

# GAMA Technical Group Webinar

17th November 2015

**#GAMAResilience**



the ecological  
sequestration trust

# Agenda

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1. Welcome and introductions
2. Update on programme - Stephen Passmore
3. Use case development - Rembrandt Koppelaar
4. Discussion and ranking session
5. AOB
6. Next steps and Close

<http://ecosequestrust.org/GAMA>

# WASH Use Case Development

## FCA Resilience.IO Platform for Water Sanitation and Hygiene In Great Accra Metropolitan Area, Ghana

IIER – Institute for Integrated Economic Research /  
ICL – Imperial College London

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November, 17, 2015

# Use Case Selection Purpose

The focus of the **Resilience.IO** prototype model is decision support by providing:

- An Integrated status picture of WASH in GAMA
- Insights in key WASH planning questions
- An exploration of how WASH planning indicators can be met
- An examination of future socio-economic development & impacts
- An evaluation of potential technology and policy decision options

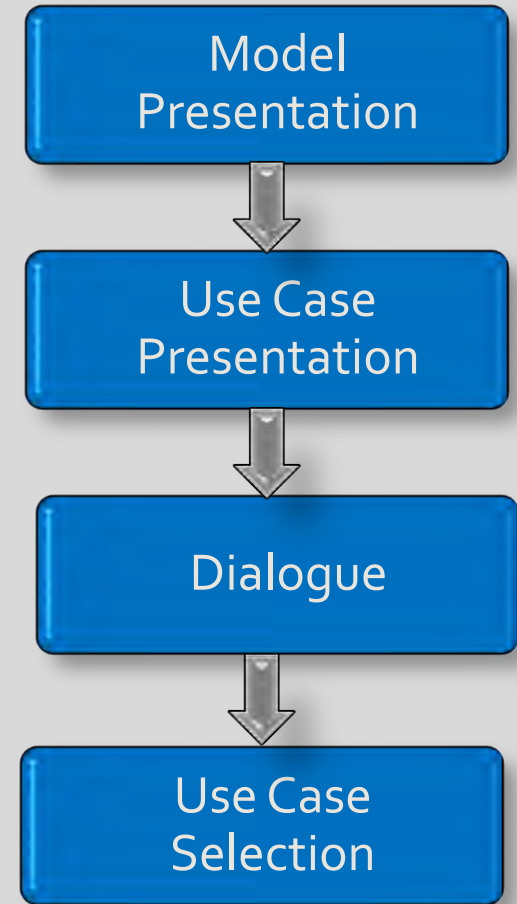
The use cases of particular WASH challenges **selected by you today** determine the WASH topic focus → **What are the priority issues!**

# Timetable for use cases

- Nov./Dec. – Enrich use cases and create first version
- January 14<sup>th</sup> Webinar – First use case modelled results and discussion
- March 10<sup>th</sup> Webinar – Discussion of specific use case topic challenges and further improvements
- April Workshops – Collaborative small group workshops in Accra
- April Launch – Use case demonstration for using prototype model in WASH decision support in Accra
- April – Make prototype model and datasets available (downloadable for free online)

# Today's Objectives

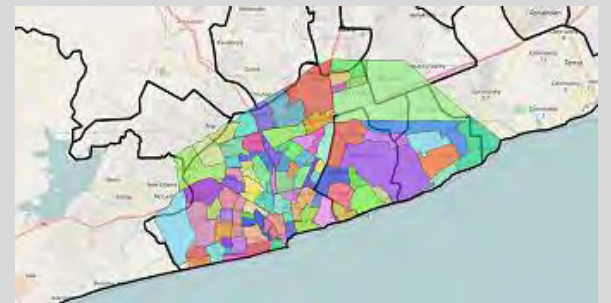
- Present brief overview of model support
- Present a summary of six potential use cases
- Dialogue on six use cases, priorities, additional challenges and adjustments
- Scoring of use cases for selection of three to implement



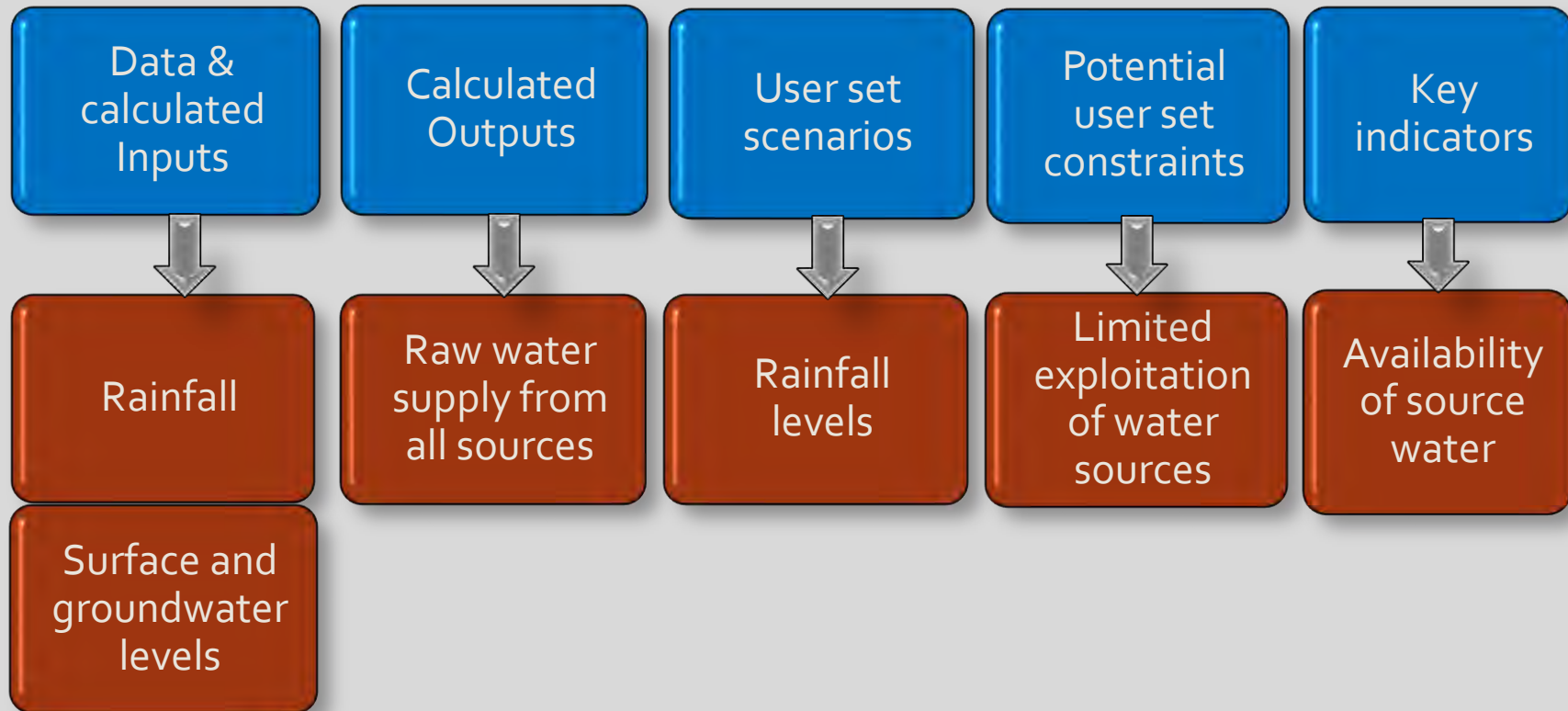
# Model Support

Provide visibility on water and wastewater related flows for the entirety of the Greater Accra Metropolitan Area by district for:

- **Raw water collection/availability**
- **Source water treatment**
- **Potable water distribution**
- **Water use**
- **Wastewater/Sewage collection**
- **Waste water treatment**
- **Sanitation treatment**
- **Long-term socio-economic scenarios**

