SOLUTIONS, IDEAS, TOOLS, INNOVATION: TRANSFORMING SANITATION SERVICE DELIVERY

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

What does Transformation look like?
What could transforming sanitation look like?
Call to action!
TRANSFORMATION

Impact

Time

FSM1

FSM2

FSM3
TRANSFORMATION

What factors contribute?

Health?
Convenience?
Sometimes …
Economics?
Always …

What about Aspiration?
OUR ASPIRATION FOR NON-SEWERED SANITATION?

• Today there is only one “Gold Standard” for sanitation: the sewer-connected flush toilet
  • “Flush and forget” is incredibly appealing
  • We need another Gold Standard that doesn’t require sewer systems!
  • Not just much cheaper to build and operate
  • Just as aspirational!

• Can you remember any other time when everyone in developing countries aspired to a capital- and maintenance-intensive centralized service that was prevalent in developed countries?
• How many people in developing countries today are anxiously waiting for the fixed telephone connections to come to their community & their home?
Sanitation Service Chain: Innovation Targets

**Sewerage**

- Water closet
- Sewer network Pumping stations
- Treatment plant
- Reuse/disposal

**Fecal Sludge Management for on site systems**

- Latrine or septic tank
- Primary emptying
- Transfer
- Vacuum truck
- Treatment plant
- Reuse/disposal

---
POOR INSTITUTIONAL OPEN DEFECATION

Sludge direct to the environment: no service chain

CONTAINMENT  >>>  EMPTYING  >>>  TRANSPORT  >>>  TREATMENT  >>>  REUSE/DISPOSAL

20%

WC to sewer

20%

Safely emptied

Not effectively treated

Effectively treated

2% of fecal sludge safely disposed

98% of fecal sludge unsafely disposed

Unsafely emptied

Illegally dumped

69%

Leakage

9%

Residential environment

Drainage systems

Receiving waters

1%

Open defecation

1%

Left to overflow or abandoned

9%

Source: WSP analysis, using BMGF funded research
YEAR 0

Sewer-connected houses

Sewer-connected buildings

Sewage treatment plant
YEAR 0

- **2%** of fecal sludge safely disposed
- **98%** of fecal sludge unsafely disposed

- **Sewer-treated houses**
- **Sewer-treated buildings**
- **Polluted waterways**
- **Sewage treatment plant**
BY YEAR 1

First FS treatment site

City now has a nascent FSM plan
BY YEAR 2

Open defecators start using toilets
BY YEAR 3
BY YEAR 4
20% of fecal sludge safely disposed
80% of fecal sludge unsafely disposed
BY YEAR 5
City now enforcing no dumping of untreated waste
BY YEAR 6

City now enforcing no manual emptying
City now enforcing no overflowing tanks
BY YEAR 7
60% of fecal sludge safely disposed

40% of fecal sludge unsafely disposed
City has fixed all leaking sewer pipes

Sewage treatment plant running at full capacity

BY YEAR 10
Year 10

100% of fecal sludge safely disposed!

Clean waterways!

Sewage treatment plant running at full capacity.
WHAT WAS 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 technology options
  • New financing options

Call to Action!

What role will you play?

Thank you! Questions?