

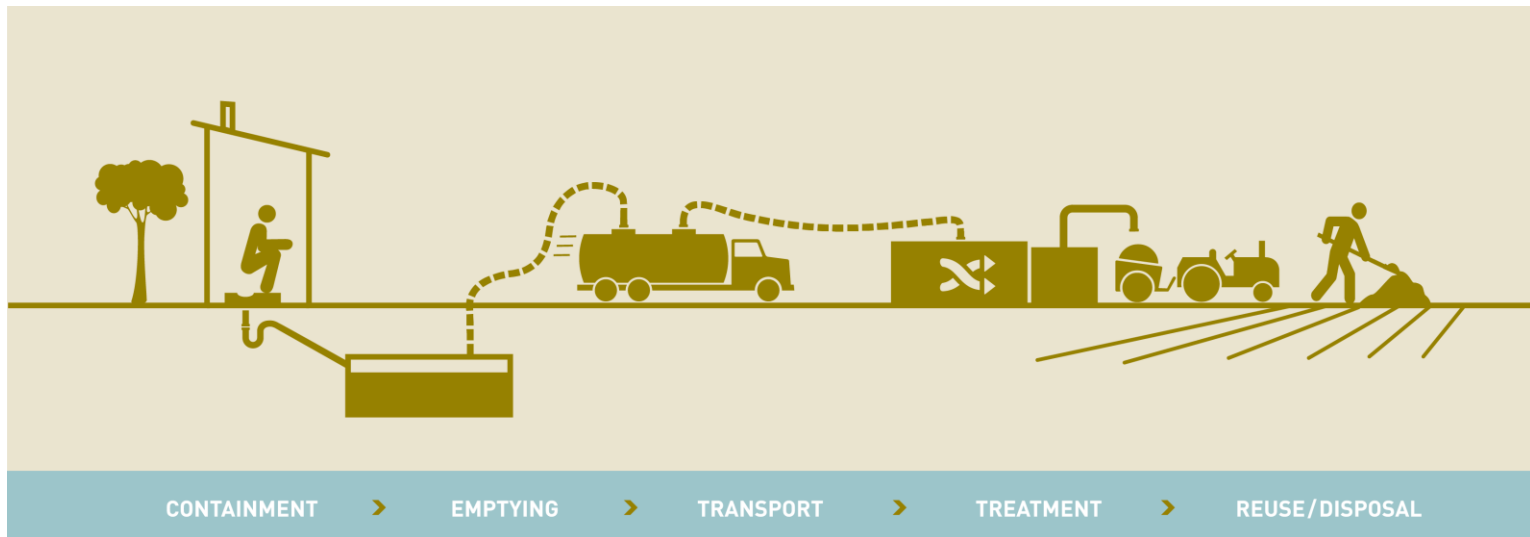
TRANSFORMING SANITATION

September 30, 2019

Brian Arbogast – *Director, Water, Sanitation, Hygiene* – Bill & Melinda Gates Foundation



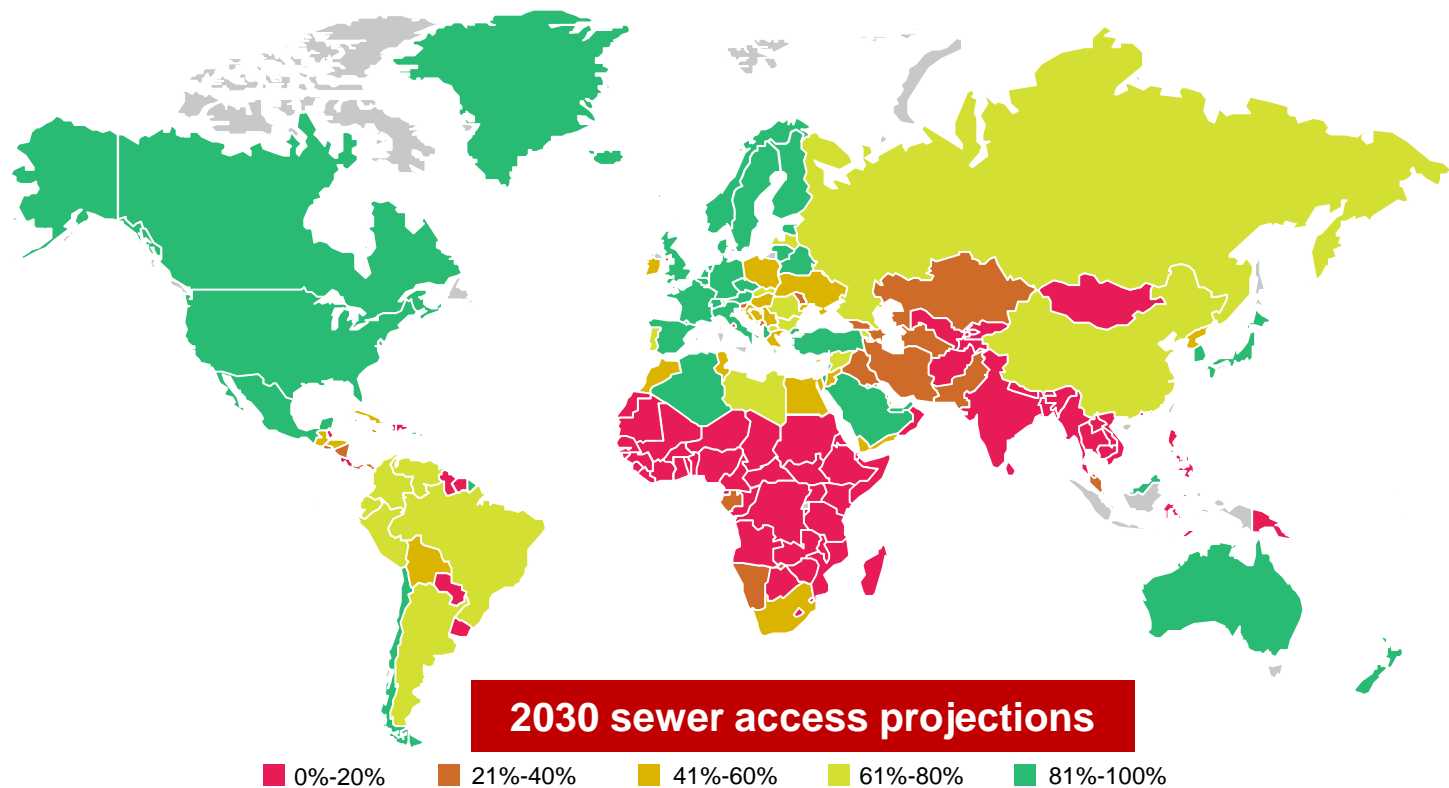
WE FOCUS ACROSS THE SANITATION SERVICE CHAIN



