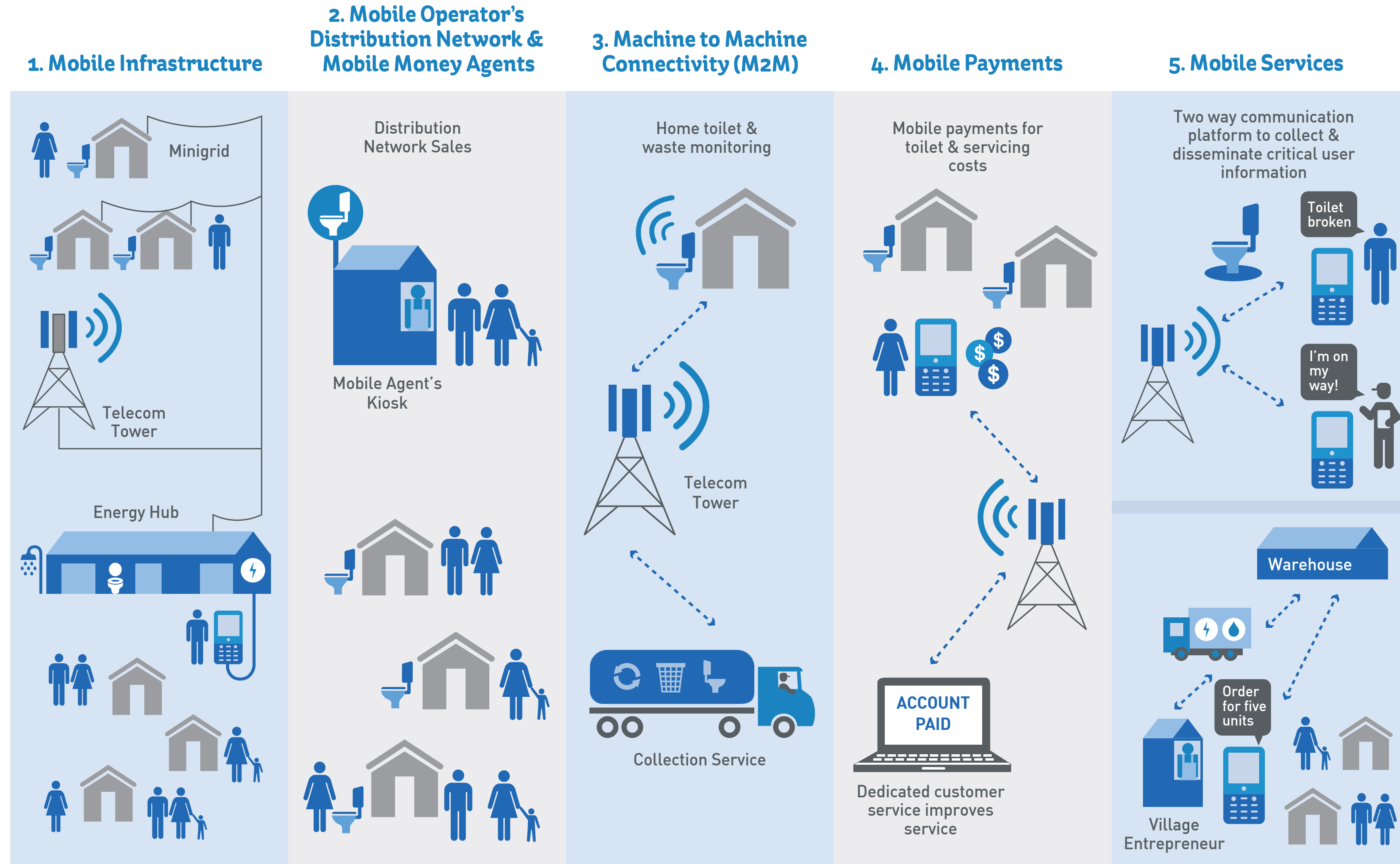
**THE  
DIGITISATION  
OF SANITATION**

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Transformation to smart, scalable and aspirational sanitation for all

