24th September 2025

UCL

Global Disability Innovation Hub

Inclucity

Inclusive Climate Infrastructure Design Challenge

AT2030

UK International Development

Partnership | Progress | Prosperity

CLIMATE WEEK NYC

CLIMATE GROUP

Today's Agenda

Agenda Item	Duration
Welcome and GDI Hub Introduction	5 mins
Inclusive Climate Infrastructure - Presentation	5 mins
Challenge 1: Inclusive Energy Access	30 mins
Challenge 2: Inclusive Urban Mobility	30 mins
Reflections + Q & A	15 mins
Closing Remarks	5 min

House Keeping:

- Captioning is live and available.
- Please place your questions in the Q & A box.
- This session will be recorded and made available on GDI Hub's YouTube.

About

Global Disability Innovation (GDI) Hub

accelerates ideas into impact for a more just world—for disabled people, and all people.

AT2030, UK International Development-funded flagship programme tests ‘what works’ to improve access to life-changing Assistive Technology (AT) for all.

Inclusive Infrastructure sub programme → recognises that access to Assistive Technology requires an **inclusive and accessible built environment.**

Climate resilience sub programme → recognises that Disability Innovation and Inclusive Design can offer **suitable solutions to tackle climate change.**

Bringing together world leading academic research and practice-led delivery to address global challenges

