



Introduction to Environmental Sanitation Planning

Dr Abishek Narayan

Learning Goals



© Sandec

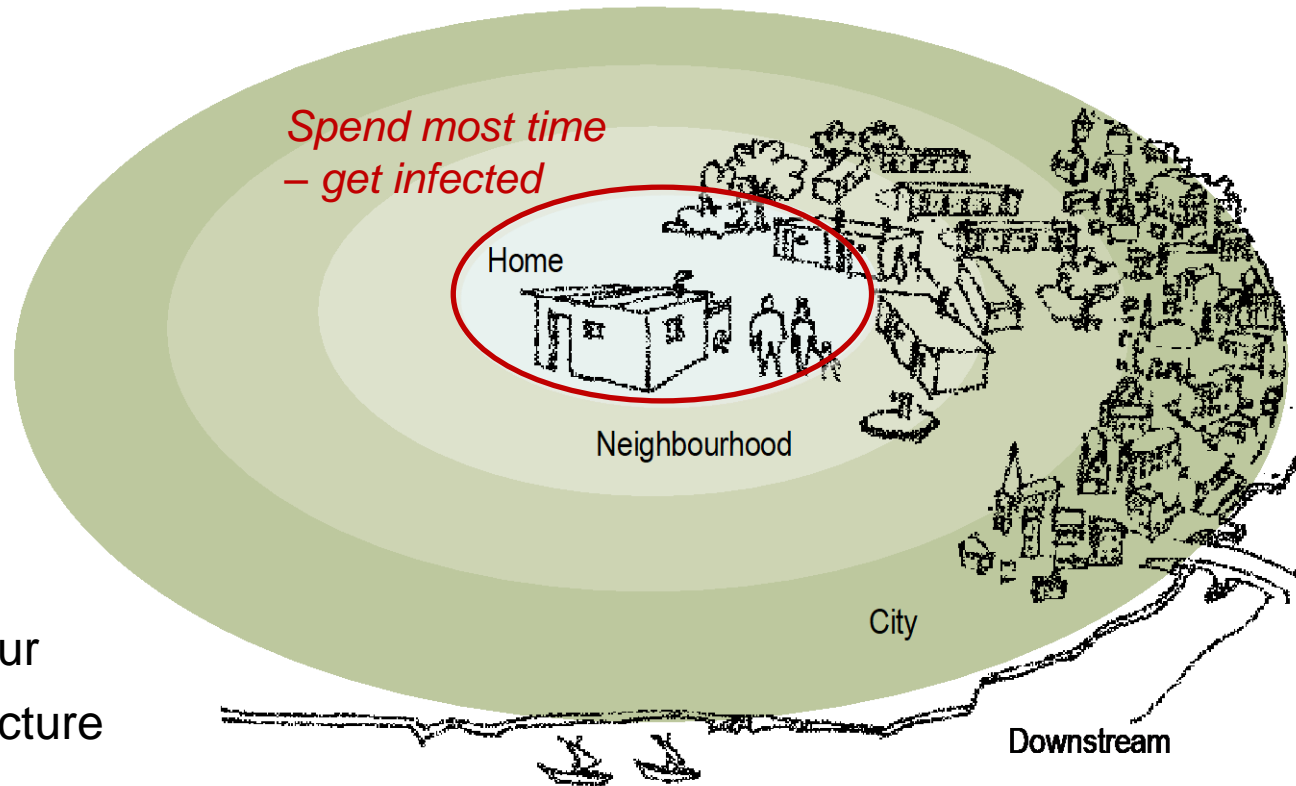
1. ***Distinguish between different sanitation planning approaches from city to neighborhood scale***
2. ***Identify key factors that shape urban sanitation in low- and middle-income settings***
3. ***Case study and group work questions and clarifications***



What is Environmental Sanitation?

**management of sanitation,
greywater, stormwater, solid
waste management, and
water supply**

The urban domains



Key factors:

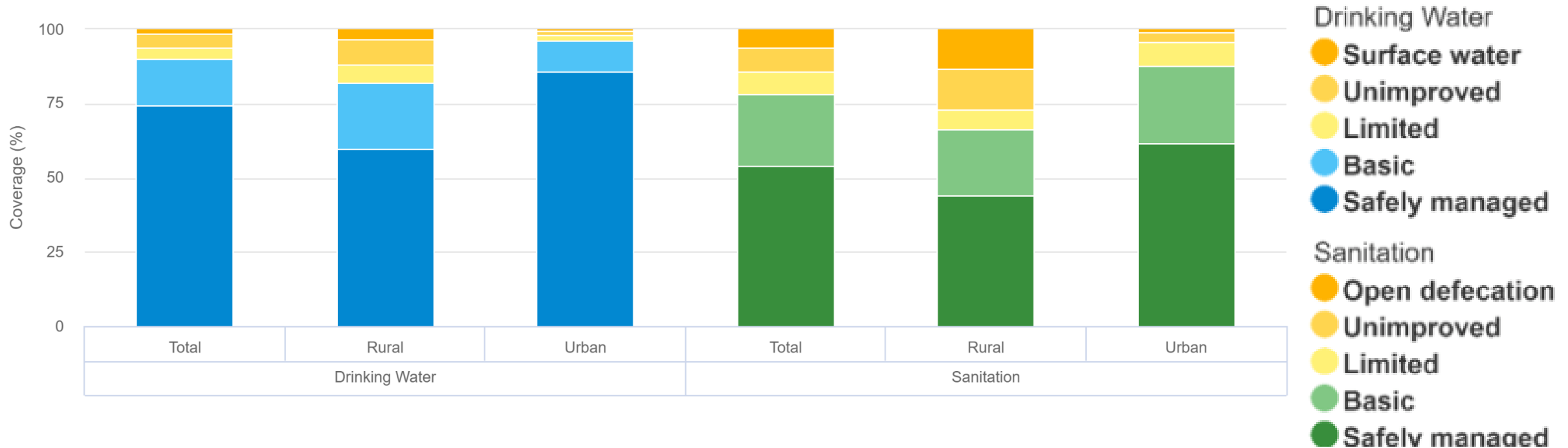
- hygiene behaviour
- existing infrastructure
- nutrition





