

CONNECTIVE CITIES: WASTEWATER MANAGEMENT

“IMPROVING EFFICIENCY AND EFFECTIVENESS IN MUNICIPAL SERVICE DELIVERY”

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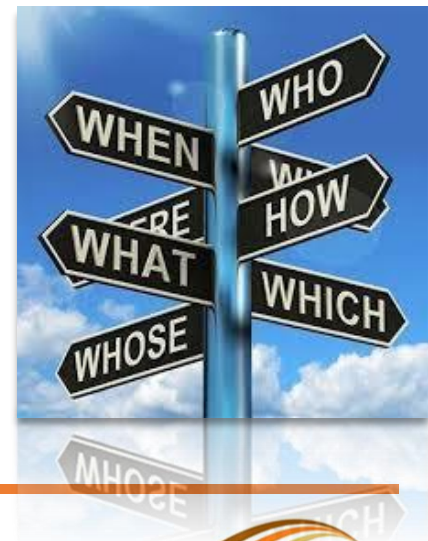
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OUTLINE

- What is Wastewater Management?
- Why Does it Matter?
- Key Challenges – “Strategic” and “Technical”
- Opportunities - Change of Perspective
- Conclusion - Practically Improving Status Quo
- Discussion



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WHAT IS WASTEWATER MANAGEMENT?

- The management of all wastewater (regardless of source) in a manner that:
 - Minimizes / eliminates harm to the humans and the natural environment.
 - Is sustainable in all respects (financially, ecologically, technically etc.).
 - Encourages reduction, re-use, upcycling and recycling as far as practically possible.



[Upcycling]

- ✓ Conserves the environment
- ✓ Reforms a product into **a new product**
- ✓ **Unlimited** available usage of raw materials
- ✓ Better quality
- ✓ Designed unique
- ✓ Handmade
- ✓ Limited editions



[Recycling]

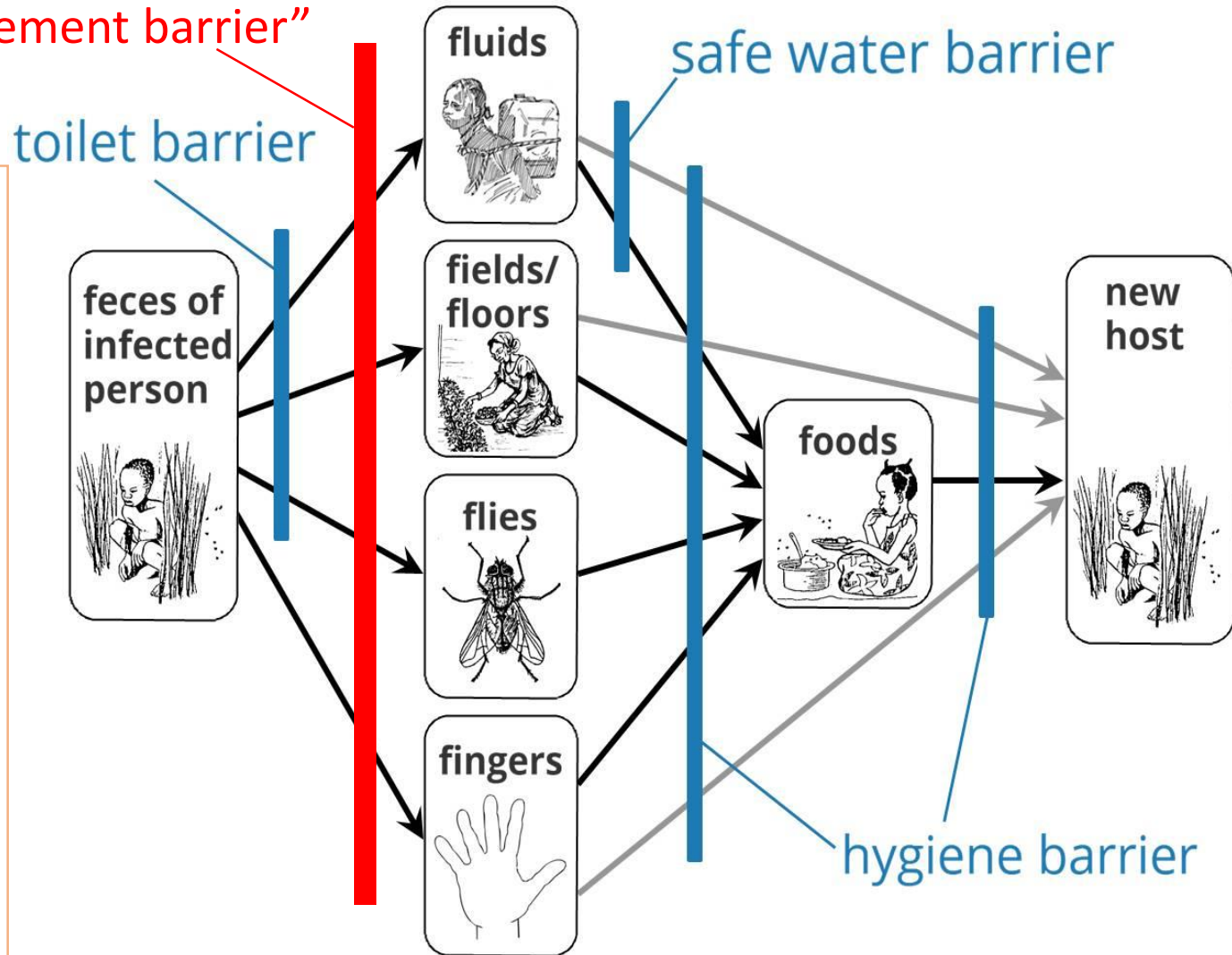
- ✓ Conserves the environment
- ✓ Reforms a product into **a material**
- ✓ **Limited** available usage of raw materials
- ✓ Requires processes to break down the original materials



