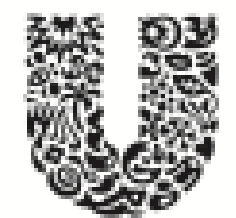


TOILET

BOARD COALITION

The Circular Sanitation Economy

Richard Rapiet



Unilever



OUR GOAL:

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

A Unique Business-Led Coalition Dedicated to the Business of Sanitation:



THE TOILET ACCELERATOR WORKS WITH SANITATION BUSINESSES IN 3 WAYS

TOILET INNOVATORS WELCOME

THE TOILET ACCELERATOR
IS SEEKING TO WORK WITH BUSINESSES*
THAT MEET THE FOLLOWING GENERAL
CRITERIA:

ACCELERATING

Identifying promising sanitation business models with prospect for scale – and matching expert mentors from across the TBC membership to address critical business issues to ensure access to capital and partnerships for scale.

CO-INNOVATING

Co-innovating new solutions where critical components of the system do not exist, i.e. leveraging the innovation & R&D departments of our sophisticated TBC member companies to solve business and technology issues.

BUNDLING

Identifying opportunities to bundle sanitation with other solutions also targeting the same users, i.e. affordable housing, water, energy, and mobile for development.

EMERGING & FRONTIER MARKETS

Target market includes populations most at risk in Asia and Africa

SCALABLE

The business is positioned to deliver sanitation at scale and is connected to the full value chain of sanitation service delivery

INNOVATIVE/ REPLICABLE

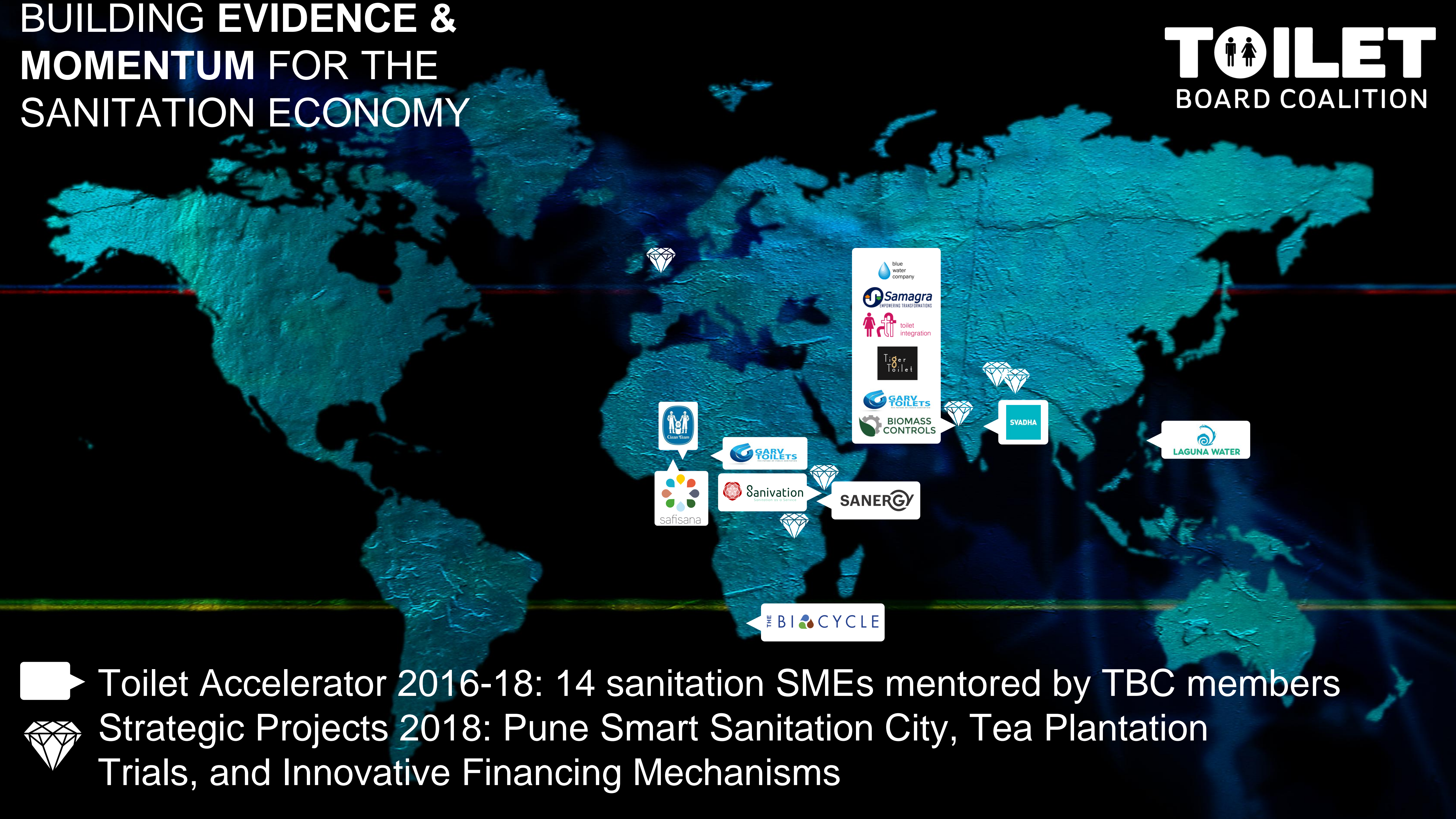
Product offering that is aspirational for its target market and provides an improved solution to the market. AND/OR Product offering that is proven and replicable

MARKET BASED

Commercially viable businesses, at every point in the sanitation value chain, delivering sanitation to those without access, profitably

*to be eligible, non-for-profits may apply if they run a for-profit arm which allows for commercial investment

BUILDING EVIDENCE & MOMENTUM FOR THE SANITATION ECONOMY



A vertical stack of logos for TBC members: blue water company, Samagra (Empowering Transformations), toilet integration, Tiger Toilet, GARY TOILETS (The Power of Public Participation), and BIOMASS CONTROLS.