Building a global picture

Global Disability Innovation Hub

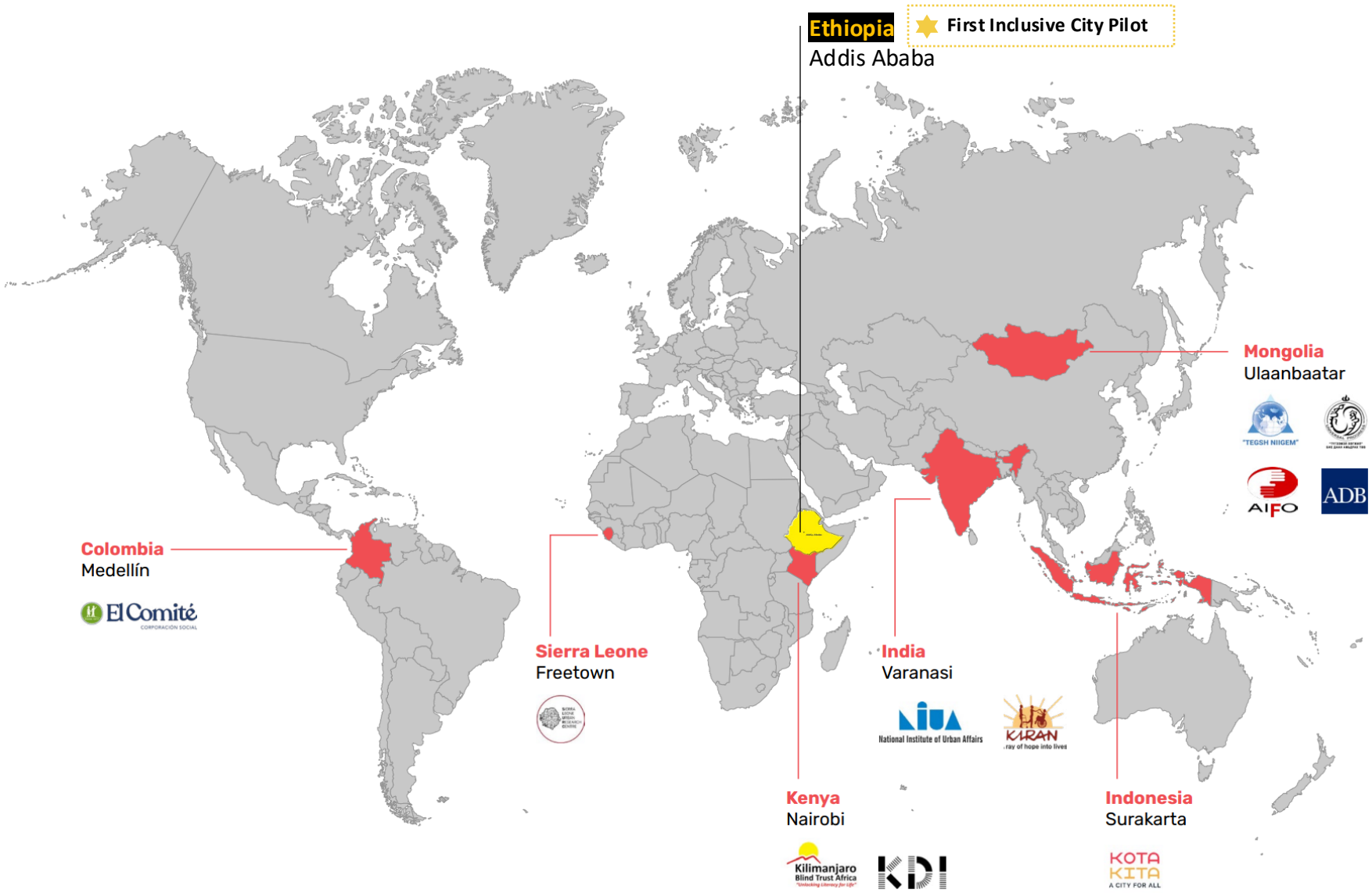
April 2020

6
City Case Studies

1
Comparison Report

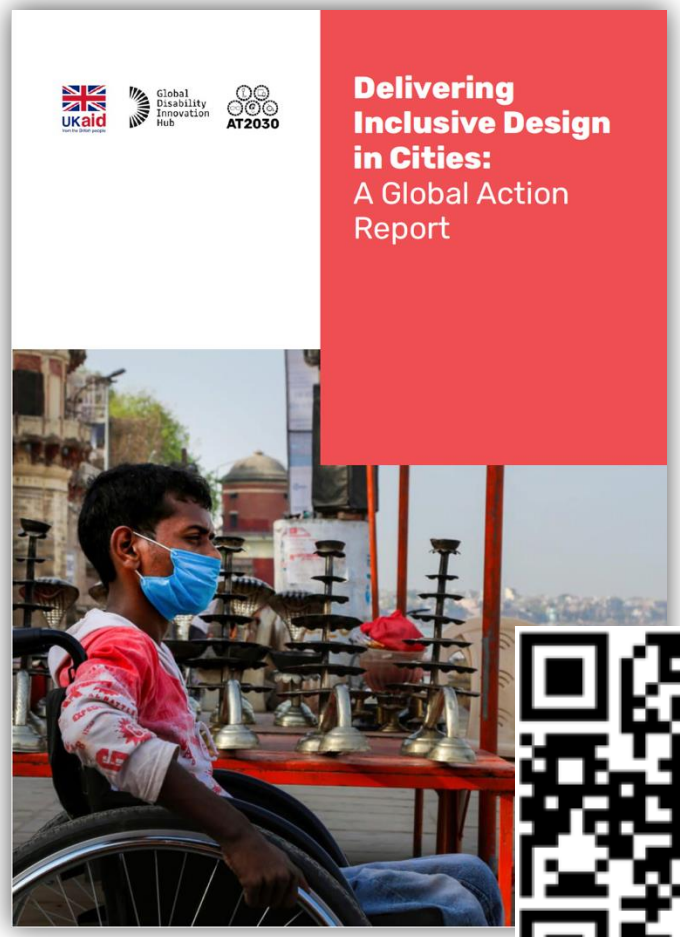
1
Global Action Report

March 2024



What is the Global Action Report?

Aim: To equip cities with practical actions to accelerate accessibility and inclusion in their physical infrastructure, buildings, services, and operations.



What's in the report?

1. Guidance on how to use the report
2. Defining an inclusive city: Who? What? Where?
3. Principles for inclusive cities
4. Action areas
5. Examples and evidence from the research

Inclusive Infrastructure x AT x Climate Change

Disability-inclusive Solutions for the Climate Crisis: Leveraging Urban Infrastructure and Assistive Technology

GDI Hub hosted an in-person roundtable during the **London Climate Action Week** in June 2025, with over **30 contributors**, and explored inclusive approaches to urban climate action through research and innovation.

Key messages:

1. **Embracing lived experience and local knowledge** is key to user-relevant and climate-resilient solutions
2. **Co-creating inclusive solutions** can transform systems and societies
3. **Nurturing a needs-based inclusive innovation ecosystem** to avoid disability dongles

Inclusive Climate Infrastructure Design Challenge

Today's session will explore and operationalize the key messages:

- **Two challenge-setters** joining from Kenya and Mongolia will share their lived experiences and local knowledge
- **Three sector professionals** will steer a solutions-oriented discussion
- Together, we aim to appraise the need for inclusive climate infrastructure and innovation

Presentation

Annamae Muldowney

Inclusive Design Researcher, GDI Hub

Inclusive Climate Infrastructure

WHAT? WHY?