Comparing Water and Sanitation services

Household data - World - 2020 - Service Levels

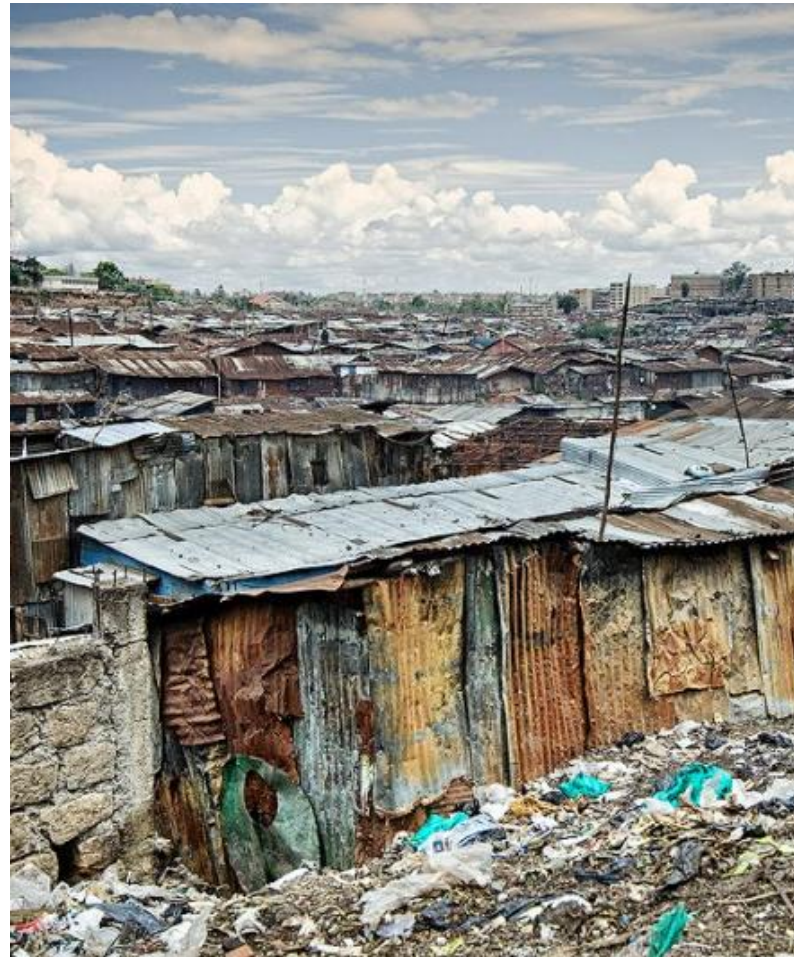


Situation across cities in Asia, Africa and Latin America



Hanging Toilets in Bangladesh

© Water.Org



Flying Toilets in Kenya

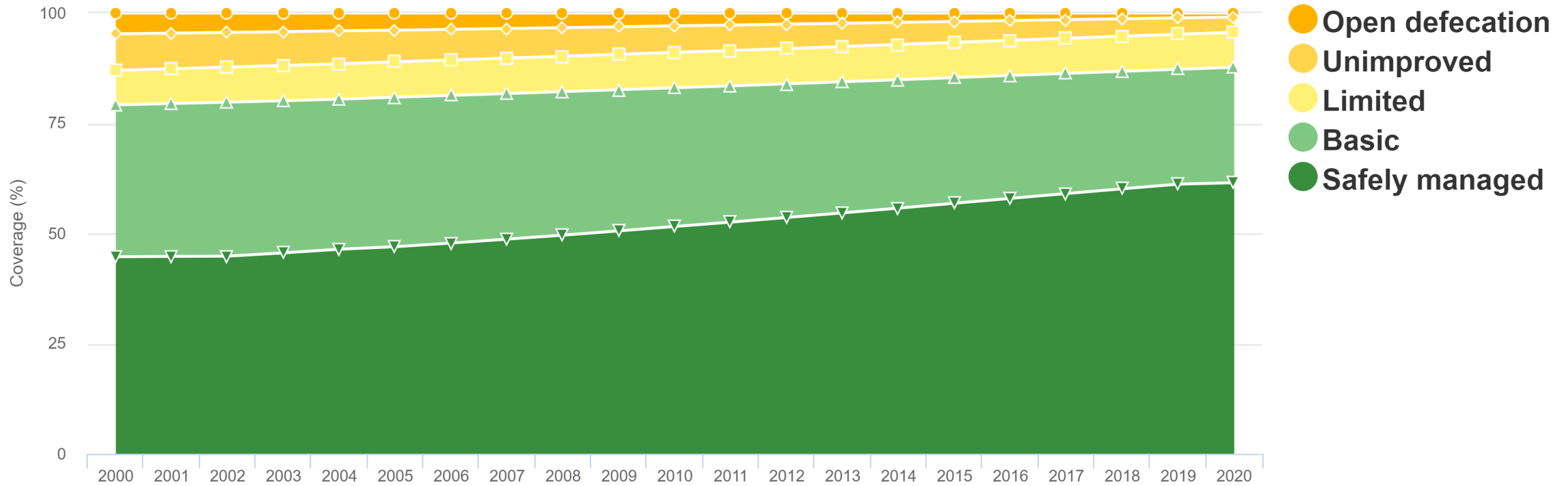
© Africa Times



Unusable Toilets in Peru

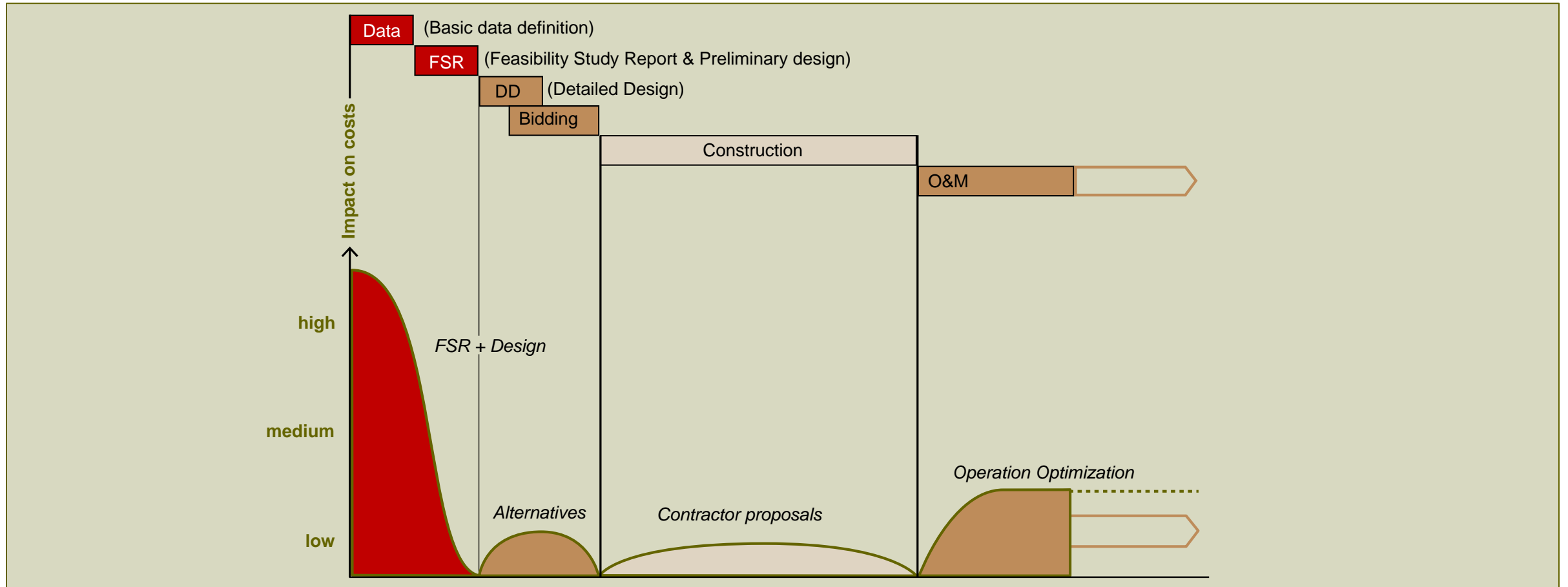
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Progress in Urban Sanitation