We focus on two fundamental sanitation challenges:

1. Expanding and improving sanitation without central sewers, because this is – and will be – by far the most common type of sanitation service used by the poor
2. Making sanitation services safe and sustainable by addressing the failure to effectively transport, treat, and reuse waste captured in on-site facilities

MANY PARTS OF THE WORLD WILL CONTINUE TO LACK ACCESS TO SEWERS

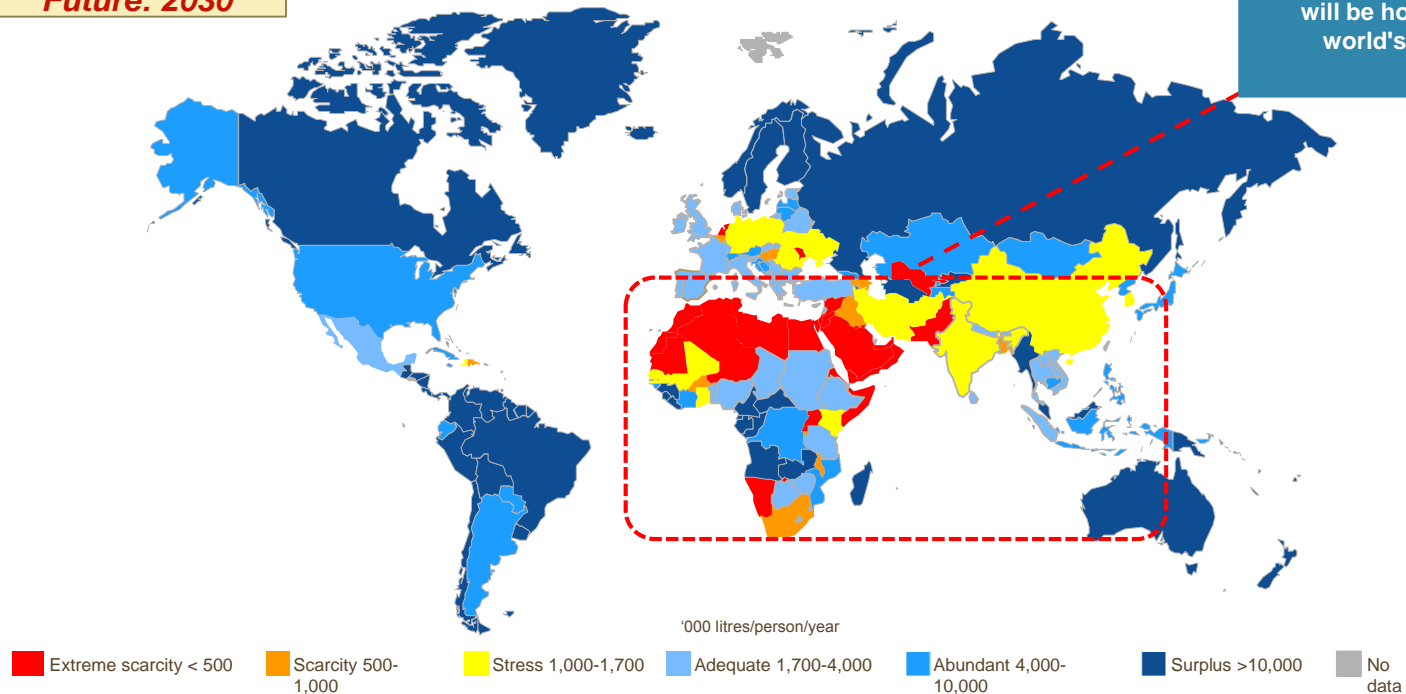


Note: countries in gray do not have data reported
Source: JMP 2017 Report; BCG analysis