WHY WASTEWATER MANAGEMENT MATTERS

“wastewater management barrier”

- Water, Sanitation and Hygiene (WASH) services are critical barriers to diseases transmission.
- Water related diseases can be divided into the following four groups:
 - Virus – laden
 - Water – washed
 - Host – based
 - Insect - borne
- Compromised municipal sanitation infrastructure (water and sanitation), reduce the efficacy of the barrier and ultimately compromise hygiene and health of people.



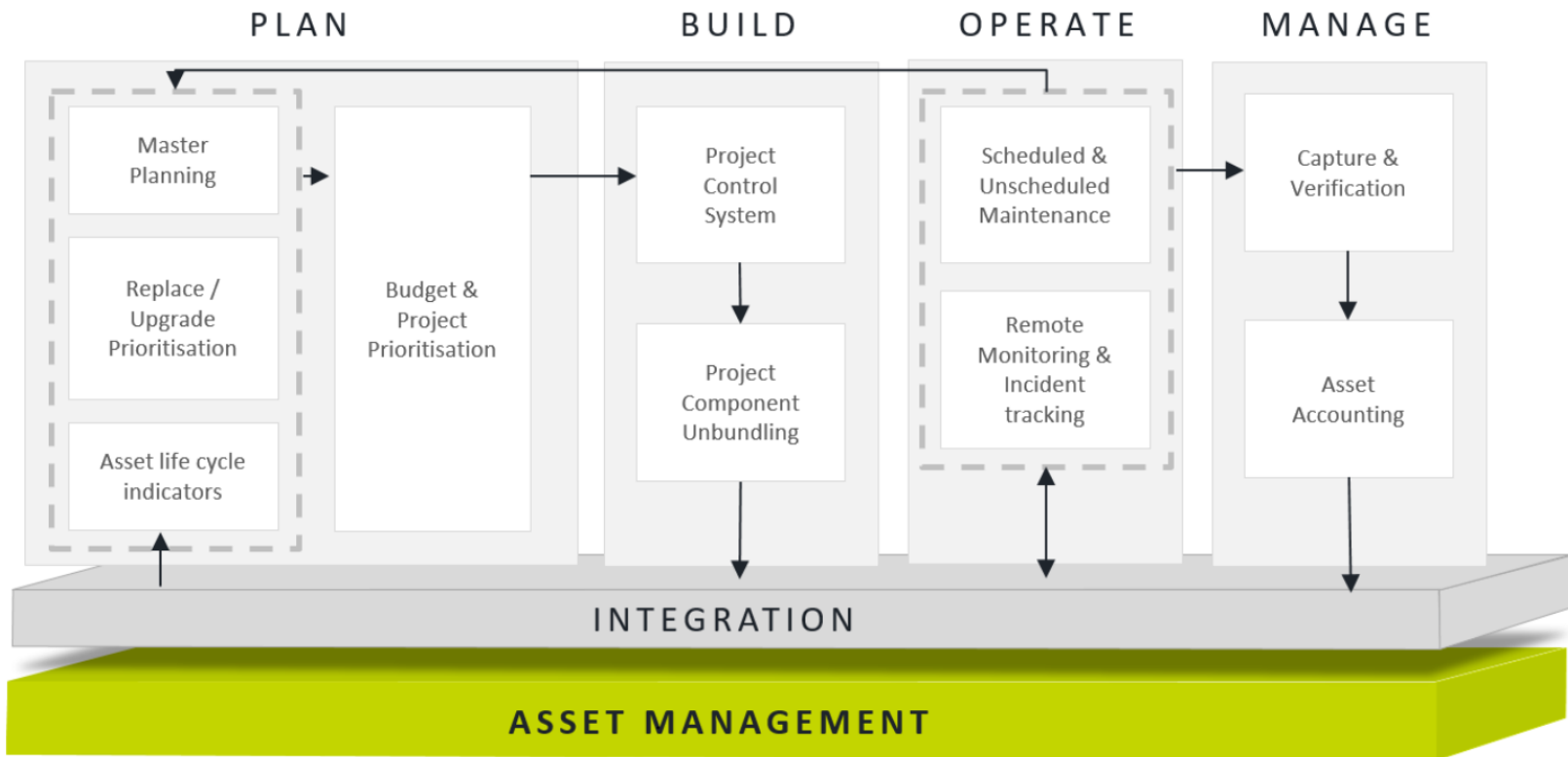
Source: Water 1st International (f-diagram2015) ; Adapted from Wagner and Laniox ; WRC K5 1886/11)

