GLOBAL DATA FESTIVAL 2026

Kenya Space Expo & Conference

Population Intelligence Hackathon - From Signals to Population Intelligence

Wednesday, 03 June 2026

11:00-12:30 (EAT)

Room 21

Julia Bunting
Program Director
UNFPA

Dr Priscilla Idele
Chief Data & Analytics Branch
UNFPA

Moderator

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Deputy Regional Director,
East & Southern Africa
IDinsight

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Senior Advisor
Data Analytics & Use
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WHO AFRO

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Dr. Sarchil Qader
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WorldPop

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Program Specialist
Geospatial Analysis
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Julia Bunting

Program Director
(UNFPA)

Opening Keynote: The Data Emergency

Dr Godwin Akpan

Senior Advisor
Data Analysis & Use
(UNFPA)

Sprint Introduction: Inside the PopIntel Build

Acronyms at a glance

Shared language for the PopIntel Hack: from signals to country action.

DATA | PEOPLE | PLACE | ACTION

AI	Artificial Intelligence
API	Application Programming Interface
CRVS	Civil Registration and Vital Statistics
DAB	Data Analytics Branch
DIOS	Demographic Intelligence from Open Sources
EIOS	Epidemic Intelligence from Open Sources
EmONC	Emergency Obstetric and Newborn Care
FGM	Female Genital Mutilation
GBV	Gender-Based Violence
GDF	Global Data Festival
GIS	Geographic Information System
PDI	Population Dynamics Insights
PDP+	Population Data Portal Plus
SRHR	Sexual and Reproductive Health and Rights
TFGBV	Technology-Facilitated Gender-Based Violence
UNFPA	United Nations Population Fund
WHO	World Health Organization

From scattered signals to population intelligence

A 90-minute launch that opens a 4-month build Hackathon for country-usable tools.

This is not another conference session. It is a launchpad for prototypes that countries can validate, trust and scale.

90 min to align

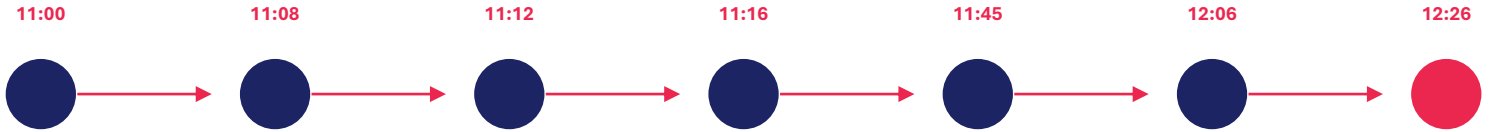
120 days to build

country-ready tools

Pick a mission track → build with mentors → earn a pathway to recognition and scale

The 90 minutes: from inspiration to commitment

Every segment answers one participant question: Why now? What exists? Where do I fit? What happens next?



Data Emergency	Inside the Build	PDP+ Reveal	Intelligence Stack	Track Reveals	Open Forum	Final Charge
Julia sets urgency and shared vision	Roles, tracks and deliverables	Platform as convergence layer	EIOS · DIOS · PDI · WorldPop · Esri	Three mission builds become tangible	Q&A, teams, countries, volunteers	Next steps and sprint entry point

pick a track · join a team · enter the sprint

The intelligence stack: five layers, one decision system

The hackathon connects systems that already exist — then turns them into country-usable intelligence.

EIOS
open-source signals before official statistics

→

DIOS
population stress, SRHR, GBV, displacement signals

→

Google/PDI
context embeddings: movement, services, vulnerability

→

WorldPop
who is exposed, where, at what scale

→

Esri
operational dashboards for planners

→

PDP+
convergence layer for country workflows

Design principle: A signal only matters when it is connected to people, place, programme action and country validation.

Three mission tracks — but one connected build

Each Participant/team produces a working component. Highest value comes when risks can be analysed in the smallest geographies.

Climate Pulse

Climate-demographic risk score: hazard + population exposure + early displacement signals + operational dashboard.

Maternal health risk layers/Harmful practices detection

Connecting SRHR, maternal mortality, GBV, FGM, child marriage, adolescent pregnancy, service access, travel time, displacement and vulnerability data to identify where women and girls face the highest combined risk, and where UNFPA should act first.

Validation Layer

Country validation mechanism: confirm, reject, annotate and localise intersectionality and AI signals into actionable geographies.

"Wow" outcome: when risks coincide across tracks, Surfacing these for countries and UNFPA programmes helps understanding intersectionality and planning for last mile interventions

Register for the Hackathon Here

https://pdp.unfpa.org/Popinthackathon/

Meet the mentors guiding each track.

Wenlan Zhang

PhD Researcher, Geospatial & Population Data Science (CASA, UCL)

University College London

Kennedy Kamande Wangari

AI Researcher | Climate & Tech Policy Strategist

DPGSK

Adnan Yasin

Ambassador

Next Einstein Forum

Mahadia Tunga

Co-founder & Executive Director

Tanzania Data Lab (dLab), University of Dar es Salaam

Kay Kim

Advisor

GIZ GmbH

Mary Angela Adhiambo

Programs Lead

ICON Data and Learning Labs

Henry Kyalo

Data Scientist | AI Researcher

Kenya Red Cross Society

SN

Samuel Nzaramba

Data Scientist

WDL

WHAT PARTICIPANTS NEED TO KNOW

Judged for usability. Recognized for impact. Scaled where countries need it.

Judging will reward what works

Problem fit · technical quality · ethical AI · country usability · scale potential

Awards are more than trophies

Recognition by UNFPA and partners; publication on UNFPA/UN portals where appropriate.

The best work gets a pathway

Country validation, partner visibility, refinement support and scale-up discussion.

brought to you by:

Your next step today: choose a track, join a team, and help build the missing layer between data and action.

The systems already exist. This Hackathon connects them.

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Irma Sirutyte

Program Specialist
Statistics & Monitoring
(UNFPA)

Platform Reveal: PDP+ as the Population Intelligence Layer

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KNBS KENYA NATIONAL BUREAU OF STATISTICS

KSA

Global Partnership for Sustainable Development Data

Register for the Hackathon Here

https://pdp.unfpa.org/Popinthackathon/

Population Data Portal

Indicator viewer | Metadata | Visualizations

Translate | Feedback

Welcome to the **Population Data Portal**

Search by indicator or location

Countries
Explore data by country

Indicators
Browse indicators by domain

Demographic Intelligence
Explore emerging narratives

Intelligence Layer 1: WHO EIOS - Signals Before Statistics

GEORGE SIE WILLIAMS

Public Health Intelligence and Risk Assessment Lead (WHO AFRO)