 Toilet Accelerator 2016-18: 14 sanitation SMEs mentored by TBC members
 Strategic Projects 2018: Pune Smart Sanitation City, Tea Plantation Trials, and Innovative Financing Mechanisms

SANITATION CRISIS IN THE GLOBAL SPOTLIGHT

The Sanitation Economy presents an alternative development pathway & important role for business

INITIAL EVIDENCE INDICATES THE POTENTIAL OF THE SANITATION ECONOMY



Download at: www.toiletboard.org



THE SANITATION ECONOMY

Smart Sustainable Sanitation Business Solutions



The Sanitation Economy links 3 distinct areas for business and societal benefit:



**THE TOILET
ECONOMY**



**THE CIRCULAR
SANITATION
ECONOMY**



**THE SMART
SANITATION
ECONOMY**

GLOBAL MARKET

TOILET ECONOMY

A MARKETPLACE OF BUSINESS SOLUTIONS



GLOBAL MARKET

CIRCULAR SANITATION ECONOMY

A MARKETPLACE OF BUSINESS SOLUTIONS



GLOBAL MARKET

SMART SANITATION ECONOMY

A MARKETPLACE OF BUSINESS SOLUTIONS



Sanitation becomes a solution provider for sectors & governments

Global water gap of **40%**

China, the USA and India will account for **2/3rds** of global renewable energy expansion to 2022

Nutrient deficits are affecting food chains and agriculture

The global (IoT) healthcare market is estimated to grow to USD \$163.2B by 2020

WATER



SANITATION



HEALTH



WASTE



FMCG



ENERGY



FOOD/
AGRICULTURE





THE CIRCULAR SANITATION ECONOMY

New Pathways to Commercial and Societal Benefits
Faster at Scale

A THOUGHT PIECE FROM THE TOILET BOARD COALITION
NOVEMBER 2017



In Partnership with: QSA Partners



THE STUDY FOCUSED ON THE INFLEXION POINTS IN MOBILISING CIRCULAR SANITATION ECONOMY BUSINESS MODELS



Winning Customers - Compost - Sanergy - Kenya - Proteins - The BioCycle - S Africa
- Electricity - Safi Sana - Ghana - Solid Fuel - Sanivation - Kenya

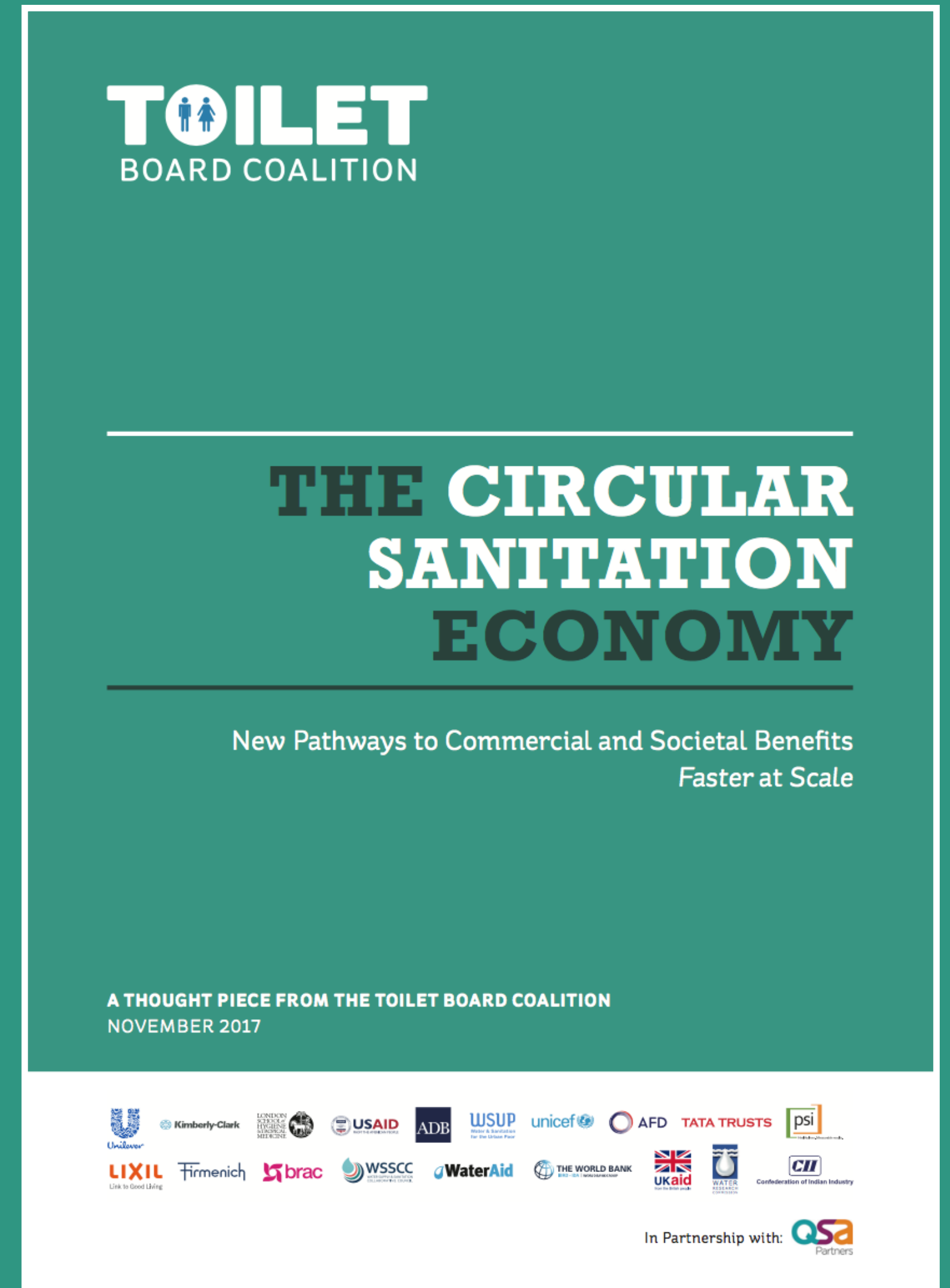
Winning Contracts - Facility-scale - Municipality-scale

Shifting Context - The case for the “new grid”

FOUR KEY FINDINGS ON THE CIRCULAR SANITATION ECONOMY

1.