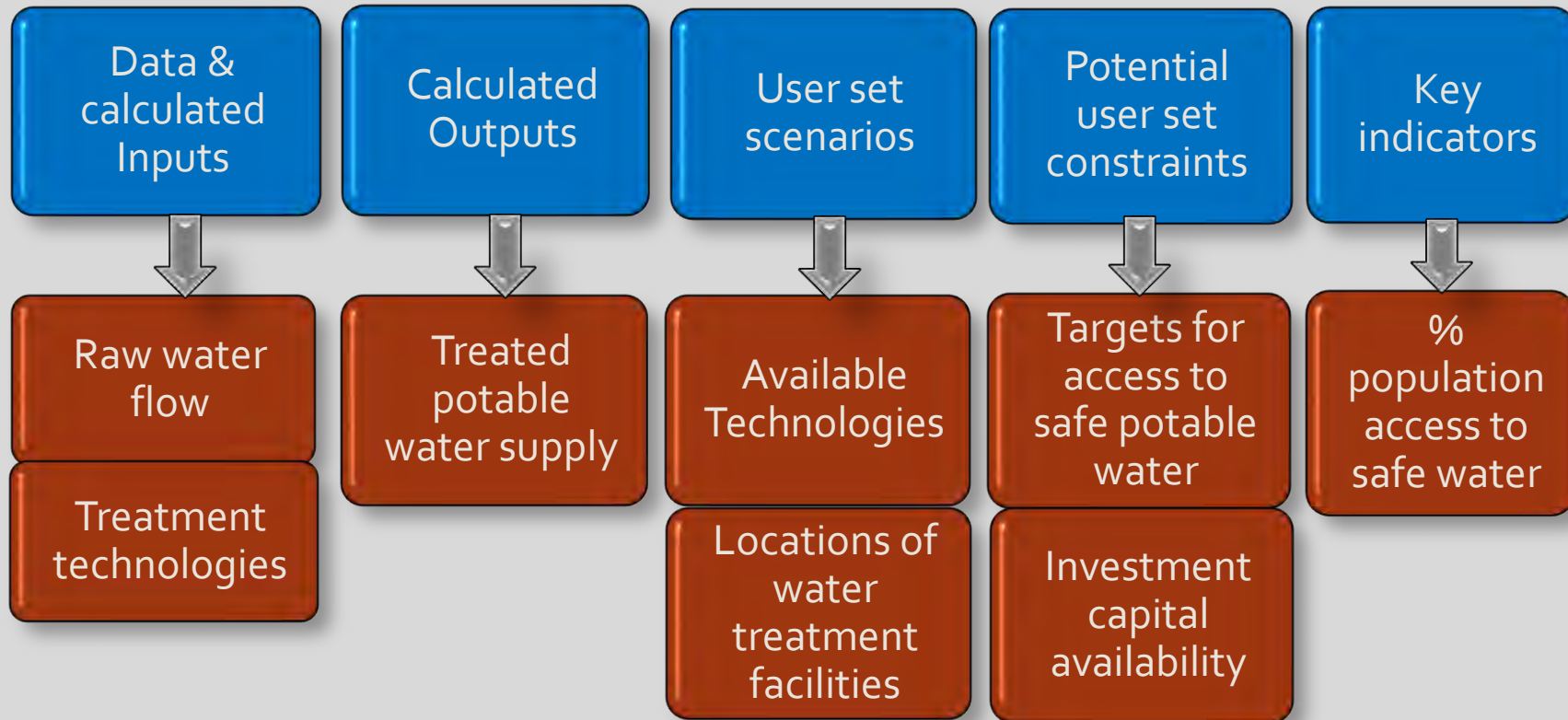


# Model Component 1: Raw water collection & water availability



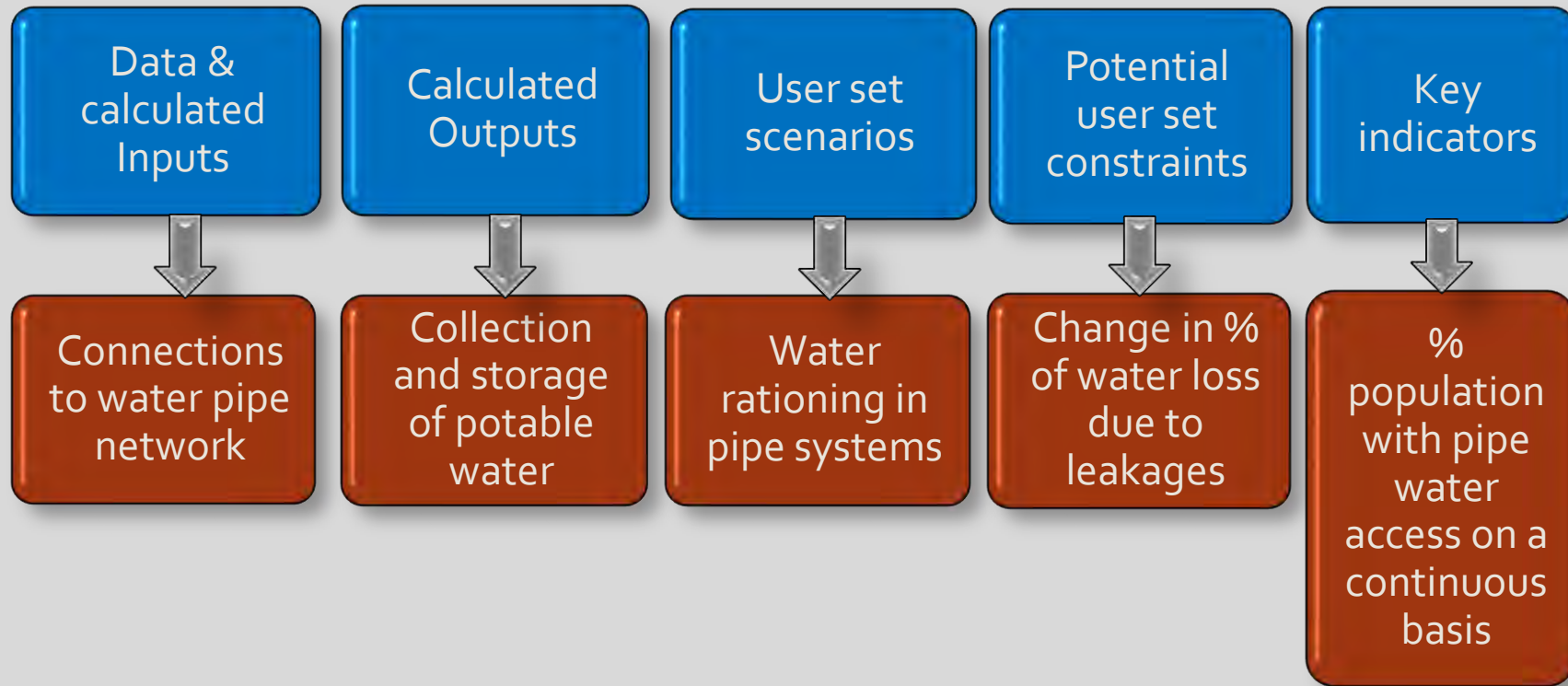


# Model Component 2: Source water treatment

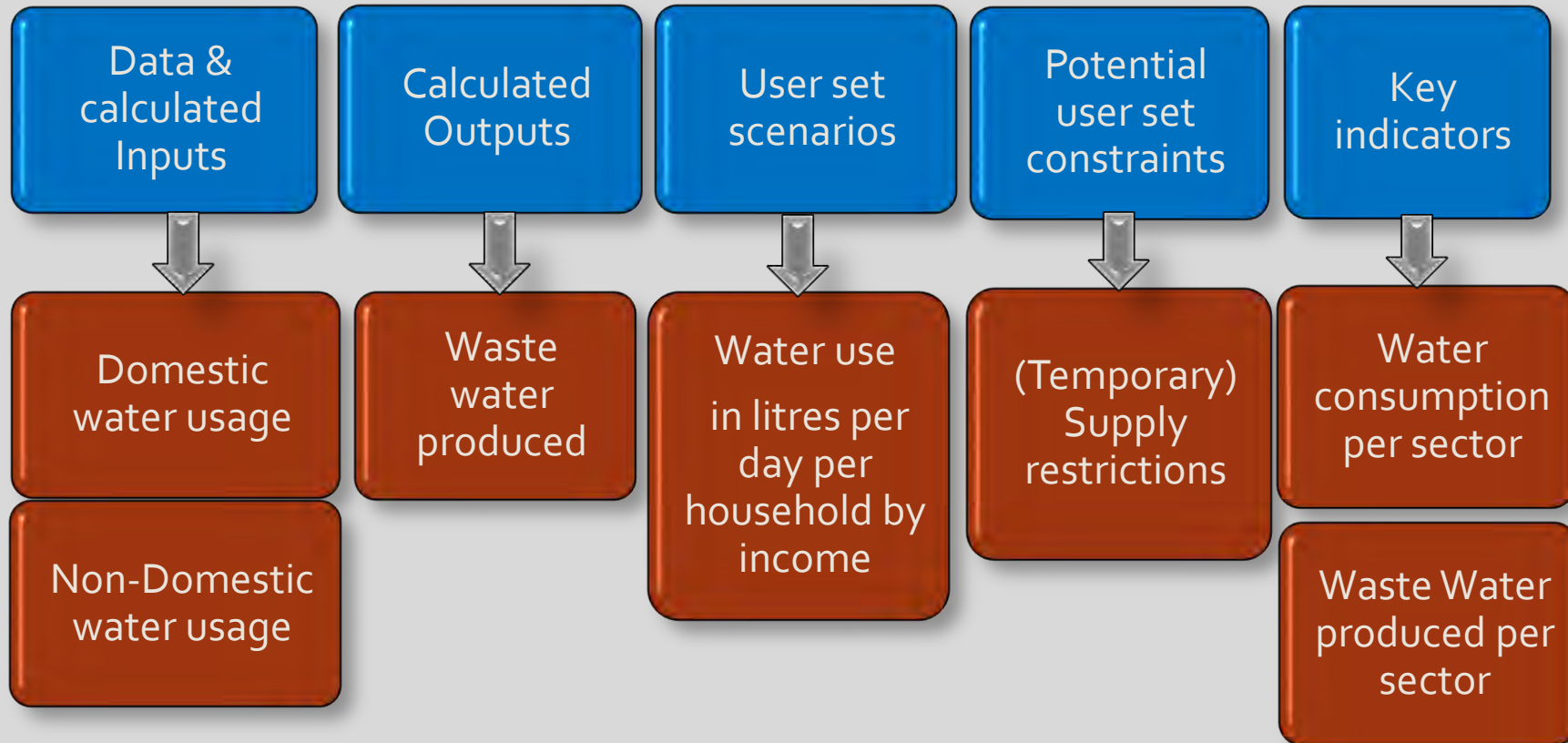