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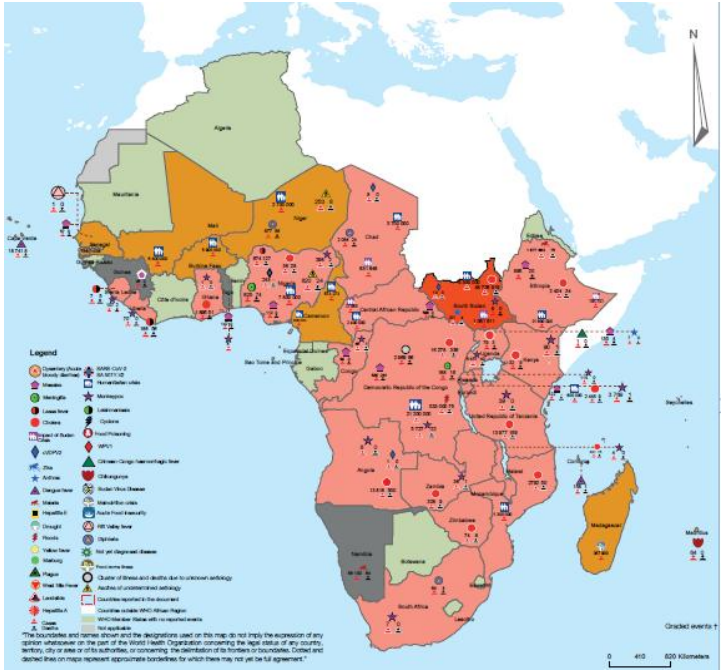
Epidemic Intelligence from Open Sources: Collaborative Intelligence for Protecting Population Health

Burden of public health events in the African Region



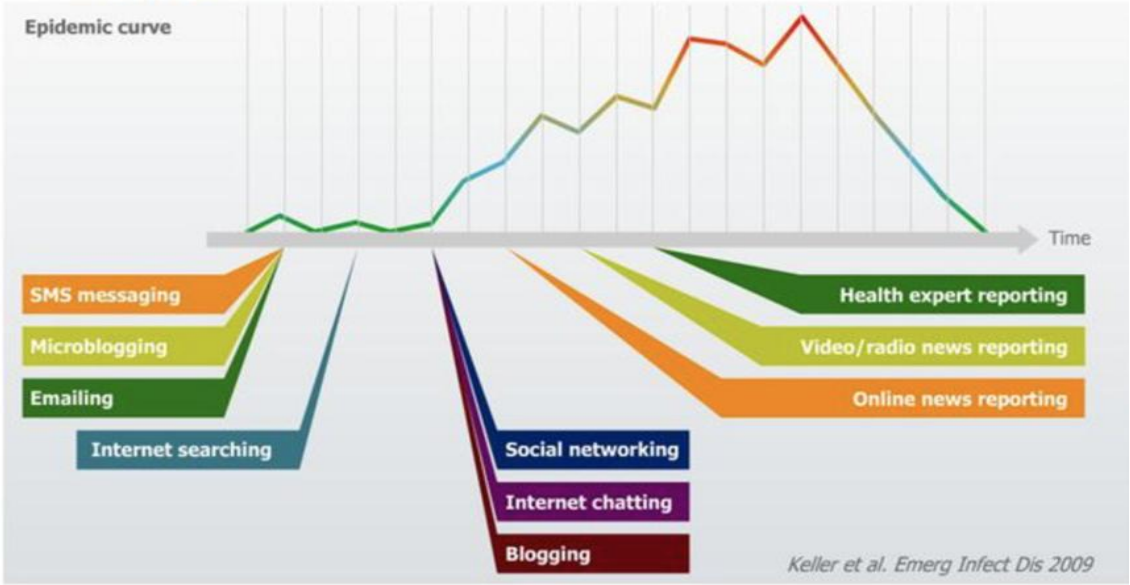
118
ONGOING EVENTS

97
OUTBREAKS

21
HUMANITARIAN CRISES

- THE AFRICAN REGION IS OVERWHELMED WITH CONCURRENT PUBLIC HEALTH EMERGENCIES
- THERE IS A NEED TO MITIGATE THE IMPACT ON POPULATIONS, HEALTH SYSTEMS, AND ECONOMIES

TIMELINESS IS CRITICAL FOR DETECTION AND RESPONSE



⏱️ **Critical information exists across media, communities, social media, government reports, and partner systems.**

👥 **Decision-makers need earlier detection and better situational awareness.**

THE EIOS SYSTEM LEVERAGES AI TO CAPTURE AND PROCESS INFORMATION FROM MULTIPLE SOURCES

Radio TV Newspapers Web news Blogs

Twitter/X, Facebook, Instagram, YouTube GPHIN

Scientific & grey literature Digital platforms ProMED,

Government and official reports HealthMap

Signals

Events

Risk Assessment

EIOS SYSTEM PROCESS

INPUTS
Multiple online sources

SCRAPE & GRAB
Automated collection of publicly available information

DETECT LANGUAGE
Multilingual source recognition

GEOTAGGING & ENTITY RECOGNITION
Automatically identifies key locations and entities in collected information

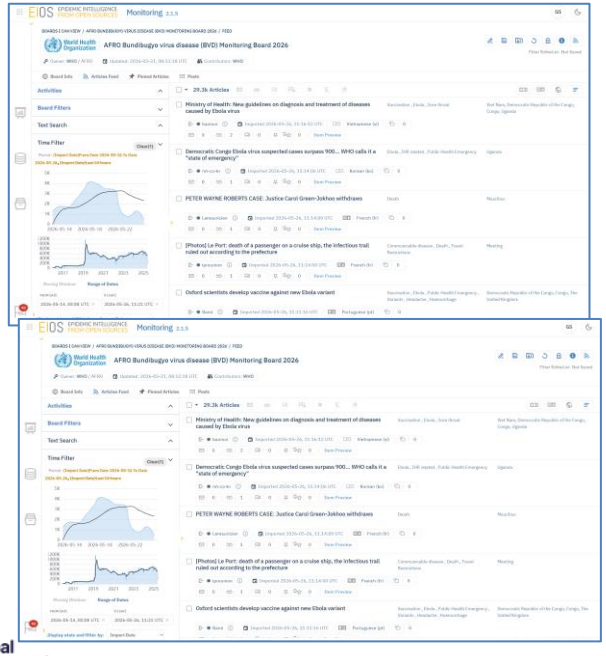
CATEGORISE
Classifies information by topic

DE-DUPLICATE
Groups duplicate reports of the same event

ALERT & FILTER
Filters relevant information and alerts users to potential threats

