

# Creating sustainable cities through decentralised waste management: detailed surveying of buildings

<b>Submission date</b> 26/10/2021	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 27/10/2021	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 04/01/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

The project examines the environmental, civic, health and socioeconomic impacts of decentralised solid waste management in the community. It provides information and waste segregation services to households and businesses to help reduce waste generation and landfill dumping. It aims to quantify the costs and benefits of decentralised waste management in urban settings of the developing world.

### Who can participate?

All households in designated treatment areas of Patna, India will be provided with decentralised waste management. About 5,000 of the expected 15,000 households each in the control and treatment areas will also be covered by surveying through random sampling.

### What does the study involve?

The study will conduct door to door visits to all households in designated areas of Patna to provide waste management information and segregated waste services and to collect data related to socioeconomic, health and environmental characteristics. The main intervention is teaching decentralised waste management (e.g. segregation, recycling, composting) to households and businesses, enabling segregated waste collection by government waste collectors and recycling/treatment of segregated waste. The primary outcomes being measured are waste practices and landfill diversion. The secondary outcomes include health and socioeconomic outcomes in the community.

### What are the possible benefits and risks of participating?

The risk to participants is minimal and the benefits are expected to be the adoption of safe decentralised solid waste management to reduce the environmental burden of untreated waste dumping. WHO guidance for social distancing and safe waste management will be followed to ensure the safety of researchers and participants.

### Where is the study run from?

The study is being conducted in the city of Patna, in collaboration with the city government and

a local social enterprise. The research team is located at the London School of Economics in London UK. A memorandum of understanding (MoU) has been signed between the city government (Patna Municipal Corporation) and the London School of Economics for field activities in the areas.

When is the study starting and how long is it expected to run for?  
June 2021 to December 2022

Who is funding the study?  
Economic and Social Research Council (UK)

Who is the main contact?  
Dr Swati Dhingra  
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## Contact information

**Type(s)**  
Scientific

**Contact name**  
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## Additional identifiers

**EudraCT/CTIS number**  
Nil known

**IRAS number**

**ClinicalTrials.gov number**  
Nil known

**Secondary identifying numbers**  
Nil known

## Study information

**Scientific Title**

Informal labour markets and decentralised solid waste management in urban areas: detailed surveying of buildings

**Acronym**

CityWaste

**Study objectives**

The study examines whether decentralised waste management services can help improve the environmental, health and socioeconomic outcomes of urban residents.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 21/07/2021, London School of Economics Research Ethics Committee (Houghton Street, London, WC2A 2AE, UK; +44 (0)20 7852 3629; research.ethics@lse.ac.uk), ref: 28362

**Study design**

The trial combines observational and interventional designs including cluster and crossover features

**Primary study design**

Interventional

**Secondary study design**

Cluster randomised trial

**Study setting(s)**

Community

**Study type(s)**

Quality of life

**Participant information sheet**

See additional files

**Health condition(s) or problem(s) studied**

Health, environmental, civic and socioeconomic consequences of decentralised solid waste management in urban communities

**Interventions**

Information on decentralised waste management and provision of segregated waste services to households and businesses.

A cluster is a waste collection vehicle route and time. A random number generator from statistical software will be used to randomise clusters to the treatment area or the control area. All clusters in the treatment area will receive the intervention during the study period. Clusters in the control area will be observed.

The study will conduct door to door visits to all households in designated areas of Patna to provide waste management information and segregated waste services and to collect data related to socioeconomic, health and environmental characteristics. The main intervention is teaching decentralised waste management (e.g. segregation, recycling, composting) to households and businesses, enabling segregated waste collection by government waste collectors and recycling/treatment of segregated waste. The primary outcomes being measured are waste practices and landfill diversion. The secondary outcomes include health and socioeconomic outcomes in the community.

The duration of the intervention is 12 months and the outcomes are measured at the time of the baseline survey enumeration with different recall periods and at the time of the endline survey after 12 months with similar recall periods as in the baseline survey.

## **Intervention Type**

Behavioural

## **Primary outcome measure**

Waste generation and recycling of households at the time of enumeration, measured through:

1. Self-reported survey questions based on WHO's WASH questionnaire, with a recall period of 1 week, 2 weeks, month or "usually"
2. Daily observations by waste workers on whether the waste is collected in a segregated form, on the day of the enumeration

Measured at the time of the baseline survey enumeration and at the time of the endline survey after 12 months

## **Secondary outcome measures**

Health, civic and socioeconomic outcomes of waste workers and the community at the time of survey enumeration, measured using self-reported survey questions with a weekly/fortnightly recall period (health), weekly recall period (socioeconomic) and annual/"usual" recall period (civic), based on India's Demographic and Health Surveys, Periodic Labour Force Surveys, LSE Alternative Work Arrangements Survey, American Teens' Knowledge of Climate Change and UNESCAP Waste Management Assessment. Measured at the time of the baseline survey enumeration and at the time of the endline survey after 12 months.

## **Overall study start date**

03/06/2021

## **Completion date**

01/12/2022

# **Eligibility**

## **Key inclusion criteria**

All households and businesses in the treatment clusters will be offered waste management services. About 30% of the households will be randomly sampled for detailed surveying in the control and treatment clusters

## **Participant type(s)**

All

## **Age group**

Adult

**Sex**

Both

**Target number of participants**

All households are eligible for waste management services in the treatment area. This is expected to be about 15,000 households, of which 5,000 households will also be covered in detailed surveys. About 30% of households in the control area, expected to number 5,000 households, will also be covered by detailed surveys.

**Key exclusion criteria**

Households outside of the designated control and treatment areas will not be covered

**Date of first enrolment**

13/11/2021

**Date of final enrolment**

01/06/2022

## **Locations**

**Countries of recruitment**

India

**Study participating centre**

**The City of Patna**

The Patna Municipal Corporation  
Second Floor, Block-C, Maurya Lok Complex, Budhha Marg  
Patna  
India  
800001

## **Sponsor information**

**Organisation**

London School of Economics and Political Science

**Sponsor details**

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**Sponsor type**

University/education

**Website**

<https://cep.lse.ac.uk/>

**ROR**

<https://ror.org/0090zs177>

## **Funder(s)**

**Funder type**

Research council

**Funder Name**

Economic and Social Research Council

**Alternative Name(s)**

ESRC

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

United Kingdom

## **Results and Publications**

**Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed journal.

**Intention to publish date**

01/01/2024

**Individual participant data (IPD) sharing plan**

A Data Management Plan has been prepared and approved by the LSE Research Ethics Committee and the LSE's Data Protection Impact Assessments.

Repository name/weblink: All sensitive data will be stored, accessed and analysed on a secure server at the LSE's research laboratories (RLAB).

Type of data that will be shared: Only anonymised non-sensitive data will be shared. Sensitive data, including trade union membership status, mental health condition and caste information will not be made available publicly.

The data will become available 2 years after the end of the intervention for a period of 2 years afterwards.

The data will be shared with researchers for research and policy purposes only. Survey data generated by LSE CEP can be shared, subject to agreement being obtained in the information and consent forms pre-survey. Once the publications are completed, the researchers plan to deposit any new generated survey data of this type in the UK data archives, in line with UKRI common principles on data policy (<https://www.ukri.org/funding/information-for-award-holders/data-policy/common-principles-on-data-policy/>)

**IPD sharing plan summary**

Stored in non-publicly available repository

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Participant information sheet</a>	version 1	01/09/2021	27/10/2021	No	Yes
<a href="#">Basic results</a>			04/01/2024	No	No