



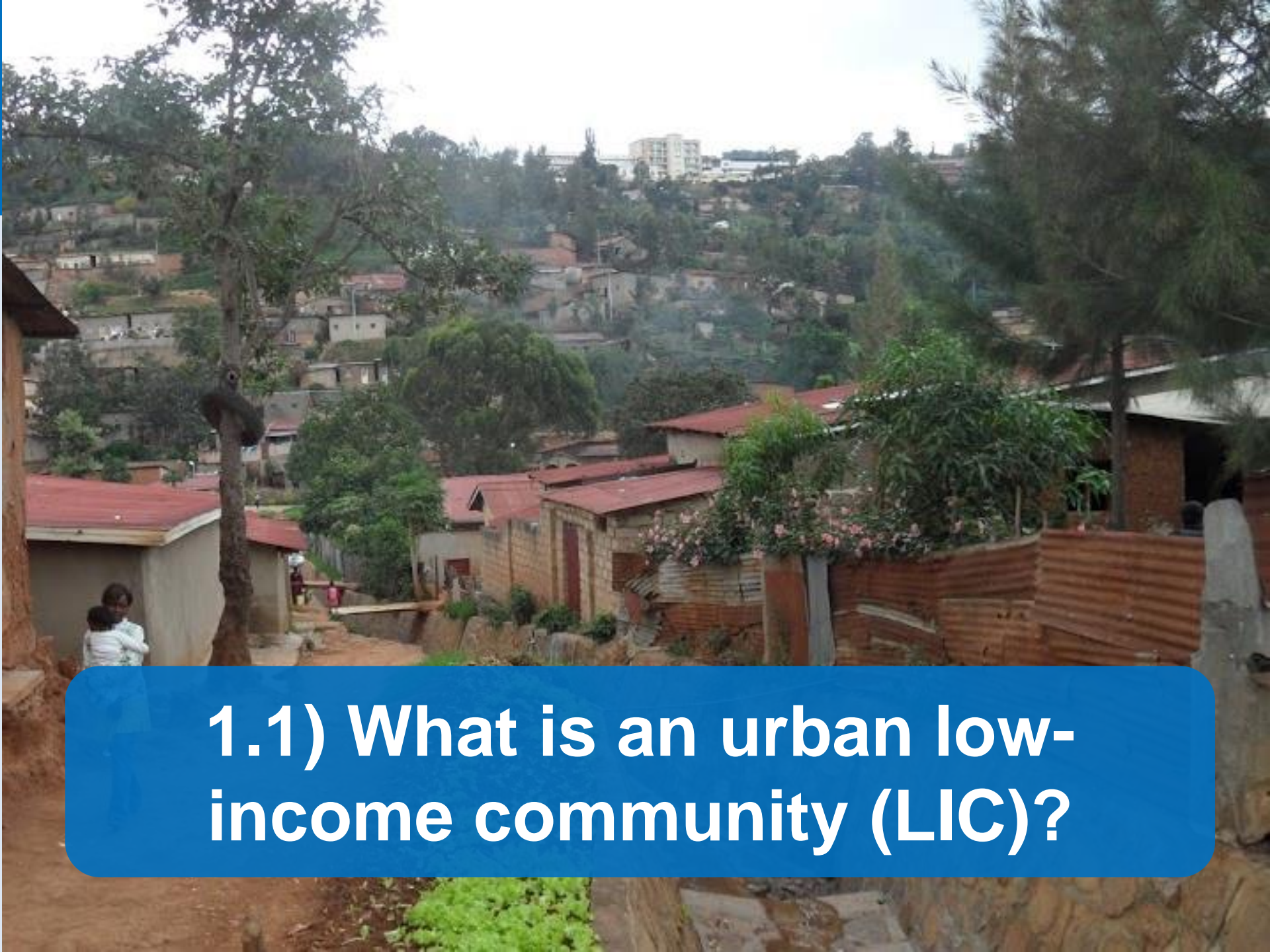
**UNIT 1**  
**WASH in urban low-income  
communities: an overview**

# Aims of Unit 1

**This unit provides an introduction to water and sanitation in low-income urban communities: what the challenges are, and the solutions that this module will explore**

# Questions for Unit 1

- 1) What is an urban low-income community (LIC)?
- 2) What are common physical characteristics of an urban low-income community?
- 3) What is the typical WASH situation in an urban LIC?
- 4) What are the health impacts of poor WASH?
- 5) What types of solution will this module explore?