Circular Sanitation Economy business models can be **profitable at scale**, and at **lower cost** than traditional sanitation systems.



THE CIRCULAR SANITATION ECONOMY: PRODUCTS DERIVED FROM TOILET RESOURCES

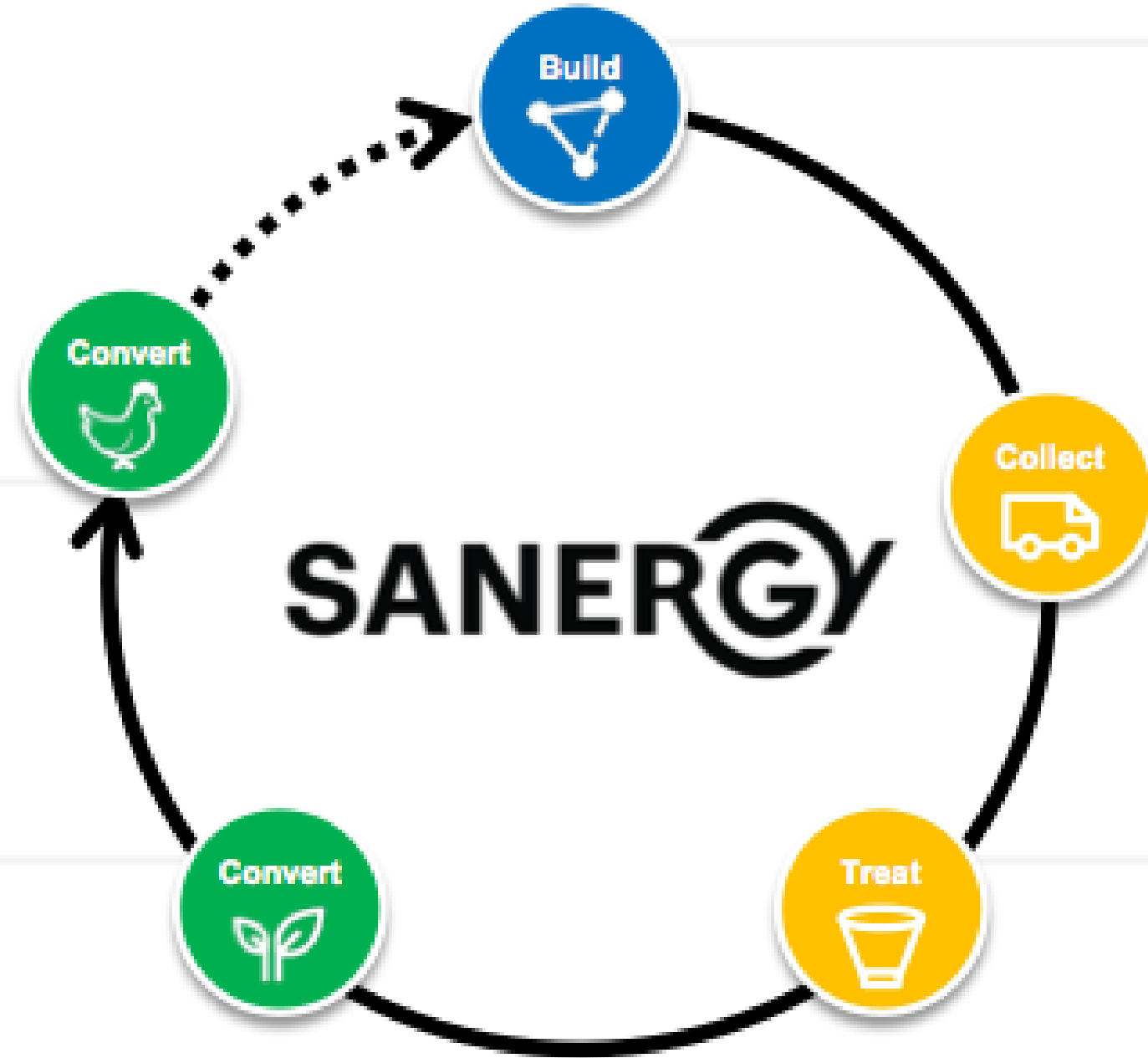
We have a system to secure inputs, to ensure quality, and to capture *value* at each step

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



THE CIRCULAR SANITATION ECONOMY: PRODUCTS DERIVED FROM TOILET RESOURCES



Established	2010 - Accra, Ghana
Ownership	Safi Sana Foundation and Holding BV
Investors	Aqua4All, Rabobank, Shell, DHV, Dutch SNV Ministry of Energy Ghana, IFDC, AfDB, Private Investors
Products	Biogas, Biomass
Target Market	Heat, Transport fuel, Electricity, Agricultural products