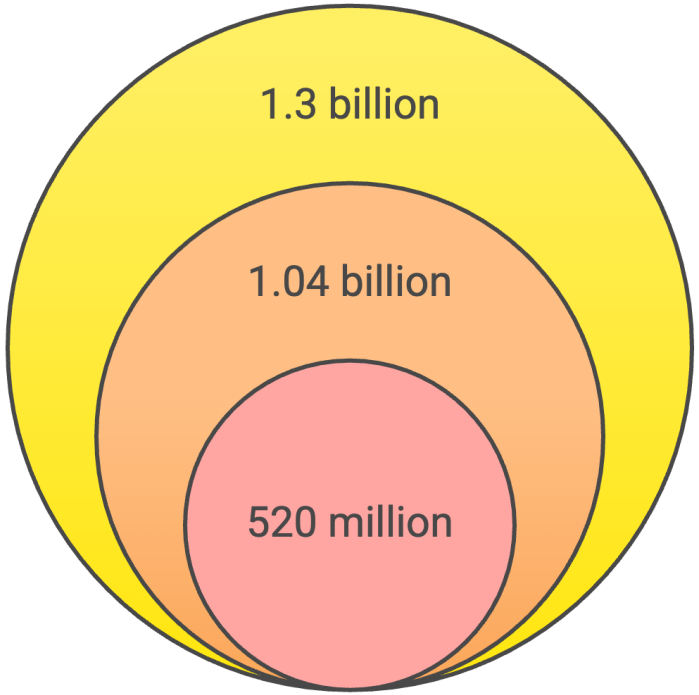
What is Inclusive Climate Infrastructure?

Infrastructure (both physical and service led) **for climate adaptation and resilience,** such as energy, transport, and green/blue systems, **planned, designed, and managed for equal access, use, and benefit of all people including persons with disabilities.** It integrates inclusive design from the outset, anticipating diverse requirements, and is co-created with people with disabilities and other marginalised groups.

Examples:

- **Floodable / Sponge parks** with step-free pathways, tactile wayfinding and accessible shelters.
- **Heat-resilient public spaces** with accessible shaded seating, accessible cooling centres and clear signage.
- **Inclusive transport hubs** designed with persons with disabilities to ensure everyone can access safe evacuation during times of crisis or shock.
- **Inclusive climate communication channels** that include accessible content
- **Inclusive employment** in the management of climate resilient infrastructure maintenance.

Climate Change & Disability: The Global Picture



There are **1.3 billion** persons with disabilities worldwide

80% or **1.04 billion** live in low- and middle-income countries

Of this 1.04 billion, it is estimated that 50% or **520 million** live in cities

Meanwhile Cities..

- Produce **70%** of global emissions
- Are **highly exposed to climate risks** such as heatwaves, flooding, and storms

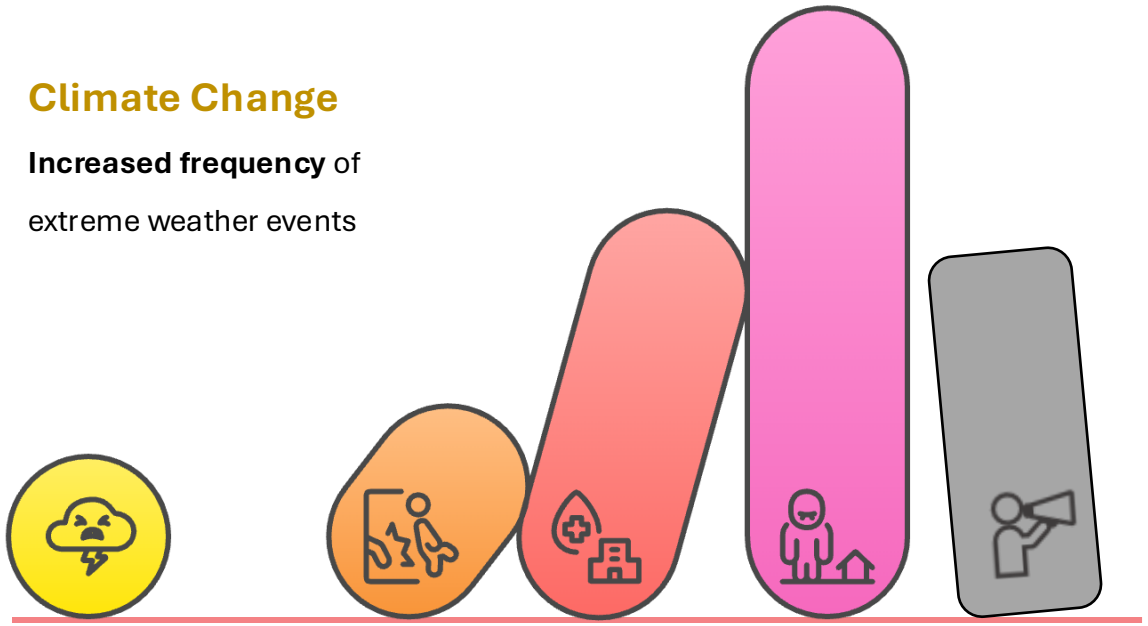
Example: **Bangladesh**

- **One-fourth** population are persons with disabilities
- Country ranks **7th** globally for climate vulnerability

Why Impacts Are Disproportionate?