A thought piece from the Toilet Board Coalition  
November 2016

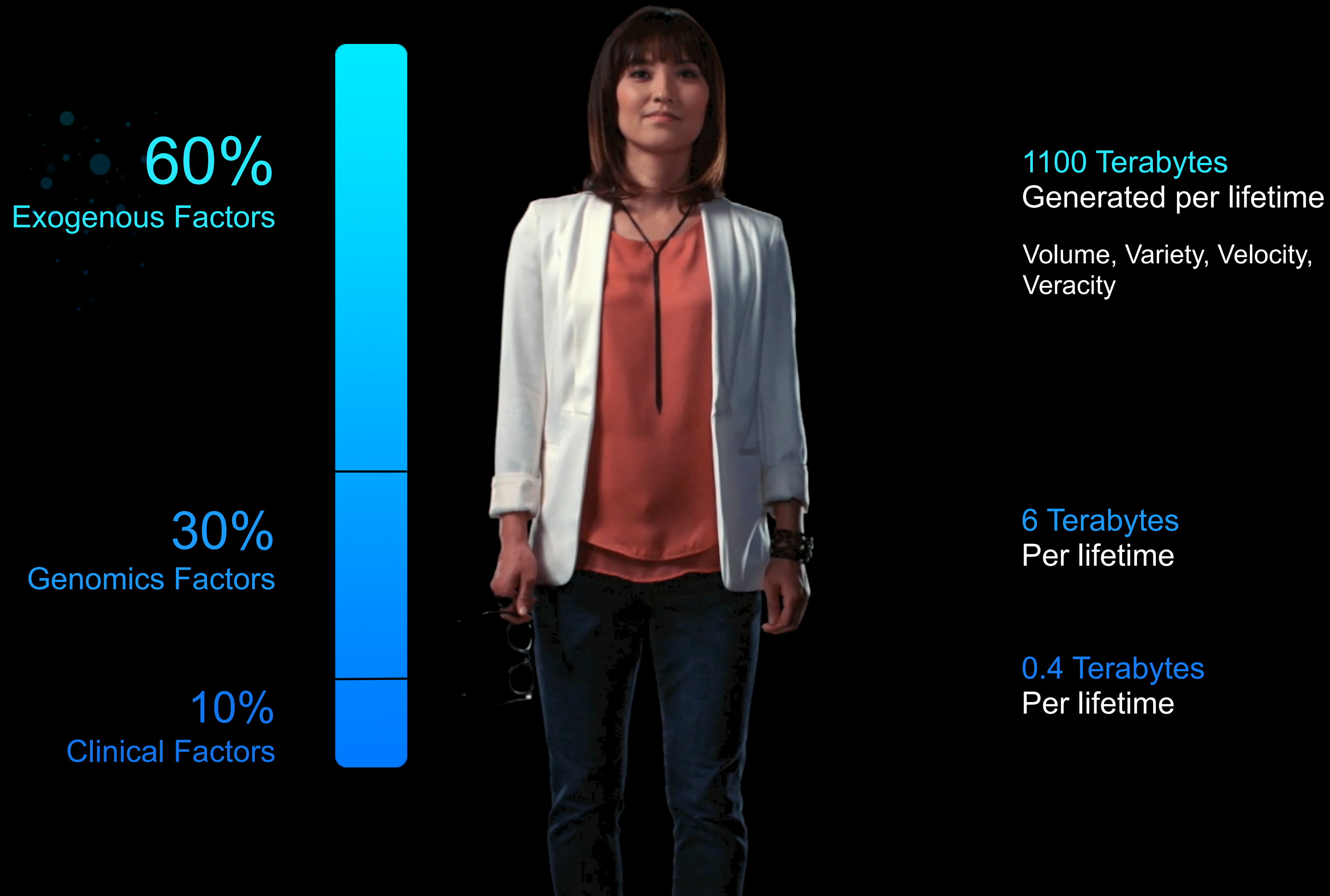
**Figure 3: Mobile Applications for Sanitation**



Source: GSMA, 2015. The Role of Mobile in Improved Sanitation Access Adapted by the TBC August 2016



