State of the Map 2018

Slum health mapping as catalyst for a collaborative agenda for research, practice, local citizens and volunteers

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WARWICK
THE UNIVERSITY OF WARWICK

APHRC
African Population and Health Research Center

TEACHETH MAM THAI WHICH HE KNEW NOT
IUB
INDEPENDENT UNIVERSITY

THE AGA KHAN UNIVERSITY

RECTE SAPERE FONS

HOT
Humanitarian OpenStreetMap Team

MISSING MAPS

NIHR Global Health Research Unit on Improving Health in Slums

Overview

- Introduction to our ongoing large-scale project
- Our mapping approach
- Current state of slum mapping in the project
- The research challenge
- Discussion

Our ongoing project: title and goals

Short term
- Map slums
- Map health services & facilities
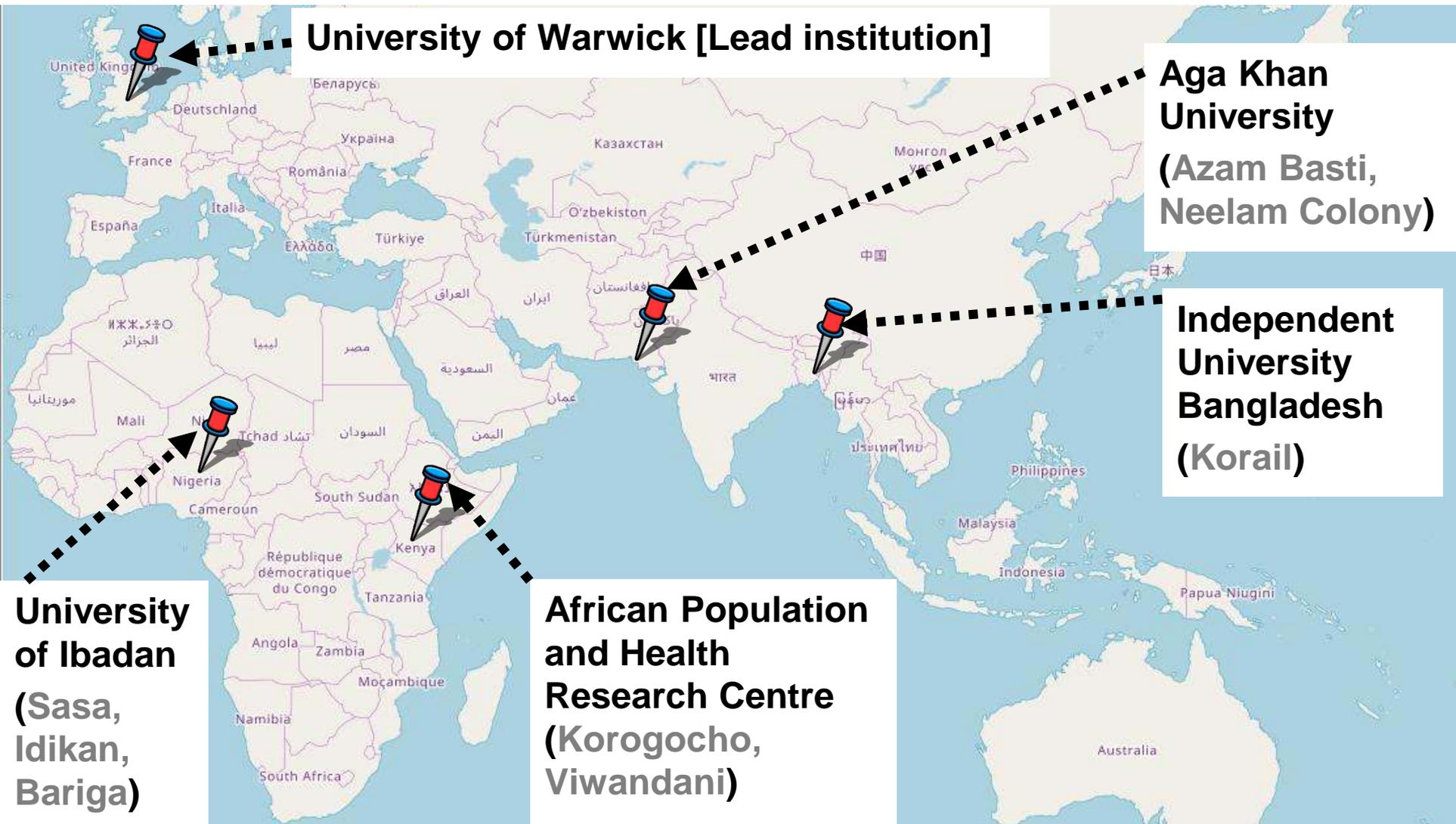- Understand usage