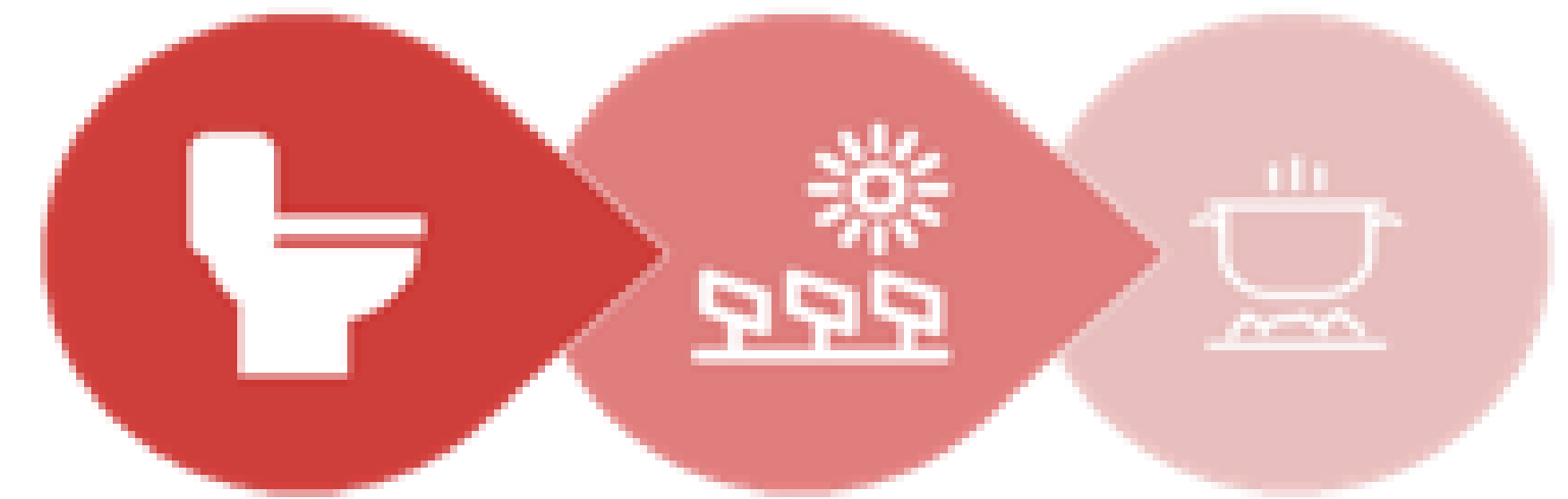


THE CIRCULAR SANITATION ECONOMY: PRODUCTS DERIVED FROM TOILET RESOURCES



Sanivation
Sanitation as a Service

Established	2014, Naivasha, Kenya
Ownership	Andrew Foote, Emily Woods
Products	Full value chain sanitation services (utilities, waste transformation, charcoal alternative)
Target Market	Urbanizing communities and refugee camps



Customer Oriented Sanitation Service

Waste Treatment and Transformation

Reuse as Affordable Fuel

Sanivation sets up revenue generating sanitation systems and waste processing factories that transform fecal sludge to solid fuel in partnership with local government

City Plans to Increase Collection of Fecal Sludge



Waste Treatment and Transformation



Charcoal Briquette Sales



Our system has the following benefits:



Improves health

Generates Profit



Preserves the Local Ecosystem



THE CIRCULAR SANITATION ECONOMY: PRODUCTS DERIVED FROM TOILET RESOURCES



THE BI CYCLE

Established	2011
Ownership	AgriProtein, City of Durban JV
Investors	BMGF, AgriProtein, City of Durban
Products	Magmeal proteins, Oils, BioChar, Compost
Target Market	FMCGs, Pet Food, Animal Feed

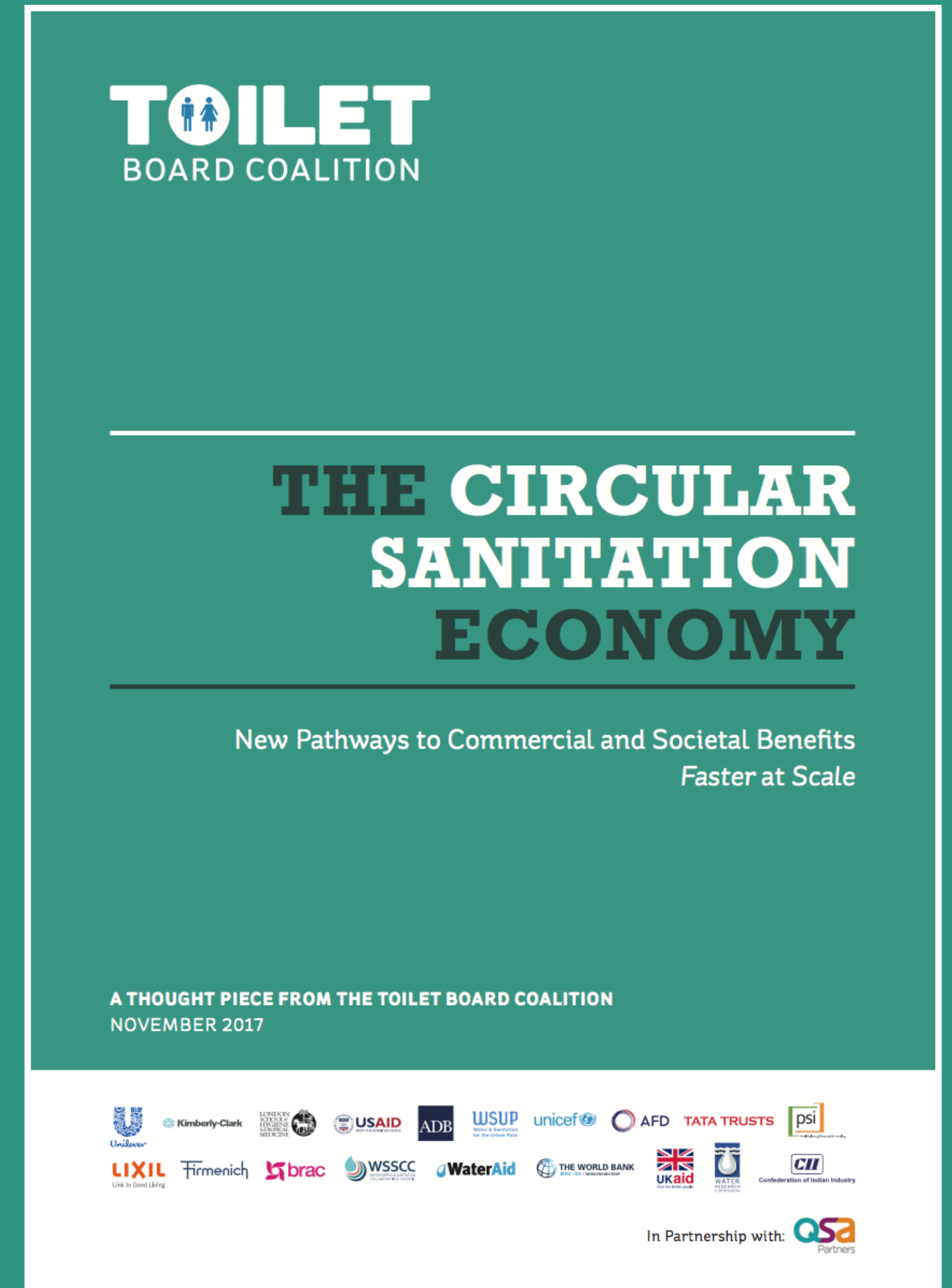
20 tonne capacity
Our Durban facility is designed to recycle 20 tonnes of faecal sludge per day – the design is scalable to 250t and 500t factories