# Model Component 3:

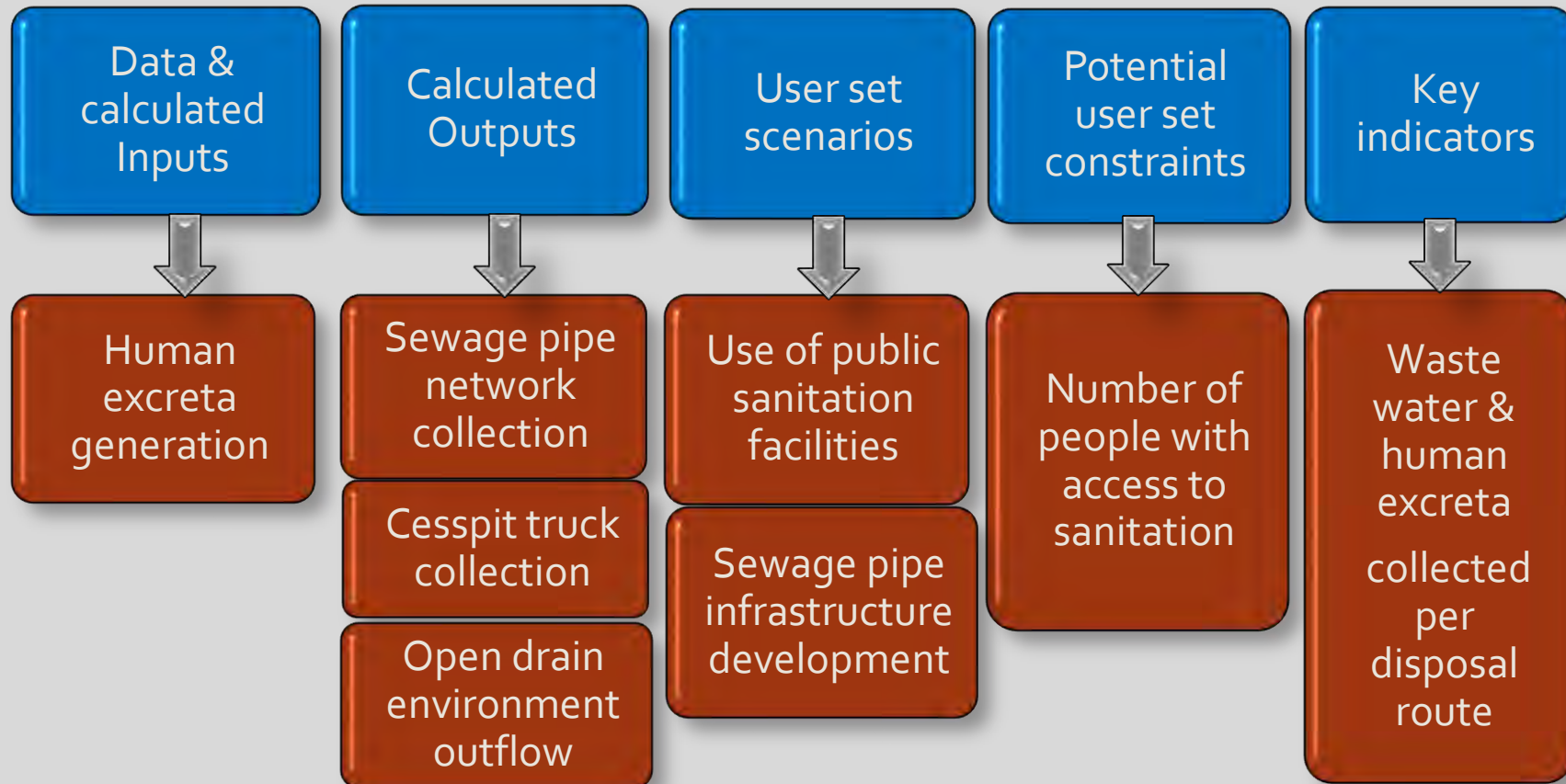
## Potable water distribution



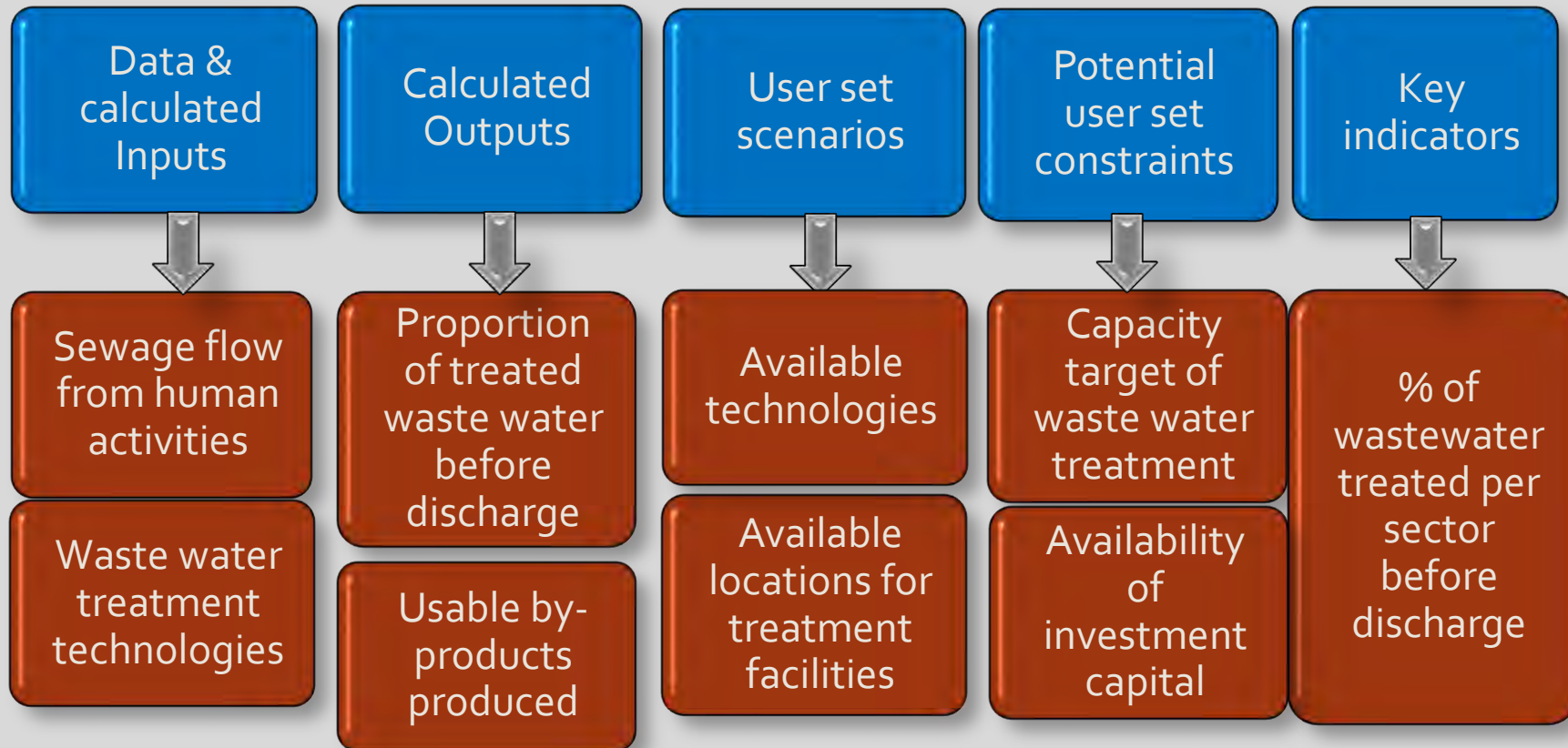
# Model Component 4: Water Usage



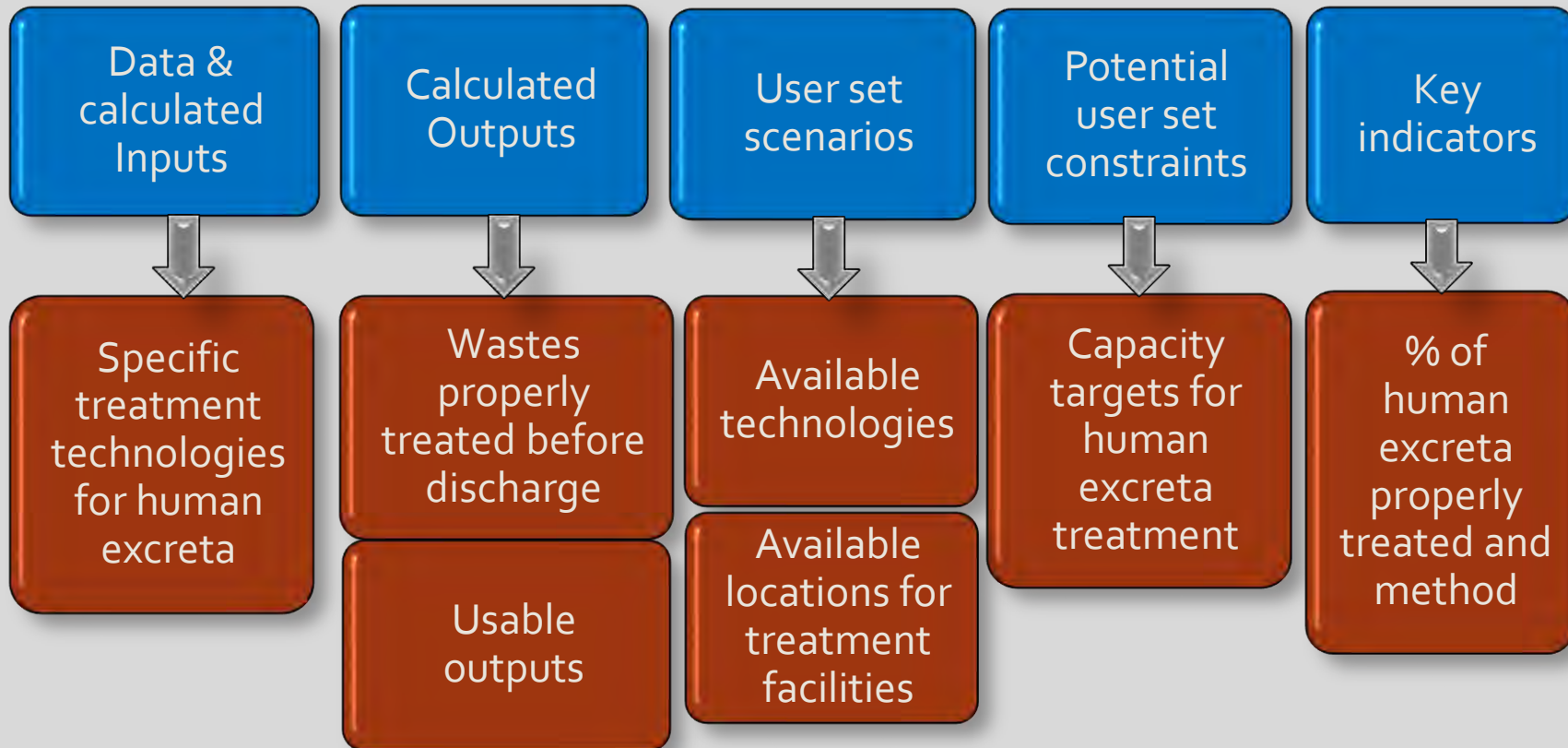
# Model Component 5: Wastewater and sewage collection



