Fecal Sludge to Electricity

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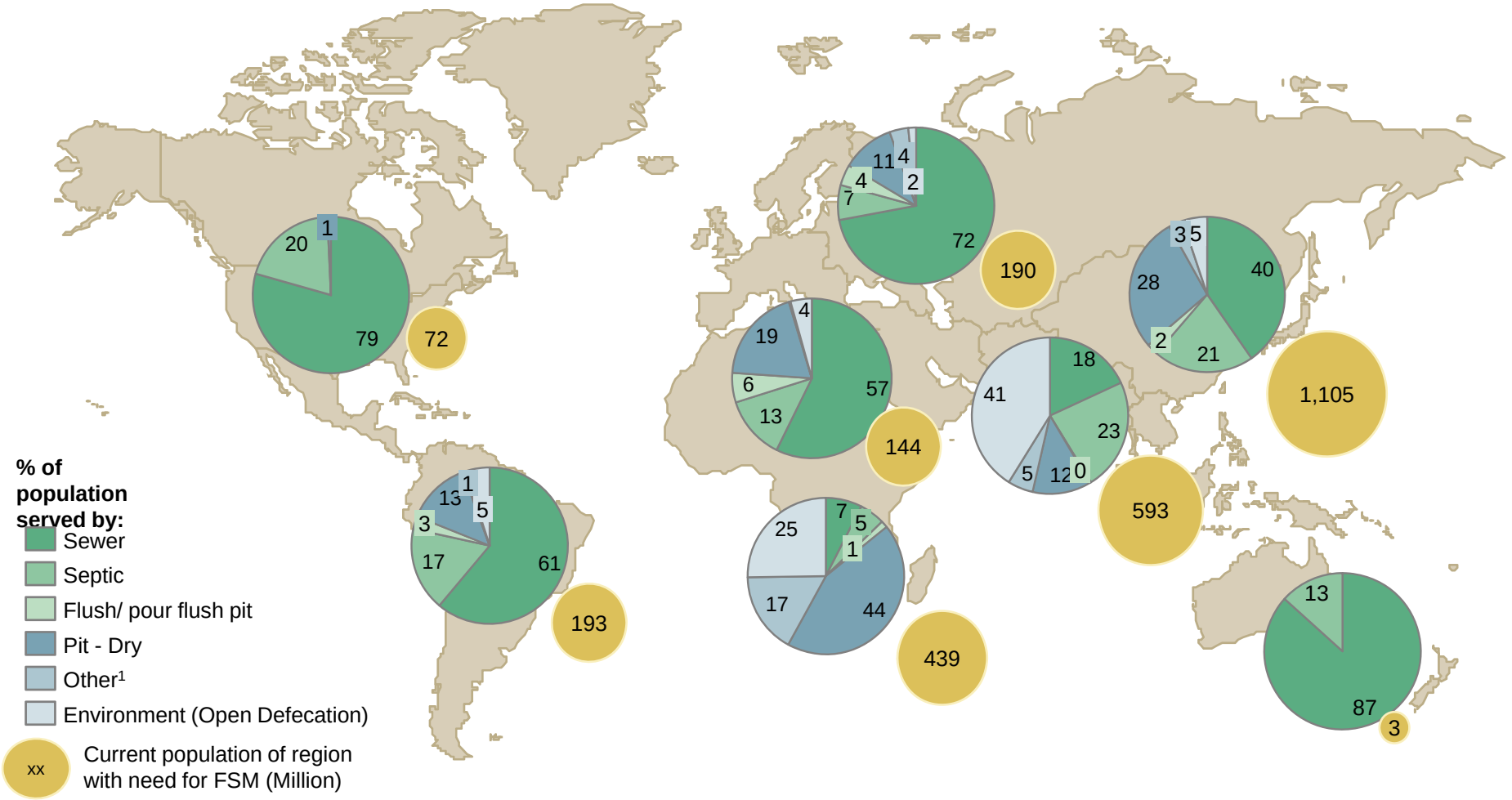
Today, ~2.7 billion people worldwide are served by sanitation methods that need fecal sludge management[1]