FOUR KEY FINDINGS ON THE CIRCULAR SANITATION ECONOMY

2.

Circular Sanitation Economy business models work within a rapidly **scalable** “**new grid**” - a new network of material, energy, and information flows, based on Circular Economy and Smart Cities systems



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Figure 25 - Cost Structure of Sewered and Non-Sewered Sanitation

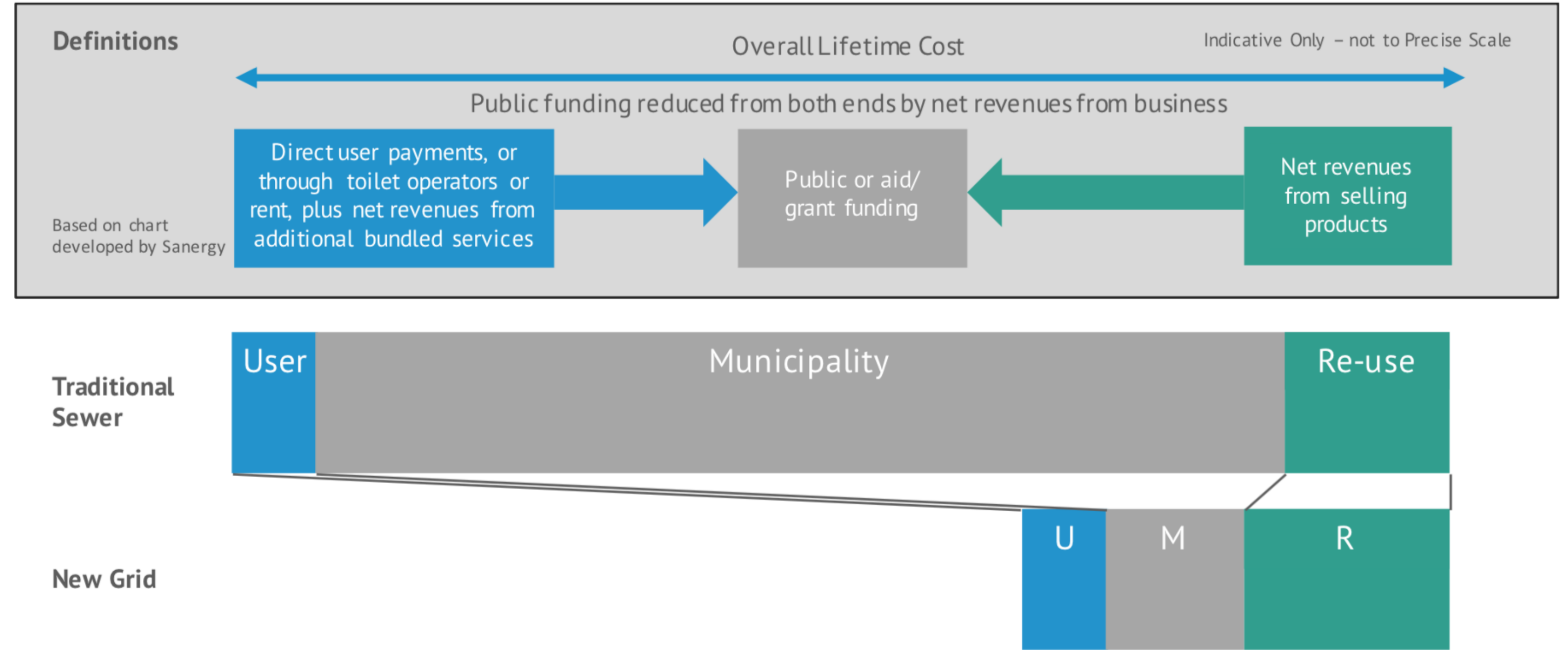
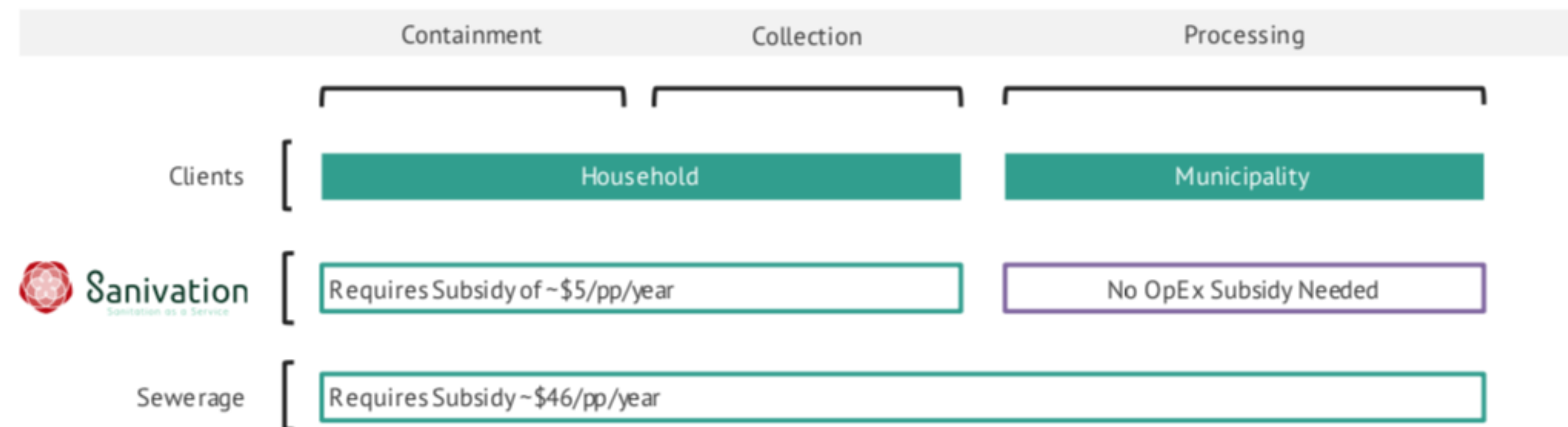