# Model Component 6: Waste water treatment

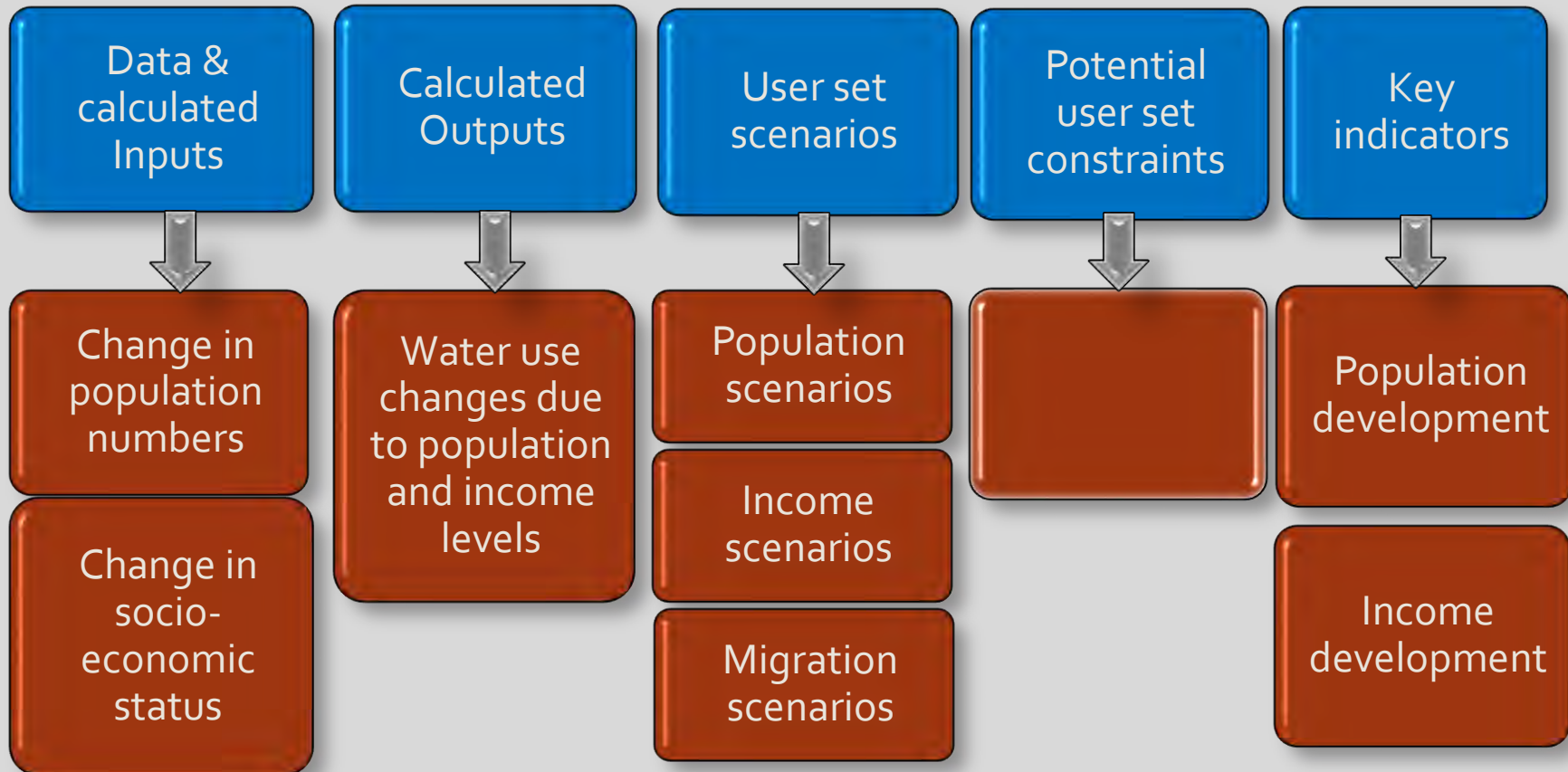


# Model Component 7: Sanitation treatment systems



# Model Component 8:

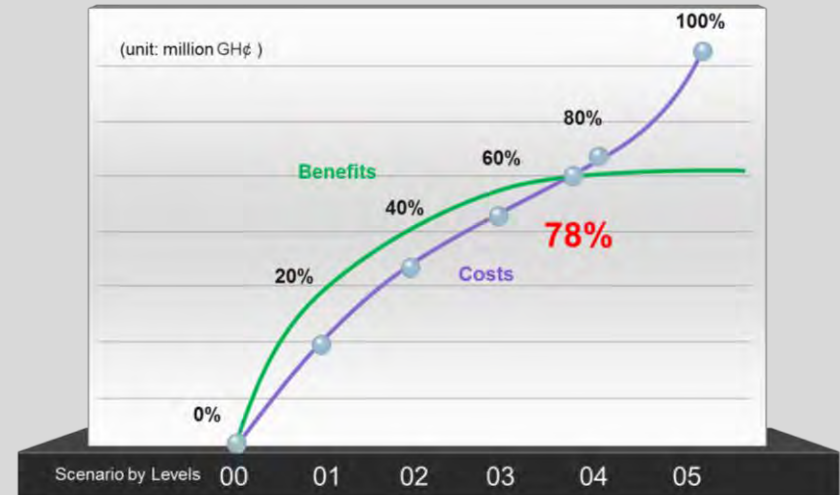
## Long-term socio-economic scenarios





# Key outputs for each use case:

- Output indicators to assess the best action, such as the costs of providing safe portable water
- A cost-benefit style analysis (CBA) to calculate the ratio of:
  - favourable outcomes
  - to associated infrastructure operational and investment costs
- Gradually varying parameters to be compared to a business-as-usual situation



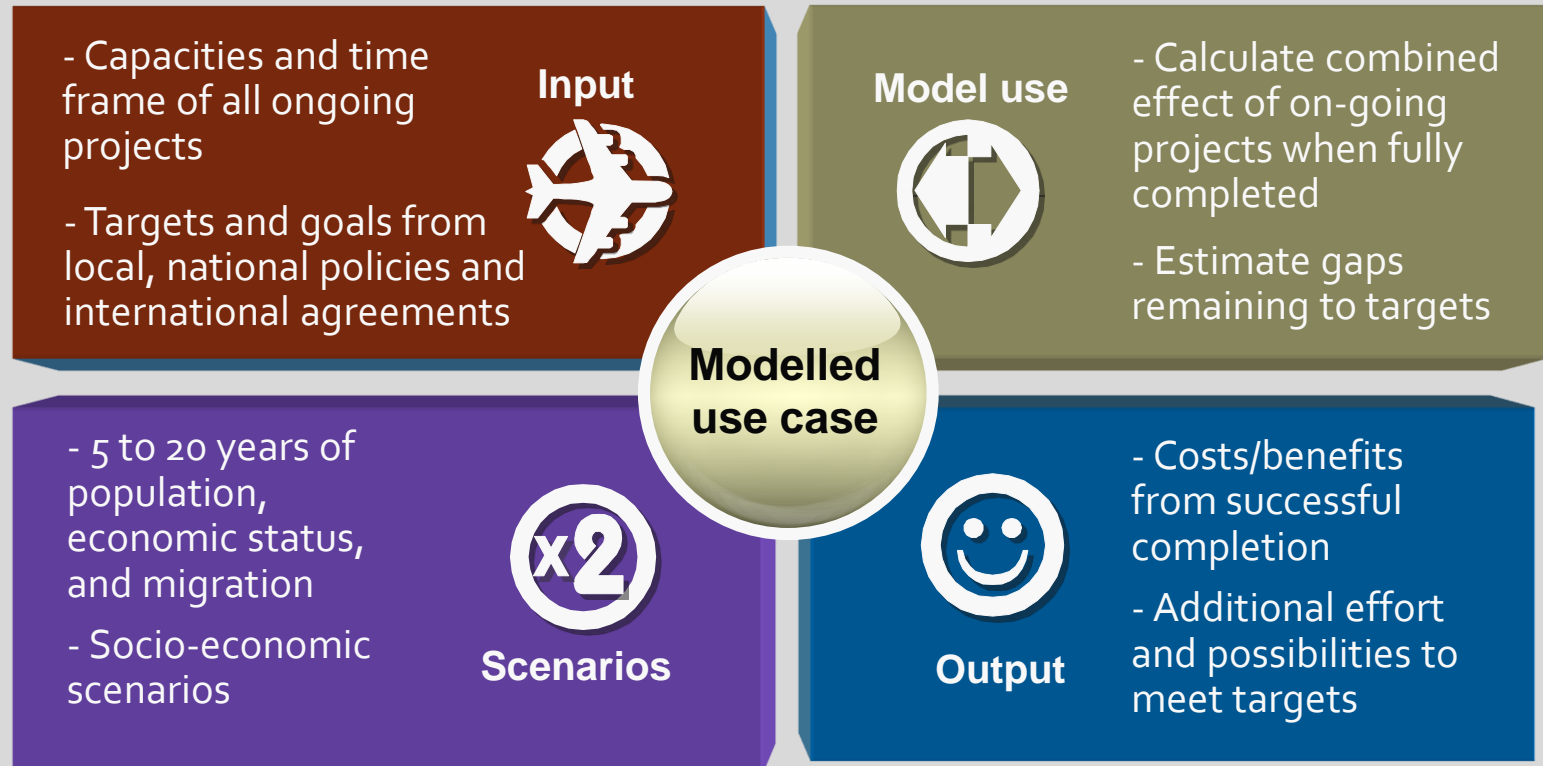


# WASH Challenges - Six Use Cases

1. Assess **outcomes of ongoing WASH projects and gaps** towards meeting macro-level WASH targets for planning
2. Examine possibilities and costs to **increase household access to improved potable water sources**
3. Calculate capacity needs **to end water rationing issues** within the existing water pipe network area
4. Examine infrastructures that will meet the challenge of **waste water and fecal sludge collection and treatment**
5. **Improvement of health issues** caused by unimproved water access and absence of sanitation infrastructure
6. Increase availability of **clean, accessible, and affordable toilet infrastructure**