Medium term
- Identify cost associated with seeking health care
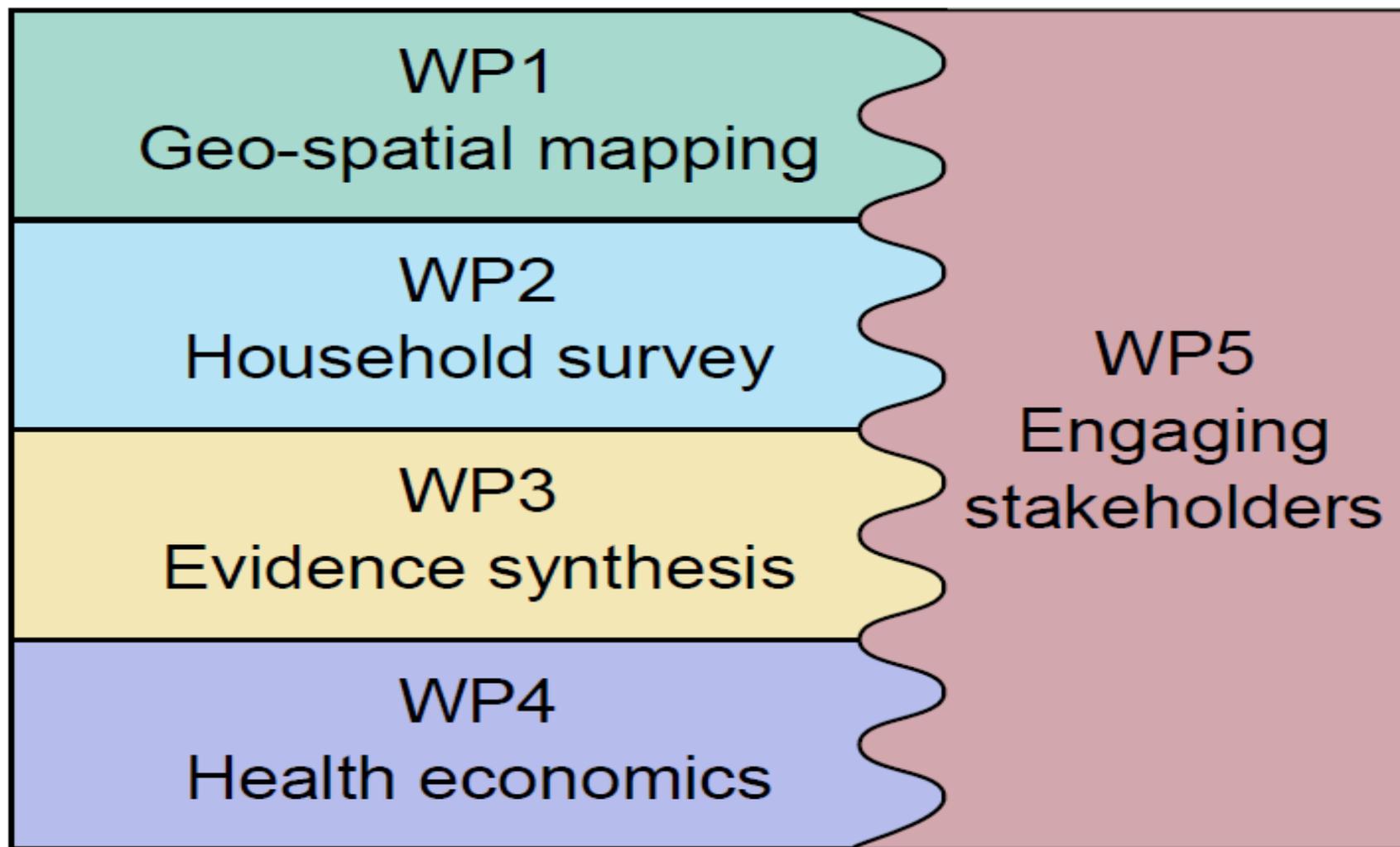
Long term
- Build models of health services
- Create platform of funded activities

- Involve people who can change things
- Synthesis of existing evidence

Project partners (study sites)

University of Warwick [Lead institution]

Aga Khan University (Azam Basti, Neelam Colony)

Independent University Bangladesh (Korail)

University of Ibadan (Sasa, Idikan, Bariga)

African Population and Health Research Centre (Korogocho, Viwandani)

Background Terms of Use

Work packages (WPs) in the project

WP1
Geo-spatial mapping

WP2
Household survey

WP3
Evidence synthesis

WP4
Health economics
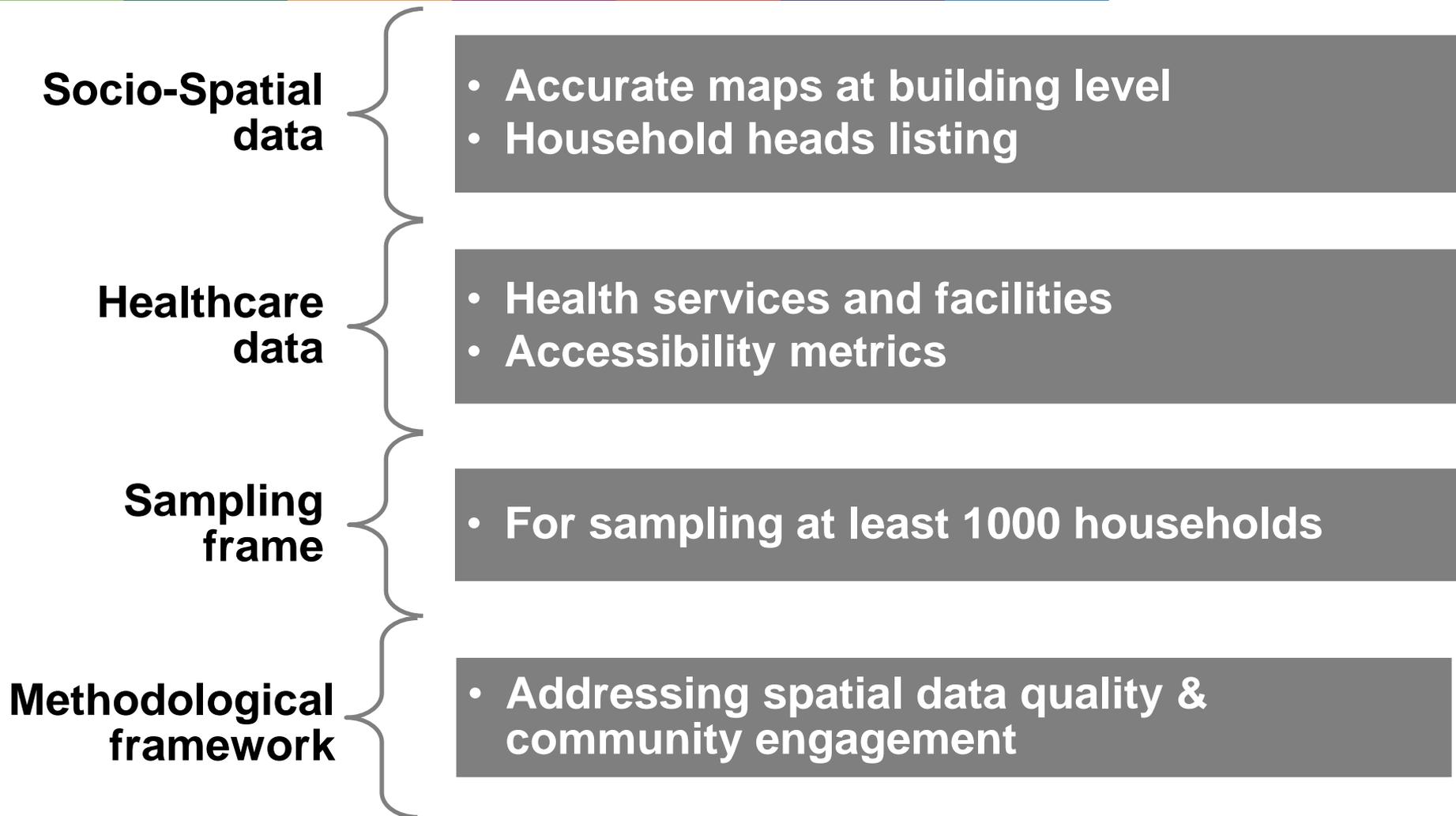
WP5
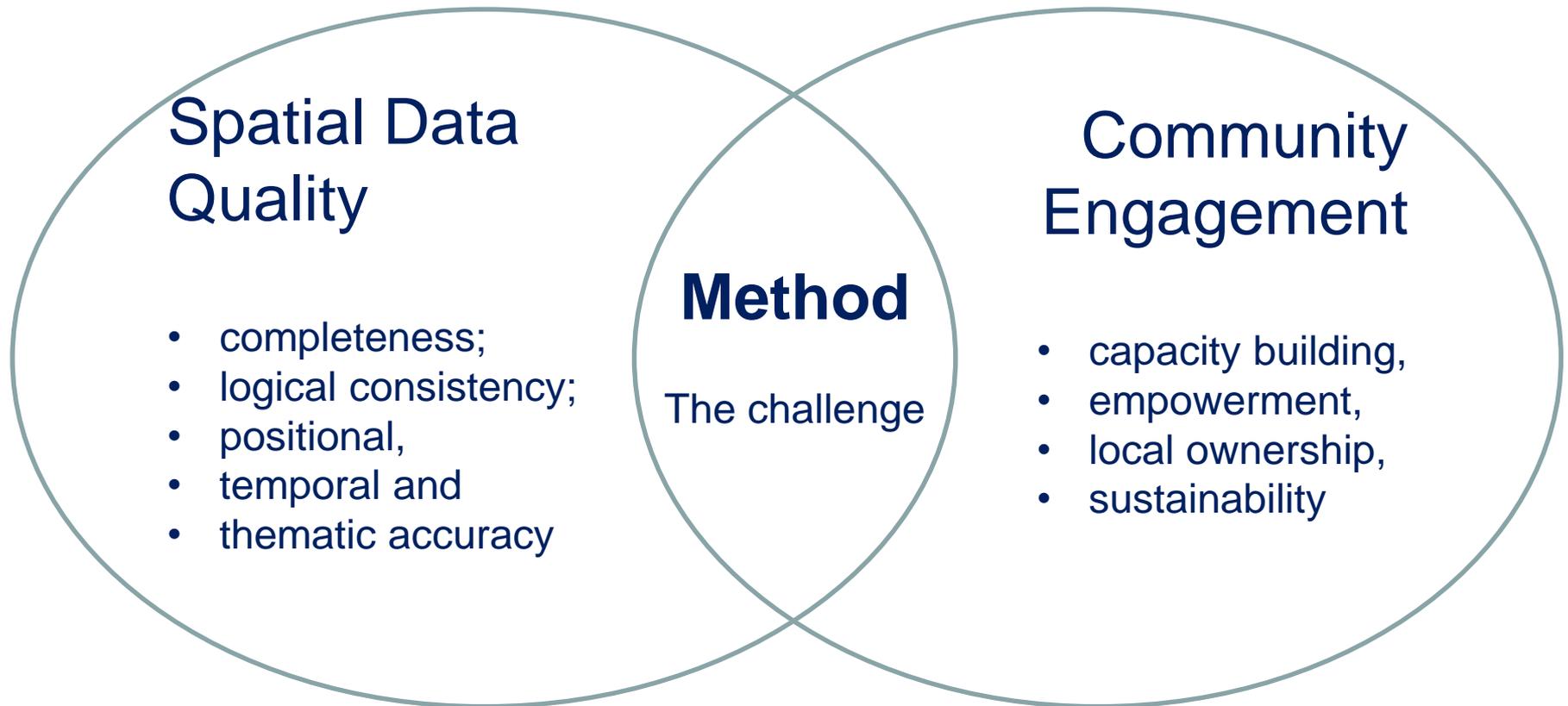Engaging stakeholders