# A vast amount of untapped data could have a great impact on our health — yet it exists outside medical systems.

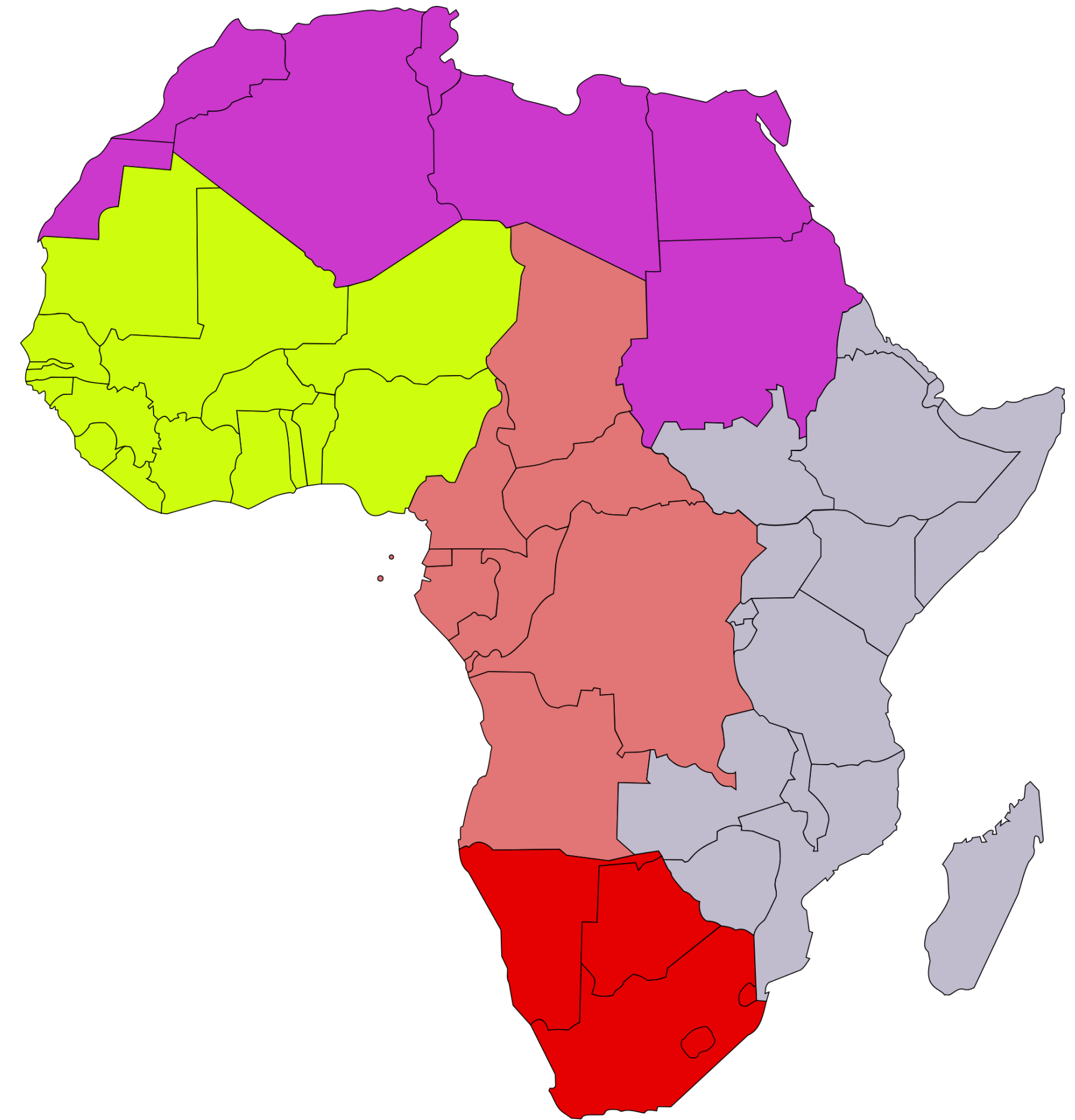




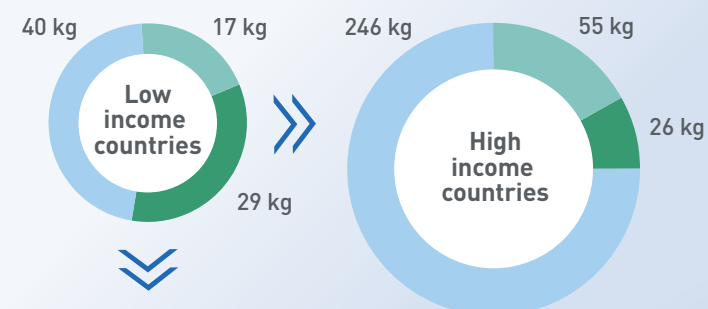
# Accelerate Africa

## Current Projects

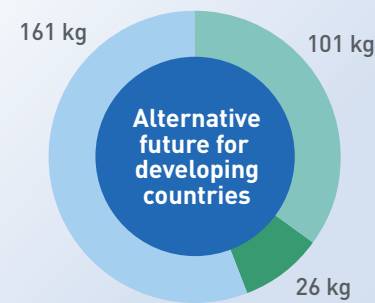
- 1. SAFISANA, Ghana**
- 3. SANERGY, Kenya**
- 5. BIOCYCLE, S. Africa**







Leapfrog opportunity: A holistic biocycle enables biological substitutes for technical materials (i.e. plastic and paper), reducing waste as the system and economies grow.



Legend:  
 ■ Human waste + cleansing material  
 ■ Other biological waste  
 ■ Technical waste (plastics, metals etc)  
 kg per capita per year (dry weight)

Reuse helps companies meet SDG Targets

Consumer biological waste  
 • toilet waste  
 • kitchen waste  
 • animal waste  
 • compostable packaging