**1.1) What is an urban low-income community (LIC)?**

# Peri-urban communities

Low-income urban communities are often referred to as  
***'peri-urban communities'***

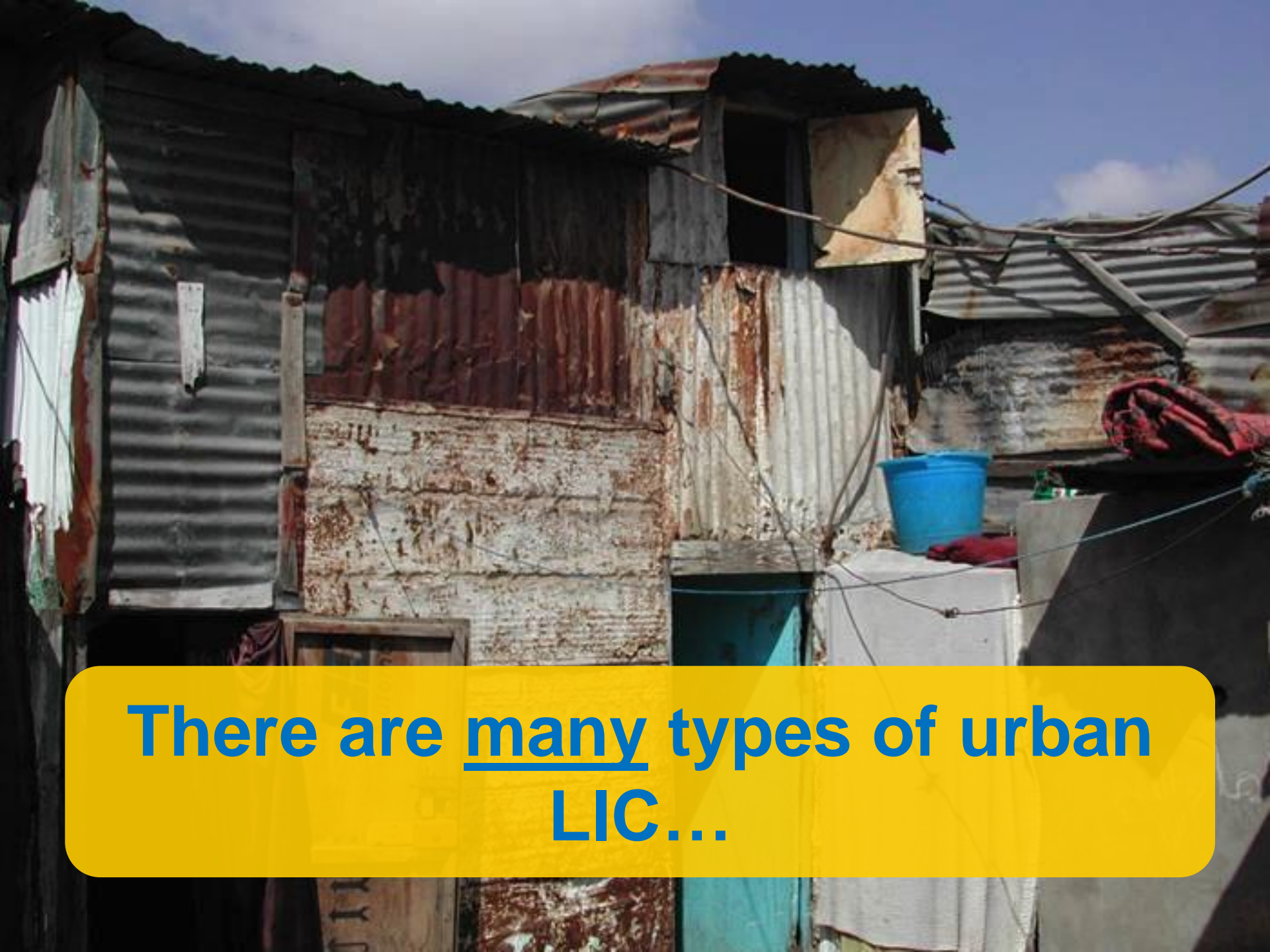
Term peri-urban means

***'around the edges or periphery of a city'***

These areas have different names around the world;

Barrio, Bidonville, Bustee, Edge city, Favela, Gecikondu, Informal/Illegal/squatter settlement, kampung, pueblo invisible, shanty town, tugurio, villa miserere and more...





There are many types of urban LIC...



**... for example, multi-storey communities...**





**... or hill-side communities...**



# Peri-urban growth

There are different types of peri-urban areas;

- **Village peri-urban:** *far from city*
- **Diffuse peri-urban:** *urban fringe migration*
- **Chain peri-urban:** *'transplanted' or 'reconstituted' traditions and institutions from elsewhere*
- **In-place peri-urban:** *natural growth and some migration, has stable institutions*
- **Absorbed peri-urban:** *within the city, possibly displacing previous resident culture*


*Iaquinta & Drescher, 2000*

# ... but most urban LICs show common characteristics...

- Low incomes, irregular incomes
- Informal land ownership
- Tenant households
- High population density
- Poor access (e.g. narrow paths, unplanned layout)
- Often frequent flooding or other environmental challenges

# Identifying areas of peri-urban growth

- Where are the areas of peri-urban growth?
- What characteristics do the peri-urban (LIC) areas have?
- Are there similarities between different areas or are they different?



Can you identify areas of peri-urban growth in your city?



A photograph showing a hillside urban low-income community. The houses are small, built with brick or concrete, and have red-tiled roofs. The houses are built on a slope, and there are many trees and greenery. In the background, a larger building is visible on a higher part of the hill. The sky is overcast.

**1.2) What are common physical characteristics of an urban low-income community?**



# Diverse income groups in close proximity





# High density



**...lack of privacy, high number  
of service users**



# Irregular shaped plots

A photograph of a densely packed hillside village. The buildings are built on a steep slope, with many having irregular shapes and varying heights. The roofs are mostly flat or low-pitched. The buildings are surrounded by greenery, including trees and shrubs. The overall appearance is that of a traditional, organic settlement.

**...more difficult to plan the installation of services**



**Narrow, twisting paths**



**...difficult access**



# Encroachment on unsuitable building areas

A photograph showing an informal settlement with a polluted water body in the foreground, surrounded by dense vegetation and litter. The background shows several buildings, some of which appear to be built on unsuitable or encroached areas. The scene is characterized by a mix of natural and man-made elements, highlighting the environmental and health risks associated with such settlements.