Overview of WP1: Phases

- WP1 phases and timelines (2, 3 & 4 conducted iteratively)

  - Phase 1: Preparation (Jul. 2017 – Dec. 2018)

  - Phase 2: Satellite Imagery digitisation (Dec. 2017 – Jun. 2018)

  - **Phase 3: Participatory mapping (Jan. 2018 – Jun. 2019)**

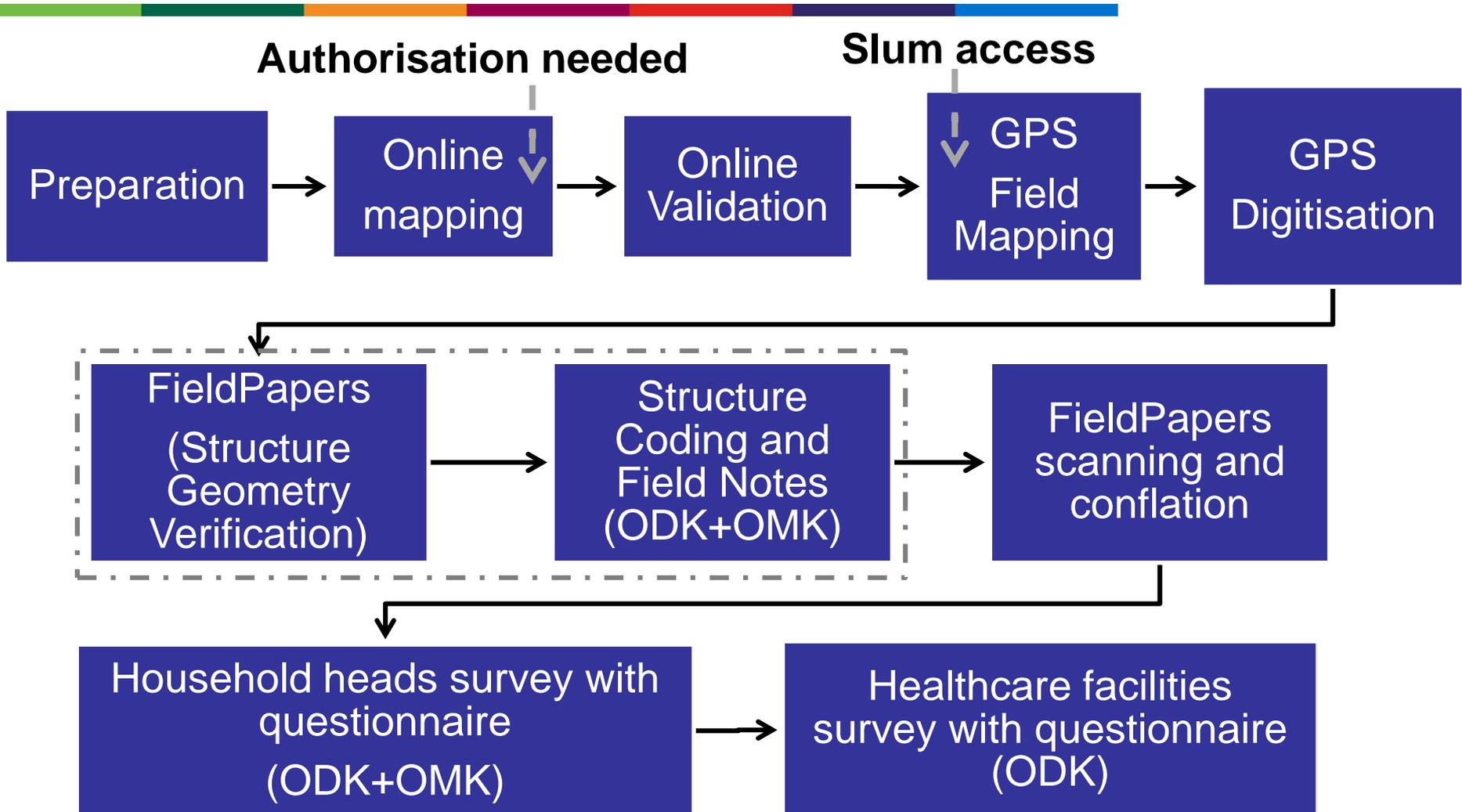 - Phase 4: Geospatial analysis and visualisation (Mar. 2019 – Sep. 2019)