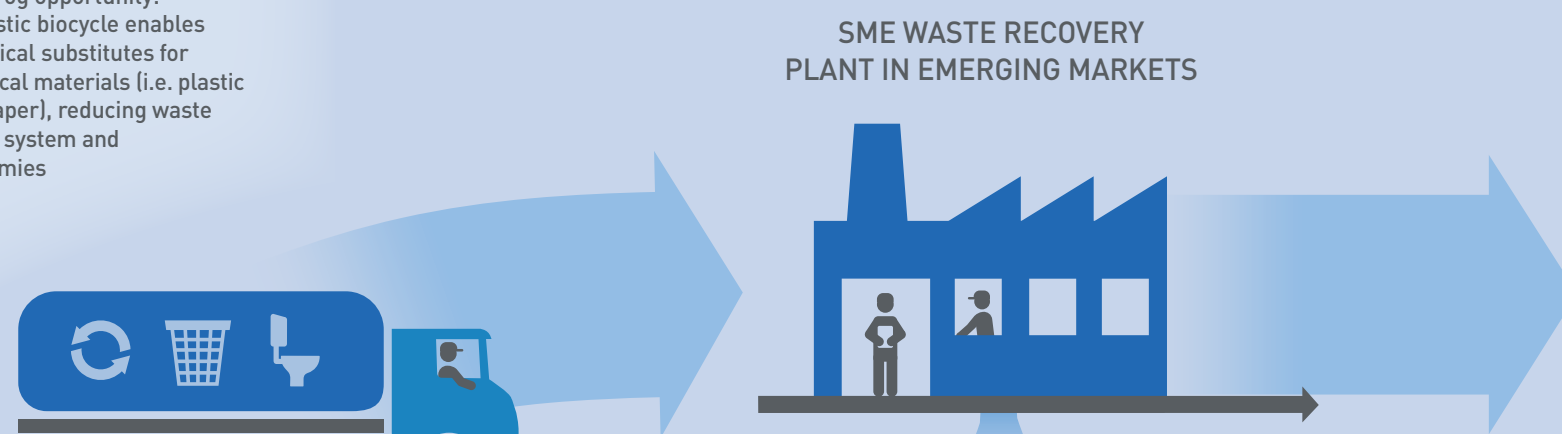


Industrial biological waste  
 • toilet waste,  
 • food / market waste,  
 • agricultural & food waste  
 • farm waste  
 • compostable packaging

New products from up-cycled waste



SANITATION & THE CIRCULAR ECONOMY



• Non-food crops : forest free fibre crops, flower crops etc  
 • Food crops

**PRODUCT 1**  
**Agricultural products**  
 Compost, organic fertilisers, nutrients such as nitrogen and phosphorus

**PRODUCT 2**  
**H<sub>2</sub>O**  
 Water recovery and purification of wastewater

• Local agricultural irrigation  
 • Water intensive factory processes  
 • Further treatment to produce drinking water

**PRODUCT 3**  
**Energy products**  
 Fuel, electricity, heat

• Biogas for local factories & electricity to the grid  
 • Bio diesel for transport  
 • Bio Charcoal to replace wood/ coal

**PRODUCT 4**  
**Materials for innovative products**

• Faecal matter for pharmaceutical (biome) regenerative health products and procedures  
 • Bio-plastics

**PRODUCT 5**  
**Protein rich materials**  
 such as oils and protein meal

• Protein oils for consumer toiletry goods and potentially cosmetics  
 • Protein "meal" for pet and farm animal feed

**PRODUCT 6**  
**Health data & information**  
 Sampling and monitoring human waste can produce valuable basic health data

• Public health: early warnings for disease outbreaks or health deficiencies  
 • Private health: basic health diagnostics for individuals and basic health products/ pharmaceuticals

**REFINER/MANUFACTURER:**  
 Produces new products from up-cycled waste to sell back to consumers and industry - thus completing the loop!