**...increases vulnerability to structural failure and the spread of disease**



# Pollution





# “Temporary” structures



...prone to failure and collapse



# Poorly built service infrastructures



**...failures of these pipes would draw waste water into the drinking water supply**



# Poor surface water management



**...stagnant water is a breeding ground for disease vectors**

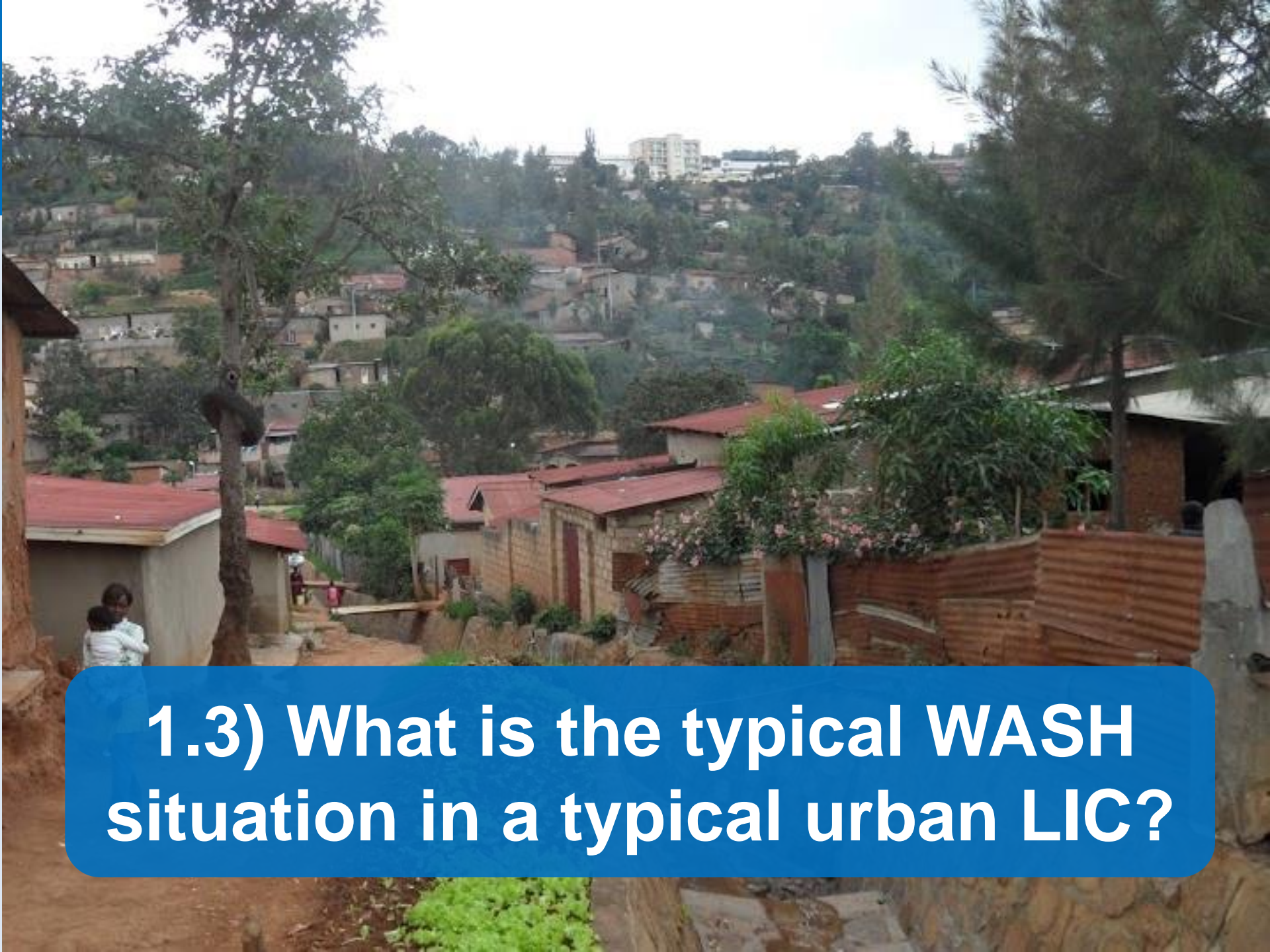


# Poor management of sullage

A photograph showing a polluted stream or ditch. The water is dark and murky, with visible debris such as sticks, twigs, and a red plastic cap floating in it. The banks are composed of dirt and rocks, with some dry vegetation. The overall scene depicts poor waste management and environmental degradation.