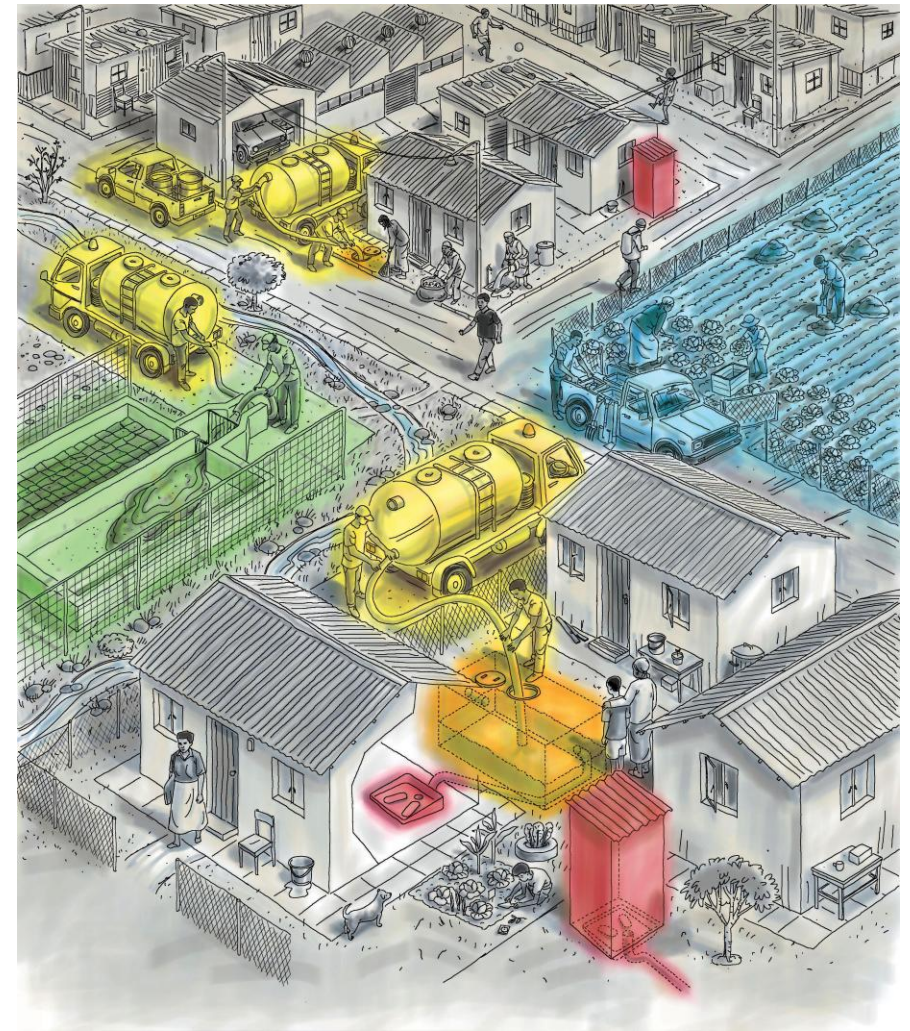
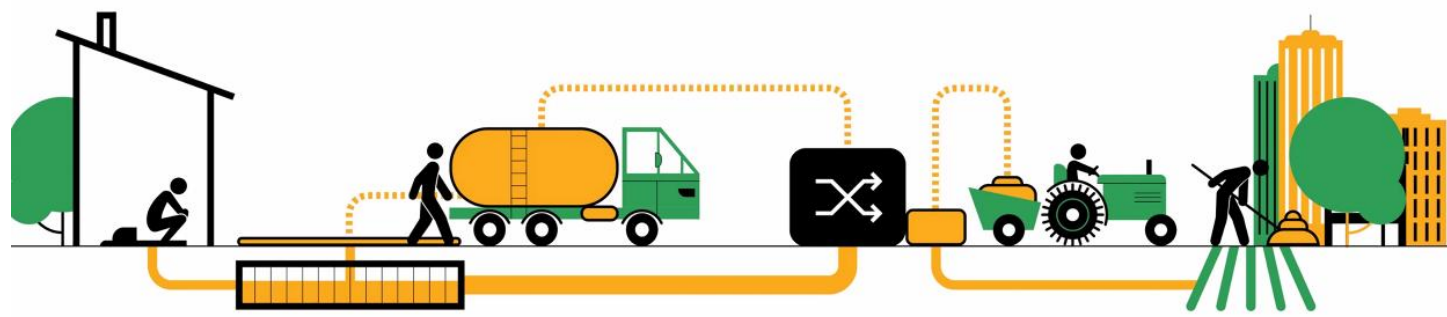


(UNICEF & WHO, 2021) www.washdata.org

The case for good planning



Sanitation Systems



% of safely managed sanitation in selected cities



- safely managed sanitation
- unsafely managed sanitation

Source: J. Loosli (2020)

Past approaches failed to meet targets...



Malawi



Costa Rica



Ghana

India:

Only 400 of 4500 cities have primary sewage treatment before disposal

Ghana:

Over 70% centralized wastewater treatment plants are out of operation

Source: IWA

Principal planning frameworks and their characteristics

	1 Planning model	2 Market model	3 Collective action model
Overriding principal			
Decision-makers	Governments	Private Sector	Civil Society
Criteria for decisions			
Guides for behaviour			
Sanctions			
Mode of operation			

Principal planning frameworks and their characteristics

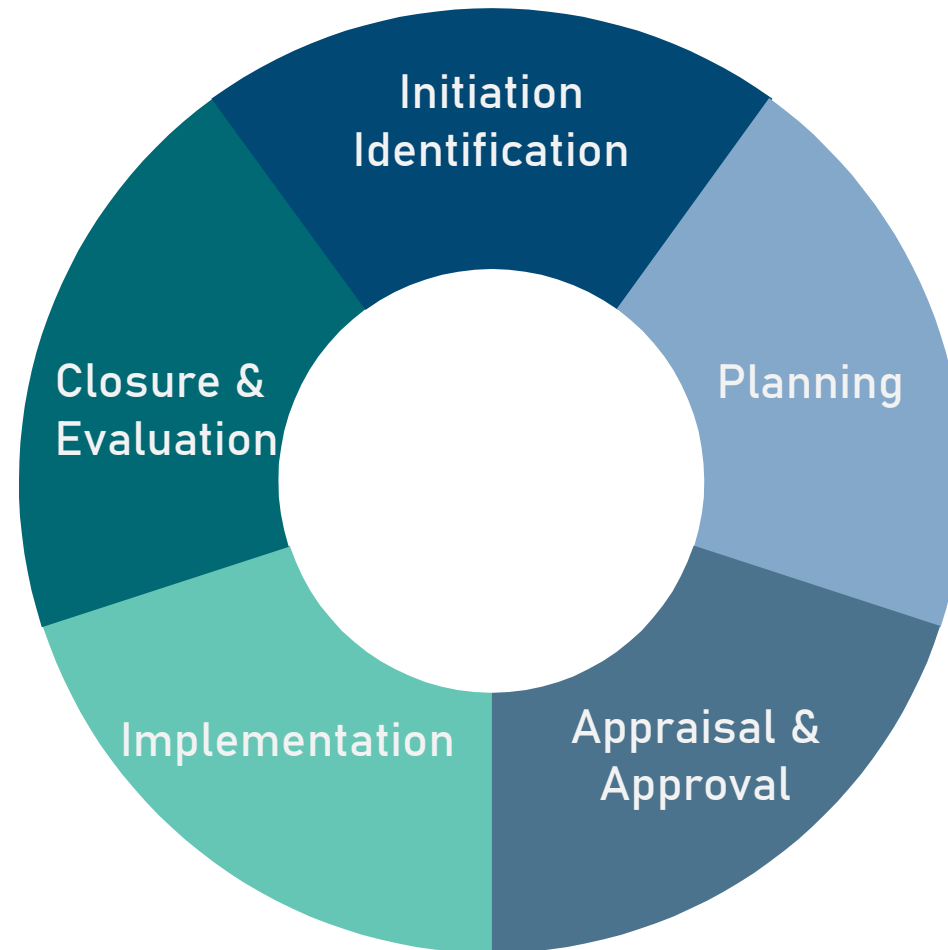
	1 Planning model	2 Market model	3 Collective action model
Overriding principal	Bureaucratic organization	Market processes	Community action
Decision-makers	Administrators, engineers, public officials	Individuals, households, vendors, enterprises	Leaders and members of grass-roots organizations
Criteria for decisions	Policy, and conformity with a plan	Efficiency, maximization of profit or utility	Interests of members and visions of leaders
Guides for behaviour	Targets, regulations and technical standards	Price signals, sanitation marketing	Agreements and accepted goals
Sanctions	State authority backed by coercion	Financial loss	Social pressure
Mode of operation	Top-down	Individualistic	Bottom-up

Source: McGranahan, G., et al (2001). The Citizens at Risk – From Urban Settlements to Sustainable Cities

1 The planning model

- In the **conventional planning** approach, utility planners & engineers develop demand projections based on demographic and economic indicators
- Infrastructure planning and service delivery continue to be **supply-driven** with a high degree of centralised control, little local accountability and low end-user involvement
- The supply-driven model is a **top-down approach**, built around bureaucratic mechanisms and implemented by govt bureaucrats and engineers – often “one-size-fits-all”
- Championed by: **International Finance Institutions** (IFIs) and **Central Governments** all over the world.