**INDUSTRIAL PLANT / CROPS / TRANSPORT UP-CYCLED WASTE**  
**PRODUCT REUSE**

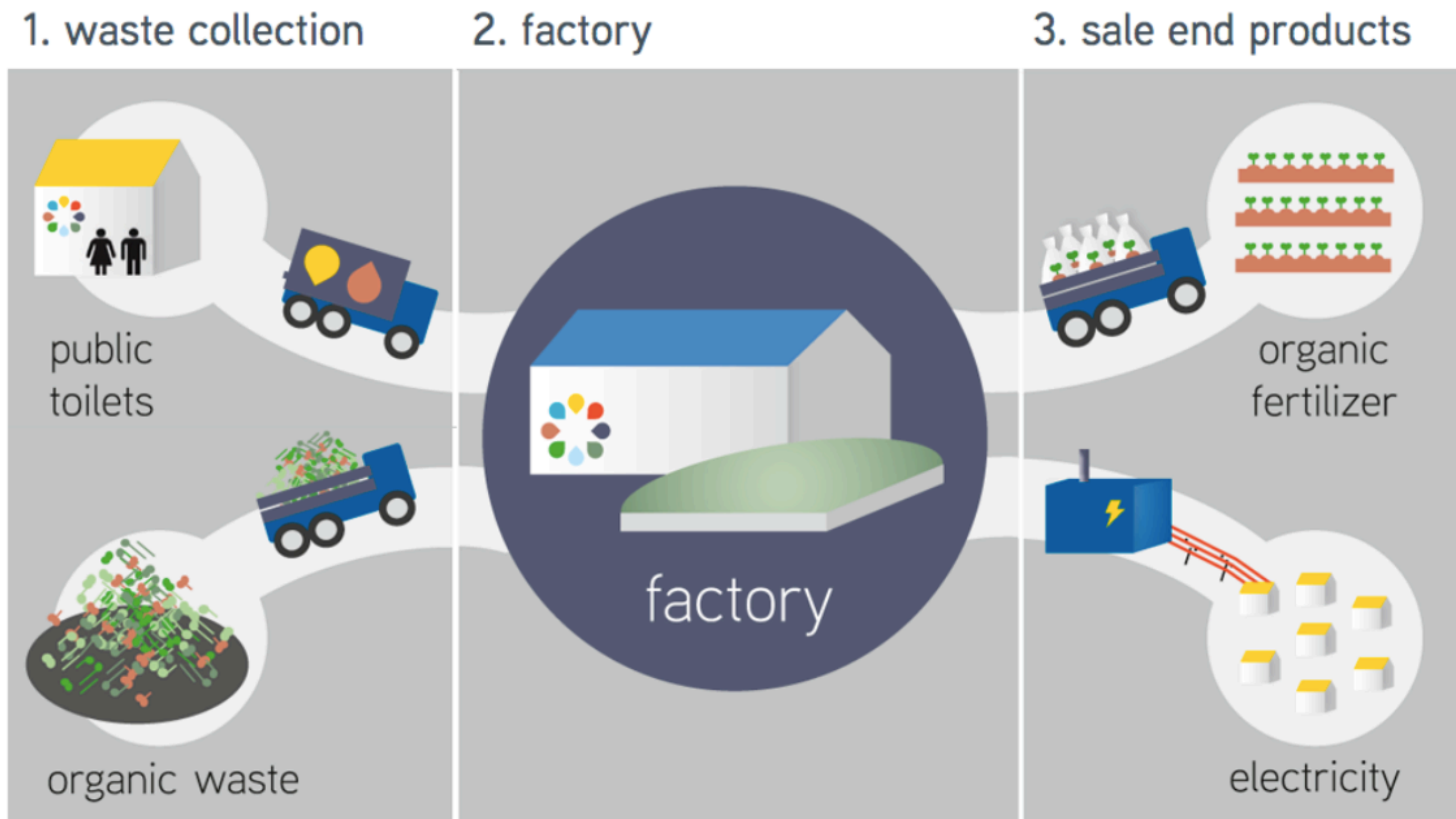






# Ghana

Safisana provides a revenue generating mixed waste management alternative for municipalities - converting mixed organic waste into electricity, fertiliser and irrigation water





# SANITATION BUSINESS SOLUTION

## Manufacturing site



\$\$ Heat  
\$\$ Electricity  
\$\$ Waste water

## Municipal communities



Fresh food \$\$

Faecal & organic waste



Irrigation water For Agriculture



Ashaiman



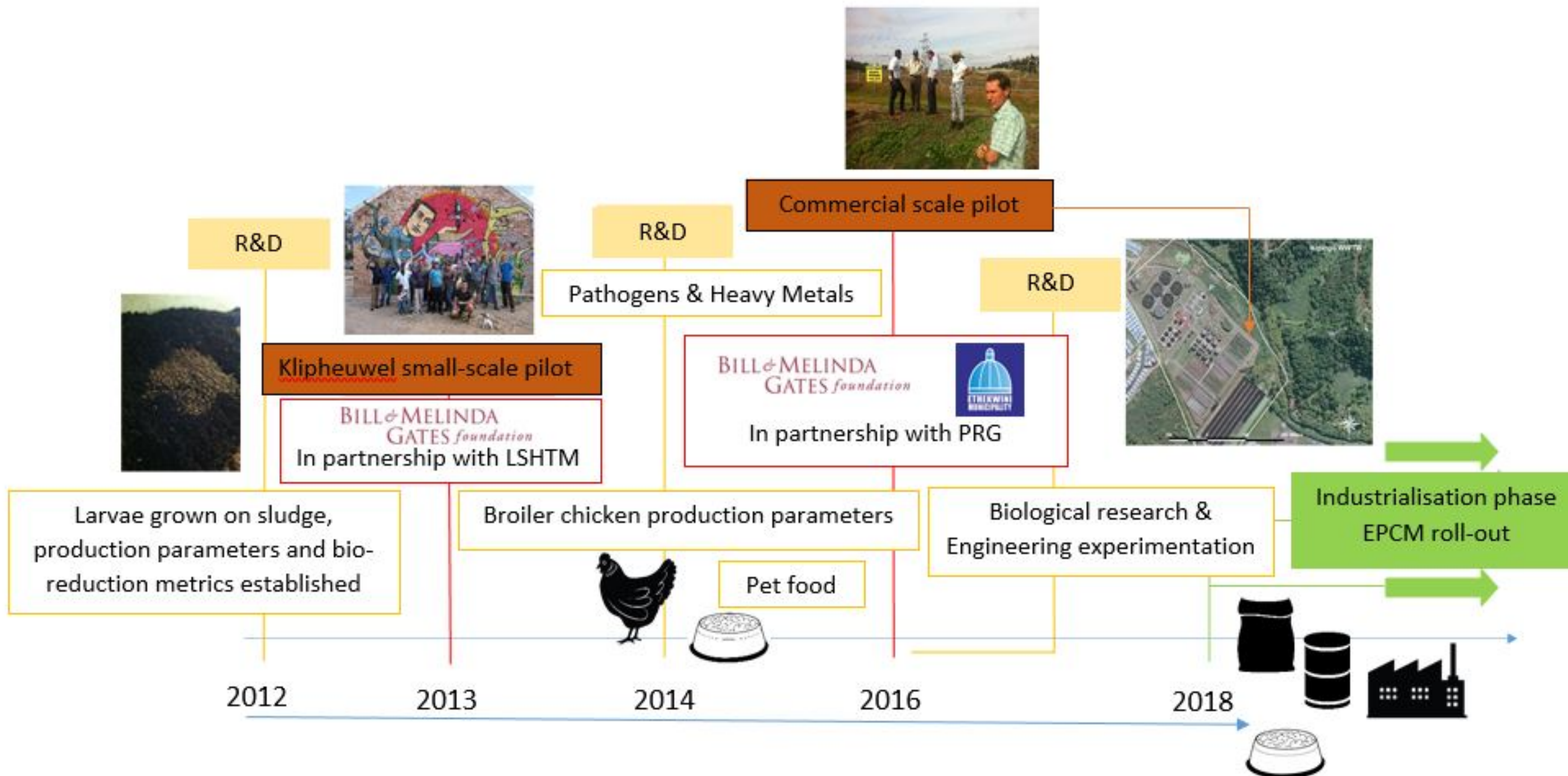
- Solve organic waste problem for manufacturing and municipality
- Produce revenue generating products of value to manufacturing and municipality: power, heat,
- Address fresh food demand with high quality fertilisers and seedlings