OUTPUT
Displays collected and processed information on the EIOS board

OUTPUT: EIOS MONITORING BOARD



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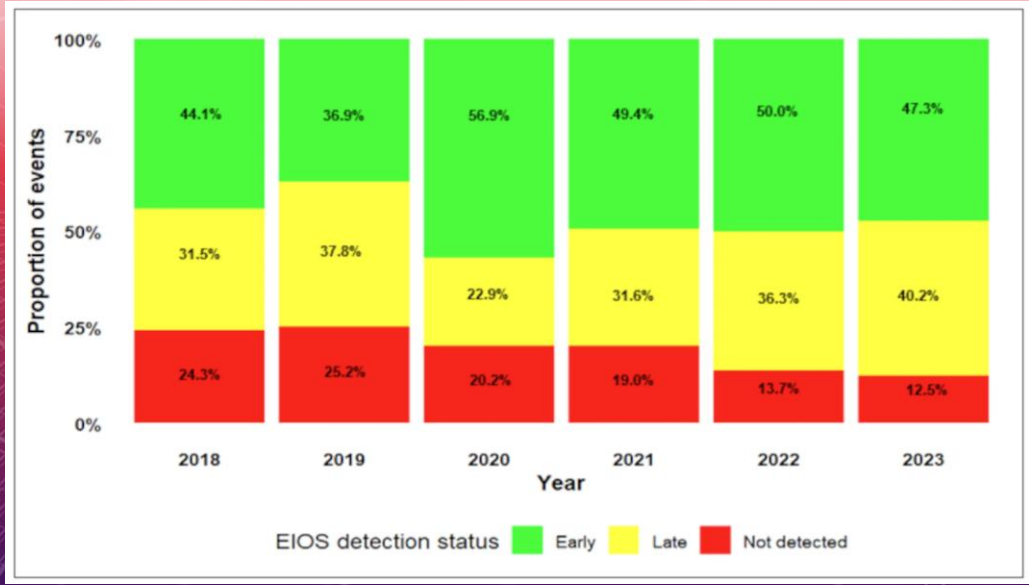
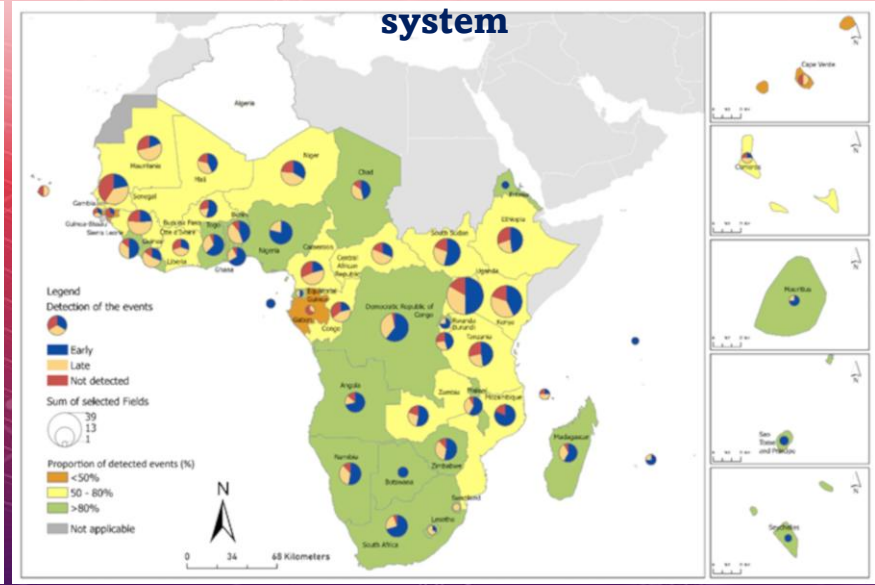
Global Partnership for Sustainable Development Data

EIOS System Performance for Early Detection of Outbreaks and Health Emergencies in the African Region

Events not detected declined from 25.2% in 2019 to 12.5% in 2023; Early detection: 36.9% - 56.95



For 28 countries: More than 80.0% of the public health events detected by the EIOS system



Source: Evaluation of the epidemic intelligence from open sources (EIOS) system for the early detection of outbreaks and health emergencies in the African region, GS Williams et al

Conclusion

- EIOS shows the value of combining AI, open-source information, and human expertise to generate timely public health intelligence.

- The next frontier is an African Collaborative Intelligence Platform that connects epidemic intelligence with population, climate, and geospatial intelligence to support foresight, preparedness, and anticipatory action.

Dr Godwin Akpan

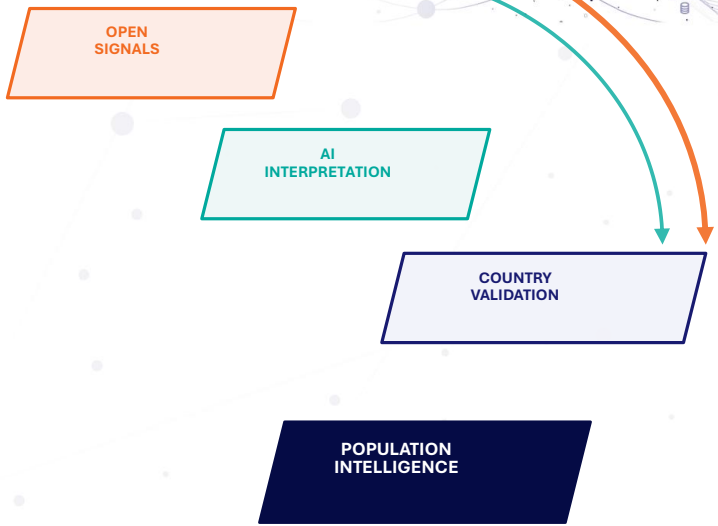
Senior Advisor
Data Analysis & Use
(UNFPA)

Intelligence Layer 2: UNFPA DIOS - Reading Population Stress

Demographic Intelligence from Open Sources

AFTER EIOS: THE POPULATION INTELLIGENCE LAYER

DIOS is a working example of AI for UNFPA: it adds mandate-specific lenses to public event signals, the Global Database of Events, Language, and Tone, and country validation so open-source narratives become useful questions for action.



FGM	maternal mortality	fistula	GBV
child marriage	CRVS	census sentiment	climate + SRHR

Core message **DIOS does not replace official statistics. It makes emerging narratives visible earlier so countries can validate faster.**

EIOS detects. DIOS interprets.

What EIOS brings

Public health event signals from open-source monitoring that point to “something is happening.”

What DIOS adds

UNFPA thematic scrutiny, narrative context, sentiment/severity, country mentions, and AI summaries that explain why a signal may matter.

- Global Database of Events, Language, and Tone
- open news media
- public commentary
- reports + communications

What countries validate

Is it real?
Is it urgent?
Is it useful for programming, advocacy or resource prioritization?

The bridge: open-source signal → AI-assisted interpretation → country validation → programme and policy judgement.

How DIOS works

A methodological pipeline that is transparent enough for policymakers and rigorous enough for analysts.

1 Public sources
EIOS, Global Database of Events, Language, and Tone, news, reports

2 Thematic library
Mandate keywords, local terms, euphemisms, multilingual variants

3 NLP + AI classification
Topic, country, location, sentiment and severity tagging

4 Narrative synthesis
Summaries, key entities, emerging patterns and reasoning

5 Human validation
Country experts review context, bias and programme relevance

6 Official systems
PDP+, GIS, DHIS2, CRVS/census and programme data

Sentiment is context, not automation

Positive	Neutral	Moderate concern	High concern
enabling momentum	background	monitor	validate fast

For a mixed audience: read the flow from left to right. Technical teams can improve the engine; policy and programme teams judge meaning; countries validate use.

One DIOS layer across UNFPA's mandate

A listening layer for the full mandate, connected to statistics and country context.

Sexual and reproductive health and rights — maternal mortality · obstetric fistula · EmONC · contraception · adolescent pregnancy

Gender equality and protection — GBV/IPV/TFGBV · harmful practices · FGM · child marriage · anti-gender backlash

Population data systems — CRVS · census sentiment · fertility · ageing · migration and displacement

Humanitarian and climate intelligence — humanitarian vulnerability · climate and SRHR · service disruption · mobility signals