Outputs of WP1

Socio-Spatial data
- Accurate maps at building level
- Household heads listing

Healthcare data
- Health services and facilities
- Accessibility metrics

Sampling frame
- For sampling at least 1000 households

Methodological framework
- Addressing spatial data quality & community engagement

A methodological challenge

Spatial Data Quality

- completeness;
- logical consistency;
- positional,
- temporal and
- thematic accuracy

Method

The challenge

Community Engagement

- capacity building,
- empowerment,
- local ownership,
- sustainability

Our mapping approach

Authorisation needed

Slum access

Preparation → Online mapping → Online Validation → GPS Field Mapping → GPS Digitisation

FieldPapers (Structure Geometry Verification) → Structure Coding and Field Notes (ODK+OMK) → FieldPapers scanning and conflation

Household heads survey with questionnaire (ODK+OMK) → Healthcare facilities survey with questionnaire (ODK)

Improving Health in Slums

Participants and mapathon snapshots

Bangladesh

Nigeria

Kenya

Kenya

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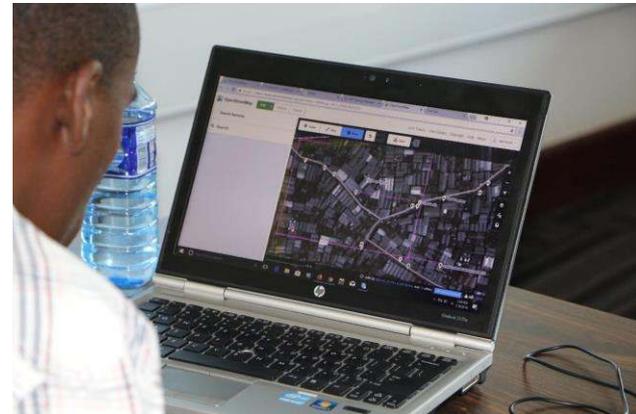
Participants and mapathon statistics

Improving Health in Slums
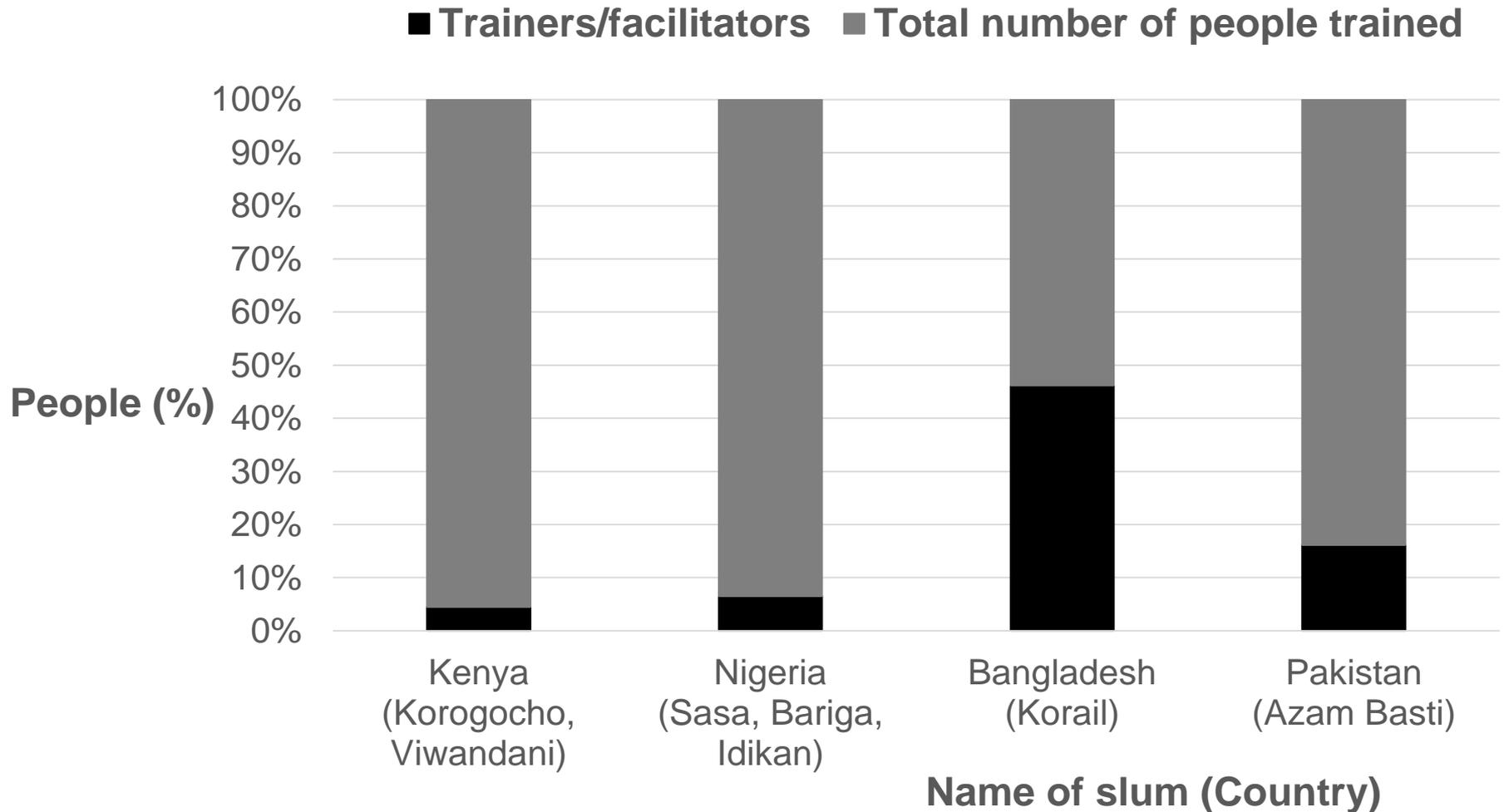
Current state of our slum mapping in **Kenya**