WATER SCARCITY WILL MAKE FECAL SLUDGE MANAGEMENT EVEN MORE IMPORTANT

Future: 2030

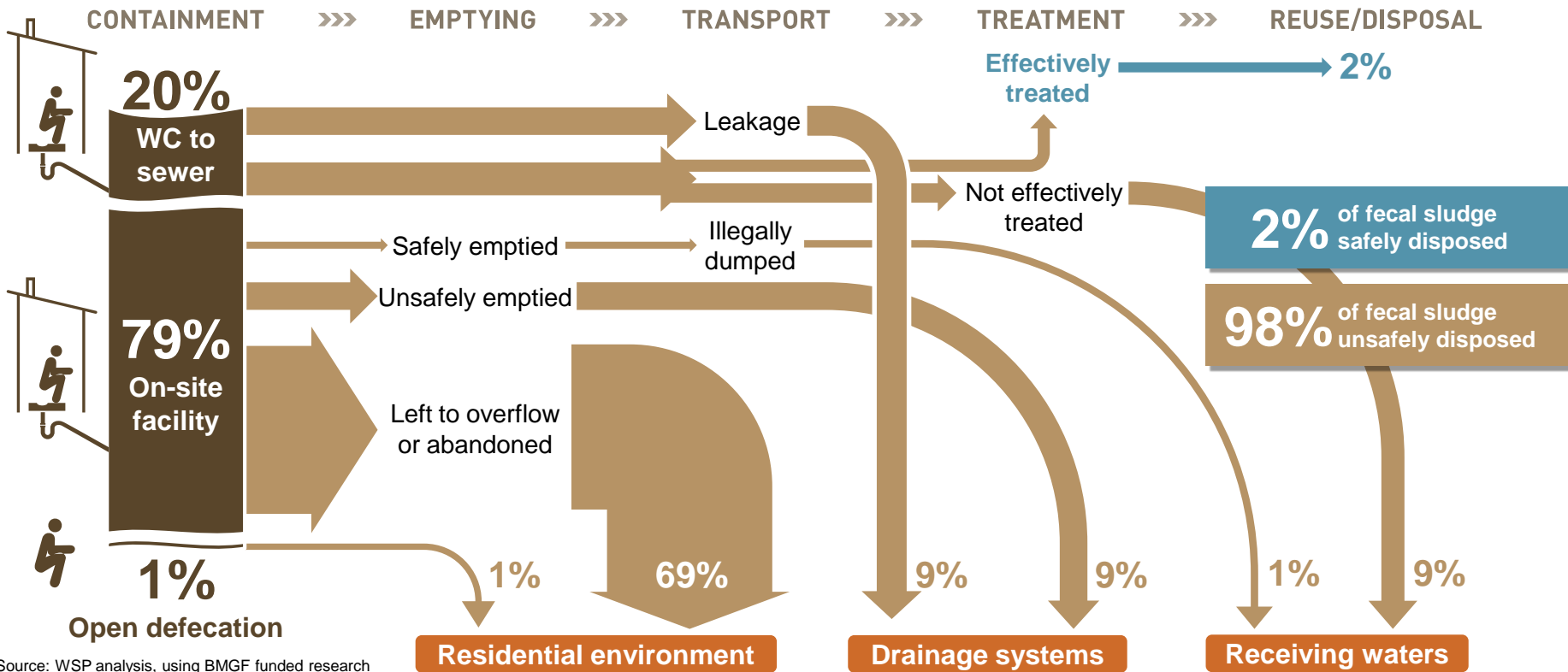
Sub-Saharan Africa & Asia
will be home to 74% of
world's population