Climate Change

Increased frequency of extreme weather events



Increased risk of injuries

Persons with disabilities are **twice as likely** to be injured.

Health risks

Power cuts due to extreme weather events **can interrupt healthcare and AT use.** Inclusive access routes to healthcare and medication can be disrupted. Those with pre-existing health conditions are placed at additional risk.

Informal settlements

Due to economic difficulties and lack of inclusive opportunities, persons with disabilities are **more likely to live in informal settlements** in LMICs. These areas are more vulnerable to shocks and find it more difficult to recover due to restricted resources.

Lack of inclusive communication

Without inclusive climate action planning, **communication barriers can lead to confusion,** lack of information, and people left behind during times of crises without evacuation or support.

Evidence from GDI Hub's Inclusive Cities Research

"Persons with disabilities are normally ***excluded when responding to disasters in slum communities,*** *and in actual sense, they are the most vulnerable and most affected persons that need serious attention. Therefore, a lot needs to be done to minimize the exclusion of PWDs in times of disasters because many of them were* ***unable to access relief items*** *in a disaster response."*

- Quote from a resident of Freetown, Sierra Leone

"The drainage and sewer systems are blocked during the rainy seasons and flows over to the houses which is ***a health and mobility risk."***

- Quote from a resident of Nairobi, Kenya

- Persons with disabilities in all 6 cities we studied faced climate-related problems.

- Yet in a review **of 354 infrastructure projects** worldwide that stated disability inclusion as a key aspect, we found **less than 1% of these projects related to climate**.

Key Takeaway:

Inclusion is key to resilience, future-proofing our cities to global challenges such as climate change. We simply cannot create sustainable cities if they are not inclusive!

Call to Action for Today's Design Challenge

Our **Global Action Report** highlights that **inclusive design is key to achieving the UN Sustainable Development Goals**, especially **SDG 11**.

Yet too many climate and infrastructure projects still **overlook persons with disabilities**.

This session aims to **amplify those less-heard voices** and to examine how we can **co-create solutions** so we can **build cities that are liveable, equitable, and climate-resilient for all**.

Panellists for today's session

Asma Jhina

Senior Advisor - Urban Climate Finance and Inclusive Action, GCoM

Shirley Chebet

Design Associate, KDI

Mikaela Patrick

Head of Research and Delivery, GDI Hub

Challenge 1

Inclusive Energy Access

Challenge 1: Inclusive Energy Access – Context

UN SDG 7: Ensure access to affordable, reliable, sustainable, and modern energy for all

- **Target 7.1:** By 2030, ensure universal access to affordable, reliable, and modern energy services.
- **Indicator 7.1.2:** Proportion of population with primary reliance on clean fuels and technology.

People with disabilities have comparatively higher energy needs for accessibility and assistive technology — for wellbeing and hygiene, food preparation, mobility, life support, and communication.

> **"In** the context of climate change, **disability can be a cause and consequence of energy poverty,** as households of people with disabilities in LMICs are commonly larger, poorer, and in rural areas, where they may require more heating or cooling."
>
> ***Opportunities for Disability-Inclusive Energy Access, White Paper (TEA-DSS)***

Challenge 1: Inclusive Energy Access

Tamirkhuu Narangerel,
Ulaanbaatar

Challenge 1: Inclusive Energy Access

Tamirkhuu Narangerel,
Ulaanbaatar

City's Climate context:

- Temperature -28°C to 25°C; Winter lasts for over 3 months with 20-35 coldest days; Flooding in summer is an added risk

What are your energy needs for an everyday life and livelihood?

- Assistive Technology (AT): Electric wheelchair, Electric patient bed, Notebook
- Other appliances and products: Home heating (Sept to May), e-oven, personal car

What are the barriers to access?

- Central heating system is non-existent; prevalent use of solid fuels during winters
- Making fire is a hazard for people with disabilities; pollution and home fire
- Financial barriers for AT access → Wheelchair, bed, and computer would cost USD2000
- Considerable budgeting is required for home heating

Do you recommend any solutions?

- Shifting to electric or other safe/clean energy sources will reduce the conflagration risks

Challenge 1: Inclusive Energy Access | Questions

How can we co-design inclusive clean energy systems, products, and services?