# Use Case 1 - Projects & Targets

Assess outcomes of ongoing WASH projects and gaps towards meeting macro-level targets for planning



## *Use Case 1 - Projects & Targets*

Assess outcomes of ongoing WASH projects and gaps towards meeting macro-level targets for planning

Projects currently on-going within the GAMA region include:

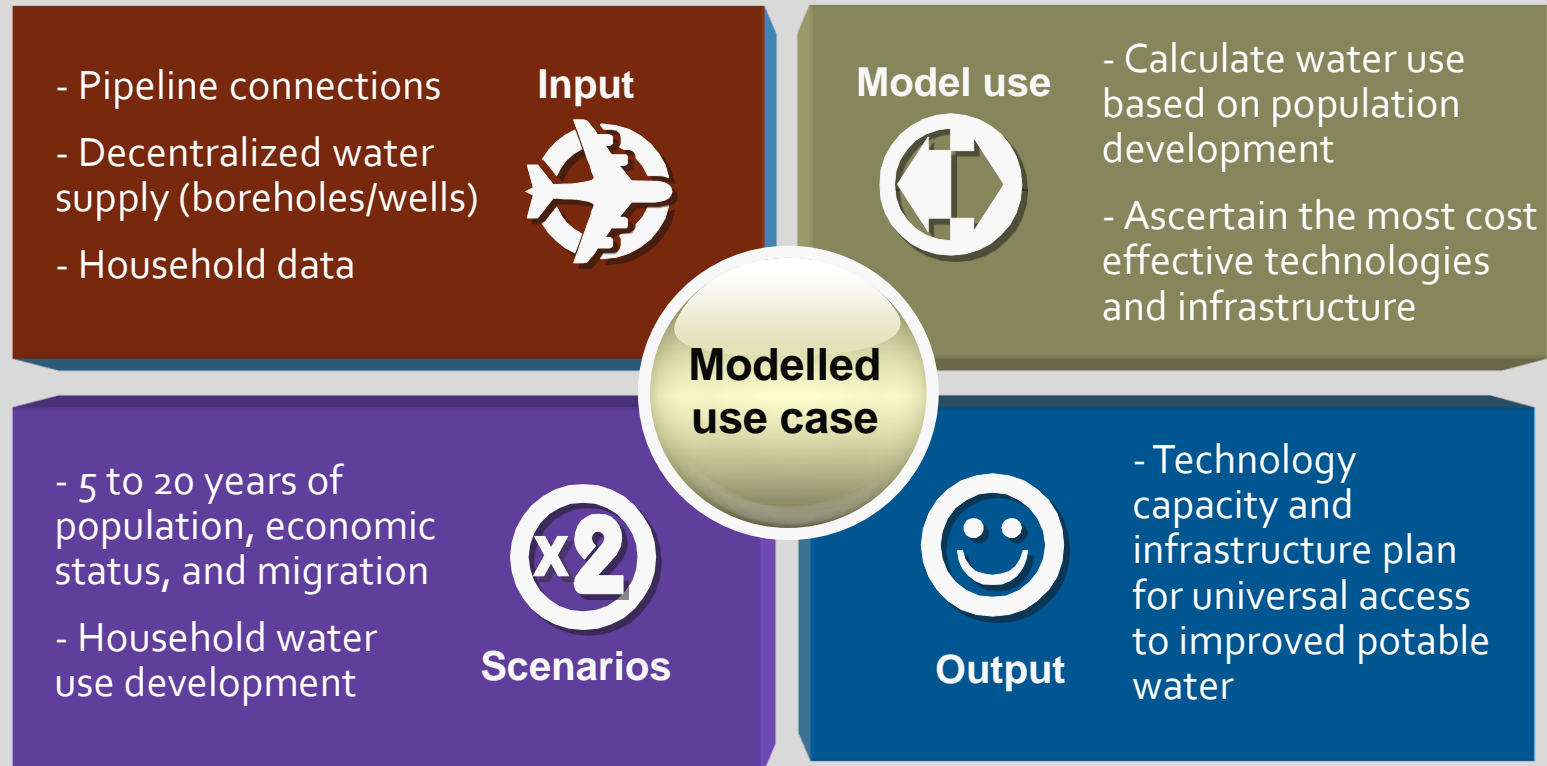
- The ADB Accra Sewerage Improvement Project (ASIP)
- The World Bank GH-GAMA Sanitation and Water Project (GH-GAMA)
- The DANIDA Sludge Treatment Project at "Lavender Hill" and Bolah-Bondeh project

Example targets include:

- **Increase urban water and sanitation coverage to 100% by 2025** (Ministry of Water Resources, Works and Housing WSSDP 2012-2025)
- **By 2030 achieve access to adequate and equitable sanitation and hygiene for all and end open defecation** (sustainable development goal 6.2)

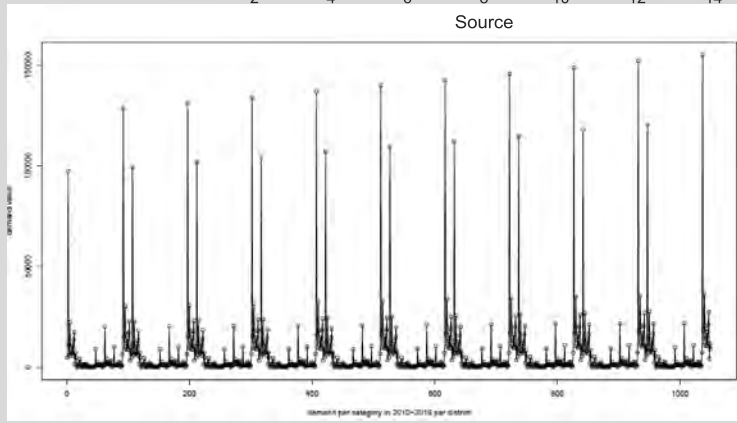
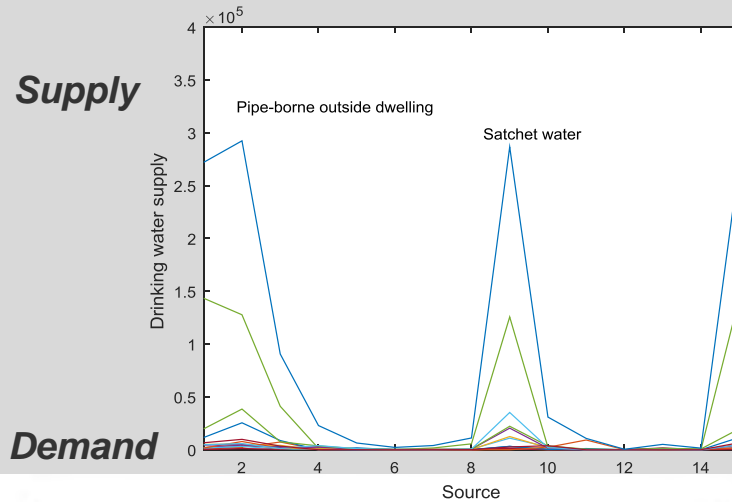
## *Use Case 2 - Improved Drinking-water*

Examine possibilities and costs to increase household access to improved potable water sources



## Use Case 2 - Improved Drinking-water

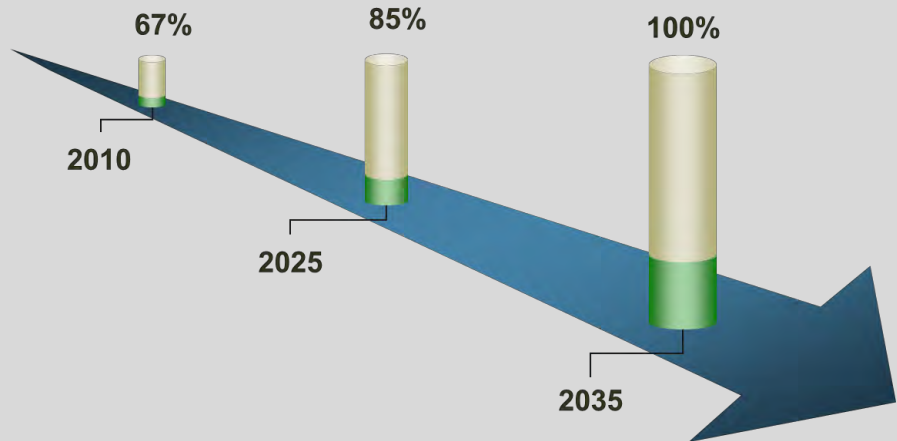
Examine possibilities and costs to increase household access to improved potable water sources