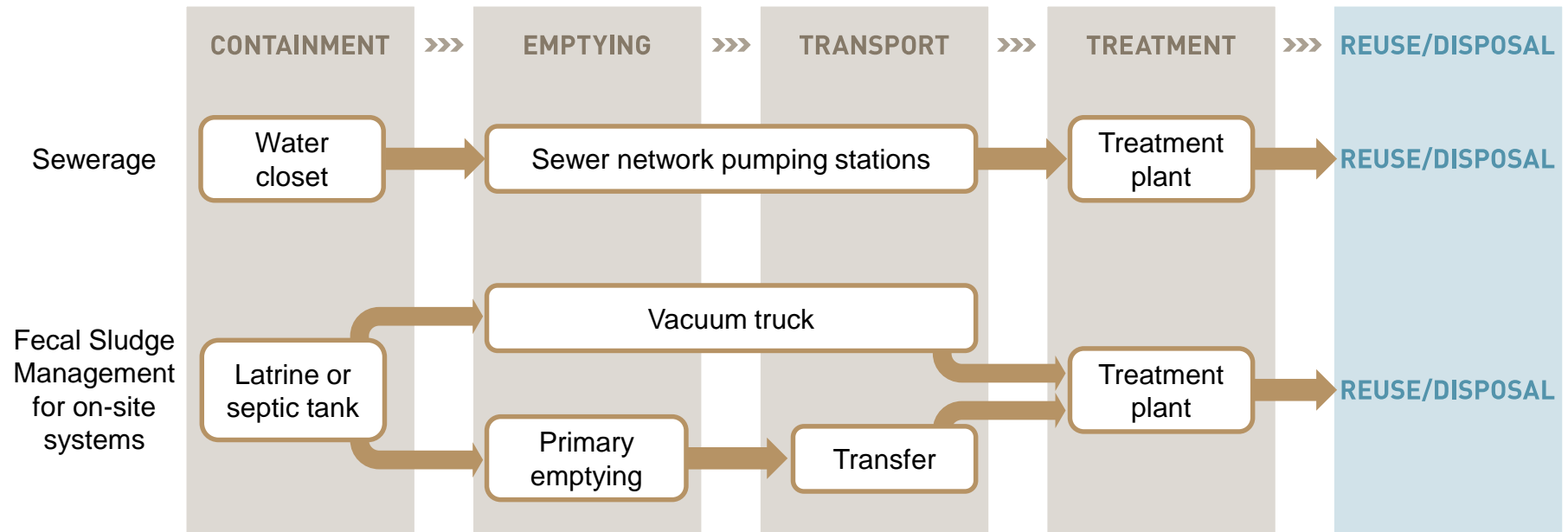
1. United Nations environment programme
Source: 'Global Water Initiative' (June 2005), GEF International Waters Conference, The Coca-Cola Company, Grail Research, BCG Analysis

POOR FSM: INSTITUTIONAL OPEN DEFECATION

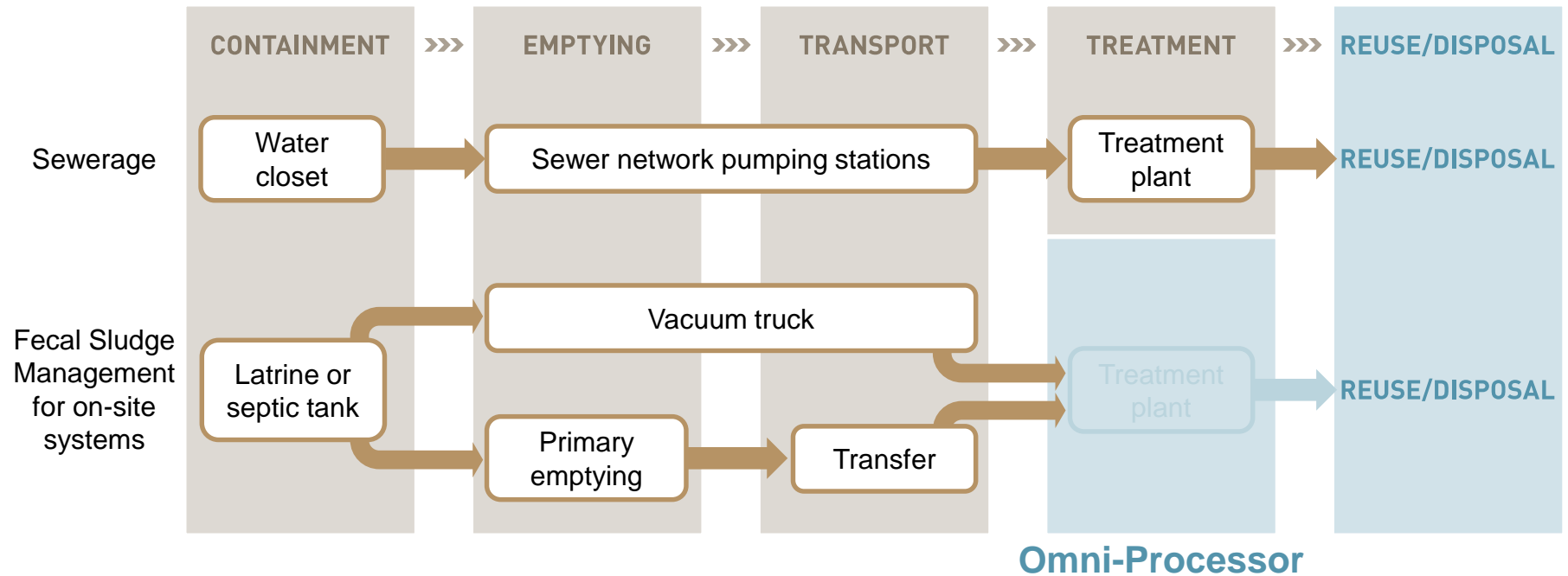
Sludge direct to the environment: no service chain