**...groundwater contamination  
and destabilisation of ground**





**1.3) What is the typical WASH situation in a typical urban LIC?**





**usually no piped supply from utility network, people depend on small-scale suppliers...**



**...or on water kiosks, supplied  
by the piped network or a local  
borehole**





# 'pay-per use' services







**The sanitation situation is typically even worse...**

**typically no sewers, people depend on “onsite sanitation”...**





**Onsite sanitation does not necessarily mean within the housing compound or plot....**





**... people must often use expensive and dirty public toilets, with long queues...**





**...overflowing latrines, poor drainage and frequent flooding lead to very dirty environments..**





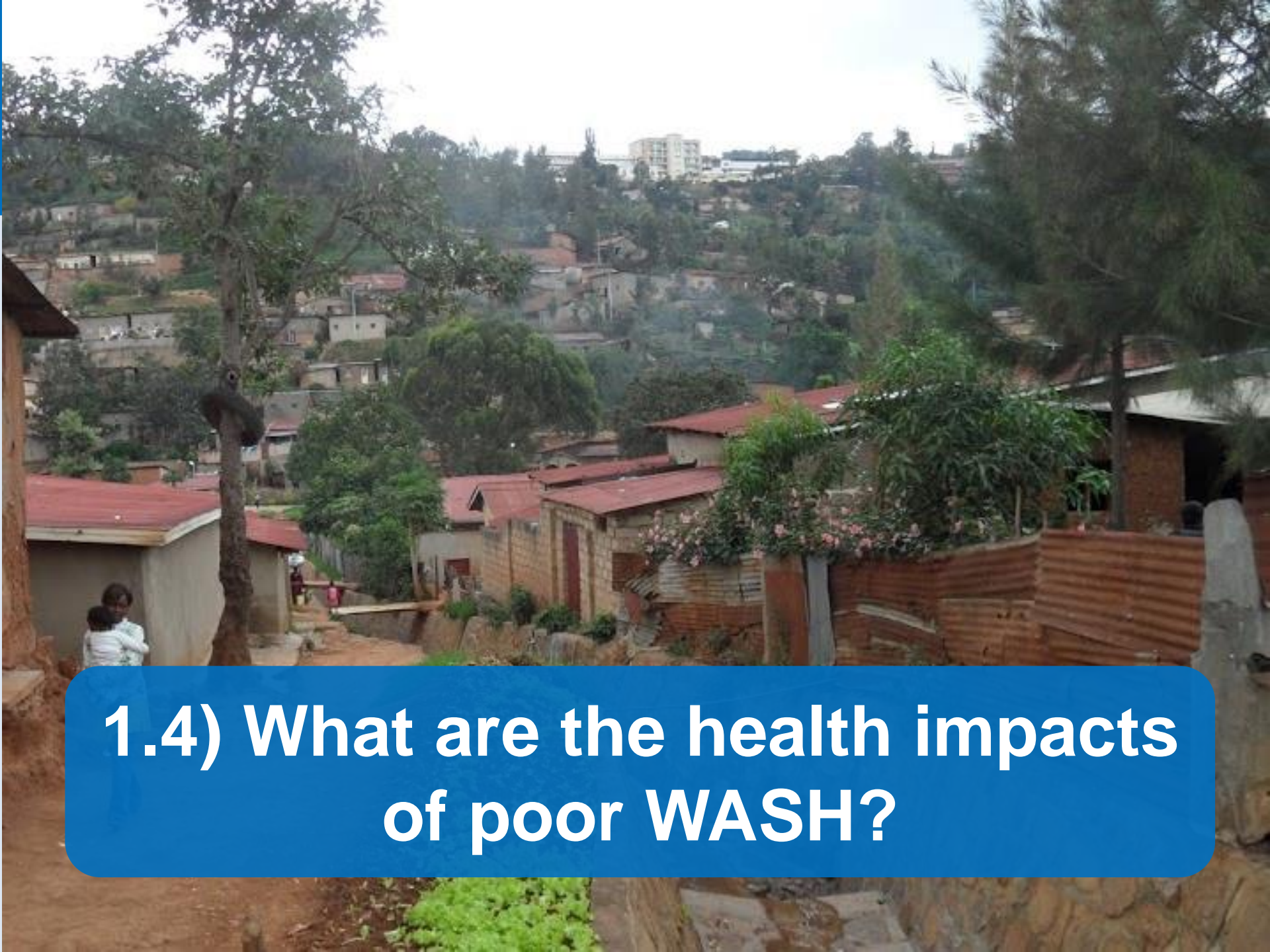
**So, services in LICs are often poor quality, irregular, and cost more than for high income community users.**