~ Today ~ but number increasing due to more access to non-sewer solutions



1. Includes "on-site," or non-sewered, sanitation facilities such as pit latrines and septic tanks that require emptying, transportation, and treatment of sludge 2. Open pits, pits without slabs and composting toilets included in "Other" as these do not need FSM (open pits/ pits without slabs covered up when full)

Source: UN JMP sanitation data, BCG analysis

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Issues on Fecal Sludge Treatment

- Lack of cost effective treatment unit particularly in large cities that considers complete value chain
- Complete reduction of pathogens – always the issue
- Current treatment units need large foot print, energy and highly skilled professionals
- Most of the treatment units are non-functional due to lack for O&M service
- Treatment units are expensive both in terms of CAPEX and OPEX

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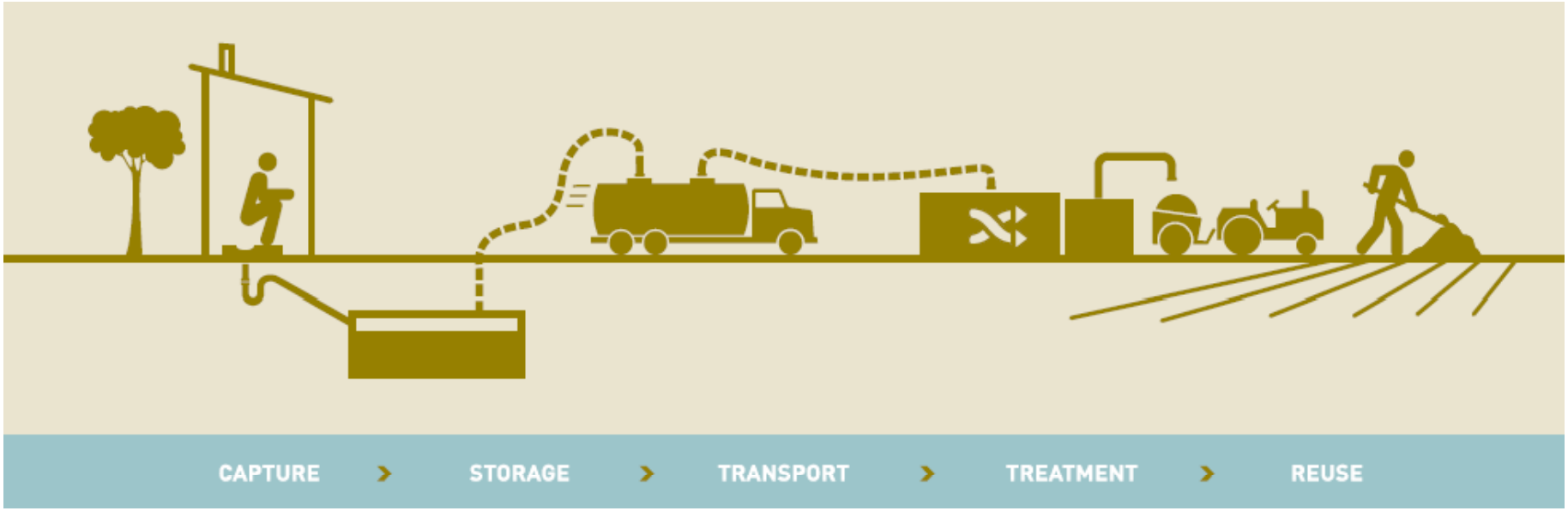
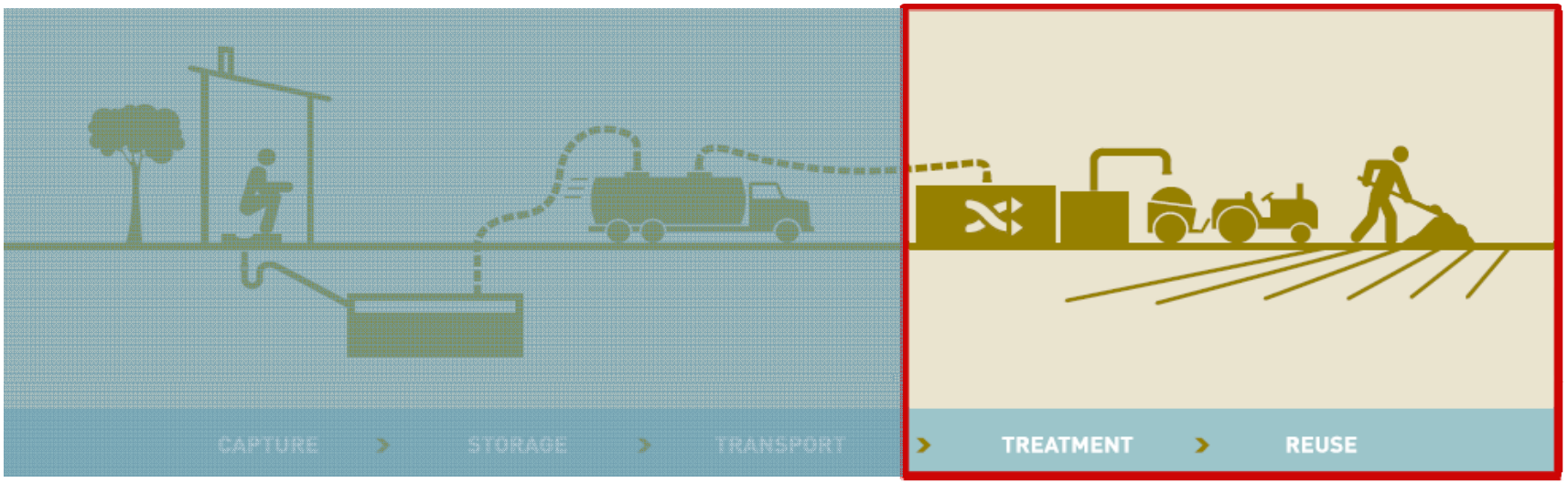
The BMGF WSH team's approach to moving sanitation products and services to scale