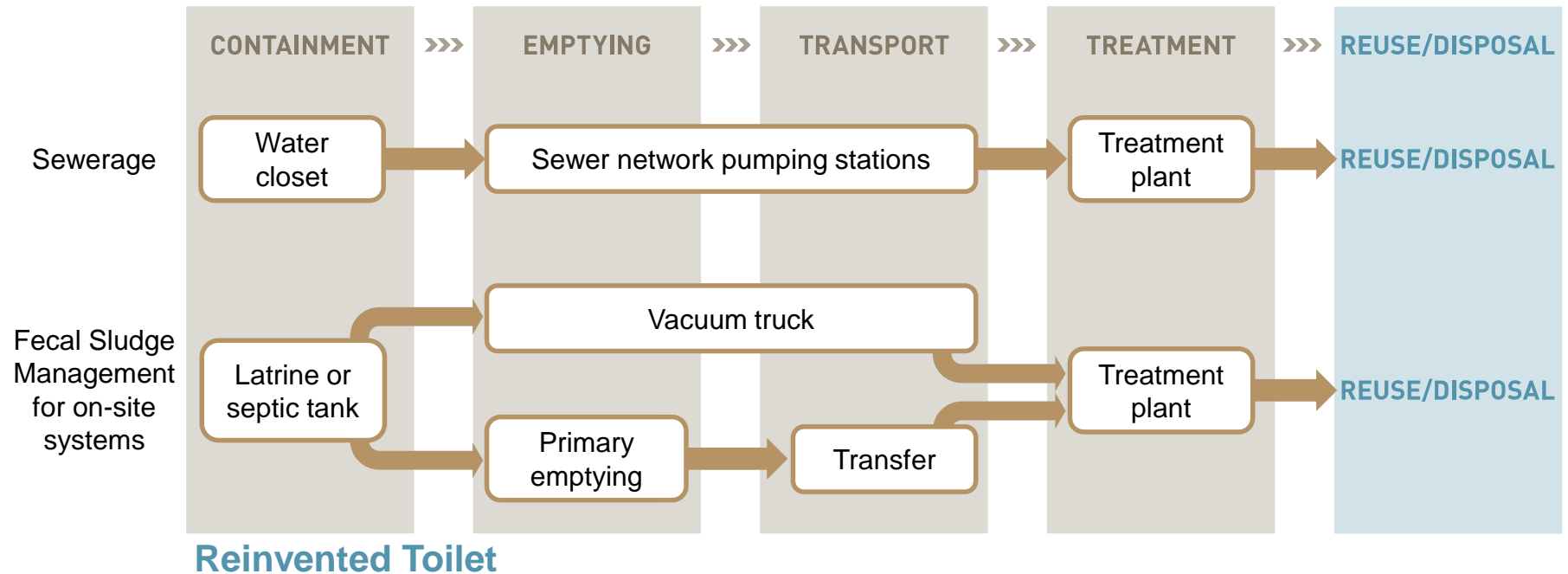
SANITATION SERVICE CHAIN: OUR INVESTMENTS



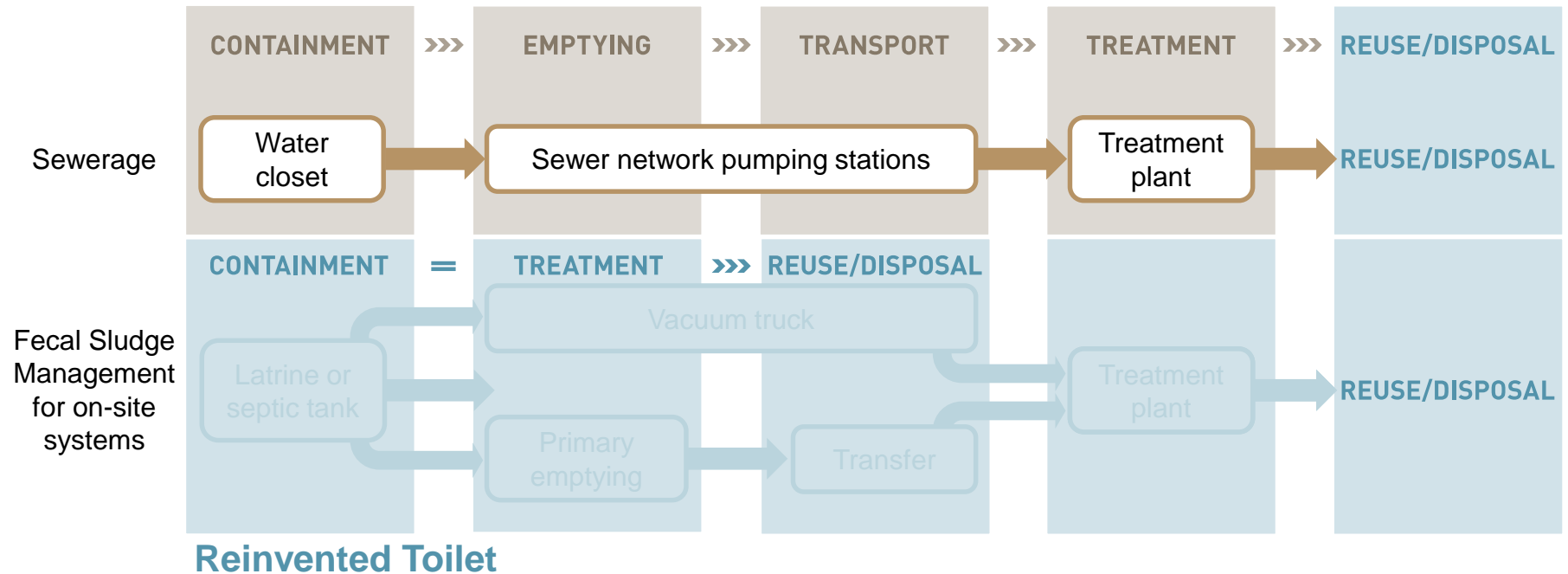
SANITATION SERVICE CHAIN: OUR INVESTMENTS