# THE BIOCYCLE South Africa

Biocycle provides cost-effective sludge treatment and up-cycling. Produced revenue streams in magmeal, oils and biochar as a joint venture with the City of Durban.

Incorporating Advanced BSF Technology into Faecal Sludge Management



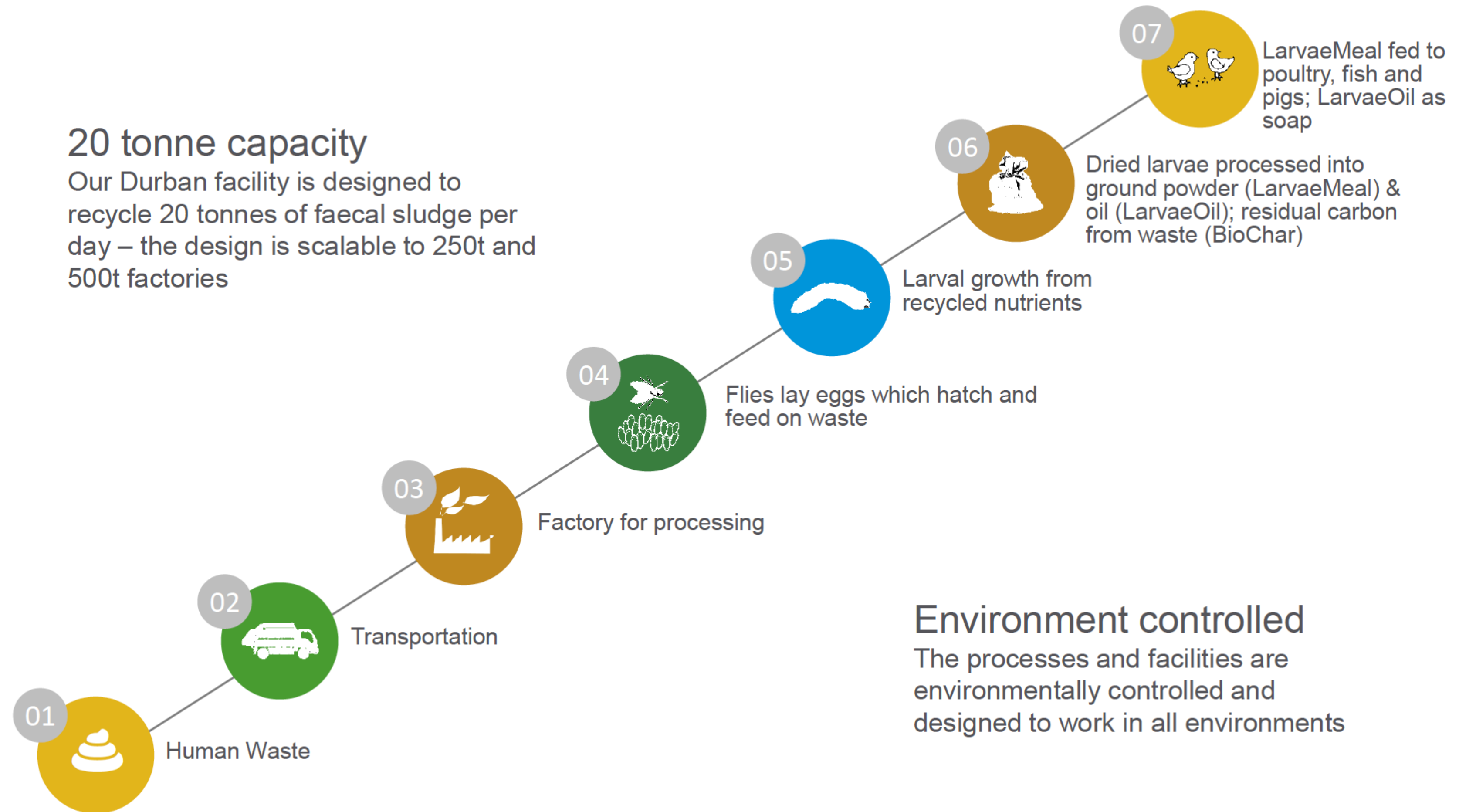


### SANITATION BUSINESS SOLUTION

The BIOCYCLE is developing commercially viable and scalable processes for the bio-conversion of human faecal waste into valuable products