Typical Project Cycle



1 Planning model – the World Bank project cycle

Completion & evaluation

- ✓ Implementation Completion and Results report (ICR)
- ✓ IEG Evaluation of ICR

Identification stage

- ✓ Project Concept Note (PCN)

Preparation stage

- ✓ Technical Assessment
- ✓ Economic/Financial
- ✓ Institutional Capacity and Institutional Arrangements
- ✓ Financial Management
- ✓ Procurement
- ✓ Social and Environmental
- ✓ Results, Risks

Implementation stage

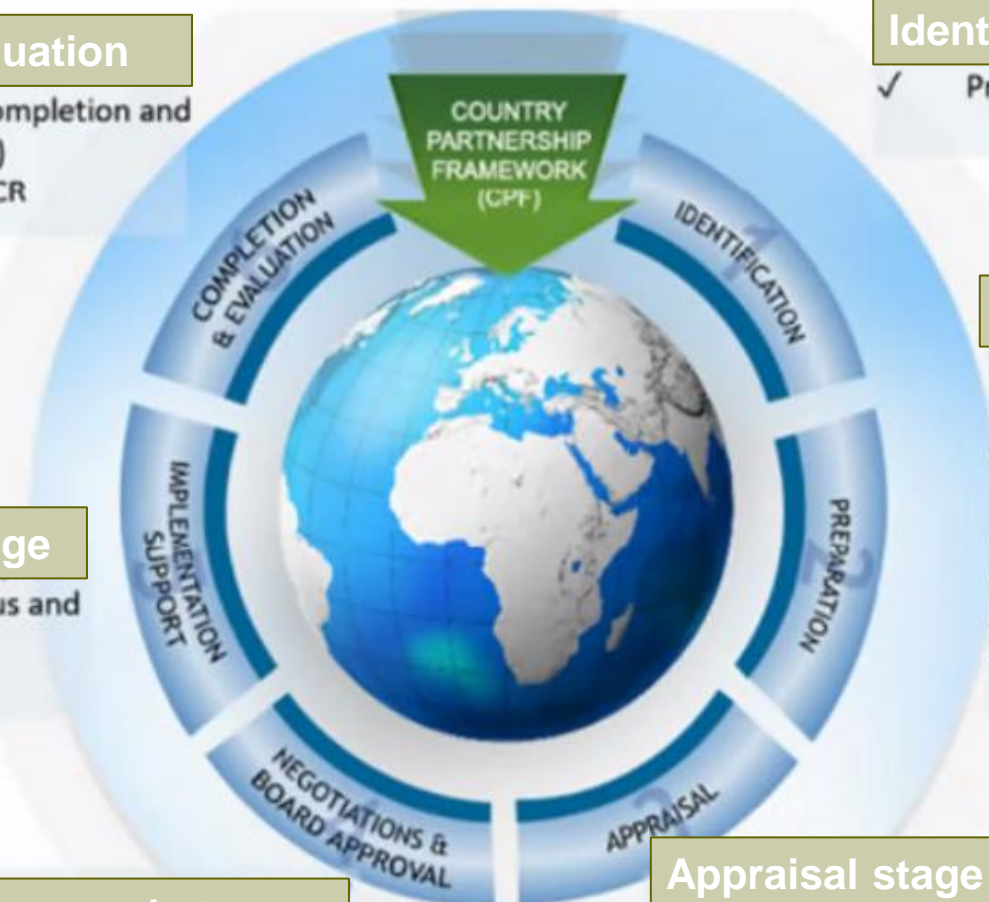
- ✓ Implementation Status and Results report (ISR)

Board approval stage

- ✓ PAD (final)
- ✓ Legal Agreement (final)
- ✓ Memorandum of President

Appraisal stage

- ✓ Project Appraisal Document (appraisal stage)
- ✓ Legal Agreements (draft)