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SANITATION SERVICE CHAIN: OUR INVESTMENTS



WHAT IS 'GLOBAL ACCESS'?

Global Access is a concept we came up with in 2003 that requires our grantees and partners to commit to making the products and information generated by foundation funding widely available at an affordable price, in sufficient volume, at a level of quality, and in a time frame that benefits the people in the most need that we're trying to help.

All of our funded projects are subject to Global Access requirements

- Global Access survives the term of the grant and binds downstream collaborators, licensees, and assignees (e.g., technology partners must publish/disseminate and/or enable affordable access to the target beneficiary either directly or indirectly through licensing to third parties, etc.)



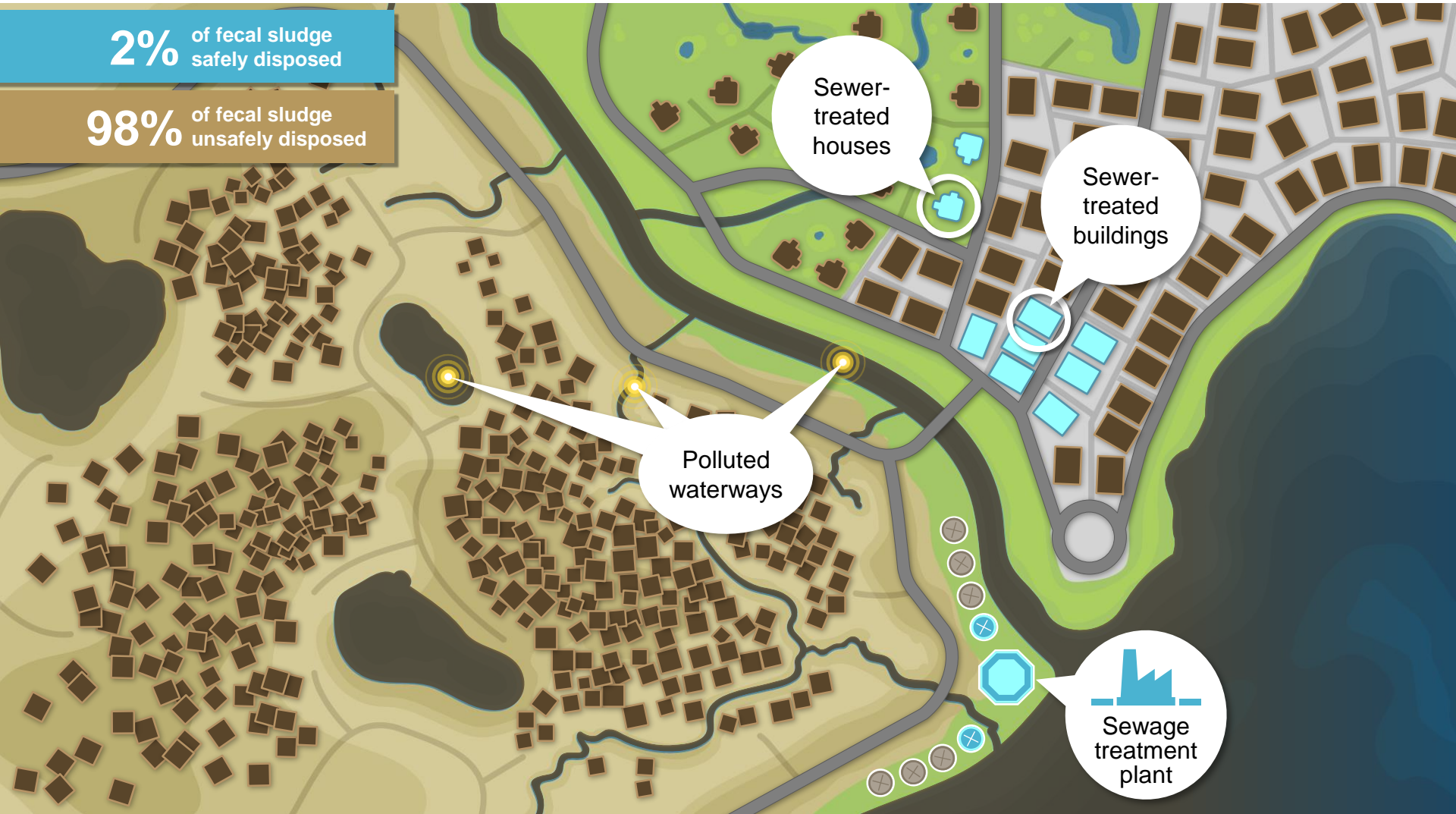
WHAT CITY TRANSFORMATION MIGHT LOOK LIKE - YEAR 0