Approx. 33% lacks access to improved drinking water sources

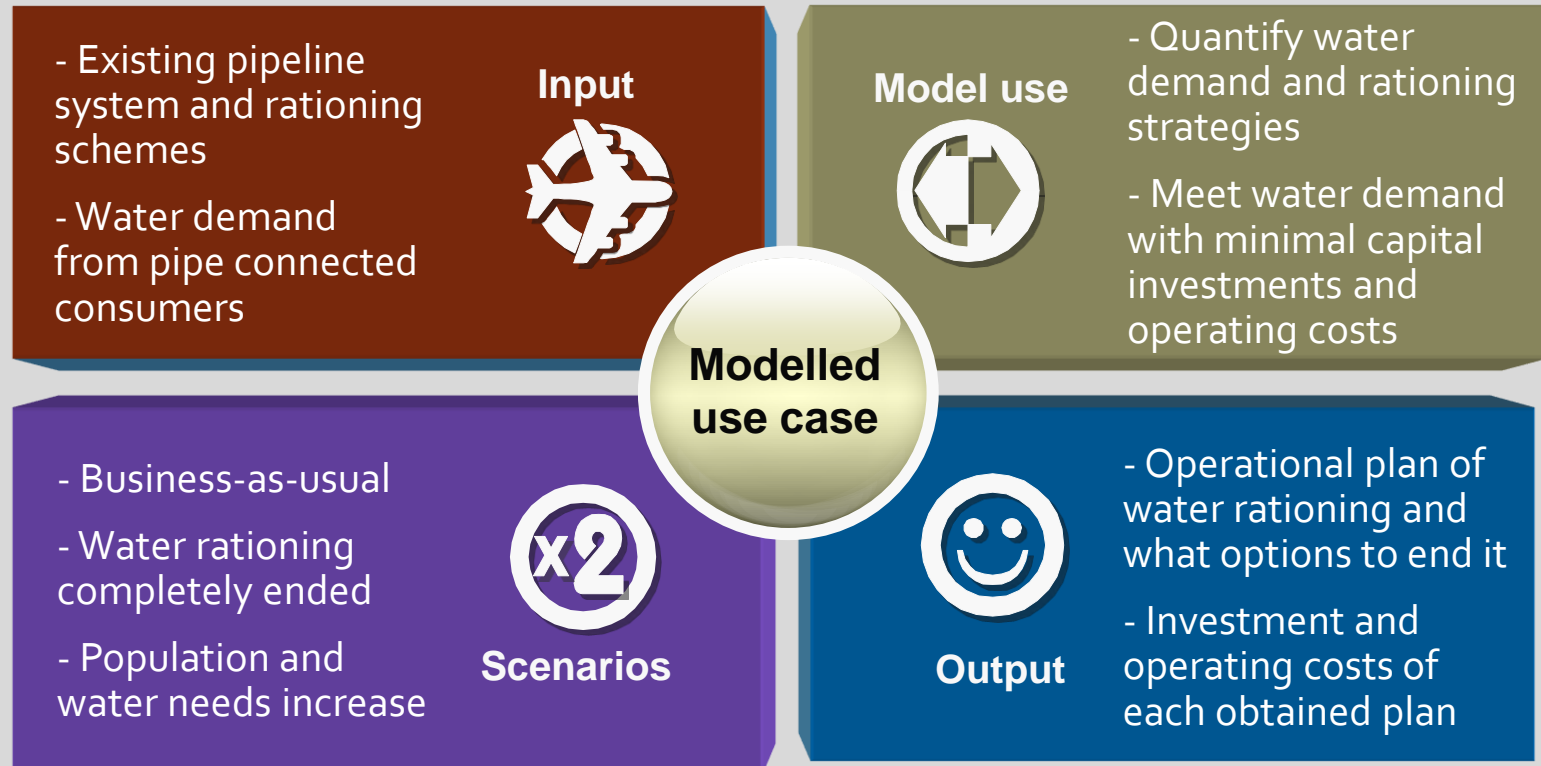


Universal access to such drinking water sources within GAMA



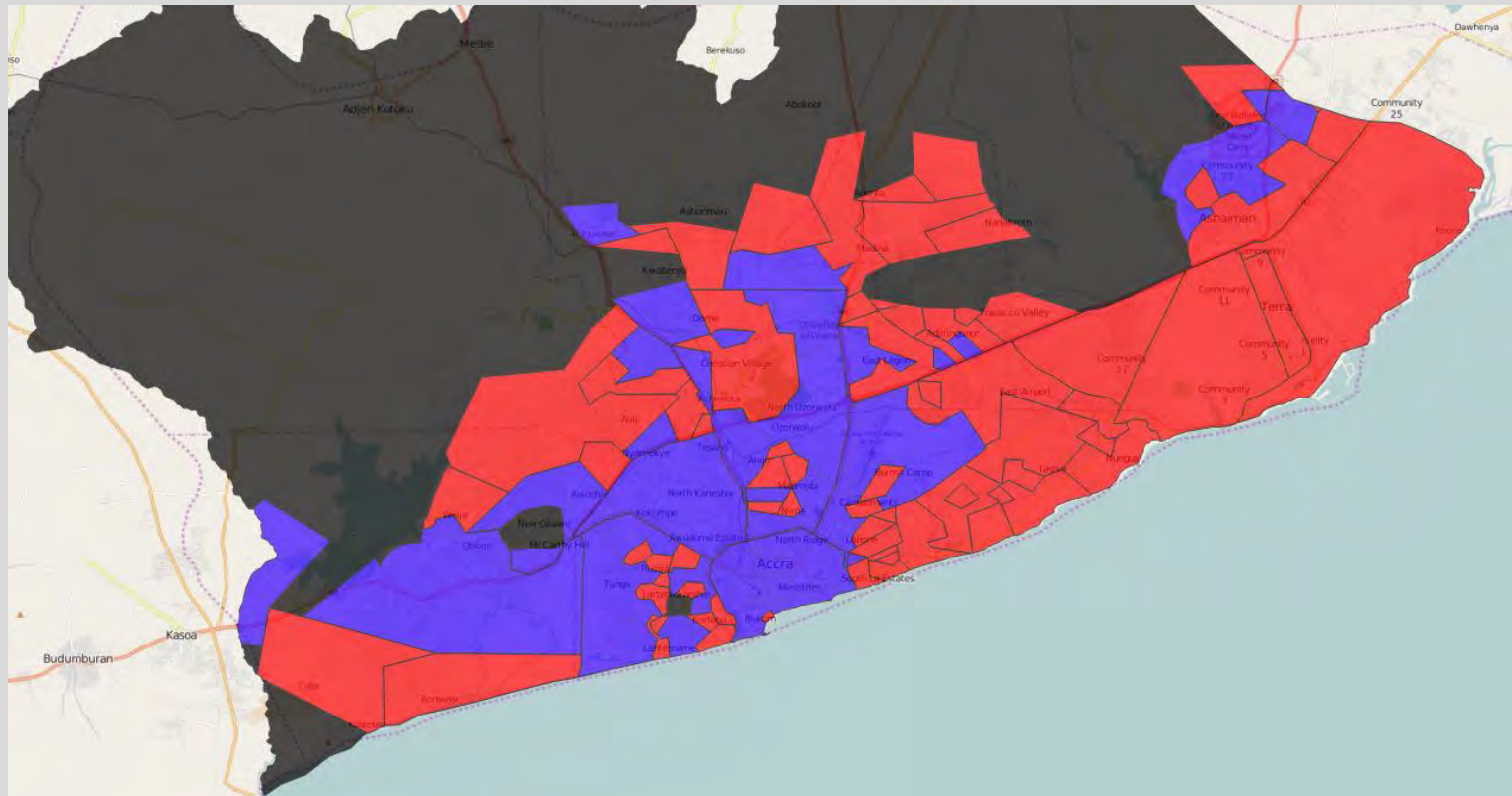
## Use Case 3 - Water Rationing

Calculate capacity needs to end water rationing issues within the existing water pipe network area



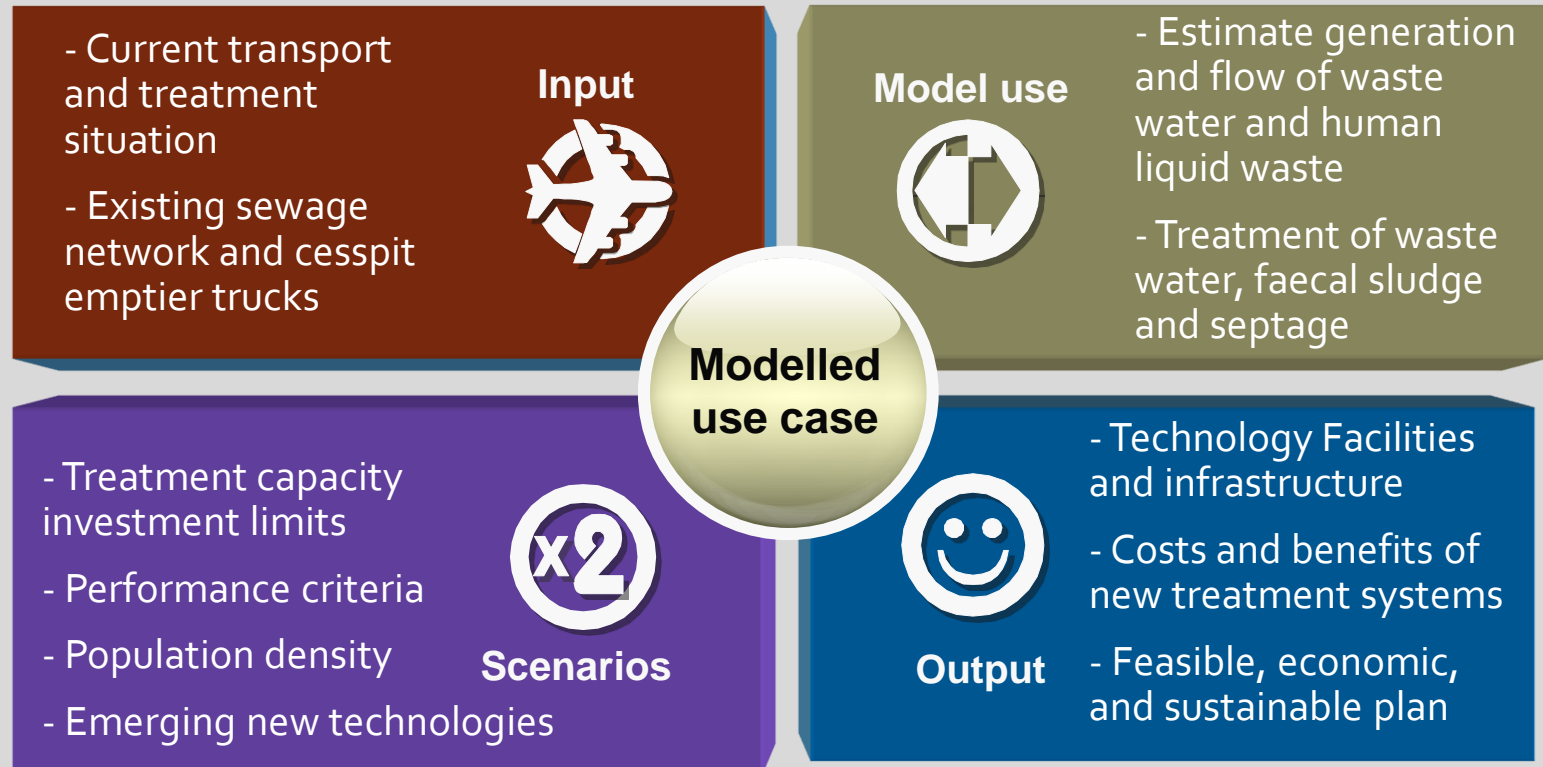
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# Use Case 4 – Liquid Waste Collection & Treatment

