

# Group Meeting

## Field Trip Update

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# Contents

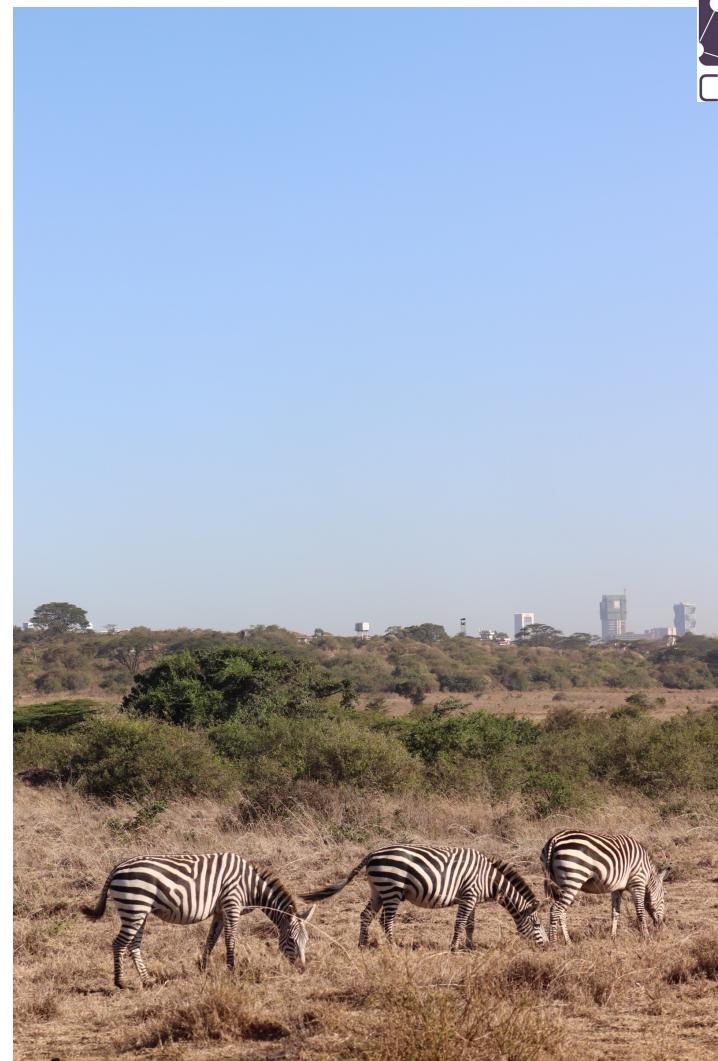
Background

Fieldtrip Plan

Observation

Data Collected

Reflection



# Background - Context

## Flood Risk Assessment

### Exposure Analysis

Building  
Informality

Land Use

Elevation

### Flooding Hazards

Flood  
Intensity

Flood  
Frequency

### Vulnerability Assessment

Information  
Connectivity

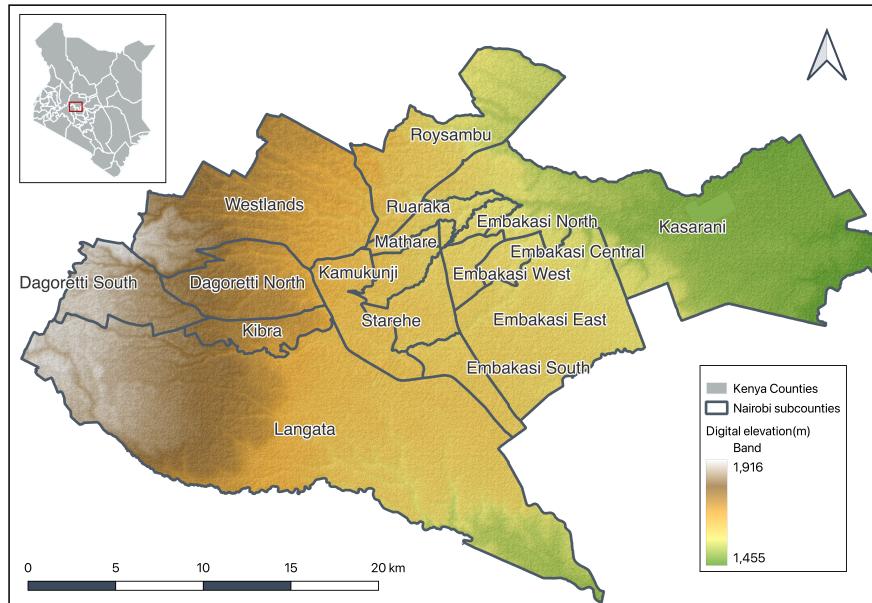
Governance

Health  
System  
Accessibility

Improving  
data  
justice  
with small  
datasets

- Improving Data Justice for Flood Risk Assessment in Nairobi, Kenya

# Background - Case study



Nairobi, Kenya

- Rainy season
  - Long rainy season: April to June
  - Short rainy season: November to mid-December
- Drought season
  - July to October
  - December to March

Fun question:

How many seasons do places near the  
Equator have?