Figure 22 - Sanivation Graphic illustrating how a smaller subsidy is required for container-based sanitation than sewage to meet the needs of the urban poor



Source: Sanivation

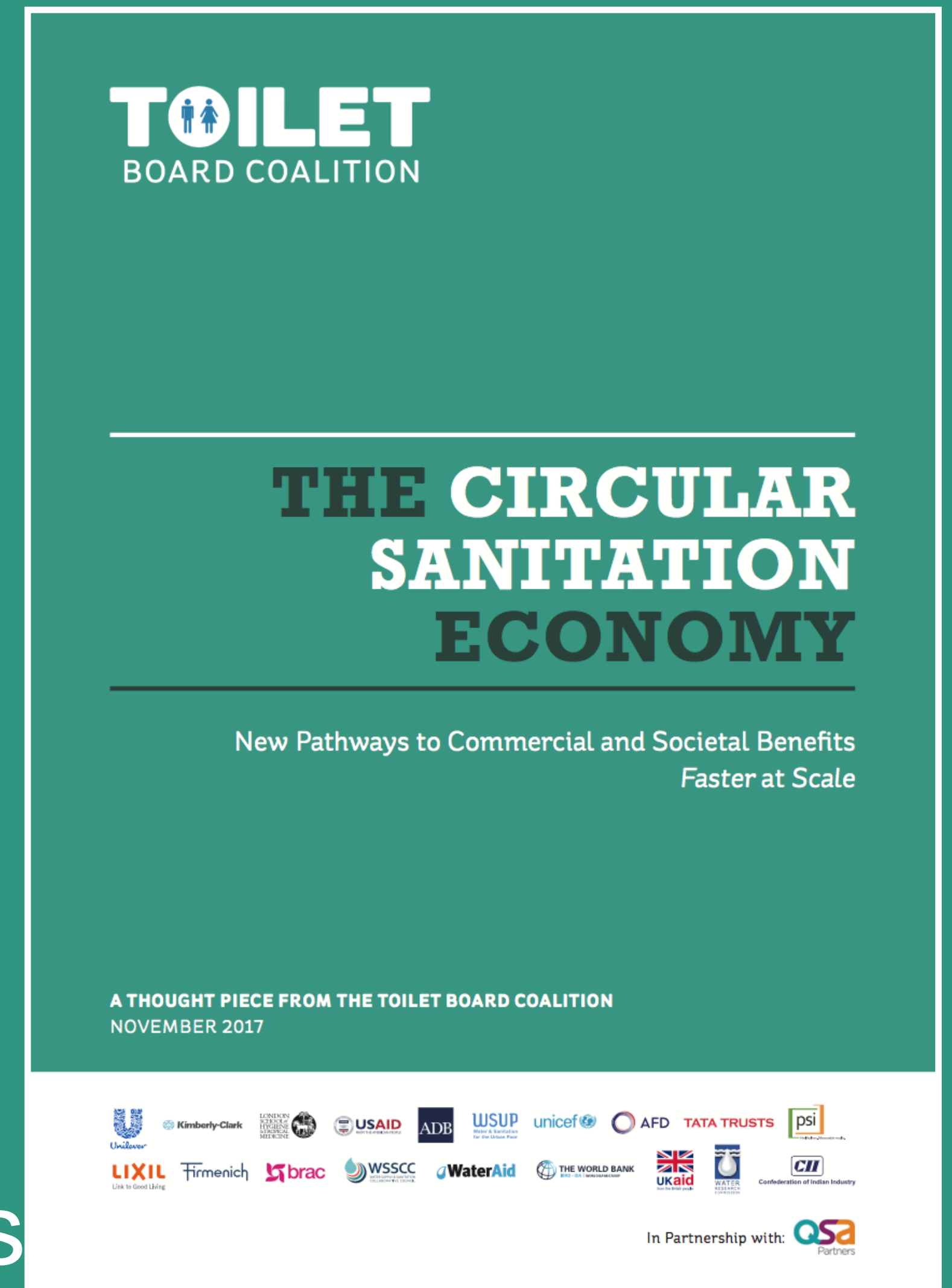


FOUR KEY FINDINGS ON THE CIRCULAR SANITATION ECONOMY

3

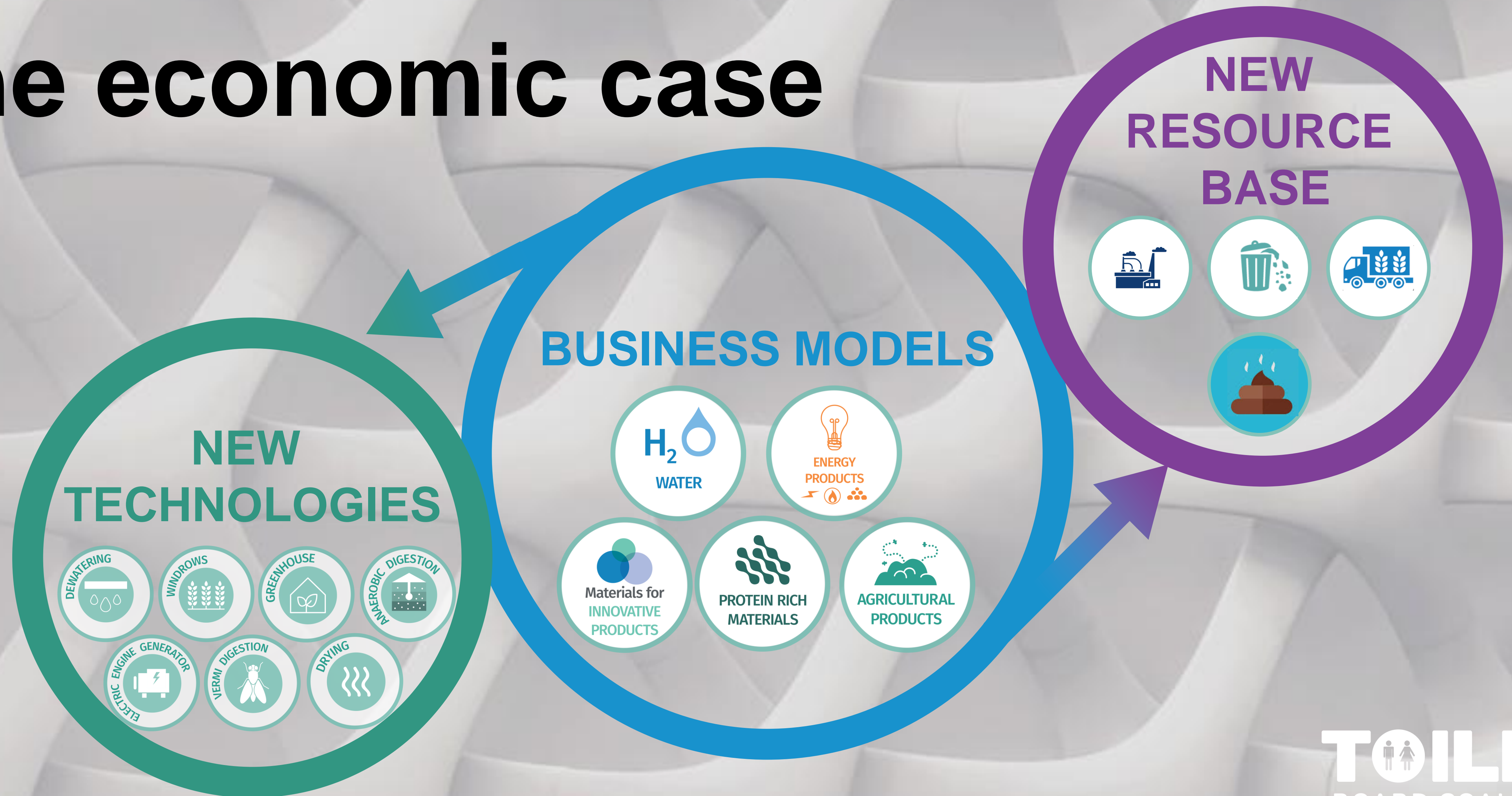
