

Integrated Faecal sludge based business models: Insights from empirical cases in developing countries

Solomie Gebrezgabher, Miriam Otoo

International Water Management Institute (IWMI)

19 February, 2019



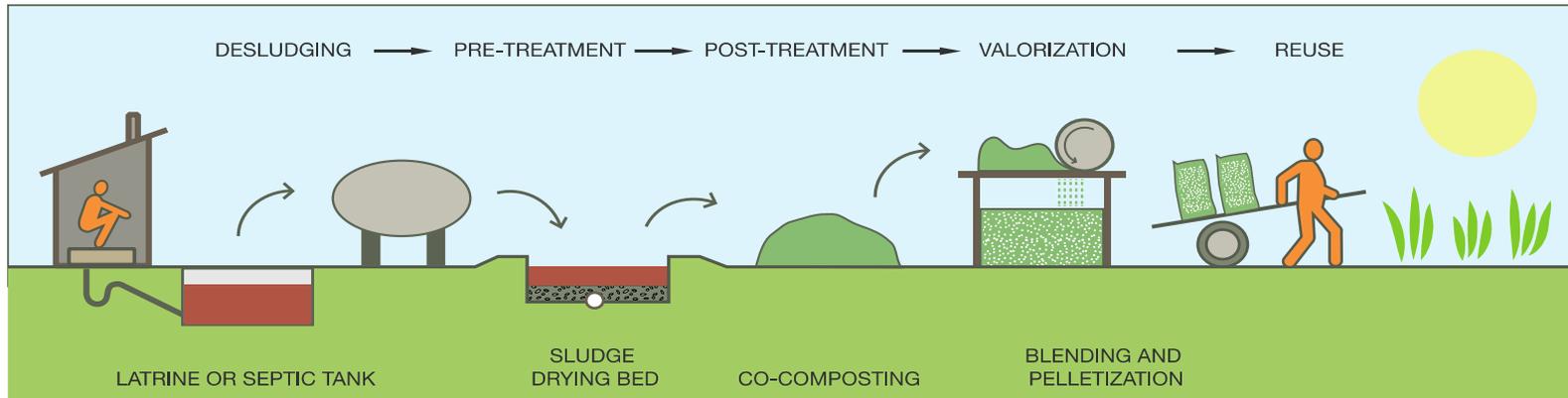
RESEARCH
PROGRAM ON
Water, Land and
Ecosystems



IWMI research division on Resource Recovery & Reuse (RRR)

- To increase the scale and viability of the productive reuse of **water, nutrients, organic matter** and **energy** from *domestic* and *agro-industrial* waste streams through the analysis, promotion and implementation of economically viable **business models**

Technology // Business models // Policy and Institutions // Capacity building



FSM from onsite sanitation systems (OSS)

- OSSs are key component of sanitation services
- Management of FS from OSSs remains one of the most neglected challenges
- Need for FSM beyond the provision of toilets, emphasizing *safely managed sanitation services*



Effective FSM requires

- Strong local capacities across the whole sanitation service chain
- Effective regulations and supportive policies
- Institutional linkages across private and public sectors supported by viable business models



The potential of RRR

- FS from OSSs has the potential for safe resource recovery
- Paradigm shift from waste that needs disposal towards creating valuable resource
- In low income countries a range of options exist that support the use of treated sludge for productive purposes



FSM business cases



Public toilet with energy recovery model

SANITATION SERVICE CHAIN

Cases from Kenya and India

- Initiated by private entity or CBO
- Requires partnership with municipality for access to land for toilet complex
- Multiple value proposition
- Key to success:
 - Low-cost technology
 - Community-led strategy
 - Support from and partnership with local government



Residential-institutional biogas model

Cases from Rwanda, Nepal, Philippines

- Implemented in institutions with large number of residents
- Saving in energy costs in institutions
- Reduced cost for emptying and transportation of sludge
- Key to success:
 - Partnership with local expertise and institutions
 - Government support for renewable energy
 - Ban of the use of firewood in institutions (e.g. prisons)

Farmer-truck Operator Partnership Model

Cases from Ghana and India

- Partnership (informal) between private truck operators and farmers
- Low-cost manure to farmers saving costs on fertilizer while paying fee to truck driver
- Changing the common system where the driver pays for disposal
- On-farm treatment of FS by natural solar treatment
- Potential safety and health issues (on-farm safety measures)

DISPOSAL
OR REUSE



FS-based fertilizer for revenue generation model

Cases from Ghana and Sri Lanka

- PPP model
- Produce a safe and valuable product for agricultural production through co-composting
- Requires linkages between those in charge of MSW collection and those serving OSSs
- Value addition through blending and pelletization

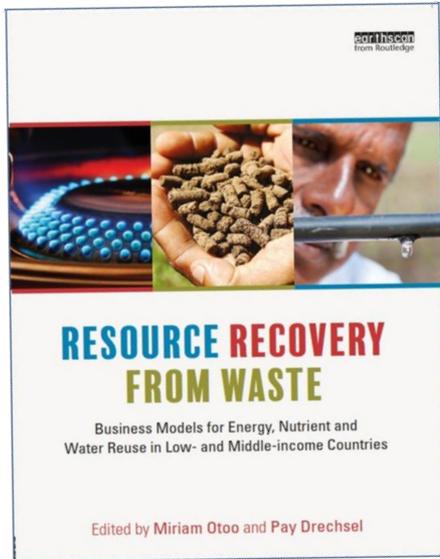


Conclusion and way forward

- OSSs offer easier and safer entry point for energy, nutrient and organic matter recovery
- Resource recovery plays an important role in addressing multiple challenges within and beyond the waste and sanitation sectors
- FSM options should consider value propositions beyond access to toilets and thus more business thinking is required
- Need for capacity development and strong incentive systems for inter-sectoral collaboration



The case studies were selected from these publications



Thank you

Solomie Gebrezgabher

s.gebrezgabher@cgiar.org

RESOURCE RECOVERY AND REUSE SERIES