# Fieldtrip design

## Local collaborator: Kounkuey Design Initiative (KDI)

- A community development NGO
- Projects in Nairobi - Slum upgrading:  
internet accessibility, public space, nature-based solutions, drainage installation
- local experts hired



# Fieldtrip spontaneous meetup



## UN-Habitat:

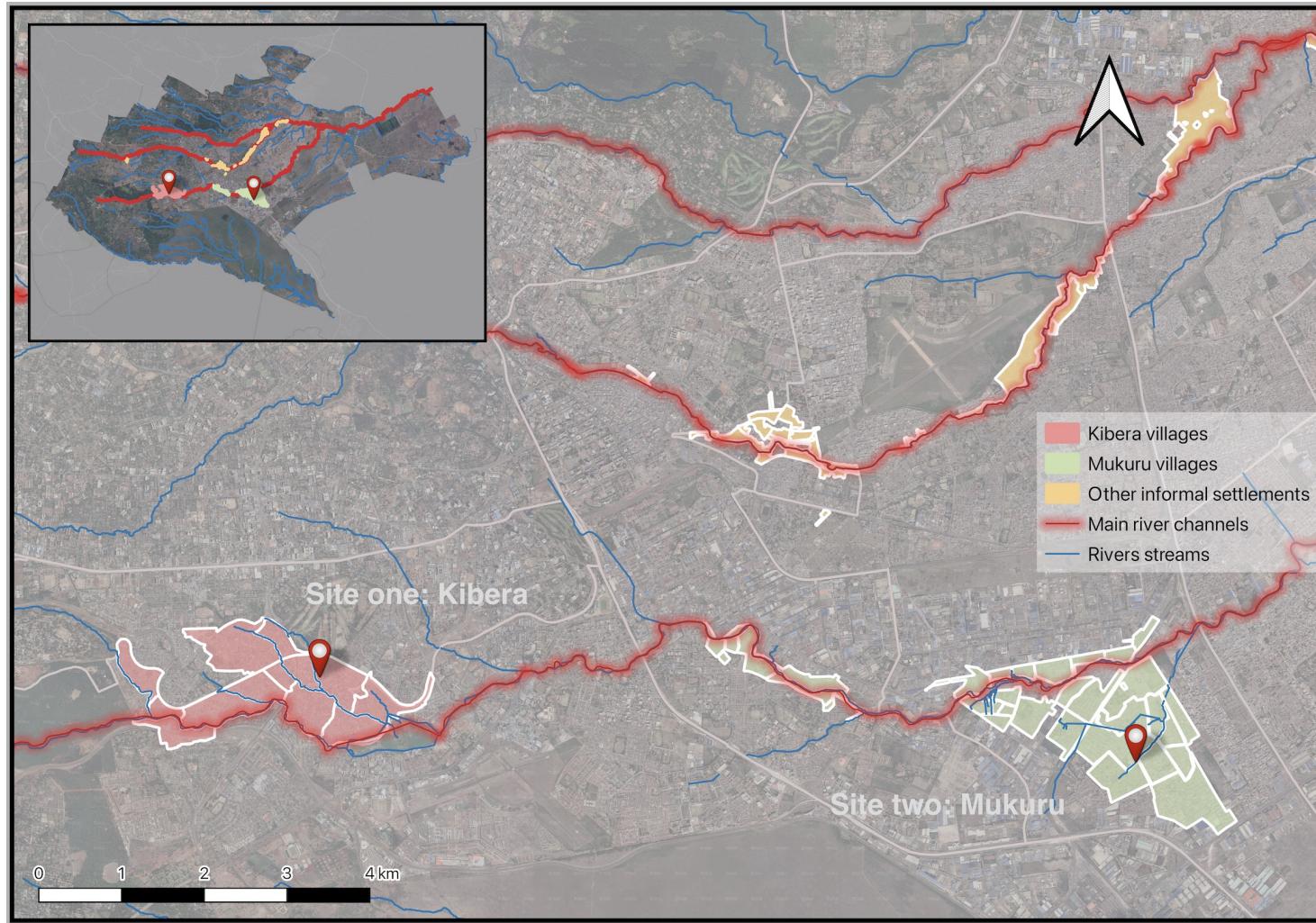
- Nairobi Rivers Basin Rehabilitation and Restoration Program



## Technical University of Kenya

- Participatory flood modelling for negotiation and planning in urban informal settlements

# Observations - 2 Slums location



# Observations - 2 Slums



Kibera

- Largest urban slum in Africa
- River: Ngong River, Nairobi Dam
- Home to approximately 250,000 people across an area of just 2.5 kilometres



Mukuru

- One of the largest slums in Nairobi
- River: Ngong River
- Situated on waste lands in the industrial area

# Observations - Slums == Urban Village

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Africa Slums

Chinese Urban Village

Similarities

Differences



# Observations - Slums characteristics



## Sewage system

- Illegal/Legal ?