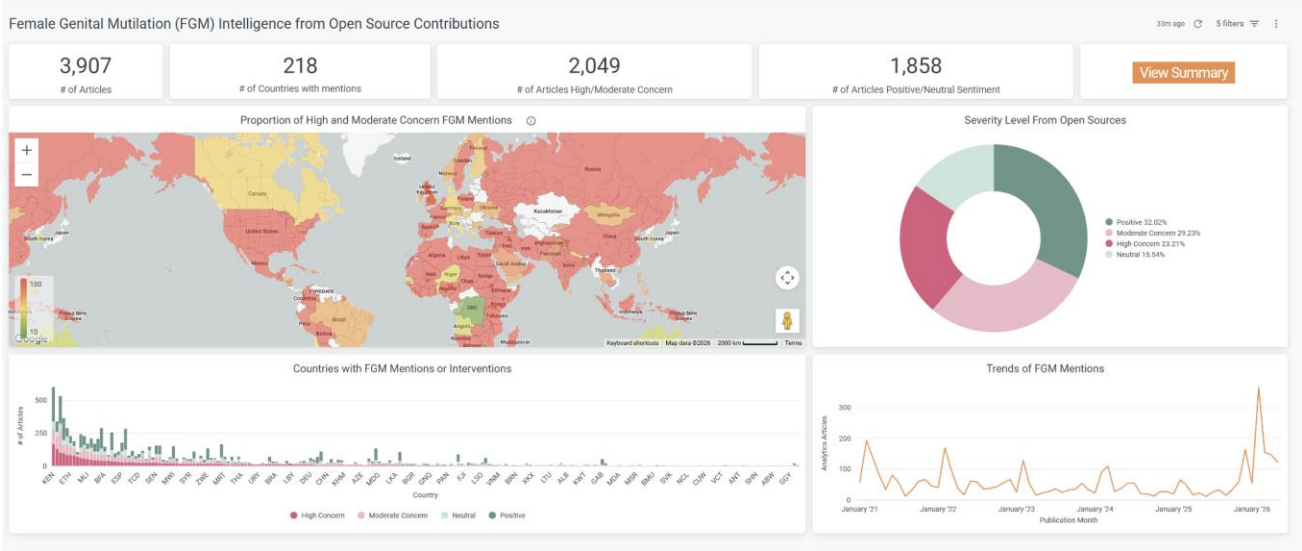
VALIDATE WITH COUNTRIES

Why this matters

DIOS is strongest when it helps countries ask sharper questions: where is public concern rising, what narrative is driving it, and which official data should be checked next?

FGM narrative intelligence from open sources

A dashboard view of what DIOS can surface before official figures are updated.



What the dashboard is saying

Volume — 3,907 public articles give a narrative view, not prevalence.

Spread — 218 country mentions show a global discourse and diaspora dimension.

Urgency — High/moderate concern articles help prioritize validation.

Pattern — Map, trends and severity help users see where to ask better questions.

Read this as a signal map, not a prevalence map. Every hotspot needs country contextualization and validation.

Maternal mortality example: from topic analysis to action

A live scenario showing how DIOS turns 23 open-source articles into validation questions and possible interventions.

23 articles

India, Nigeria, Kenya, Uganda and Benin surface repeatedly with service and system signals.

Narrative clusters

Preventable causes, skilled-care gaps, service inequity, crises and policy barriers.

Validation questions

Is this new? Is it localized? Which data should be checked: EmONC, MPDSR, DHIS2, CRVS?

Action hypotheses

Midwifery/EmONC, referral, contraception, adolescent SRHR, climate-resilient maternal health.

What the narratives reveal

Geographic contrast

Telangana shows a positive model; Kenya and Benin show preventable death and service-gap signals.

System pressure

Post-partum haemorrhage, eclampsia and sepsis appear alongside weak EmONC readiness and referral barriers.

Emerging risks

Conflict, climate shocks, child marriage and anti-gender movements appear as maternal-health risk multipliers.

Country validation is the turning point: DIOS helps frame better questions, not bypass national data or programme judgement.

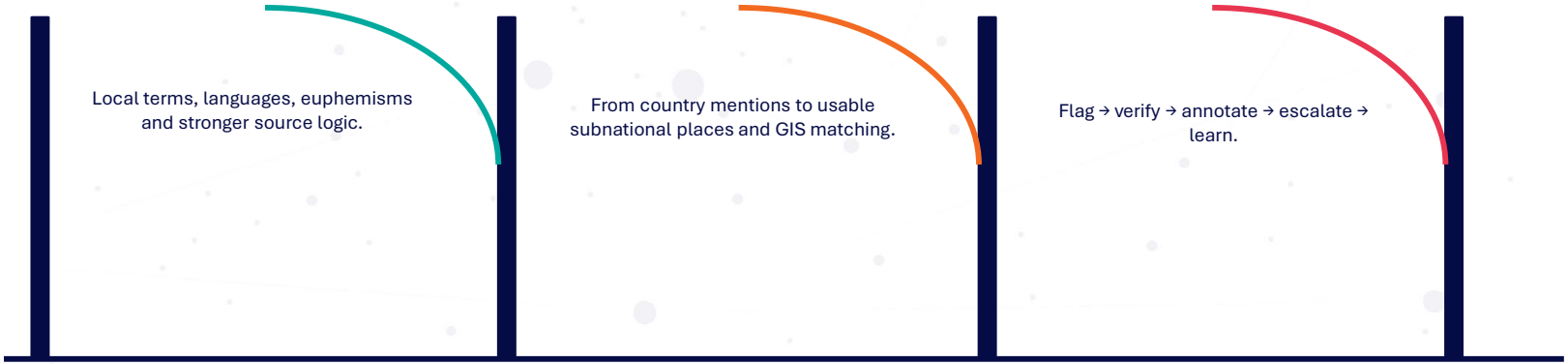
NAIROBI, KENYA
GLOBAL DATA FESTIVAL 2026

Build the bridge between signals and country use

The opportunity is to make DIOS clearer, more trusted and more useful for decision-making.

Do not just improve the dashboard.

Improve the pathway by which public signals become country-owned intelligence.



A shared language for everyone in the room: novices understand the story, policy makers see the decisions, demographers check the assumptions, data scientists improve the model, GIS specialists localize the signal, and AI experts strengthen responsible use.

Tomer Shekel

Group Product Manager
(Google)

Intelligence Layer 3: Google/Population Dynamics Insight(PDI) - The Context Engine

Population Dynamics Foundation Model

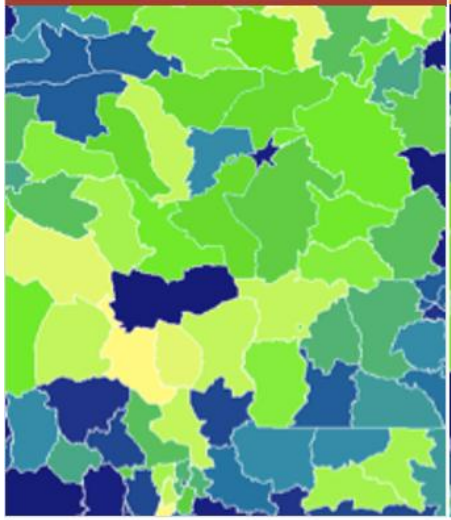
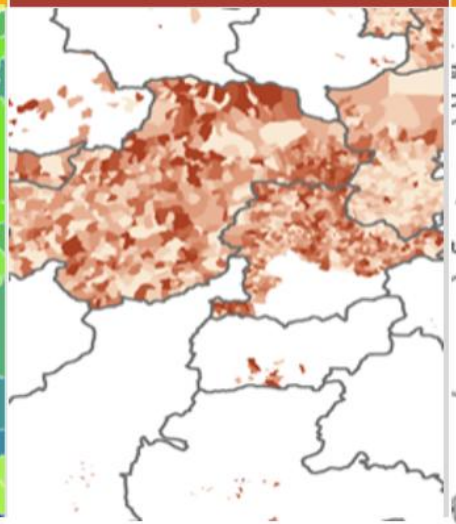
Tomer Shekel
Product Manager