“STRATEGIC” CHALLENGES

- Regulatory / legislative environment that is not “balanced” (differentiated):
 - Not “progressive”, which unintentionally hinders innovation and development, often breeding a culture of “compliance” and box ticking.
 - Too “progressive” such that its not enforceable or practical for its context. Leading to general confusion in the sector.
 - A lack of appropriate incentives and disincentives.
- Funding models that undermine strategic goals.
- Shortage / absence of appropriate expertise at all levels of the system (sector professionalization).
- Weak governance at all levels, leaving system prone to abuse / misuse.
- Generally poor asset management practices.
- The concept of developing resilient infrastructure is not understood / applied.
- Using infrastructure as a means of addressing past and current inequalities (e.g. gender discrimination), socio-economic challenges, and building inclusive societies is not really a priority (going beyond the rhetoric to action).

“TECHNICAL” CHALLENGES

- Systems thinking is critical to not only understanding the nature and extent of the wastewater management problem, but also how it is to be resolved.
- A holistic approach considering all inputs along the value chain and how they interact is vital to resolving the challenge. Most if not all utilities responsible for wastewater management are performing poorly w.r.t. one or more of these areas, ultimately undermining the entire system.



OPPORTUNITIES



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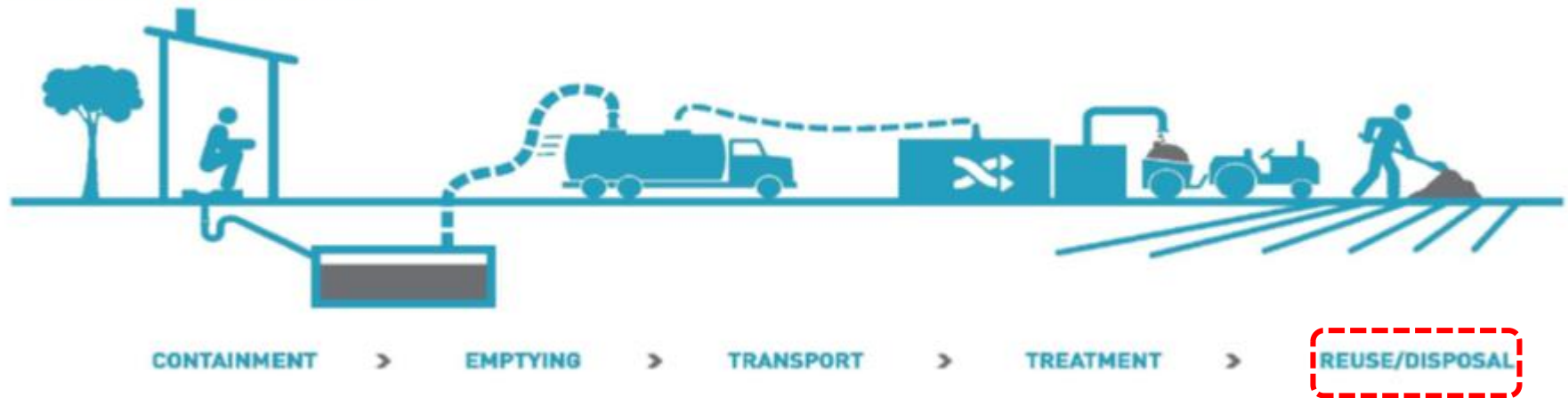
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CHANGE OF PERSPECTIVE

- Urban wastewater management is often reduced to a practice concerned exclusively with keeping wastewater out of sight (and mind). With the focus being on getting the waste to be treated as quickly as possible.
- In many regions, the idea of reuse and recycling is not top of the agenda (translating talk / policy / legislation to real action)
- More needs to be done to unlock reuse, upcycling and recycling post treatment, as the applications are tried and tested and make economic sense.

Sanitation Value Chain



PRACTICALLY IMPROVING STATUS QUO

■ Planning

- Design and review of planning tools / mechanisms that are fit for purpose.
- Reliable life cycle costing models for different regions / areas along with proper funding allocation / prioritization.
- Selection of contextually appropriate technology (truly “all-inclusive” planning).

■ Implementation

- Mechanisms to ensure delivery of projects on time, within budget and to specification.
- Increasing community participation and beneficiation, especially the involvement of women and youth.

■ Operation and Maintenance (Asset Management)

- High detail financial models factoring costs and complexities of water and sanitation.
- Benchmarking of human capital requirements for effectively operating and maintaining infrastructure (rural vs urban).
- General asset management, factoring in climate change.

■ Monitoring and Evaluation

- Design / selection of the most appropriate indicators for service delivery / development monitoring.
- Better data and information management, for evidence-based decision-making at all levels.

■ Municipal Support

- Support / intervention programme design, monitoring and evaluation.
- Mechanisms to depoliticize and professionalize the public infrastructure sector.
- Changing the mindset: it's not waste... it's a resource.
- Institutionalizing continuous improvement.



Discussion



Thank You!

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