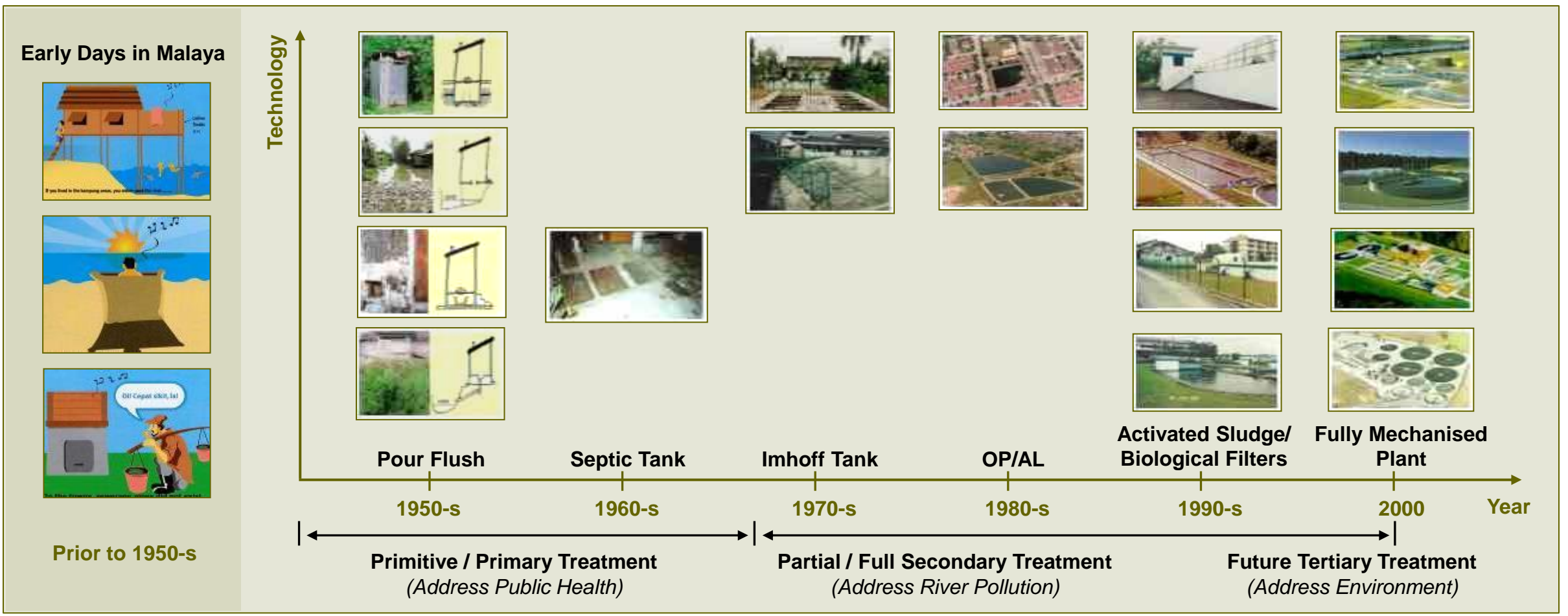


1 Planning model – example Mauritania

Micro-census to gather essential information



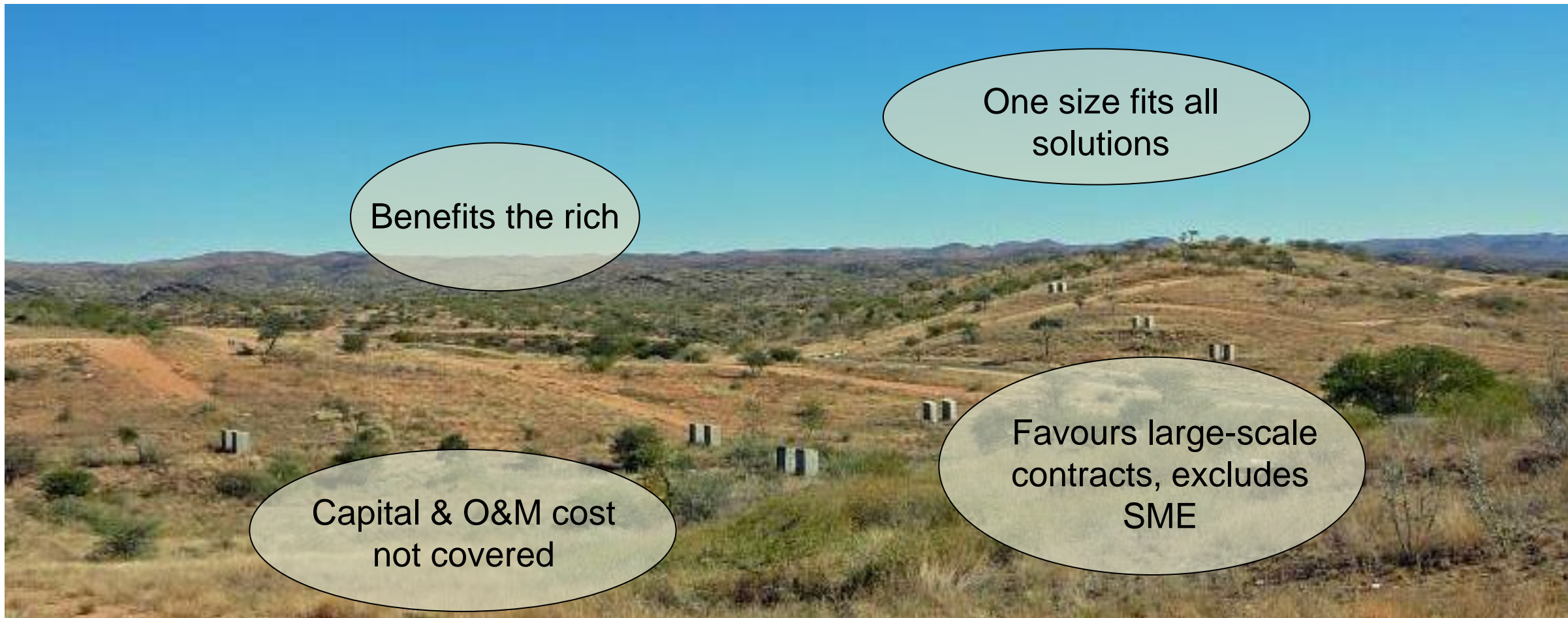
1 Planning model – example Malaysia



1 Planning model – deficiencies

- **Prescriptive, supply-led;**
fails to take into account diverse nature & rapidly changing urban environments;
- **Over-engineered solutions;**
that ignore people's needs and willingness/ability to pay;
- **Vested (political) interests;**
consistent neglect of the unserved urban poor;
- **Unrealistic planning frameworks;**
that neglect socio-economic realities, and institutional/capacity bottlenecks;

1 Planning model – deficiencies



Windhoek, Namibia

2 The market model

- In the market model, resident's willingness to pay & invest drives improvement efforts, which are implemented by private sector service providers.
- It is then up to the residents to decide whether it is worth investing in a TV, improved sanitation, consumption...
- Economic well-being, technological options and residents' preferences determine sanitary conditions.
- Great attention paid to social marketing and creating demand.
- Championed by: **NGOs, World Bank, Gates Foundation**

Reinvent the toilet



2 Market model – example Bangladesh

Sanitation Promotion

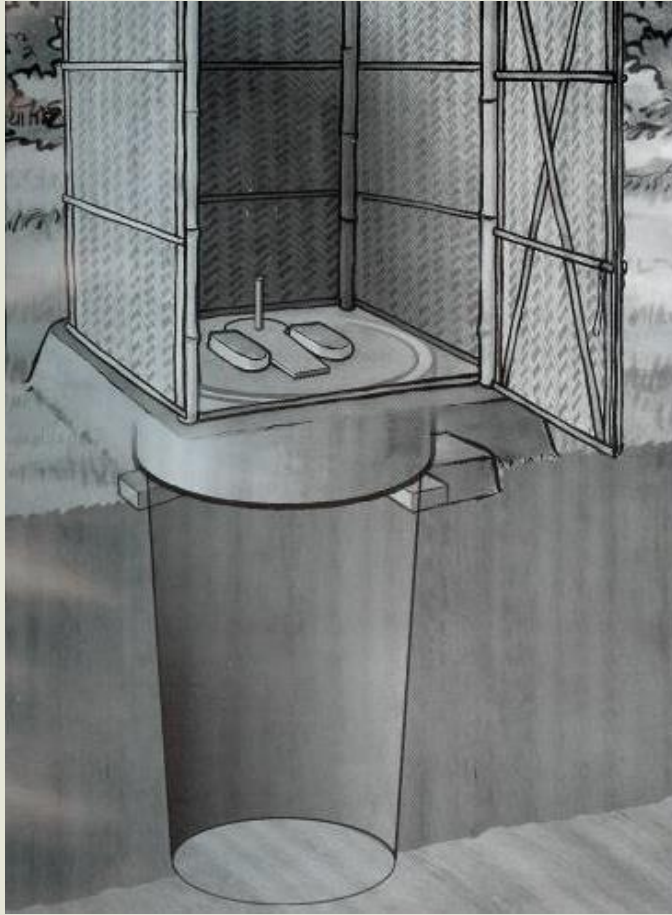
In Bangladesh and India it works to promote latrines with:

- ✓ Privacy: especially for women & girls
- ✓ Comfort: especially for women (safe near the house)
- ✓ Prestige: important for men