Intelligence Layer 3: Google/Population Dynamics Insight(PDI) - The Context Engine

Dr Sarchil Qader

Senior Researcher
(WorldPop)

Demographic data challenges

Coarse resolution	Outdated	Incomplete	Inaccuracies, missing populations
			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Google


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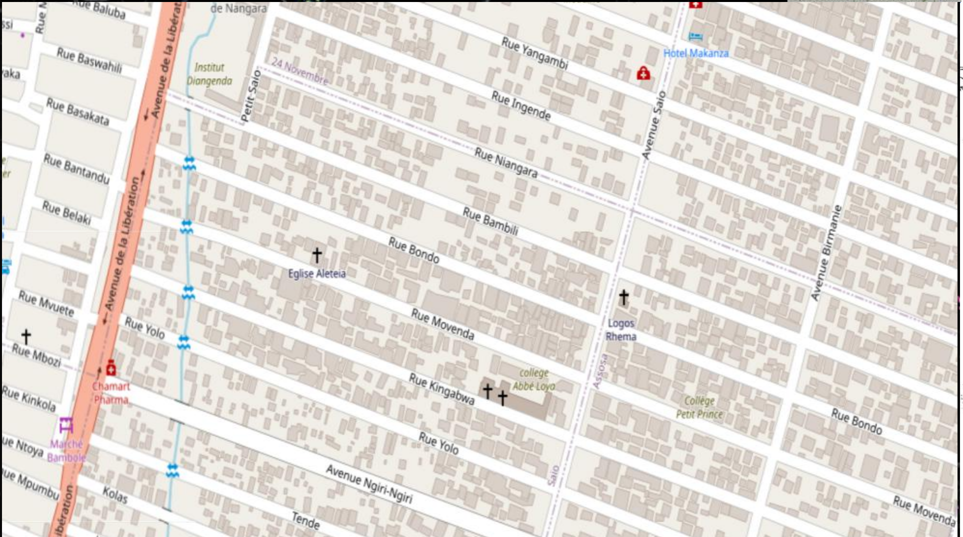
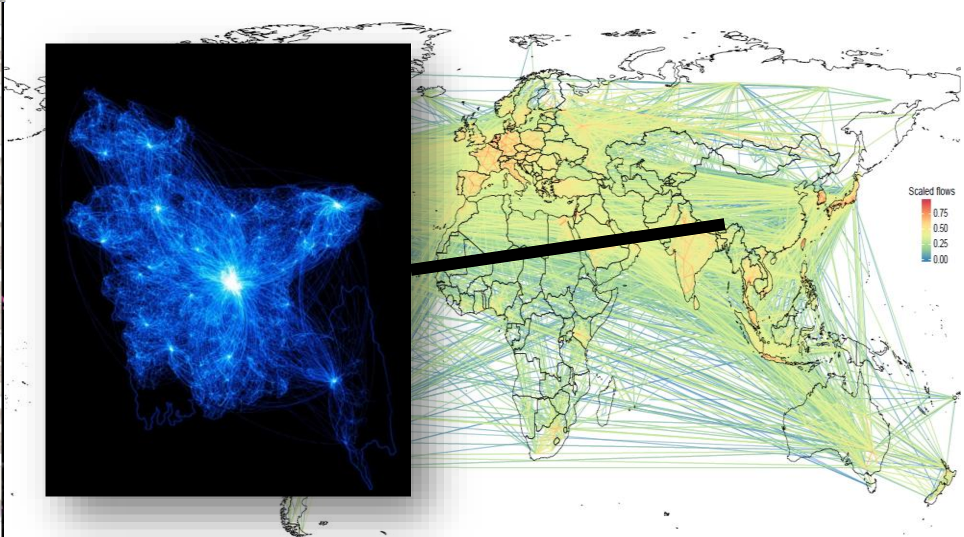

Rue Baluba
de Nangara
Rue Baswahili
Rue Basakata
Rue Bantandu
Rue Belaki
Rue Mvuete
Rue Mbozi
Rue Kinkola
Rue Ntoya
Rue Mpumbu
Avenue de la Libération
Institut Diangenda
Petit Saio
24 Novembre
Rue Yangambi
Hotel Makanza
Rue Ingende
Avenue Saio
Rue Niangara
Rue Bambili
Rue Bondo
Eglise Aleteia
Rue Movenda
Logos Rhema
Rue Yolo
Chamart Pharma
Marché Bambole
Rue Kingabwa
Collège Abbé Loya
Assosa
Collège Petit Prince
Avenue Birmanie
Rue Bondo
Rue Yolo
Avenue Ngiri-Ngiri
Kolas
Tende
Rue Movenda


Scaled flows
0.75
0.50
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0.00

Geospatial Intelligence population estimation approaches

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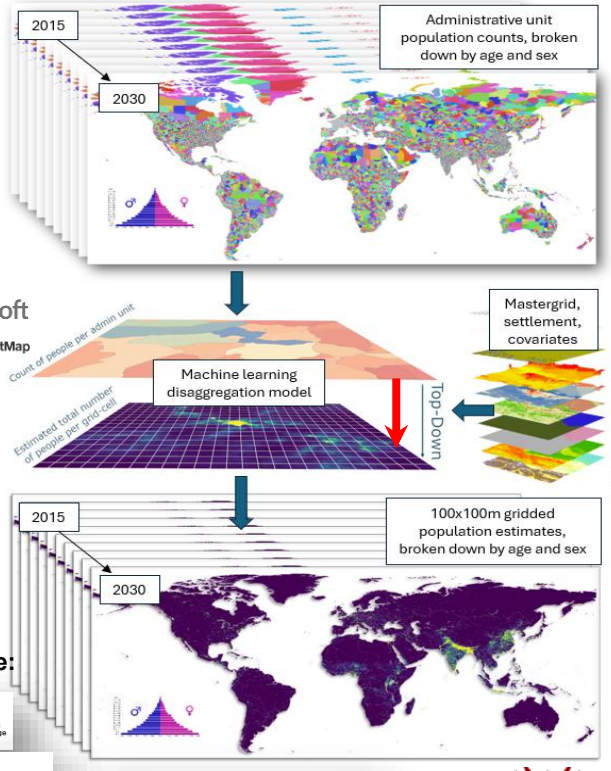
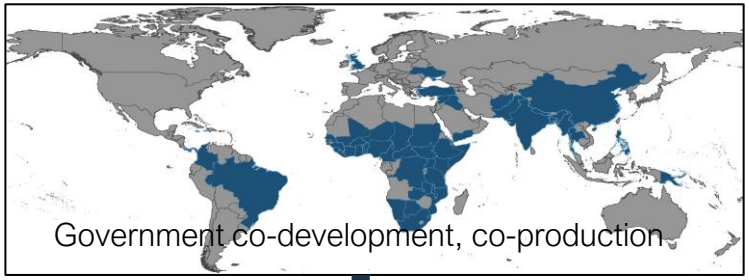
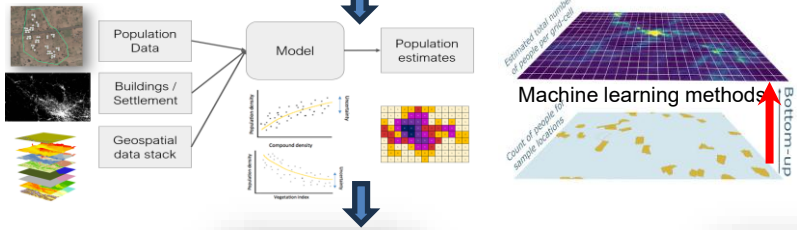
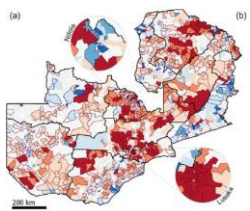
"Top down" modelling approach