**Poor-quality, high-cost  
water and dirty sanitation,  
dirty streets... is this the  
situation in LICs in your  
city?**





## 1.4) What are the health impacts of poor WASH?



# A global problem

- 2.5 billion people globally lack access to improved sanitation
  - 1 billion people practice open defecation
  - 748 million lack access to an improved water source
  - At least 1.8 billion people use a source of drinking-water that is faecally contaminated
  - Hundreds of millions of people have no access to soap and water to wash their hands
- (WHO, 2014)



# Risks to children

- Diarrhoea is the second leading cause of child death globally, and the leading cause in Sub-Saharan Africa
- When children have diarrhoea they are usually undernourished
- Malnutrition accounts for more than one third of child deaths around the world



# Risks to children

When children are undernourished, they have lower resistance to infection and diseases so it is a vicious cycle

## ***Positive outcome of better WASH services....***

The number of children dying from diarrhoeal diseases has fallen from 1.5 million deaths in 1990 to around 600,000 in 2012

# Reducing disease risk

Improving water and sanitation has a positive effects on reducing incidents of disease...

- 26% reduction in diarrhoea morbidity
- 65% reduction in diarrhoea mortality
- 29% reduction in ascariasis
- 78% reduction in dracunculiasis
- 4% reduction in hookworm infection
- 77% reduction in schistosomiasis
- 27% reduction in trachoma

(Esrey 1991)



# Economic benefits

Cost-Benefit Analysis can be used to express all social benefits and all social costs in monetary terms

So you can estimate the net economic benefit of a given investment [or the cost of not making an investment]

The Economics of Sanitation Initiative has done a cost-benefit analysis of sanitation in some countries

# Economic benefits

Estimated annual cost of poor sanitation;