01	<b>LarvaeMeal</b> 55% protein, 100% sustainable, and natural
02	<b>LarvaeOil</b> Versatile, natural, omega rich oil for use in feeds, as fuel, and/or hygiene products
03	<b>BioChar</b> Low Cost fuel with low emissions. Or soil carbon, contributing to increased soil
04	<b>Waste Services</b> Certified green alternative to hazardous waste dumping / landfills

**20 tonne capacity**  
Our Durban facility is designed to recycle 20 tonnes of faecal sludge per day – the design is scalable to 250t and 500t factories



**Environment controlled**  
The processes and facilities are environmentally controlled and designed to work in all environments

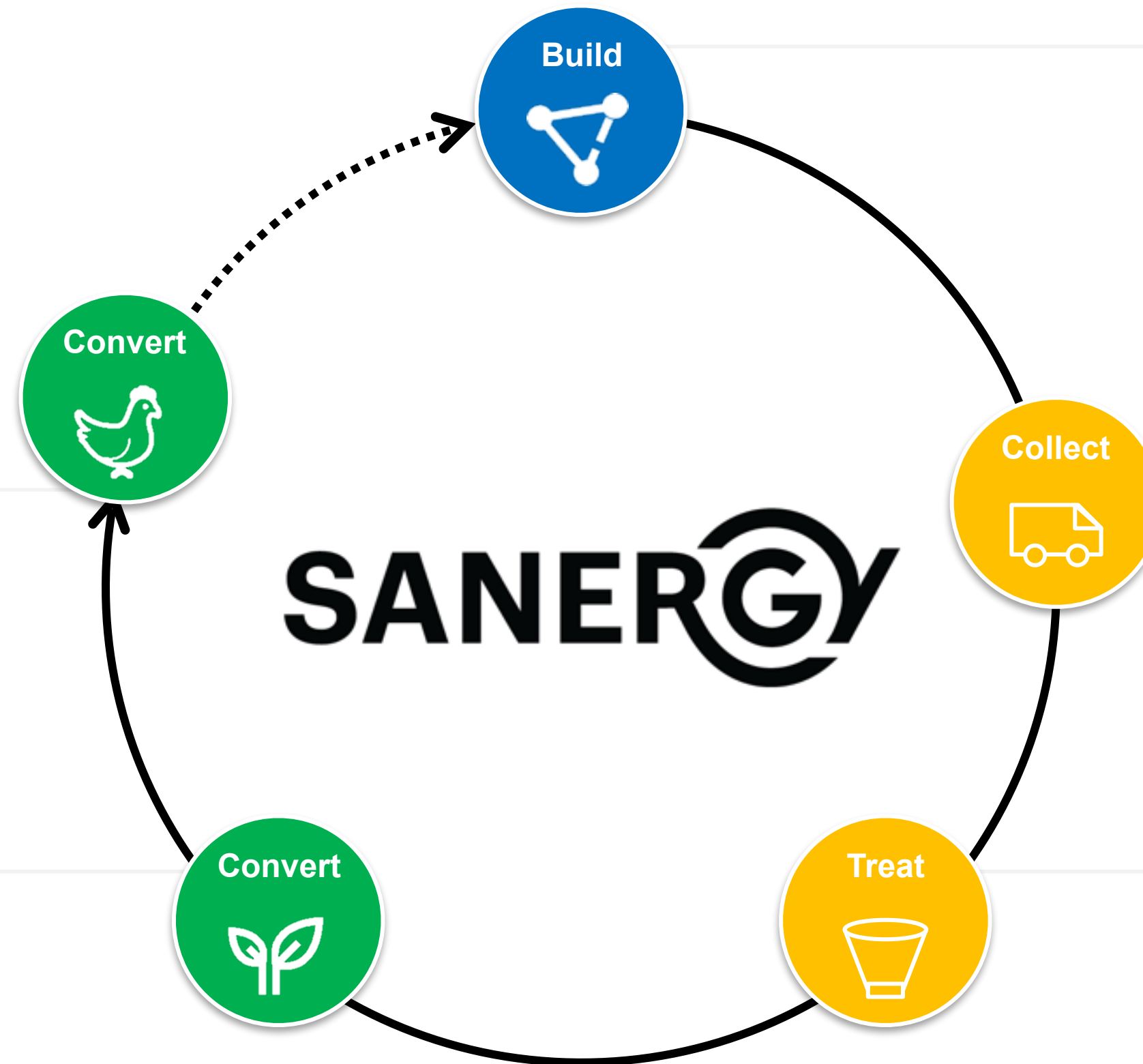
End to end sanitation & waste management system for urban slums

5. **CONVERT** to Animal Feed Input

*We mass-rear Black Soldier Fly (BSF) larvae that consume mixed organic waste streams to convert it into safe protein for animal feed to substitute unsustainably sourced fishmeal*

4. **CONVERT** to Organic Fertilizer

*Using a proven industrial composting process, we convert mixed organic waste streams into high-quality organic fertilizer that improves soil health and crop yields*



1. **BUILD** Networks

*We create networks to aggregate sanitation, commercial, and agricultural organic wastes*

2. **COLLECT** Waste

*We provide regular, safe collection and removal of the waste*

3. **TREAT** Waste

*We treat our waste to eliminate pathogens and capture energy to power operations*



We clean up growing cities by **containing**, **collecting**, and **converting** waste into valuable end-products.