Circular Sanitation Economy business models open up new opportunities within a **new ecosystem** comprising:

- entrepreneurs
- utilities/waste operators
- large businesses across diverse sectors
- cities/ municipalities



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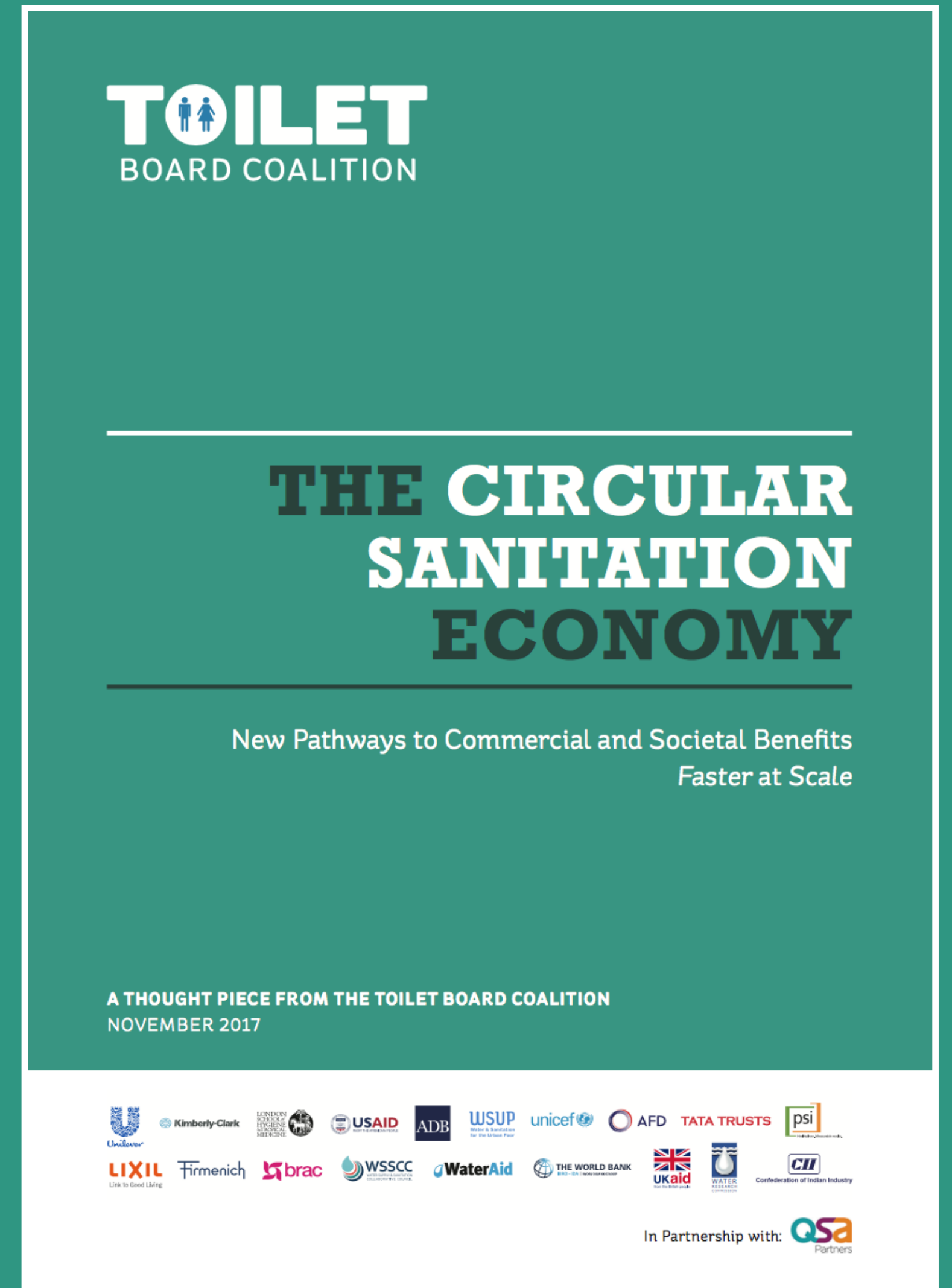
New evidence for the economic case