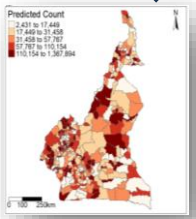


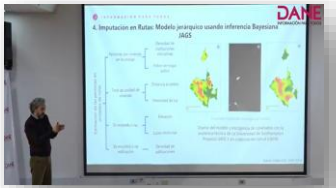
"Bottom-up" modelling approach

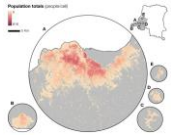


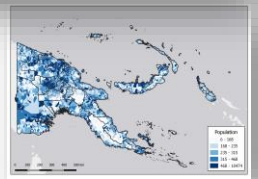












Available:

HDX Humanitarian Data Exchange

Google Earth Engine

ArcGIS Living Atlas of the World

Food and Agriculture Organization of the United Nations — Hand-in-Hand Initiative

UNFPA Population Data Portal

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KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

KSA KENYA SPACE AGENCY *Possibilities beyond our skies*

Global Partnership for Sustainable Development Data

JRC EUROPEAN COMMISSION

Microsoft

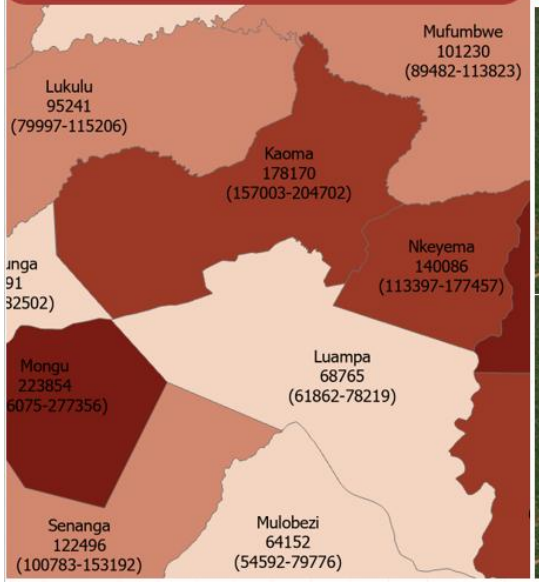
OpenStreetMap

Google Research

DLR

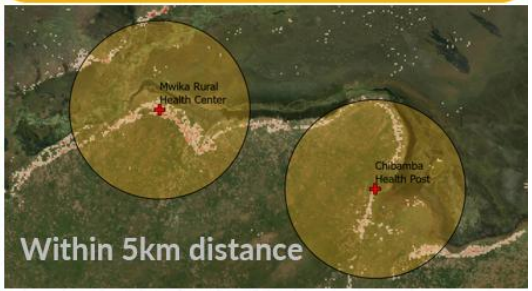
Flexibility in aggregation of population estimates