- Kenya: 324 million USD
- Ghana: 290 million USD
- Nigeria: 3 billion USD

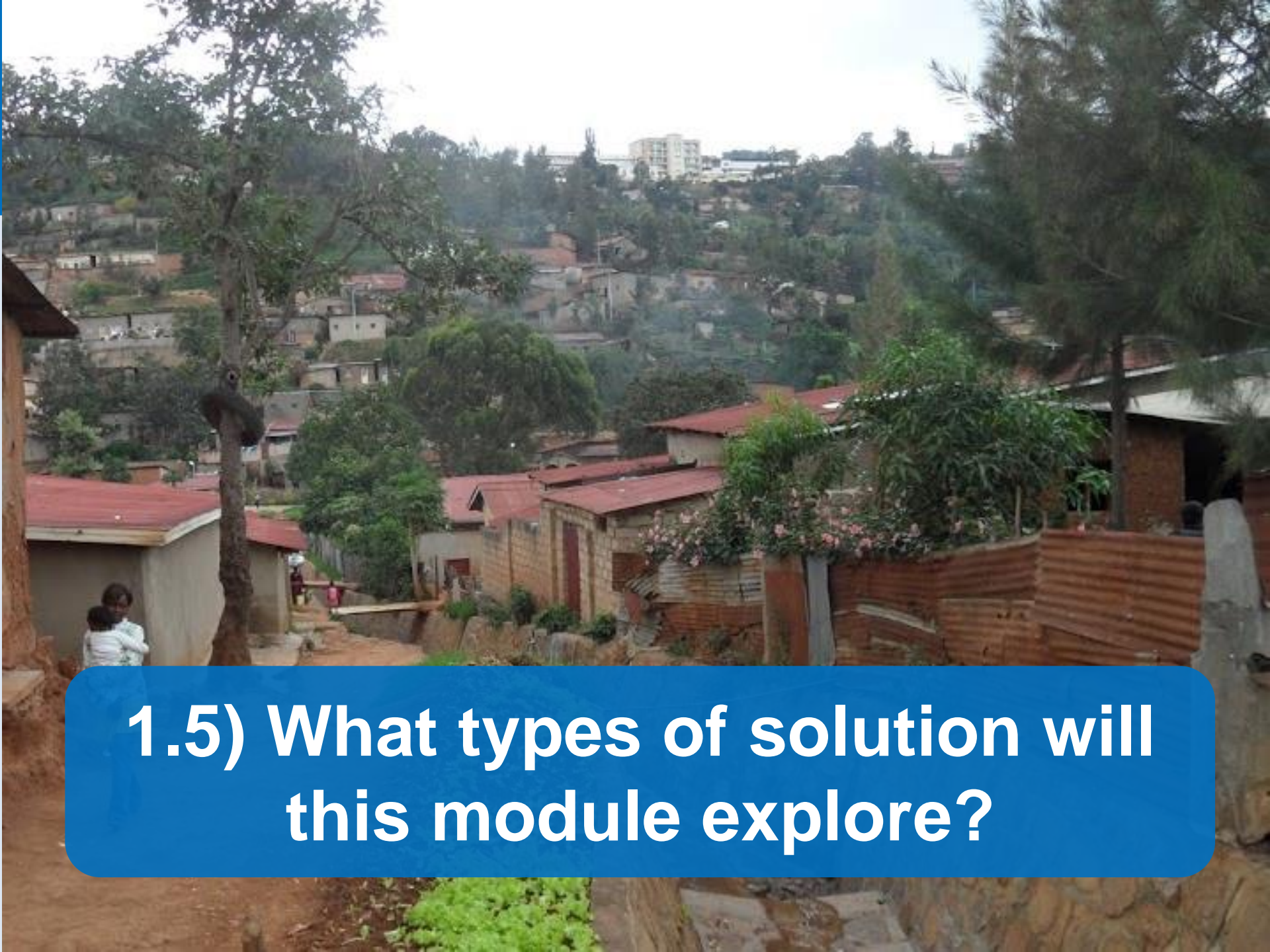
**Healthier children and adults = economic growth,  
better quality of life, improved dignity**

(See the ESI website for more countries)



# Other major benefits...

- Less adult sickness = increased household income
- Less water-carrying time (especially for women!) = better productivity
- Less queueing time (for water, for toilets) = better productivity
- Less spent (by individuals, by governments) on health = more money for other services/activities
- Less child sickness = better cognitive development
- Less child sickness = less time lost at school



**1.5) What types of solution will this module explore?**



# Water Supply

Options considered include;

- Water supply options – advantages & disadvantages
- Management options – advantages & disadvantages
- Costing and commercial viability
- Lifecycle costs
- Financing water supply

# Sanitation services

Options considered include;

- Sanitation solutions – advantages & disadvantages
- Urban sanitation chain
- Faecal sludge management & excreta flow diagrams



# Behaviour change

Introducing the concepts of behaviour change and marketing;

- The importance of behaviour change
- The importance of hand washing
- The impact of other types of behaviour change
- Sanitation marketing

# Monitoring and Evaluation

- The importance of M&E in WASH
- M&E process and methods
- Results chains
- The role of indicators



# Institutions, accountability and finance

- Institutional responsibilities for WASH
- Responsibility mapping – stakeholder roles and responsibilities
- Challenges and improvements for the current situation

# Module style

- Groups discussion, collaborative activities and shared learning are encouraged within this module
- Active participation from everyone will result in better discussions and more knowledge sharing
- Feel free to use examples from projects you have worked on and experiences you have



# Field trip

- Including an introduction to research ethics and some research methods
- On the field trip we will explore some of the topics studied in this module and apply them to a local context
- We will complete a short data collection exercise for further discussion

# Key Take Home Messages

- It is important to understand the particular needs and challenges of people in low-income communities
- Appropriate solutions are often very simple in engineering terms but the challenges are around social acceptability and sustainable financing, not engineering design



## **NEXT SESSION: UNIT 2**

**Urban low-income communities:  
the wider context**