2 Market model – example Bangladesh

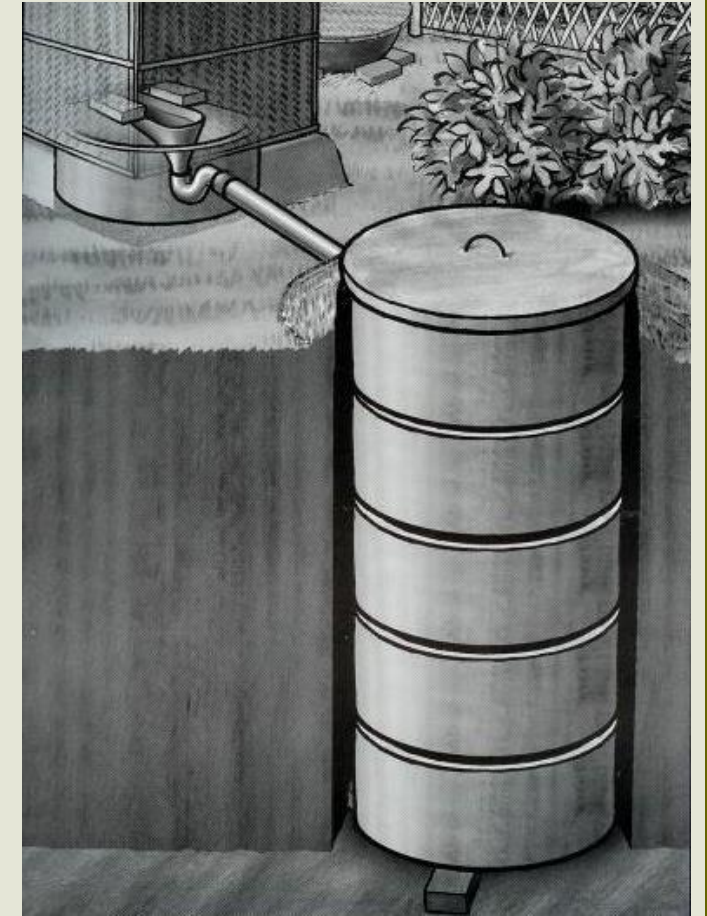
San Plat Latrine

Price:
Cheap and easy
solution
~ 3 US \$

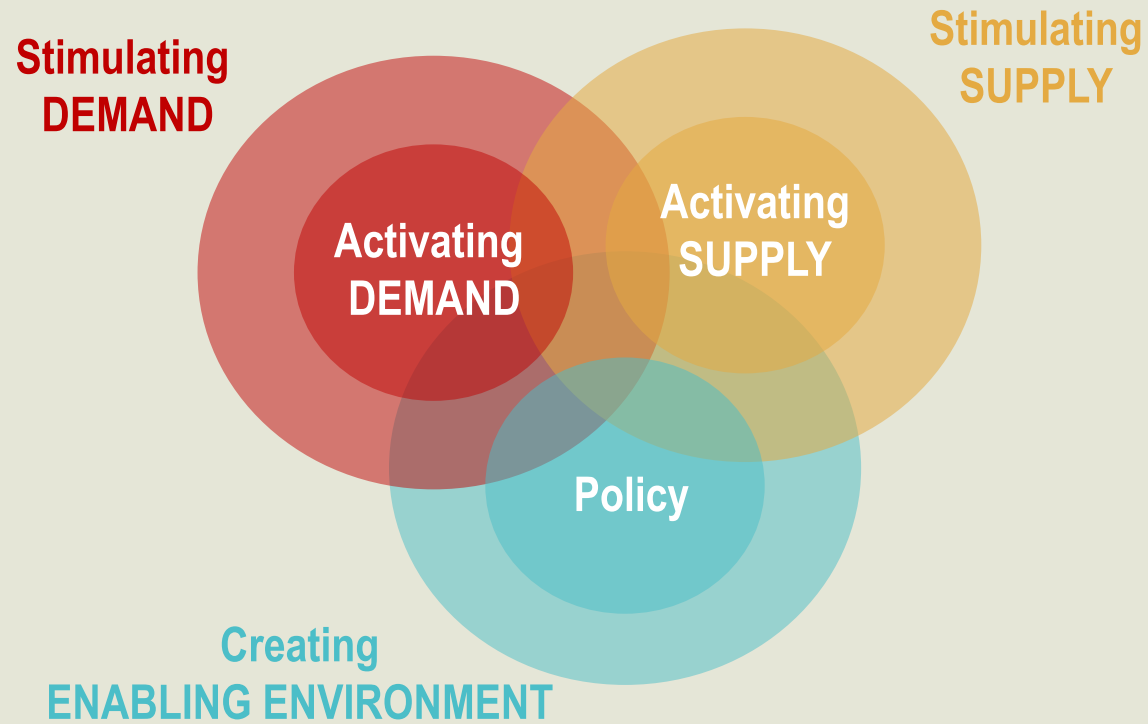


Offset Pit Latrine

Price:
Model with plastic
water seal and
off-set rings
~ 15 US \$



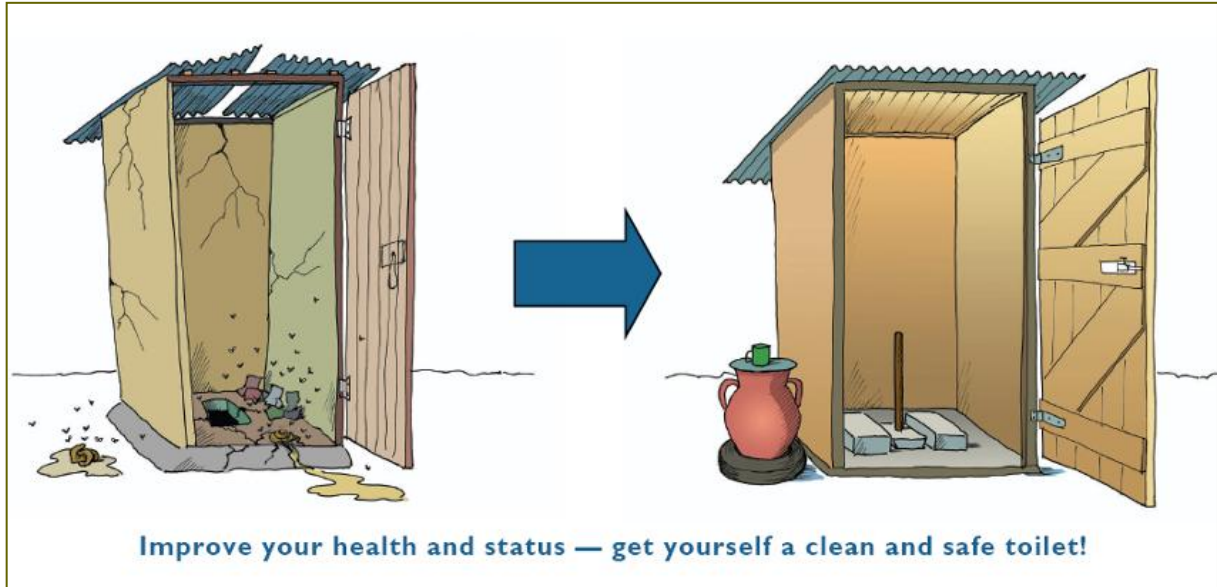
2 Systems approach to market-based sanitation