Number of buildings added: 13,560
Road length added: 2.6 km

Legend
Road and footpaths
Buildings after mapathons
Green spaces
Slum Boundary

Legend
Rivers and streams
Roads and footpaths
Buildings
Slum Boundary

Current state of our slum mapping in **Bangladesh**

Number of buildings added: 1,761
Road length added: 19.26 km

Legend
Legend
Roads and footpaths
Roads and footpaths
Buildings
Buildings after Mapathons
Slum Boundary
Slum Boundary

100   0   100   200   300   400 m
.00   0   100   200   300   400 m

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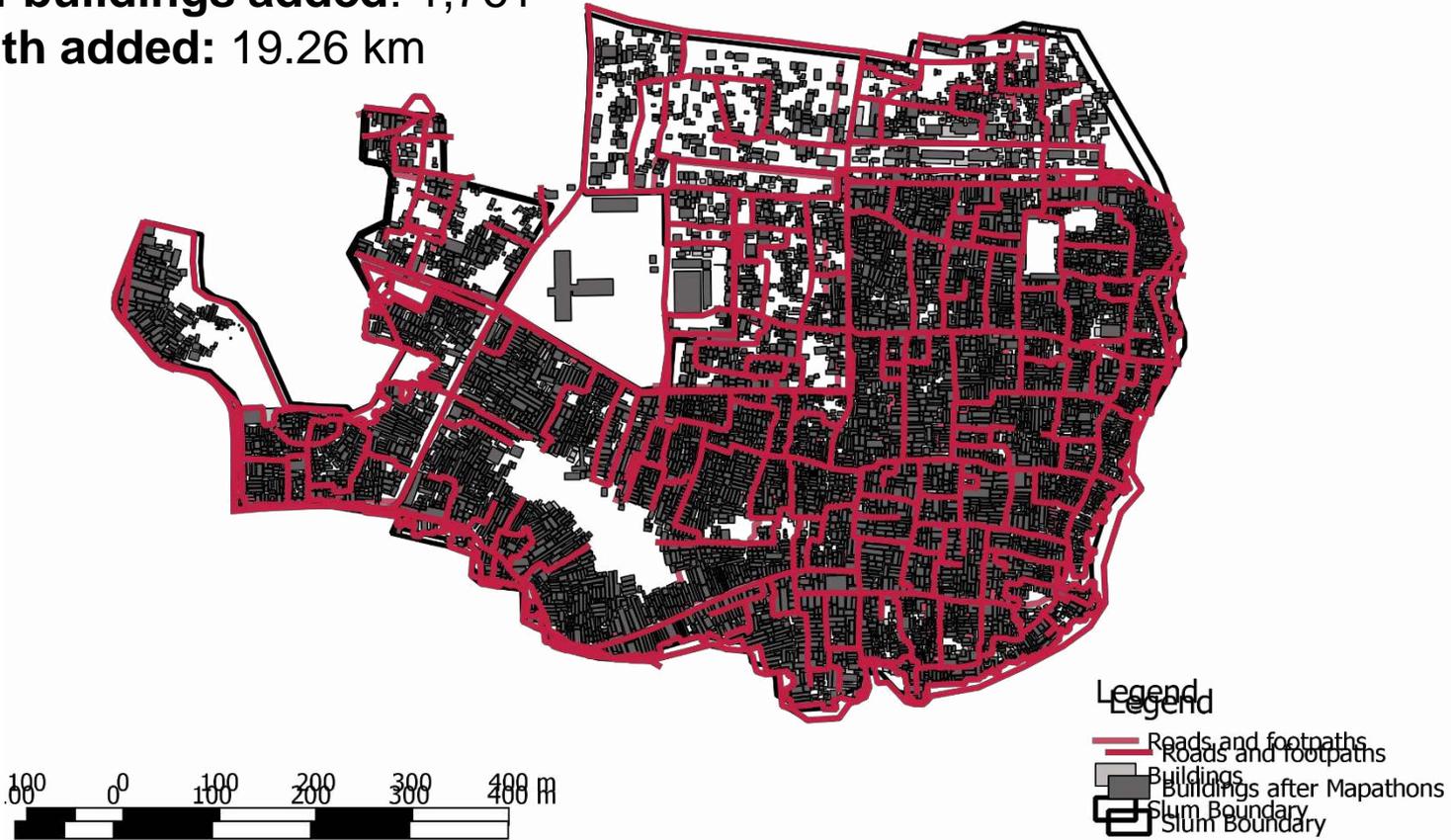
Current state of slum mapping in **Nigeria**

Number of buildings added: 9,488
Road length added: 35.7 km
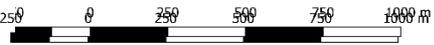
Legend
— Roads and footpaths
▣ Buildings after Mapathons
☐ Slum boundary
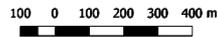
100 0 100 200 300 400 m

Legend

Legend
— Roads and footpaths
▣ Buildings
☐ Slum Boundary

1000 00 1000 2000 3000 4000 m
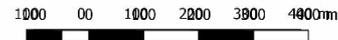
Legend
— Roads and footpaths
▣ Buildings after Mapathons
☐ Slum Boundary

