

# The economics of solid waste management and drainage

Sustainable approaches to making South Asian cities climate-resilient



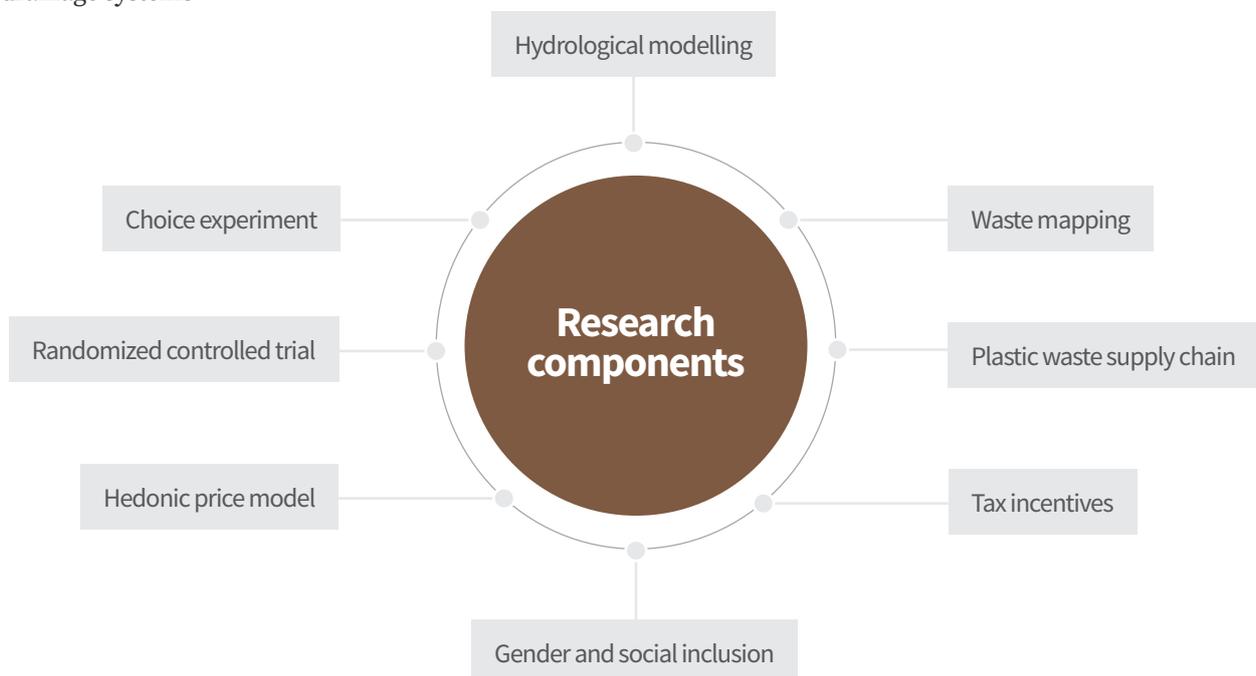
## Background

South Asian cities need to adapt to extreme climate events and work with their inhabitants to develop strategies to move away from the current culture of producing and haphazardly disposing large amounts of solid waste. Cities are facing increasing threats of flooding, waterlogging, and water contamination due to the following:

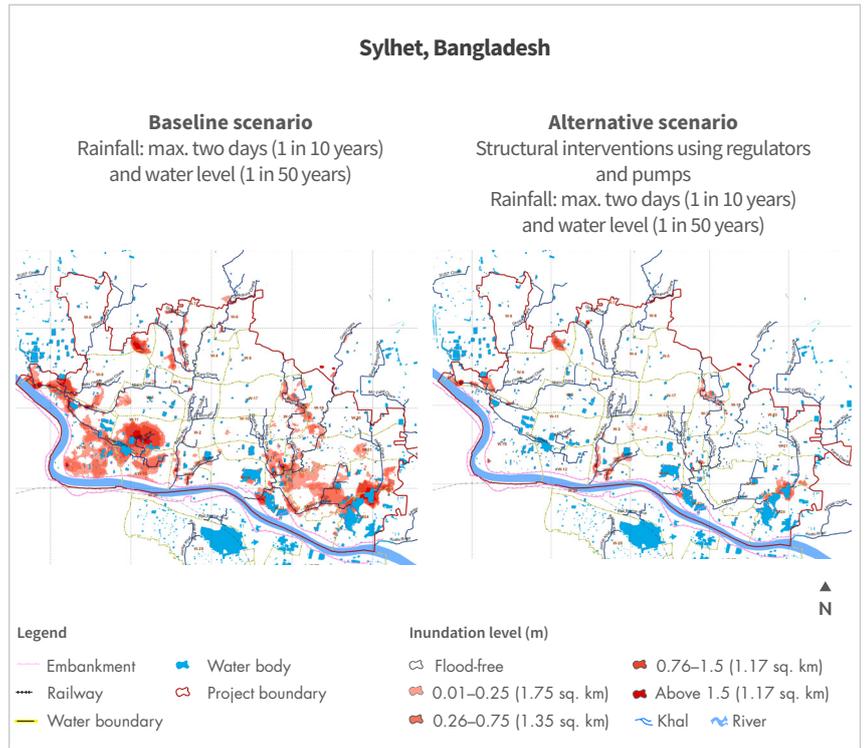
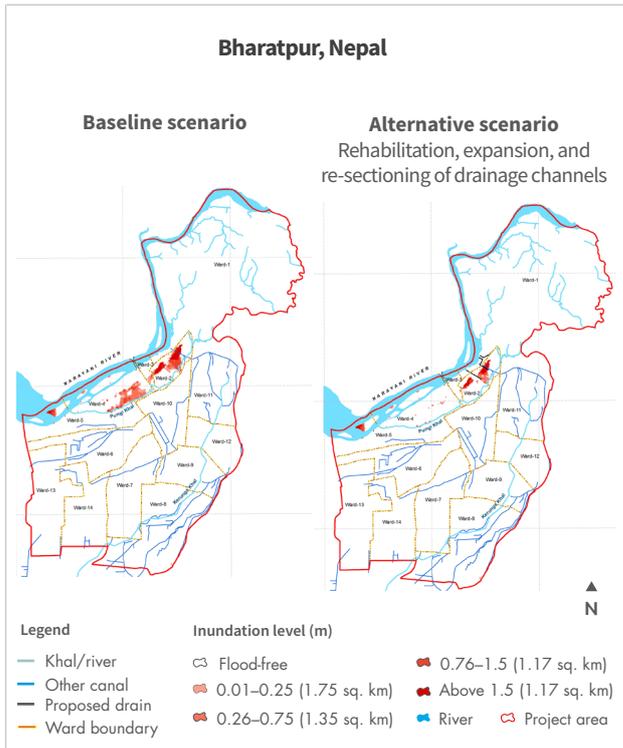
- Unplanned urban growth and expansion of cities into low-lying floodplains
- Indiscriminate dumping of solid waste in the drainage system
- Intense rainfall events which can overwhelm cities' drainage systems

## Objective

The Economic Analysis of Solid Waste Management (SWM) and Drainage for Climate-Resilient Cities in South Asia project seeks to generate the knowledge required to improve the resilience of South Asian cities – Bharatpur in Nepal and Sylhet in Bangladesh – to climate change through improved waste management. The project aims to help these cities cope with the issues of waterlogging and flooding, which are expected to worsen with climate change and urban growth.



# Inundation map



## Key findings

**22.3%**  
of the land area in  
Sylhet and

**12.7%**  
in Bharatpur are at risk  
of flooding under the  
current scenario

Flood risk area can be  
reduced to  
**3.6%** (Sylhet)  
and  
**5.5%** (Bharatpur)  
with structural  
interventions in the  
drainage system

However, despite these  
interventions, the area under  
flood risk could increase to  
**18.5%** (Sylhet)  
and  
**7.6%** (Bharatpur)  
in five years if the cities' solid  
waste is not managed properly



**KEY MESSAGE**  
Structural solutions  
alone, without proper  
SWM, are almost  
ineffective in reducing  
the long-term flooding  
risk in these cities



Households prefer  
pre-determined waste  
collection days and timings  
and prefer street-side bins  
for pedestrians, which can be  
implemented with only

**16.5%**  
additional cost

For these improvements,  
Bharatpur households are  
willing to pay

**10%–28%**  
more in service fees

Total annual willingness  
to pay for improved  
waste collection in  
Bharatpur is

NPR  
**1.76–5.11**  
million



**<1%** additional  
import duty on plastic  
imports could help  
finance plastic waste  
management



**Women** are the main  
actors participating  
in waste collection  
and disposal at the  
household level

Value of cleaner  
neighbourhood is

**25%** higher

for an average  
housing unit if the  
neighbourhood  
has municipal SWM  
service compared to  
no such service

Supported by



For further information

Mani Nepal

Mani.Nepal@icimod.org

www.icimod.org/sandee

ICIMOD gratefully acknowledges the support of its core donors: the Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Sweden, and Switzerland.

© ICIMOD 2019

International Centre for Integrated Mountain Development

GPO Box 3226, Kathmandu, Nepal

T +977 1 5275222

E info@icimod.org

www.icimod.org