2 Systems approach to market-based sanitation



2 Example Tanzania, Kenya, India: target your customers!



2 Example Kenya: target your customers!

1. *Fahari* GOLD

Made of masonry stones

- * *Long-lasting*
- * *Permanent structure*
- * *Reduces heat and smell*

- * *Easy to paint with any colour*
- * *Materials are easily available*



**KSh
35,000**
THIS IS AN
ESTIMATE PRICE

2. *Fahari* SILVER

Made of iron sheets

- * *Easy to paint*
- * *Its affordable.*

- * *Old iron sheets can be used*
- * *Not easily damaged by rain and sun*

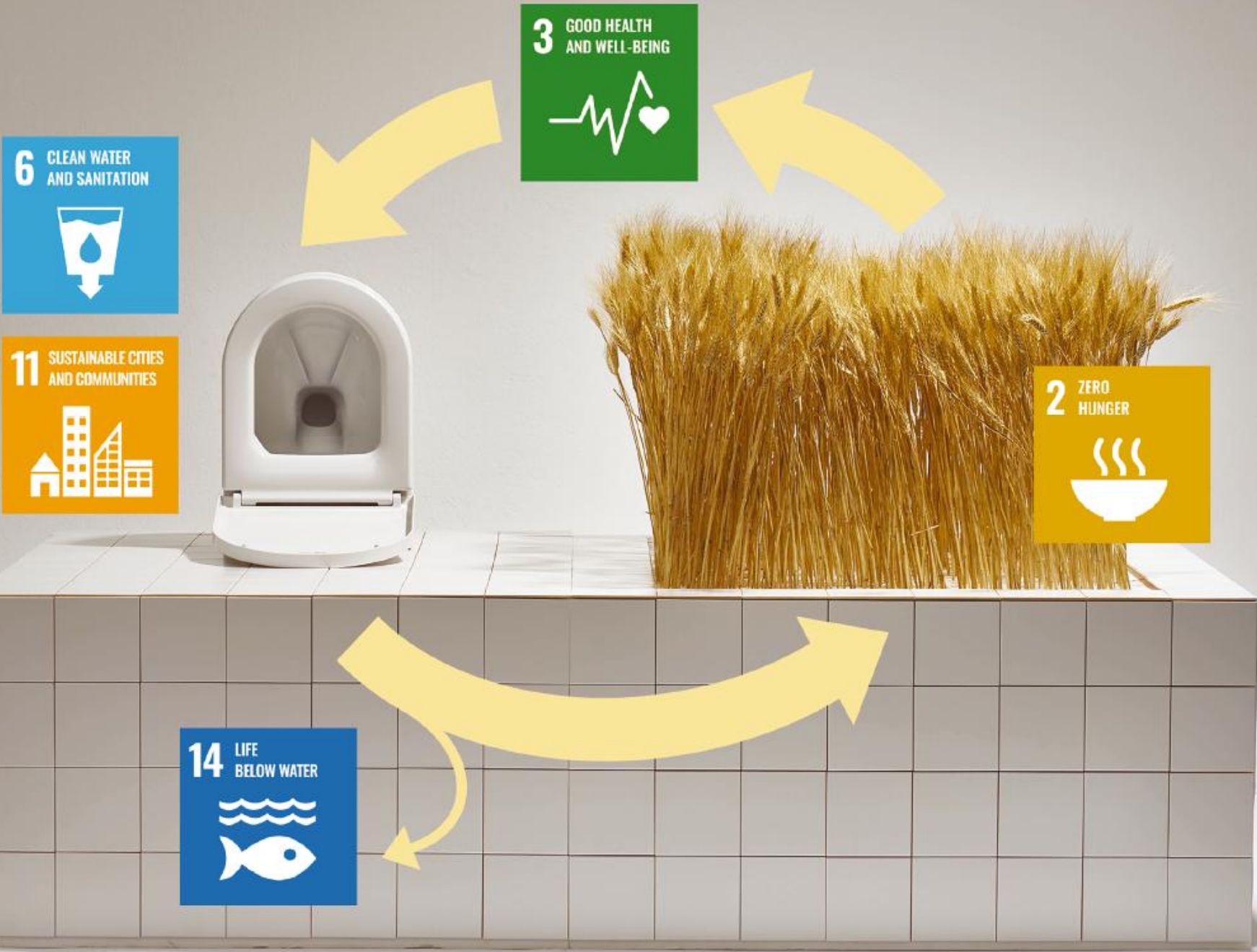


**KSh
28,000**
THIS IS AN
ESTIMATE PRICE

Co-benefits of sanitation

Investing in sanitation would lead to direct benefits in multiple development goals.

- Environment
- Health
- Safety
- Water, Energy, Food nexus



Resource Recovery - Mainstreaming on NYT.

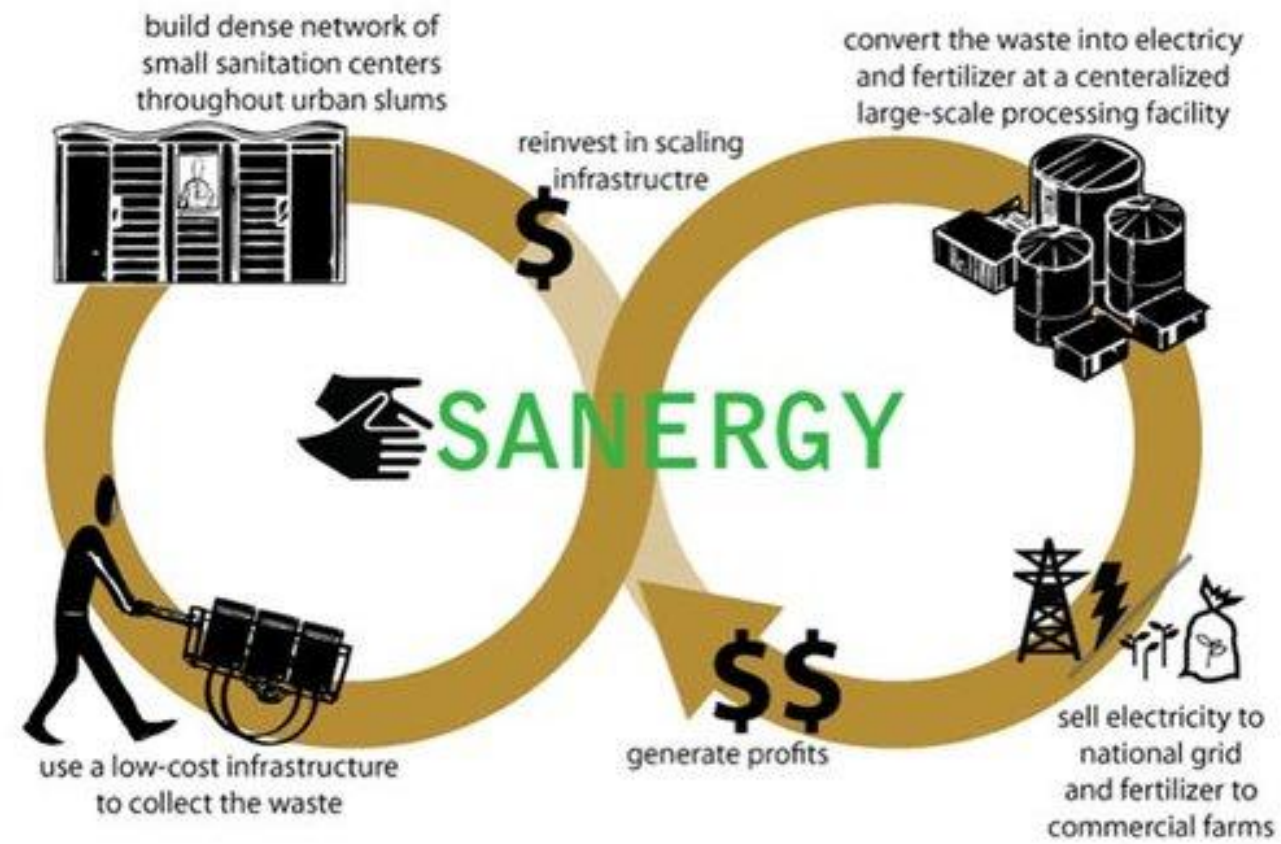
☰ **The New York Times**

Meet the Peecyclers. Their Idea to Help Farmers Is No. 1.

A shortage of chemical fertilizer, worsened by the war in Ukraine, has growers desperate. It just so happens that human urine has the very nutrients that crops need.



Additional Revenue Streams



a sustainable sanitation cycle

2 Market model – deficiencies

- Most suppliers focus on middle class customers, not interested in BOP market segment;
- Markets will only deliver if the right enabling environment is in place – need for public sector involvement;
- Urban sanitation is more than about access to toilets – urban infrastructure is too costly for single households.

3 The collective action model

- This approach involves greater participation of users and other stakeholders – a **people-centred** approach
- To a certain extent it can be assumed that a cohesive community is in the best position to manage its public facilities.
- Championed by: **NGOs, donors, academic institutions**



© mandu architecture



3 Collective action model: community self-help



1 Ownership
 – through participation communities gain ownership of the development process.



2 Efficiency
 – community contributions (e.g. mobilizing funds or sweat equity)



3 Better design
 and technology choice



4 Social change and empowerment
 – participation boosts social capital.

3 Collective action model – deficiencies

- Networked urban sanitation needs higher level coordination: role of utility/state;
- Danger of «boutique solutions» for one neighbourhood only;
- Continuity of community-based management over time is not guaranteed.