The research challenge

Spatial Data Quality

- Accurate
- Complete
- Consistent

The research challenge

Community Engagement

- Inclusive
- Local context
- Empowering
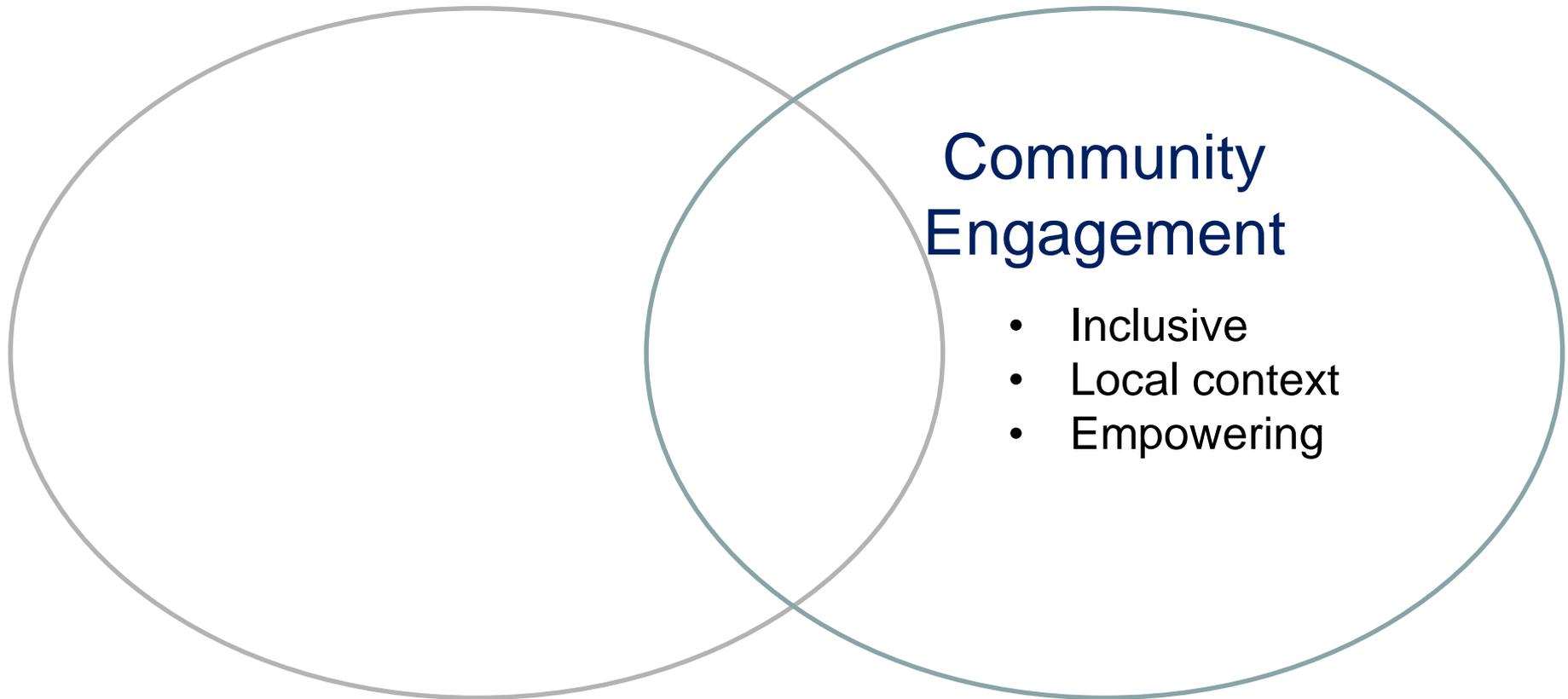
Discussion
A systematic approach with multi-level collaboration

Training the trainers

- Local institutional partners

Digitisation

- Partners, community and OSM volunteers

Validation

- Partners and OSM volunteers

Ground-truthing

- Partners, community
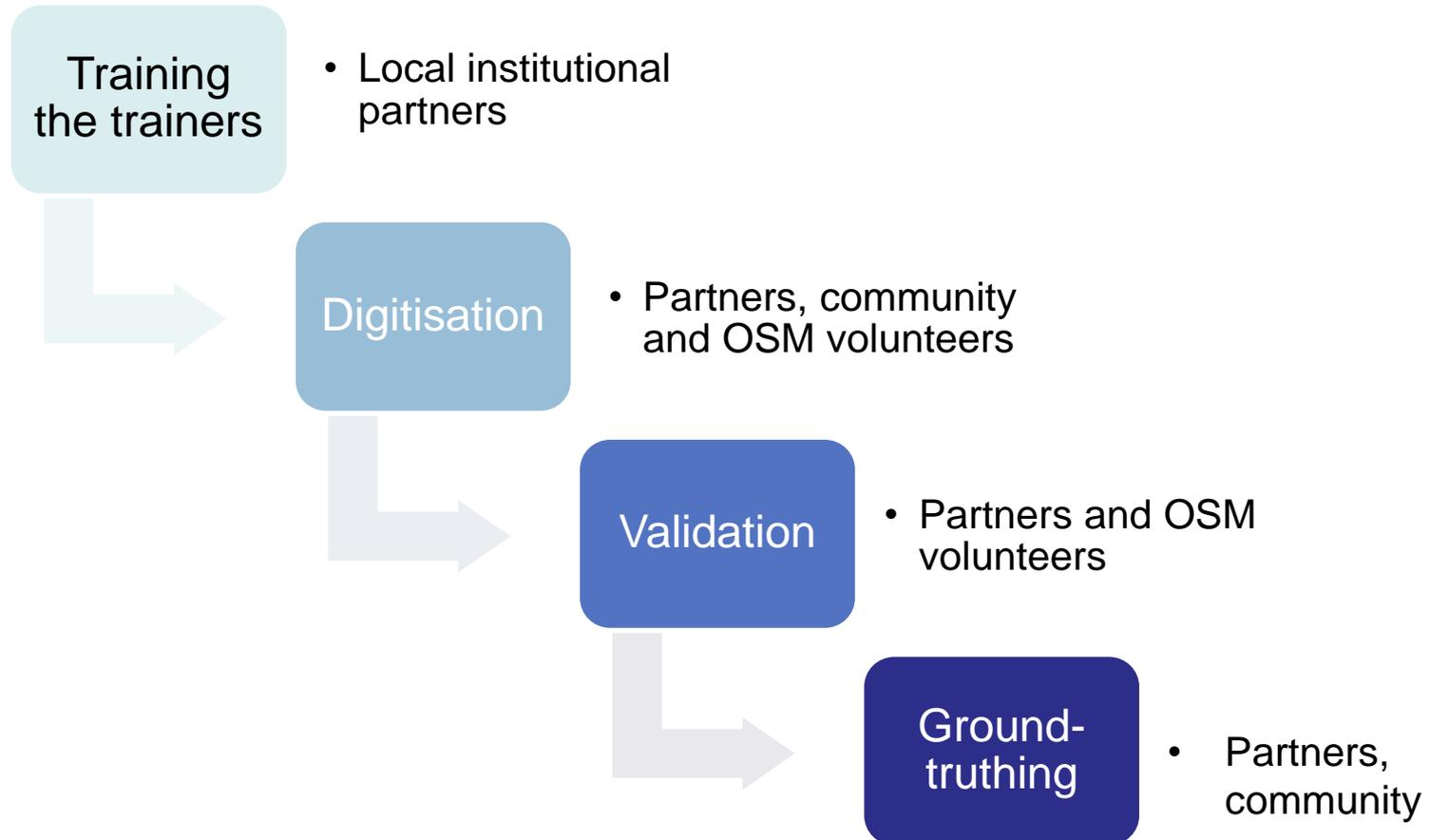
Research challenge
Involving the local community