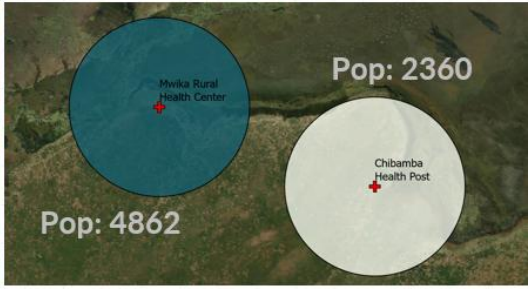
Administrative units / Health units

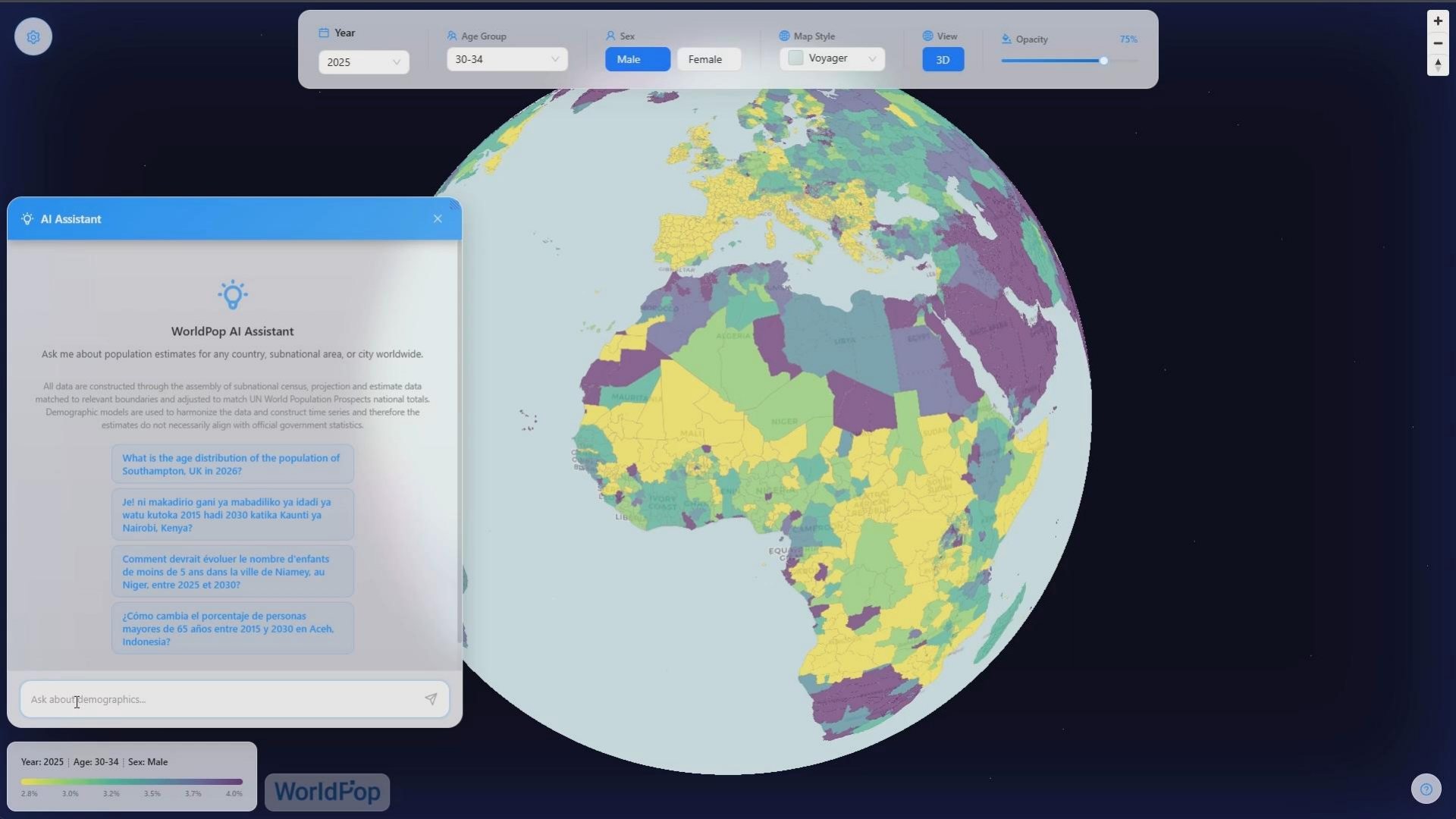


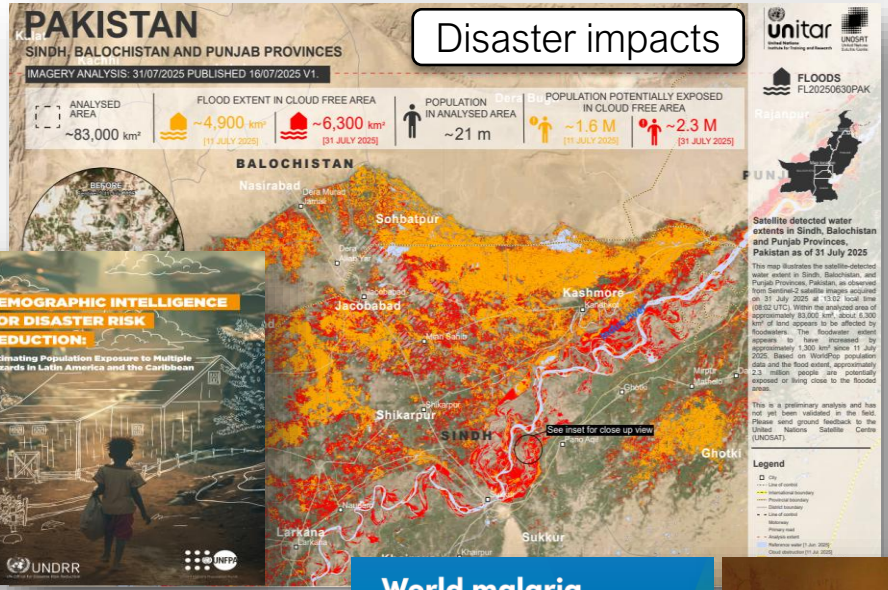
Settlement extents

Custom e.g. specified proximity/distance

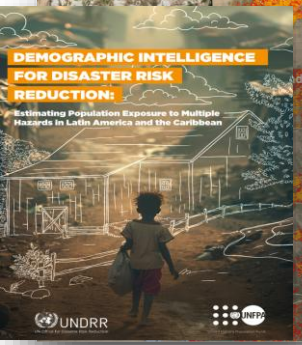


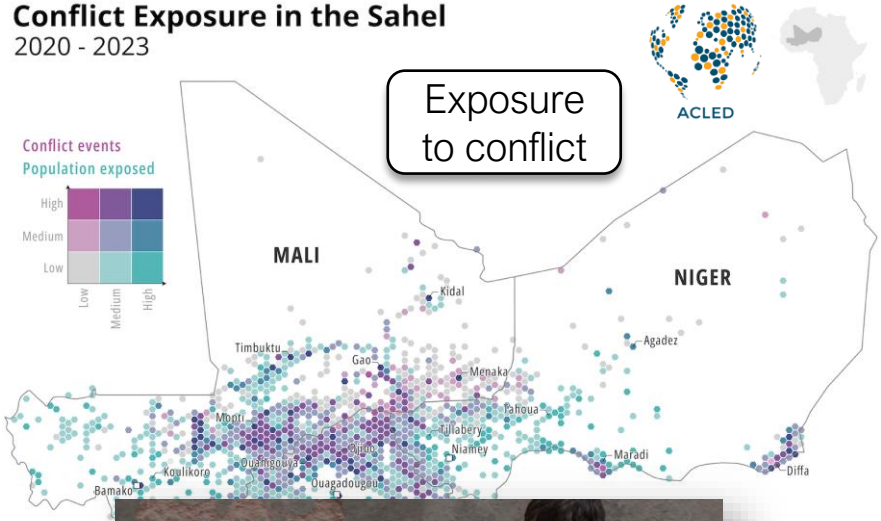



Year
2025
Age Group
30-34
Sex
Male
Female
Map Style
Voyager
View
3D
Opacity
75%
AI Assistant
WorldPop AI Assistant
Ask me about population estimates for any country, subnational area, or city worldwide.
All data are constructed through the assembly of subnational census, projection and estimate data matched to relevant boundaries and adjusted to match UN World Population Prospects national totals. Demographic models are used to harmonize the data and construct time series and therefore the estimates do not necessarily align with official government statistics.
What is the age distribution of the population of Southampton, UK in 2026?
Je! ni makadirio gani ya mabadiliko ya idadi ya watu kutoka 2015 hadi 2030 katika Kaunti ya Nairobi, Kenya?
Comment devrait évoluer le nombre d'enfants de moins de 5 ans dans la ville de Niamey, au Niger, entre 2025 et 2030?
¿Cómo cambia el porcentaje de personas mayores de 65 años entre 2015 y 2030 en Aceh, Indonesia?
Ask about demographics...
Year: 2025 | Age: 30-34 | Sex: Male
2.8% 3.0% 3.2% 3.5% 3.7% 4.0%
WorldPop



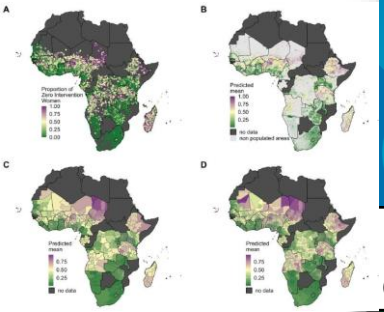
Disaster impacts



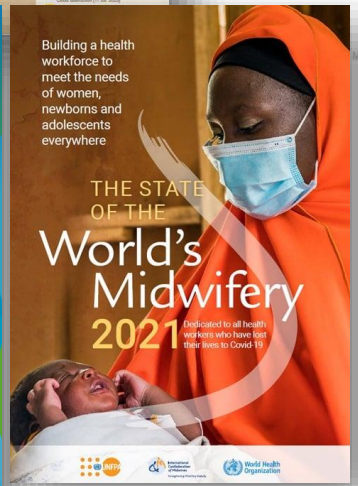


Exposure to conflict

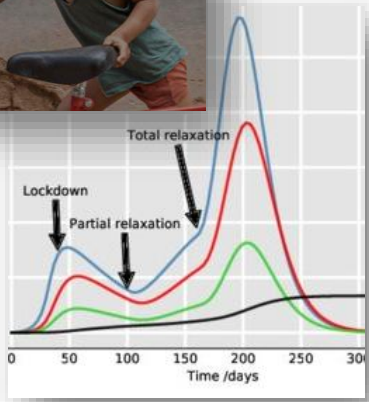
Zero MNH"
63 million women are at risk in 34 countries