FOUR KEY FINDINGS ON THE CIRCULAR SANITATION ECONOMY

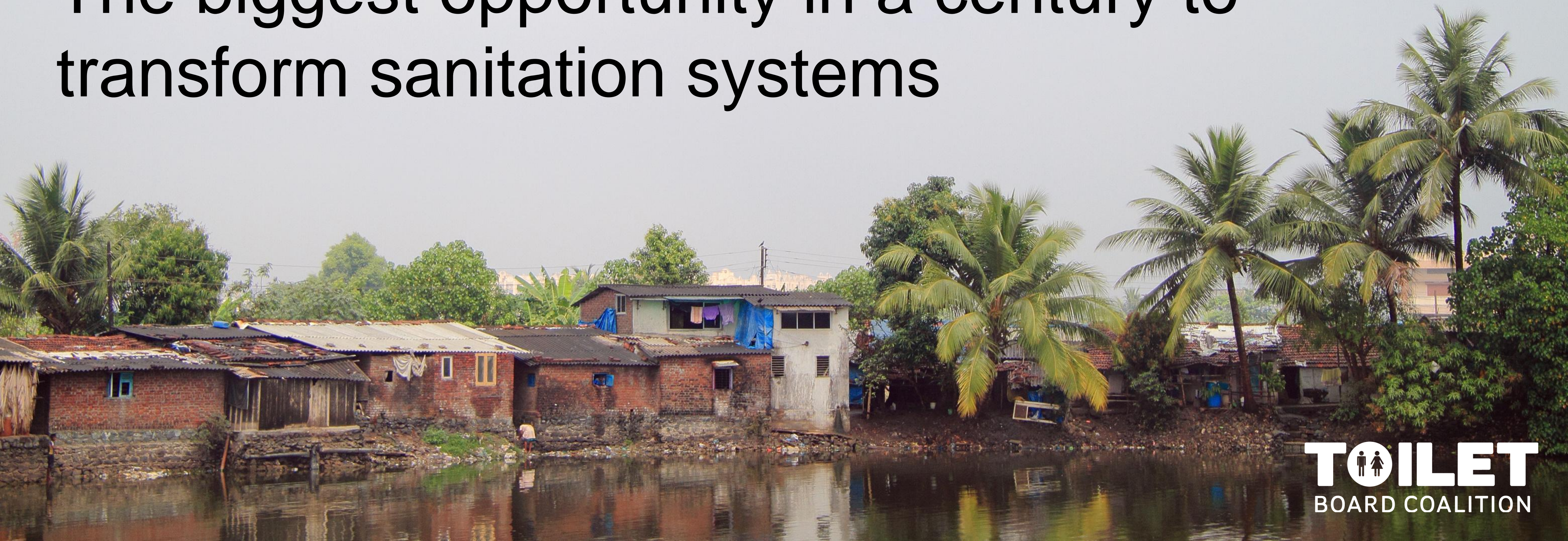
4. ■

Circular Sanitation Economy business models build a working biological cycle.



THE TIME IS NOW

The biggest opportunity in a century to transform sanitation systems



Download at: www.toiletboard.org

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

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THE DIGITISATION OF SANITATION

Transformation to smart, scalable and aspirational sanitation for all

A thought piece from the Toilet Board Coalition
November 2016

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INTRODUCING THE SANITATION ECONOMY

NOVEMBER 2017

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THE SANITATION ECONOMY IN INDIA

Market Estimates & Insights

THOUGHT PIECE FROM THE TOILET BOARD COALITION
NOVEMBER 2017

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THE CIRCULAR SANITATION ECONOMY

Four Pathways to Commercial and Societal Benefits
Faster at Scale

FROM THE TOILET BOARD COALITION

Partners: Unilever, Kimberly-Clark, Stone Family, USAID, ADB, WSUP, WSSCC, WaterAid, LIXIL, Firmenich, brac, USAID, ADB, WSUP, unicef, AFD, TATA TRUSTS, psi, The World Bank, UKaid, CII, Confederation of Indian Industry, TATA STRATEGIC MANAGEMENT GROUP, QSA Partners.