In 2016, with **40,000** customers, **4,000t** collected, **350t** of fertilizer sold – we've scaled rapidly to be the largest organic waste management company in Kenya in just 5 years.



*Mukuru Settlement  
Nairobi, Kenya*



Convert and  
distribute





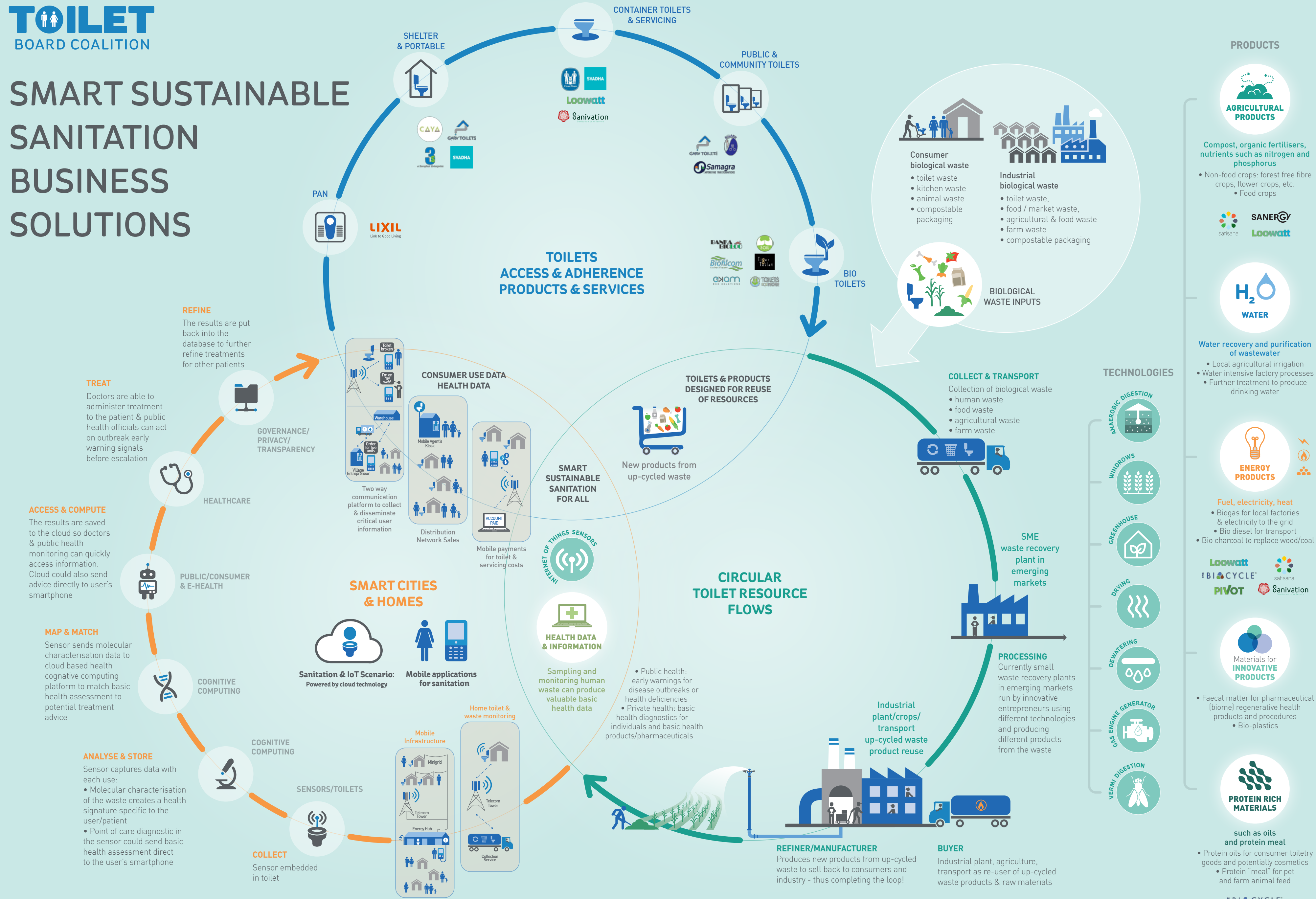


With **Farm Star's Evergrow** Organic Fertilizer, our 400+ customers see fewer weeds, faster growth, and  $>30\%$  increase in yields.



# The Sanitation Economy

## SMART SUSTAINABLE SANITATION BUSINESS SOLUTIONS





# TOILET

BOARD COALITION

**We believe that delivering universal access to sanitation is  
the business opportunity of the decade.**

[www.toiletboard.org](http://www.toiletboard.org)