What role can city/local governments play in ensuring disability-inclusive energy access?

What are the opportunities to embed disability inclusion lens within just transition policies, plans, and programmes at the local level?

How can inclusive design thinking enable equitable benefits from just transition?

How can the flow of climate finances be routed to reach the people with disabilities?

Challenge 2

Inclusive Urban Mobility

Challenge 2: Inclusive Urban Mobility – Context

UN SDG 11: Make cities and human settlements inclusive, safe, resilient, and sustainable

- **Target 11.2:** By 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, with **special attention to the needs of** women, children, **persons with disabilities** and older persons.

Inclusive mobility is one of the 16 action areas presented in the 'Inclusive Cities - Global Action Report'.

- **Low emission zones** should consider diverse mobility needs and not penalise persons with disabilities.
- Micromobility and **e-mobility solutions** should be developed in consultation with persons with disabilities.

"Assistive technology devices can help persons with disabilities navigate public transport options. However, things like traffic congestion, unpredictable routes, crowding, and the use of informal stops limit their effectiveness."

Case Study: Inclusive Design and Accessibility of the Built Environment in Nairobi, Kenya

Challenge 2: Inclusive Urban Mobility

Herman Lihanda,
Nairobi

Challenge 2: Inclusive Urban Mobility

Herman Lihanda,
Nairobi

City's Climate context:

- Korogocho, a large informal settlement in Nairobi; located close to Nairobi's largest dumpyard
- Flooding is a raising concern for people with disabilities living in informal settlements

How do you commute? – *influence of infrastructure and climate*

- Dependent on care giver for personal mobility
- Mostly use motorbike; taxi cars would be better but are expensive; Matatu, Nairobi's public transport, is over-crowded and has no assistance for people with disabilities
- Hot summers – dehydration, heat exhaustion; Monsoon – flooded streets, limited shelter

What are the barriers to access?

- Unaffordable and unreliable transport system with poor schedules, causing delays
- Shared mobility service providers are mostly unfriendly
- Poor or absent sidewalks, potholes, broken drainage system, poor signage

Have you adapted to any self-developed solutions?

- I maintain good relationship with my caregiver, adjust travel time to avoid peak hours
- Where possible, use digital apps

Challenge 2: Inclusive Urban Mobility | Questions

What are the biggest challenges in building accessible streets and urban public transport systems?

How can cities integrate the needs of persons with disabilities into conventional transport planning process?

What are the opportunities to simultaneously ensure urban mobility is inclusive and climate-resilient?

How can the momentum for e-mobility be leveraged to create inclusive vehicle design and transport services?

How can disability advocates make an investment case for accessible urban streets?

Audience Q & A

Closing remarks and reflections

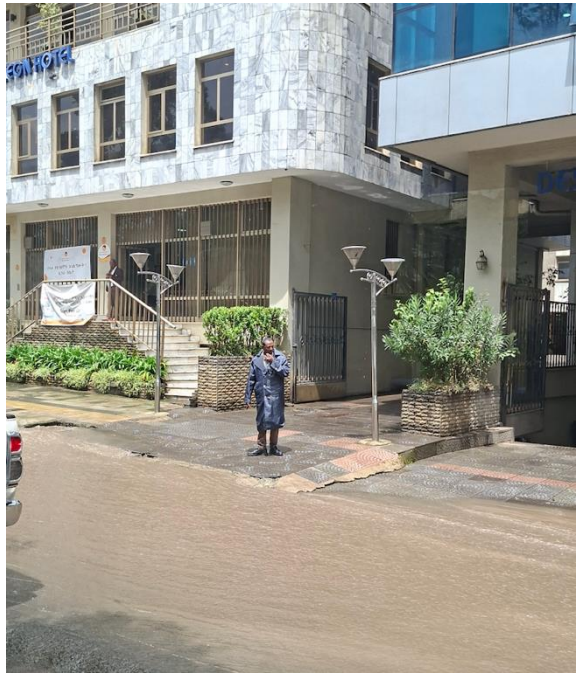
Share one practical measure that can encourage cities to implement disability inclusion and climate resilience in an integrated way.

Call to Action

Our cities are growing rapidly!

By 2050, **68% of us** will live in an urban area.

So, **we must act now,** and ensure this rapid growth is inclusive and sustainable by working together!



As we progress **our pilot project** and **build tools** for inclusive climate resilience, we are currently **on the look out for inclusive climate infrastructure projects,** so if you are working or have worked on a good examples we would love to hear from you!

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UCL Global Disability Innovation Hub

Thank You!