- Local partners and community: mapping and reflecting on space
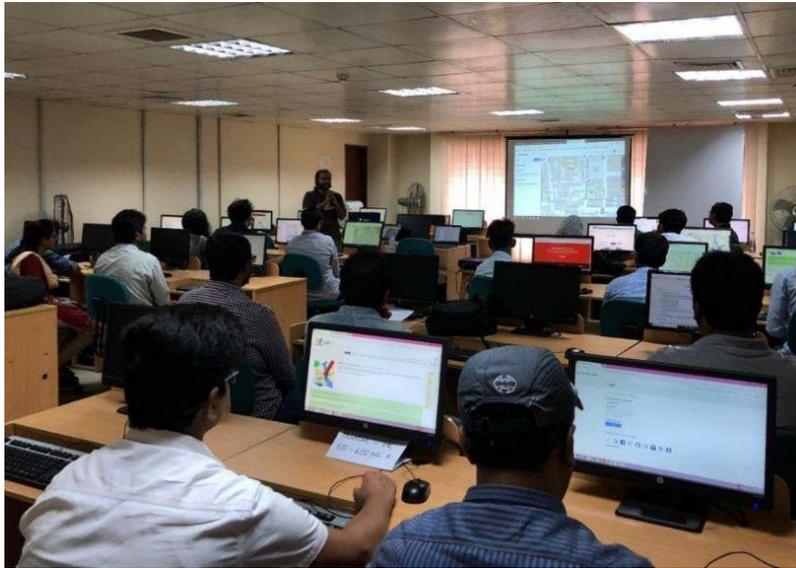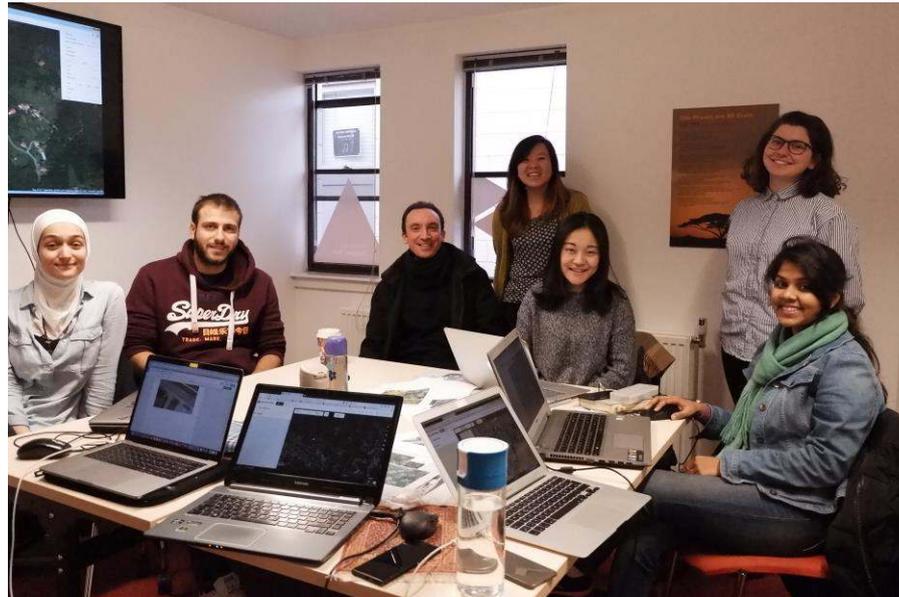