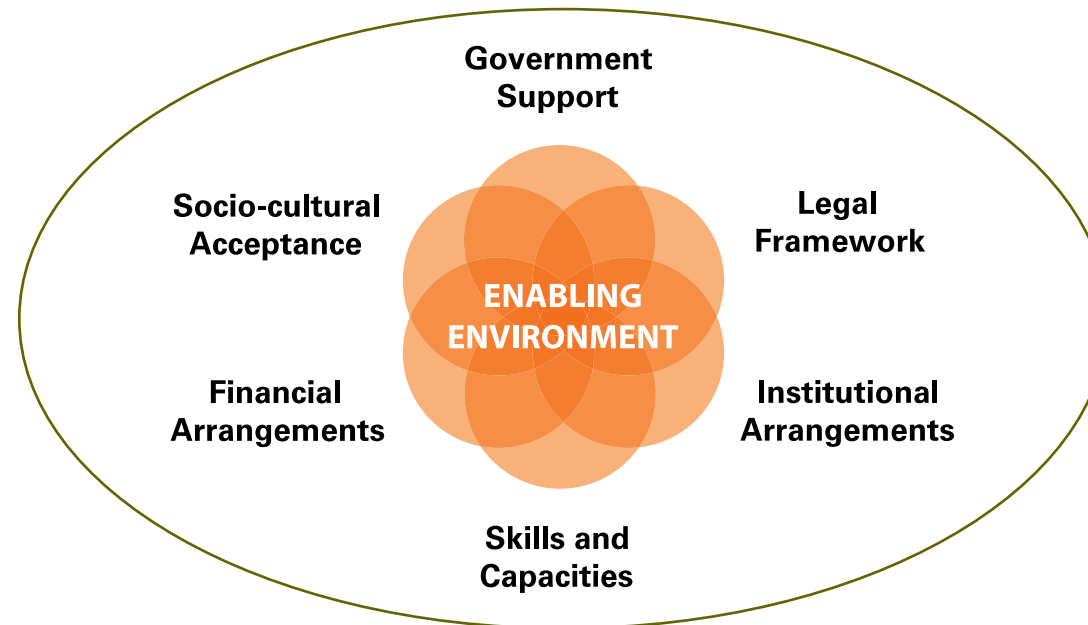


Potential for integrated planning models?

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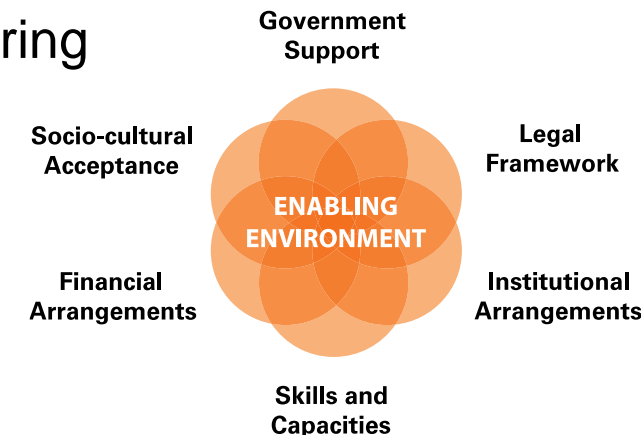
Definition of an 'enabling environment'

“ An 'enabling environment' can be seen as the set of interrelated conditions that impact on the potential to bring about sustained and effective change. ” (World Bank, 2003)



Conditions for a good 'enabling environment'

- **Government support**, in terms of political will and favourable national policies and strategies
- **Legal framework**, with appropriate standards and codes at national and municipal levels
- Favourable **institutional arrangements**, like private sector partnerships
- **Capacity building** including information and knowledge management as well as communication strategies
- Credit and other **financial arrangements** that facilitate household cost-sharing and community involvement
- **Socio-cultural acceptance** for the proposed solutions and measures



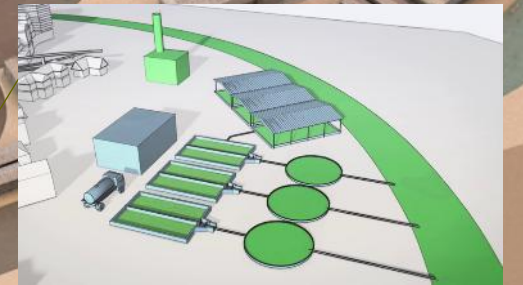
Equity in service



Inclusive Planning



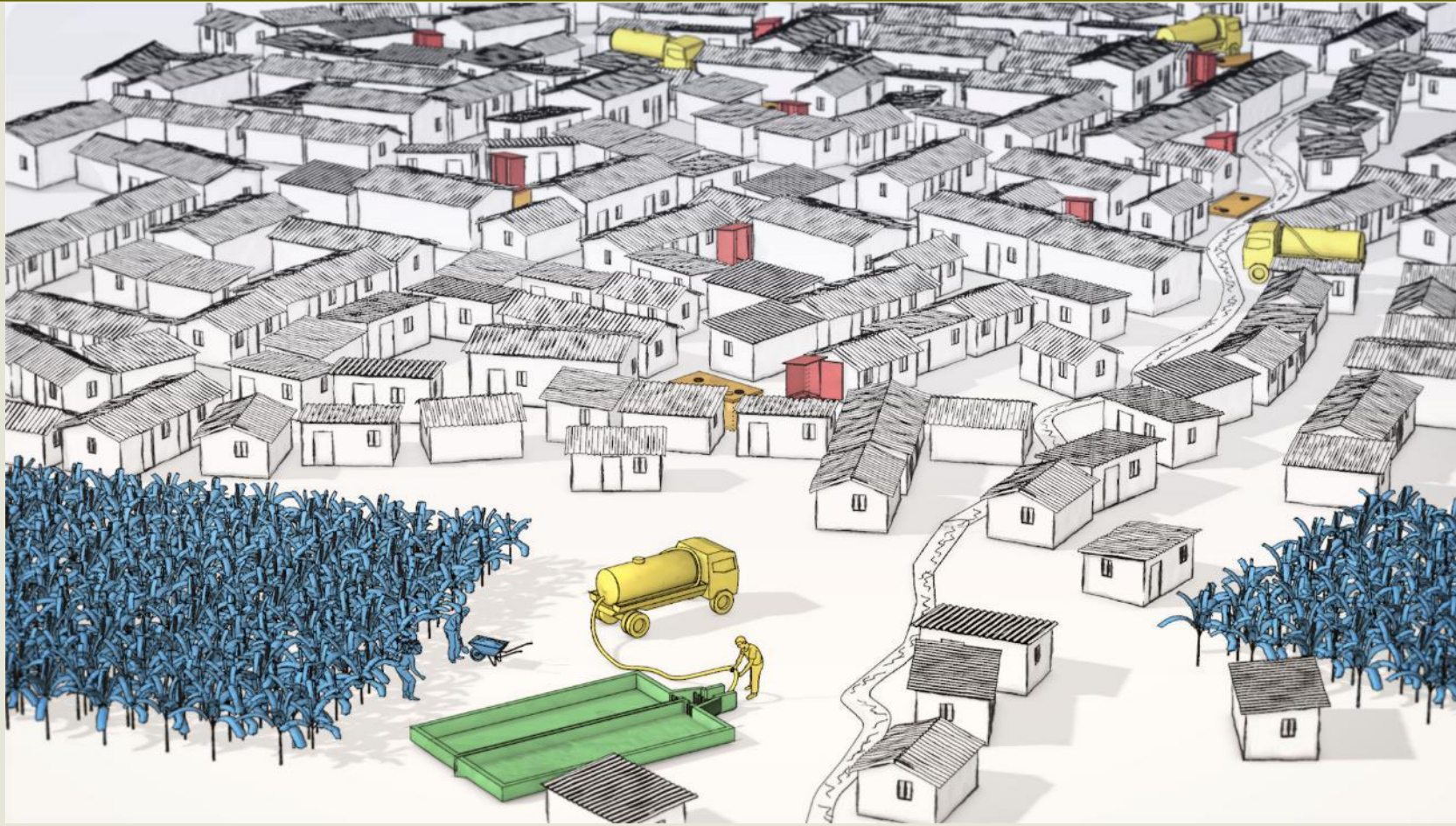
Contextual solutions



Environmental and social justice

CWIS brings various evolved thinking of urban sanitation under one umbrella

Questions?



Questions Regarding Case Study?

- **Clarifying and urgent questions**

- **Next lectures:**

- Career in Development sector
- Case study
- Group Work