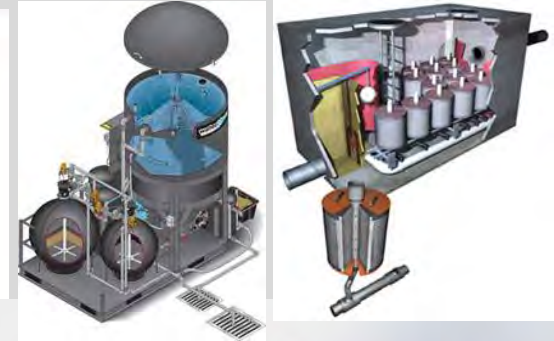
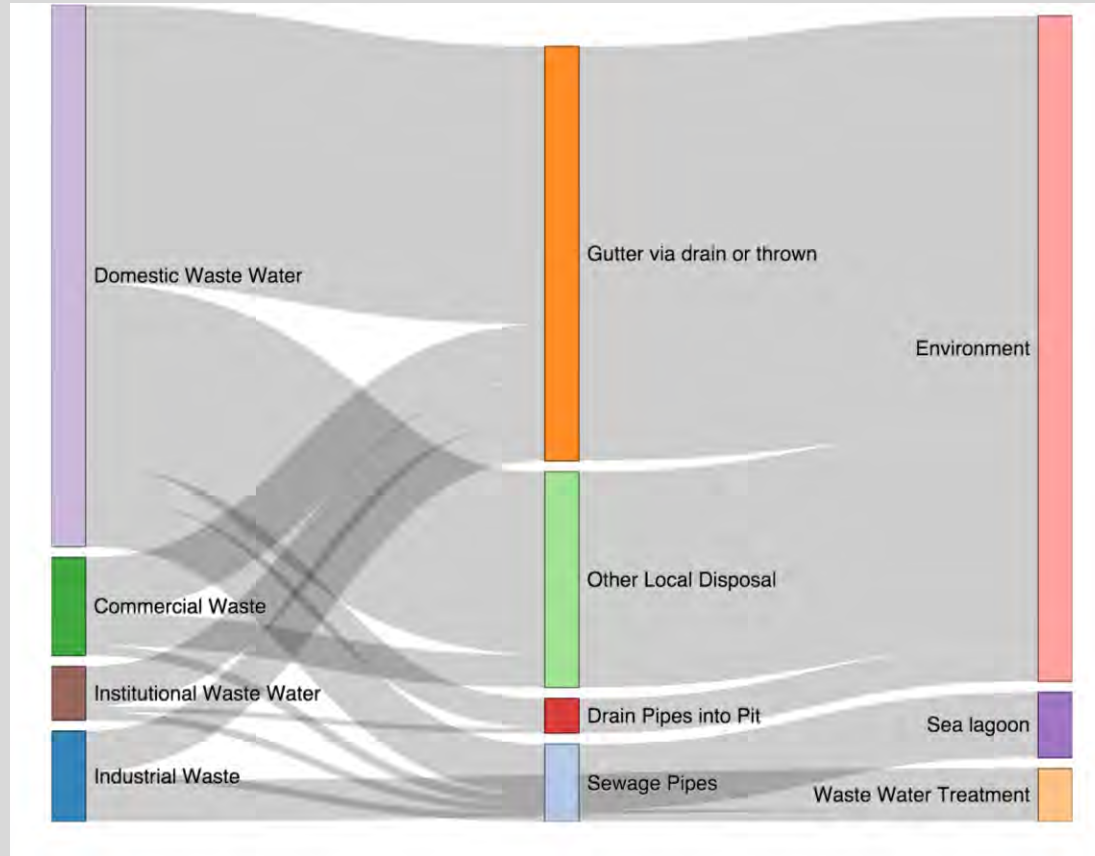
Examine infrastructures that will meet the challenge of waste water and faecal sludge collection and treatment





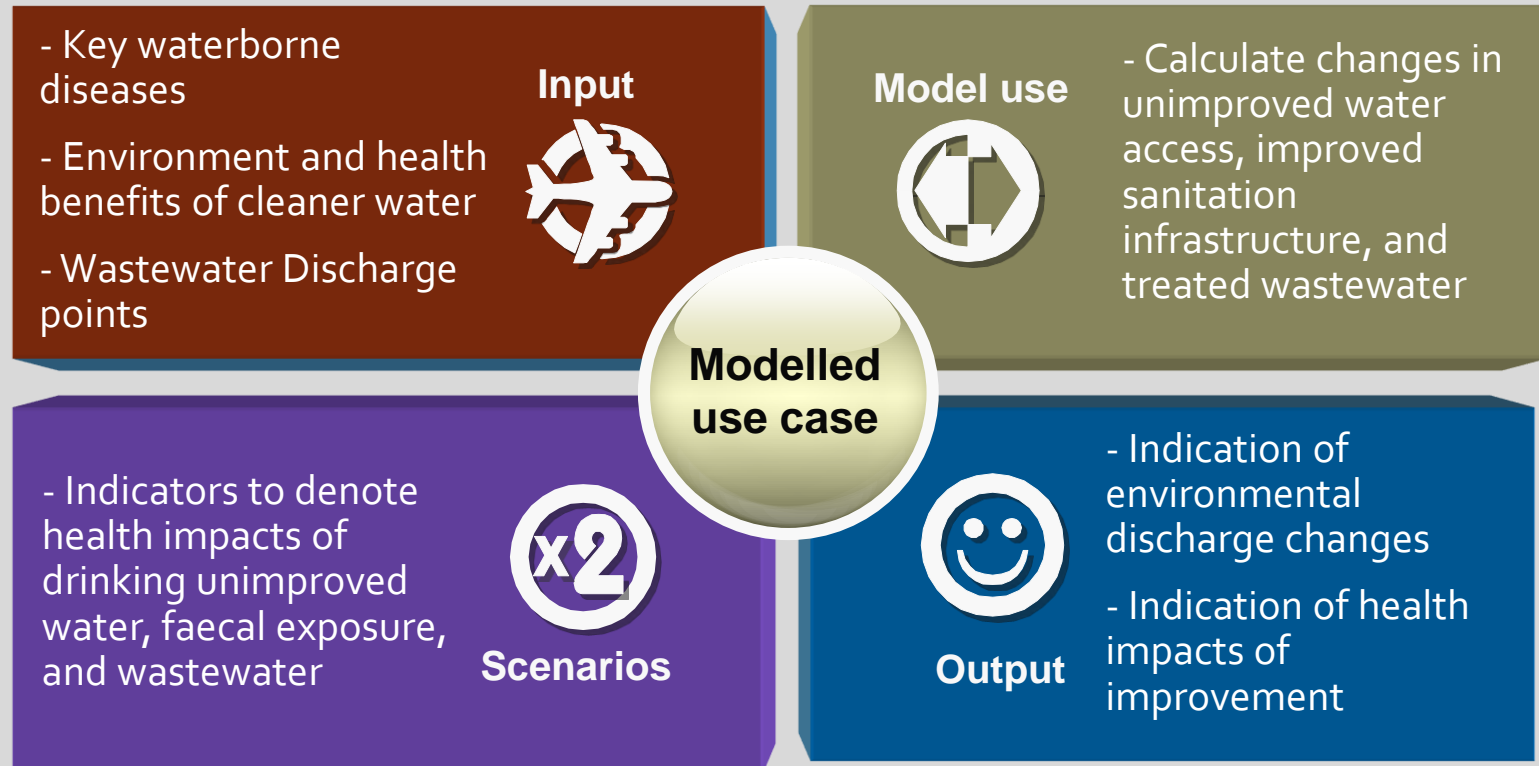
# Use Case 4 – Liquid Waste Collection & Treatment

Examine infrastructures that will meet the challenge of waste water and faecal sludge collection and treatment



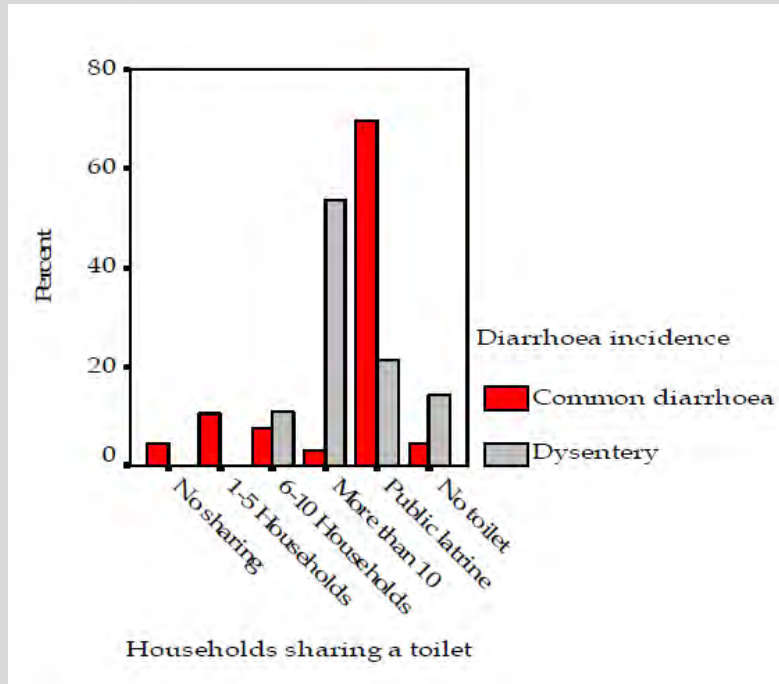
## Use Case 5 – Health Issues

Improvement of health issues caused by unimproved water access and absence of sanitation infrastructure