Bangladesh mapathon
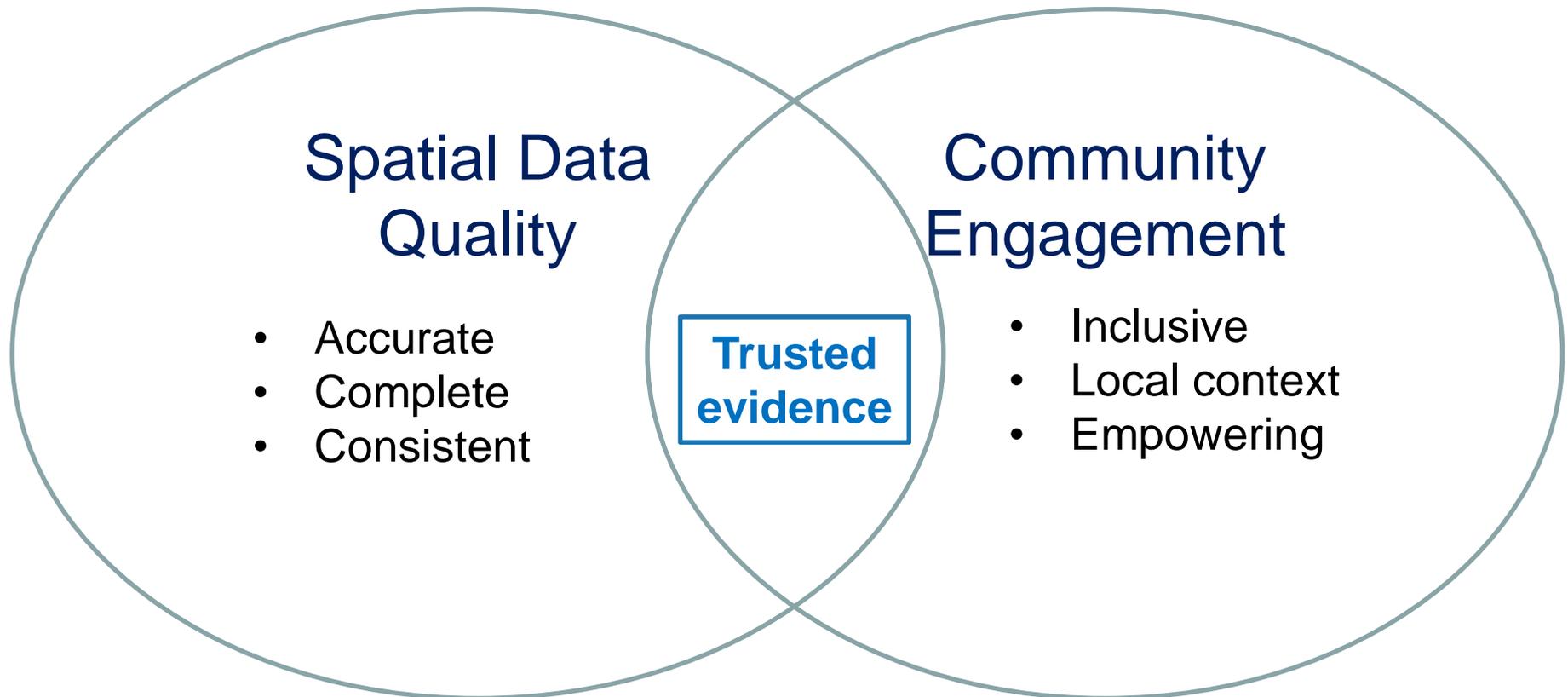

Nigeria mapathon

Research challenge
Involving the wider OSM community

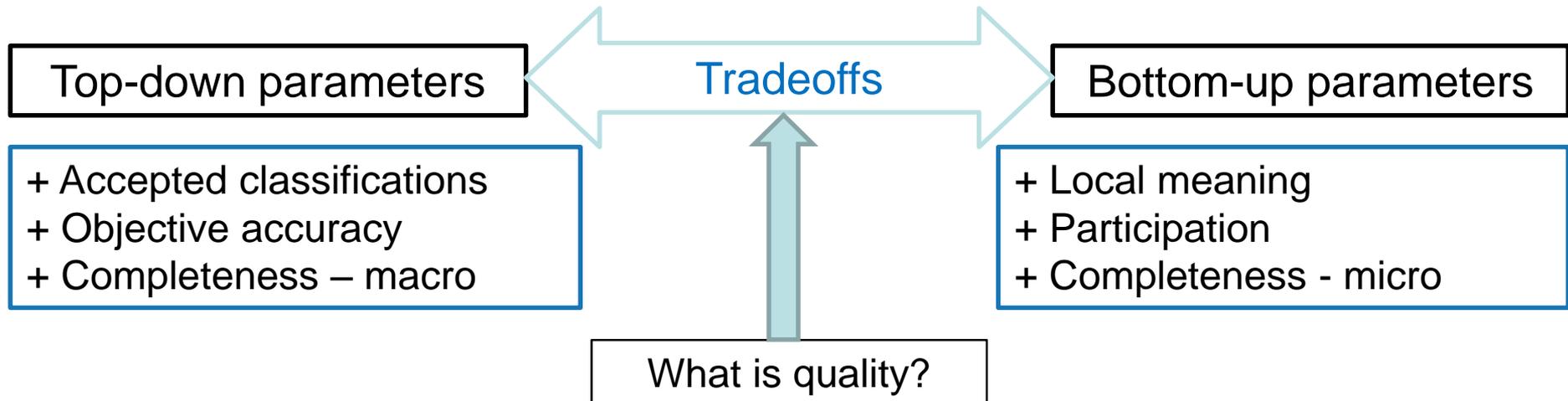- International institutional and volunteer participation and mobilisation

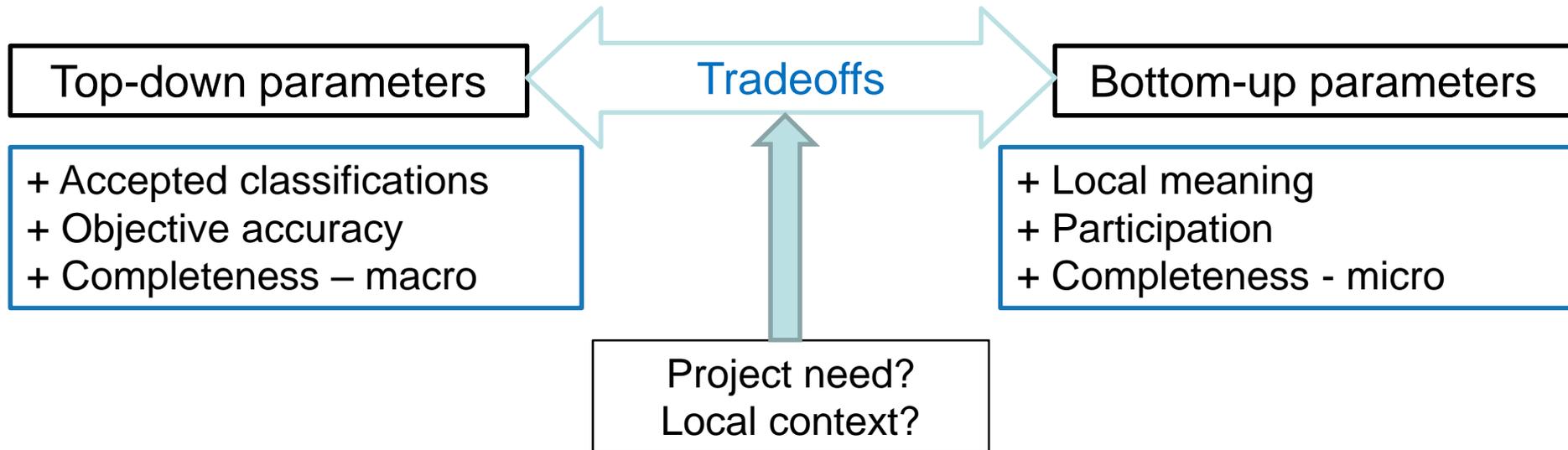The Warwick Resilience Mappers

The research challenge

Spatial Data Quality
- Accurate
- Complete
- Consistent

Trusted evidence

Community Engagement
- Inclusive
- Local context
- Empowering

Discussion
The trade-offs (example of potential parameters)

Top-down parameters	Tradeoffs	Bottom-up parameters

+ Accepted classifications
+ Objective accuracy
+ Completeness – macro

+ Local meaning
+ Participation
+ Completeness - micro

What is quality?

Discussion
The trade-offs (example of potential parameters)

Top-down parameters ⟷ Tradeoffs ⟷ Bottom-up parameters

Top-down parameters

+ Accepted classifications
+ Objective accuracy
+ Completeness – macro

Bottom-up parameters

+ Local meaning
+ Participation
+ Completeness - micro

Project need?
Local context?

Discussion on quality

Examples:

- Quantitative criteria: Completeness / accuracy: recent HOT community discussion, local contextual knowledge?

- Qualitative criteria: community involvement? Inclusion?

- Trade-offs?

Thank you!

– The OSM community, HOT and Missing Maps

– Partners and funders:

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Let's continue the discussion!

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#slummapping

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