YEAR 0

2% of fecal sludge safely disposed

98% of fecal sludge unsafely disposed



BY YEAR 1



BY YEAR 2



BY YEAR 3



BY YEAR 4



BY YEAR 4



YEAR 4

20% of fecal sludge safely disposed

80% of fecal sludge unsafely disposed



BY YEAR 5



BY YEAR 6



BY YEAR 6



BY YEAR 6



City now enforcing no overflowing tanks

BY YEAR 6



BY YEAR 7



YEAR 7

60% of fecal sludge safely disposed

40% of fecal sludge unsafely disposed



BY YEAR 10



BY YEAR 10



BY YEAR 10



YEAR 10

100% of fecal sludge safely disposed!

Clean waterways!

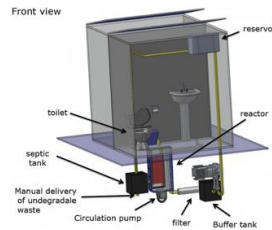
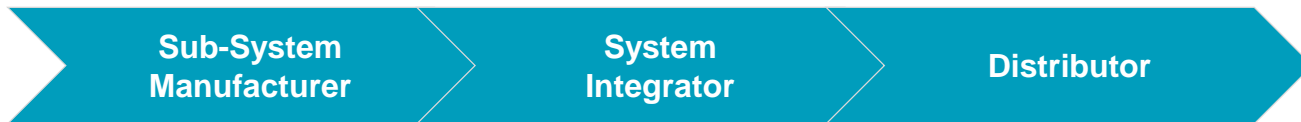
Sewage treatment plant running at full capacity

WHAT WE SEE AS NECESSARY FOR TRANSFORMATION

- Political will
 - Interest from countries, states, cities accelerating
 - Citizen demand is essential
 - Success breeds success ... so share successes!
- Successful FSM planning
 - Requires sufficient human capacity
 - Development & sharing of expertise
 - Tools targeted to each phase (Diagnosis, Modeling, Implementation) and each critical role
 - Requires feedback loops that lead to refinement of plan
- Access to innovations
 - New approaches, business models, public/private partnership structures, ...
 - New financing options
 - **New technology options**

WHAT'S NEEDED FOR NEW TECHNOLOGY OPTIONS TO BE COMMERCIALIZED AND REACH SCALE?

A SET OF COMMITTED COMMERCIAL PARTNERS, ALONG THE VALUE CHAIN



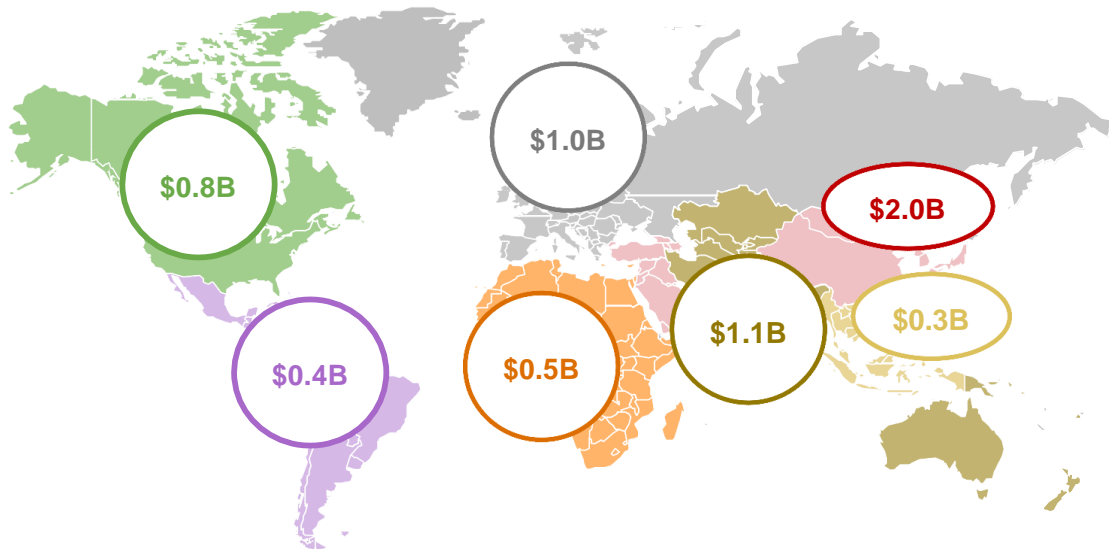
Capabilities

Research and Development
 Sub-system Design
 Product Sourcing
 Sub-system Integration
 Sub-system Manufacturing

Research and Development
 System Design
 Product Sourcing
 System Integration / Assembly
 Manufacturing

Product Distribution
 Installation
 Post-Sales Service and Support
 Operator Training
 Maintenance