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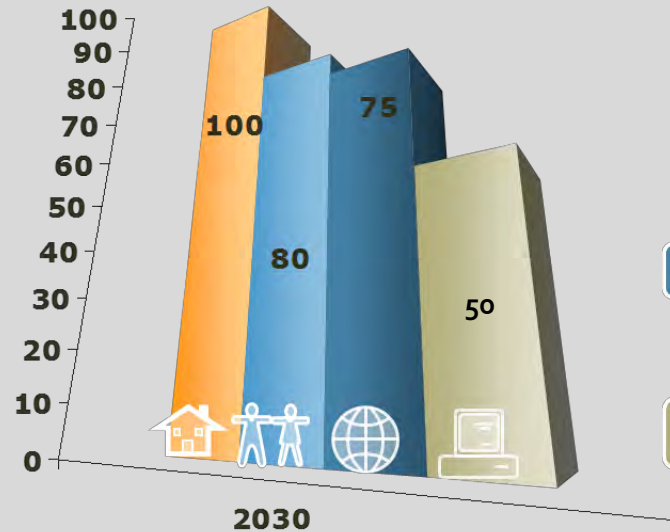


The distribution of childhood diarrhoea according to the number of households sharing a toilet

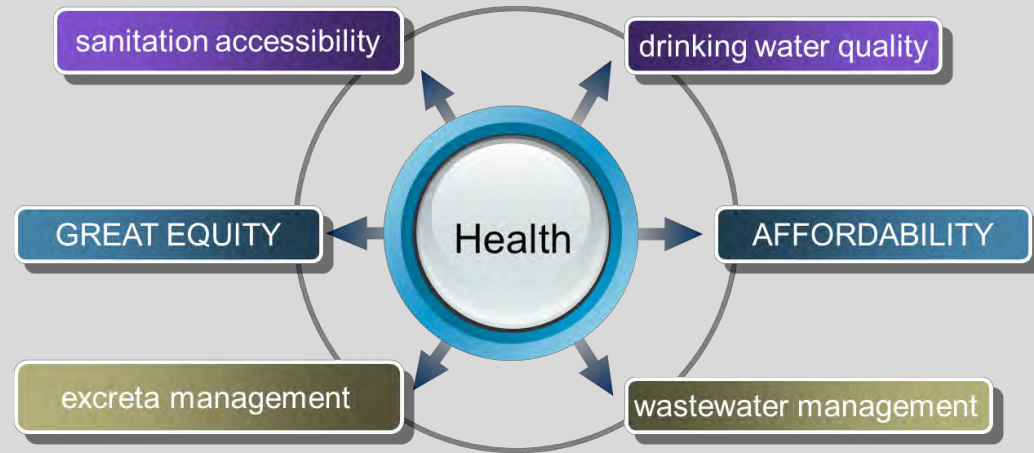
- Boadi, K., (2004). Environment and Health in the Accra Metropolitan Area, Ghana. PhD Thesis University of Jyväskylä.
- Dataset from interviews among 960 households

## Use Case 5 – Health Issues

Improvement of health issues caused by unimproved water access and absence of sanitation infrastructure



*The vision for Accra in 2030*



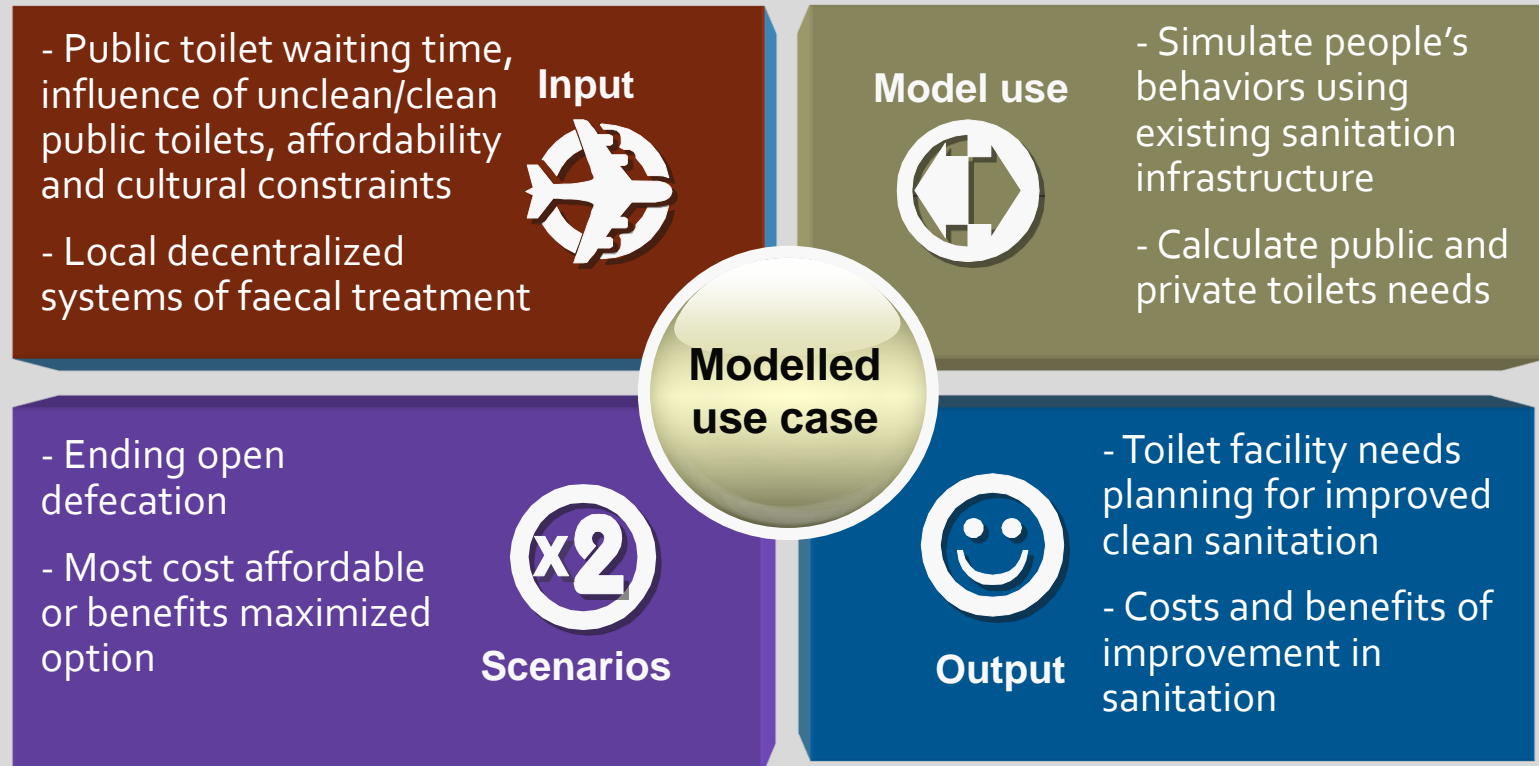
Everyone in the city of Accra (the Greater Accra Metropolitan Area), regardless of economic and social status, will have access to **uninterrupted water supply**, at an affordable price within a reasonable distance from the house.

At least 80 percent of Accra's citizens have access to an **acceptable level of sanitation facilities**, including flush toilets, KVIPs or good public toilets. Pan and bucket latrines are fully phased out.

A cleaner city with a well-functioning **drainage system and integrated solid waste management**

## Use Case 6 - Toilet Infrastructure

Increase availability of clean, accessible, and affordable toilet infrastructure

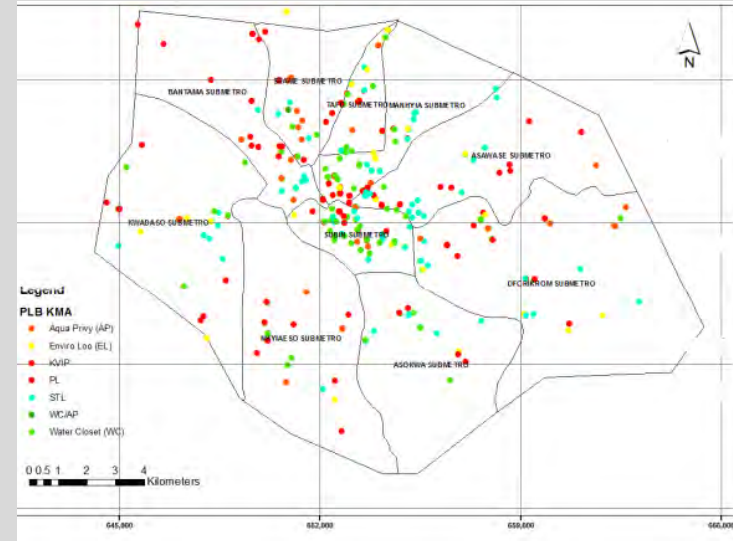


## Use Case 6 - Toilet Infrastructure

Increase availability of clean, accessible, and affordable toilet infrastructure



Fictitious example of suggested investment to more private/public toilets infrastructure



Akosah-Kusi, M., 2012. Provision of Spatial Data for Sanitation Planning: A Case of the Kumasi Metropolitan Area. 7<sup>th</sup> Annual Africa Geospatial Forum

# *Use Case Selection, Discussion, and Questions*

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# Feedback on use cases

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- Are these priorities for GAMA?
- Do any of the use cases need adjustment?
- Are there any other issues you might like to see addressed?



# Ranking the use cases - process

On paper provided, rank each use case from 1-6 (1=strong, 6=poor) for the following evaluation criteria:

- a. Potential for useful indicators
- b. Priority of the issue for GAMA
- c. Potential added value resilience.io could offer to address the issue

	Criteria a	Criteria b	Criteria c	Total score
Use case 1				
Use case 2				
Use case 3				
Use case 4				
Use case 5				
Use case 6				

**Calculate the total score** for all of the 6 use cases.

Put name and organisation on your feedback – pass to Catherine