## Animals

- can be used for identifying informal area from SVI

# Observations - Slums characteristics



## Commercial activities

- Umbrella can be used for identifying informal trades from SVI

# Observations - Trust transects

## Flood Prevention

- Individual: Clean waste in the drainage, sack bags and soil, dig drainage
- Community: WhatsApp message, Facebook post, Clean waste in the drainage
- NGO: Set flag for information exchange, upgrading projects, Posters
- International Organisation: upgrading projects
- Government: minimal weather prediction (people don't believe)

## Response

- Individual: people move , elevation, steps in front of door
- Community: WhatsApp message, Facebook post,
- NGO: KDI – fundraising and Material support
- International Organisation: red cross
- Government:

# Observations - Trust transects

## Rescue

- Individual: act, phone call
- Community: community level
- NGO:
- International Organisation:
- Government:

## Reduction

- Individual:
- Community:
- NGO: awareness, education workshop
- International Organisation:
- Government: no implementation, corruption, slow, and reluctant

# KDI Projects - Public Space Projects



## Sanitize facility

- Shared space for social activity
- Washing area
- Lower price for clean water
- Flag for flood information dissemination



## Meeting room

- WiFi access
- Meeting room for SMEs
- Sanitize facility

# KDI Projects - Flood Prevention NBS Projects



Gabion

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Drainage

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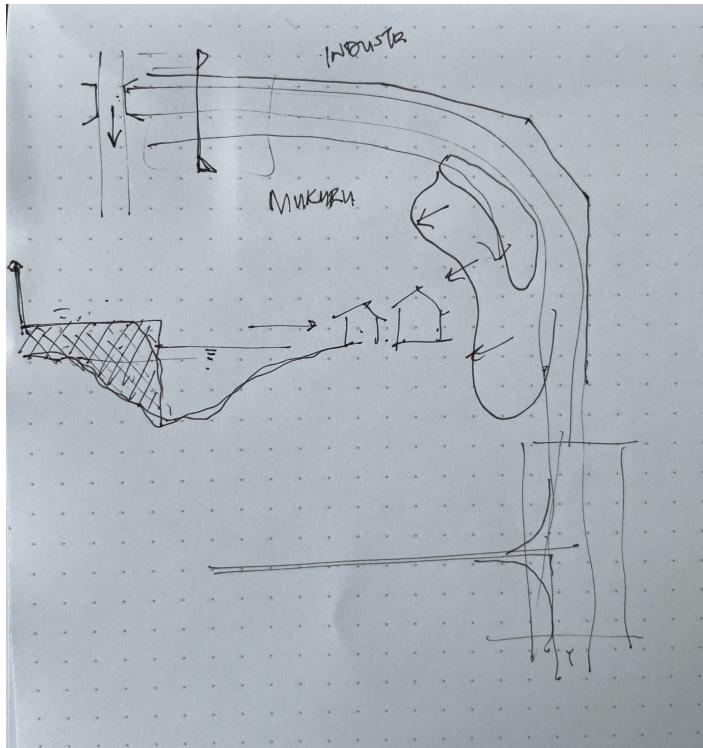
# KDI Projects - School upgrading



## School Upgrading

- refurbishing classroom
- planting
- residents lifting

# Observations - Flooding cause



Public Space Project

Industry

Illegal dumping

Government ignorance

# Reflections

## 1. City, river and informal settlements scale analysis

- City: green space
- River: distance to the river
- Informal settlements: public space
- Generic: elevation, awareness, access to health facility

## 2. Flood identification

- RS: satellite image, drone image
- SVI: damaged building, drainage,
- Social media posts: flood, rain, waste, river traffic, bridge, flag, gabion, cholera
- Hydraulic data: Precipitation, ground water level

## 3. Informal settlements identification

- Open Building/OSM: building footprint

## 4. Flood cause

- Rain flood
- River flood

# Data Collected

- City Raster: Flood Risk, Precipitation, SRTM, Vegetation Cover
- City Vector: Building Footprint, Dumpsites, Informal Settlements, Landuse, River&Channel, Neighborhoods, Parks, Population, Railway, Roads, Schools, Sewer
- River 500m Buffer Vector: Universities, Rural Agriculture, Population, Ongoing Projects, Landuse, informal settlements, Dumpsites etc
- Informal Settlements Raster: Orthomosaic, Flood Extent
- Informal Settlements Vector: TBC