REINVENTED TOILET REPRESENTS A POTENTIAL \$6B+ GLOBAL ANNUAL REVENUE OPPORTUNITY



2030 projections

Source: BCG analysis

Technology currently in pilots and ready for commercialization

Ecosystem of partners and enablers exist to plug into

Extensive market intelligence conducted to inform business model

STeP and BMGF continue to develop market and enabling environment to maximize opportunity

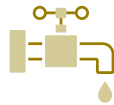
MACRO TRENDS MAKE TRANSFORMATIVE TECHNOLOGY VALUE PROPOSITION EVEN MORE COMPELLING



Growing population with urbanization

Population growth led by developing countries frequently outpacing sanitation infrastructure growth

66% of global population projected to be urban in 2050 creating need for low cost, high access sanitation solution



Aging infrastructure

Even in developed markets, current sewer and centralized wastewater treatment systems can be capacity strained

Infrastructure repairs costly and disruptive



Water scarcity and stress

Half of the global population could be facing water shortages by 2030

Demand could outstrip supply by 40%



Policy changes

Government programs and initiatives focused on sanitation, esp. in developing markets

"Eco-friendly" policies to support sustainable development

BMGF AIMS TO REMOVE BARRIERS FOR MARKET ENTRY AND SCALE



R&D to overcome technical challenges and derisk product and component innovation



Enabling environment



Marketplace readiness



Awareness and Perception



Public Goods Research

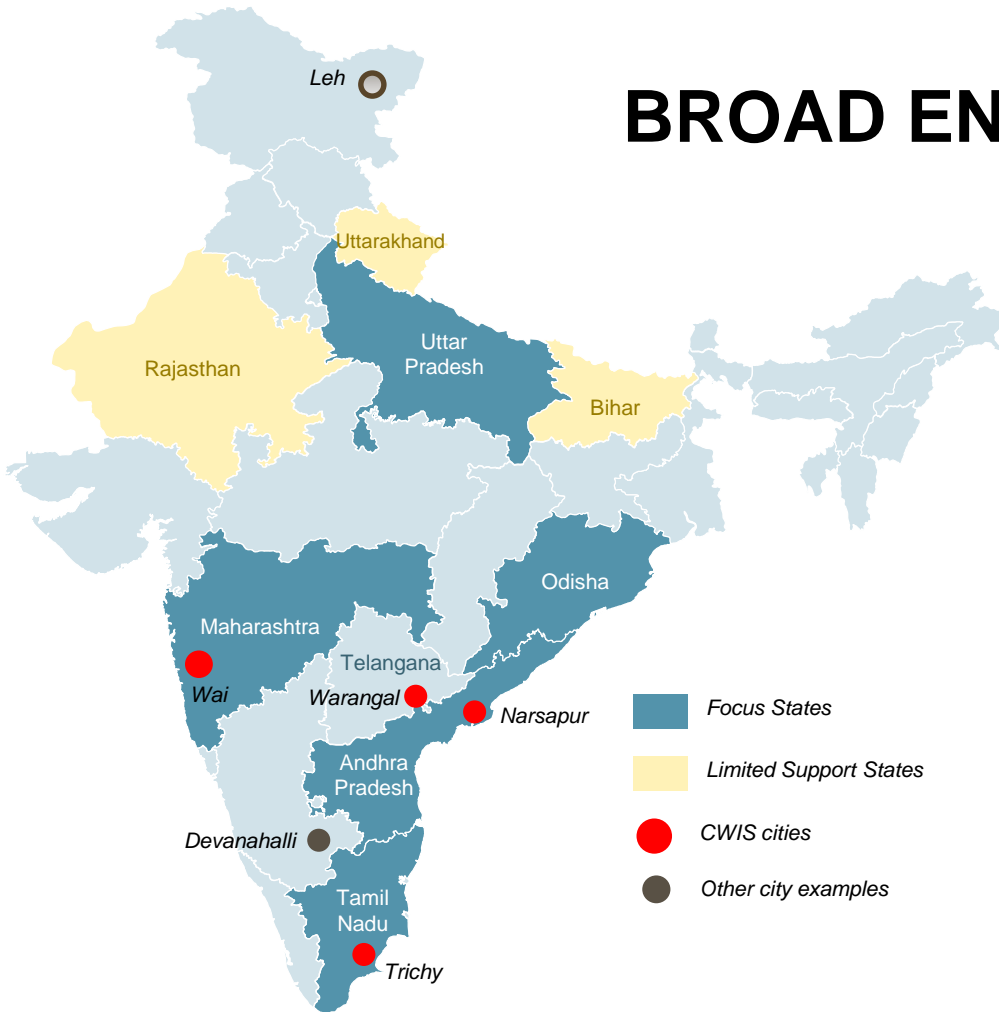


www.consultcibc.com

STeP Sanitation Technology Platform

www.stepsforsanitation.org

BROAD ENGAGEMENT IN INDIA



Key Government of India Relationships

- Ministry of Housing and Urban Affairs
 - Including AMRUT & CPHEEO
- Ministry of Drinking Water & Sanitation
- National Urban Livelihoods Mission



WE HOPE YOU'LL JOIN IN THIS JOURNEY WITH US ...

THANK YOU