- **Access to sustainable sanitation is achieved by products and services delivered along the entire value chain at scale.**
- **Technologies and services meet users' preferences and national requirements.**



Gates Foundation's Omni-Processor Program



- Remove 100% pathogens from fecal sludge
- Community power/resource plant? - Recover energy (fuel, electricity, biochar, biogas, biodiesel), nutrient/ferti lizer and clean water…
- Profitable business for investors and operators
- Reduced service fees for poor families living on latrines

Janicki - Omni-Processor

Turning FS into Electricity

- L = 15m, W = 6, H = 5

Janicki - Omni-Processor

Turning FS into Electricity

- Population served ~ 100’000 people
- Approx. 100-150 of 10 m3 trucks loads / day
- Kills all pathogens
- Electricity Produced – 150 kW continuous
- Potable Water Produced: 1050 liter/hour
- Steam – 1000 kg/hour
- Dry sterile ash – 20 kg/hour

Projected Profits

- Profit is calculated as cash available above expenses (CapEx and OpEx)
- Based on site specific inputs, gross profit is projected to range from
  - 300kW:
    - Low: $200k/yr
    - High: $900k /yr
  - 150kW
    - Low: $66k/yr
    - High: $360k/yr

Development Timeline

	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015	Q4 2015	Q1 2016
Version 1 Testing (USA)								
Version 1 Testing (Dakar, Senegal)								
Version 2 Design								
Version 2 Fabrication/Testing (USA)								
Version 2 Testing (Asia)								
Additional Units Available								

Thank You!

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