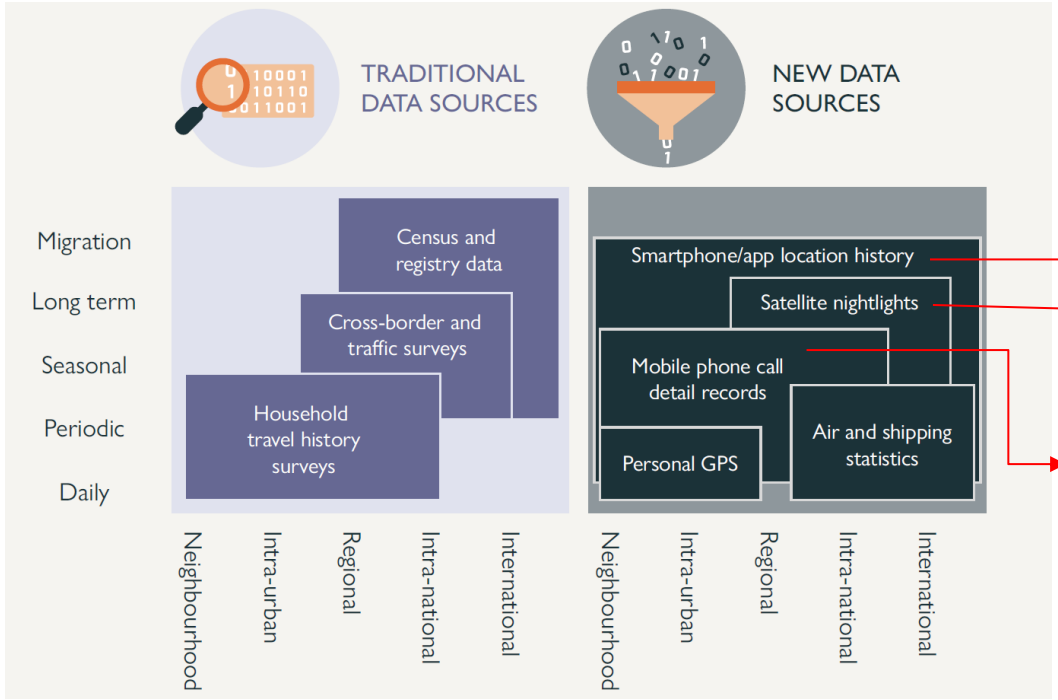
Health metric denominator s

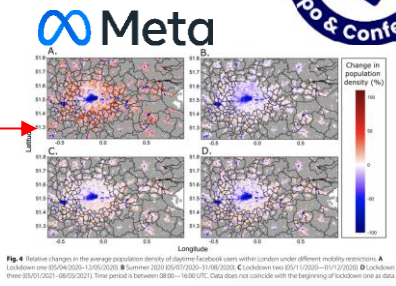


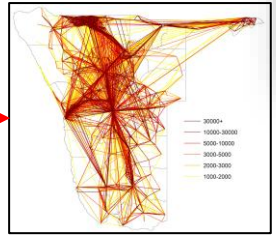
Disease control strategies

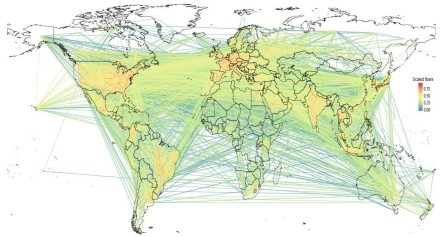


Data sources for measuring population mobility and dynamics









GPS

Wi-Fi

Bluetooth

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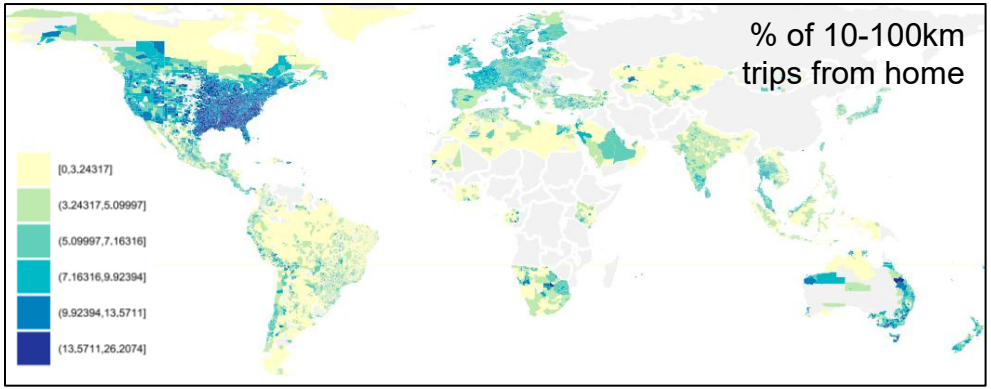
KNBS KENYA NATIONAL BUREAU OF STATISTICS Keeping you informed

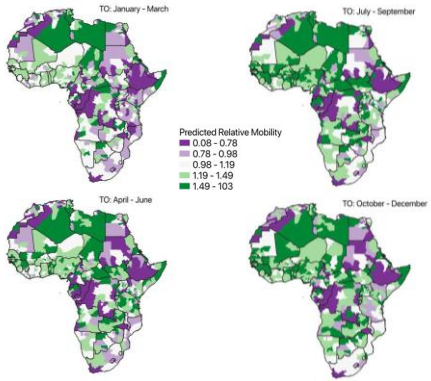
KSA KENYA SPACE AGENCY Possibilities beyond our skies

Global Partnership for Sustainable Development Data

Assessing unequal heatwave impacts and adaptation across populations using mobility data as a proxy

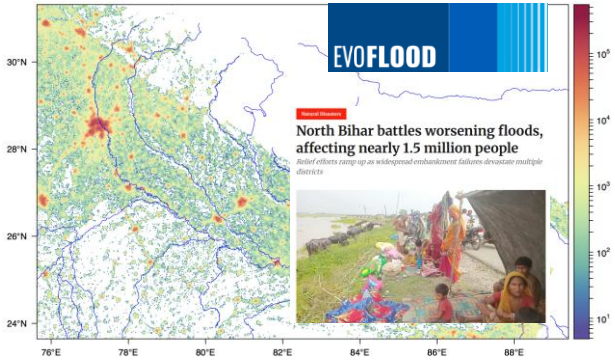


Model seasonal relative mobility at level-1

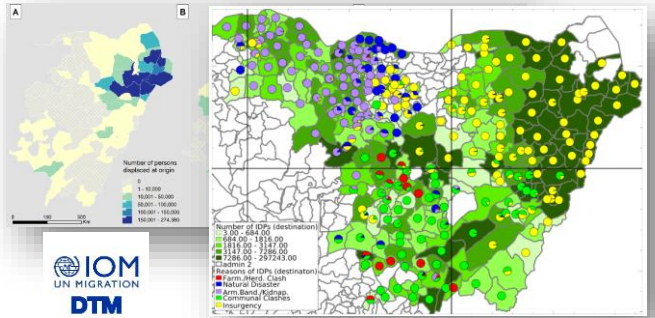


Incoming flows: purple (low) ; green (high)

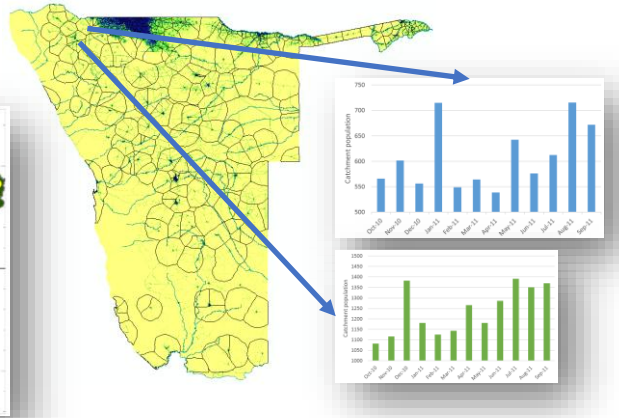
Mapping population displacement during floods/monsoon



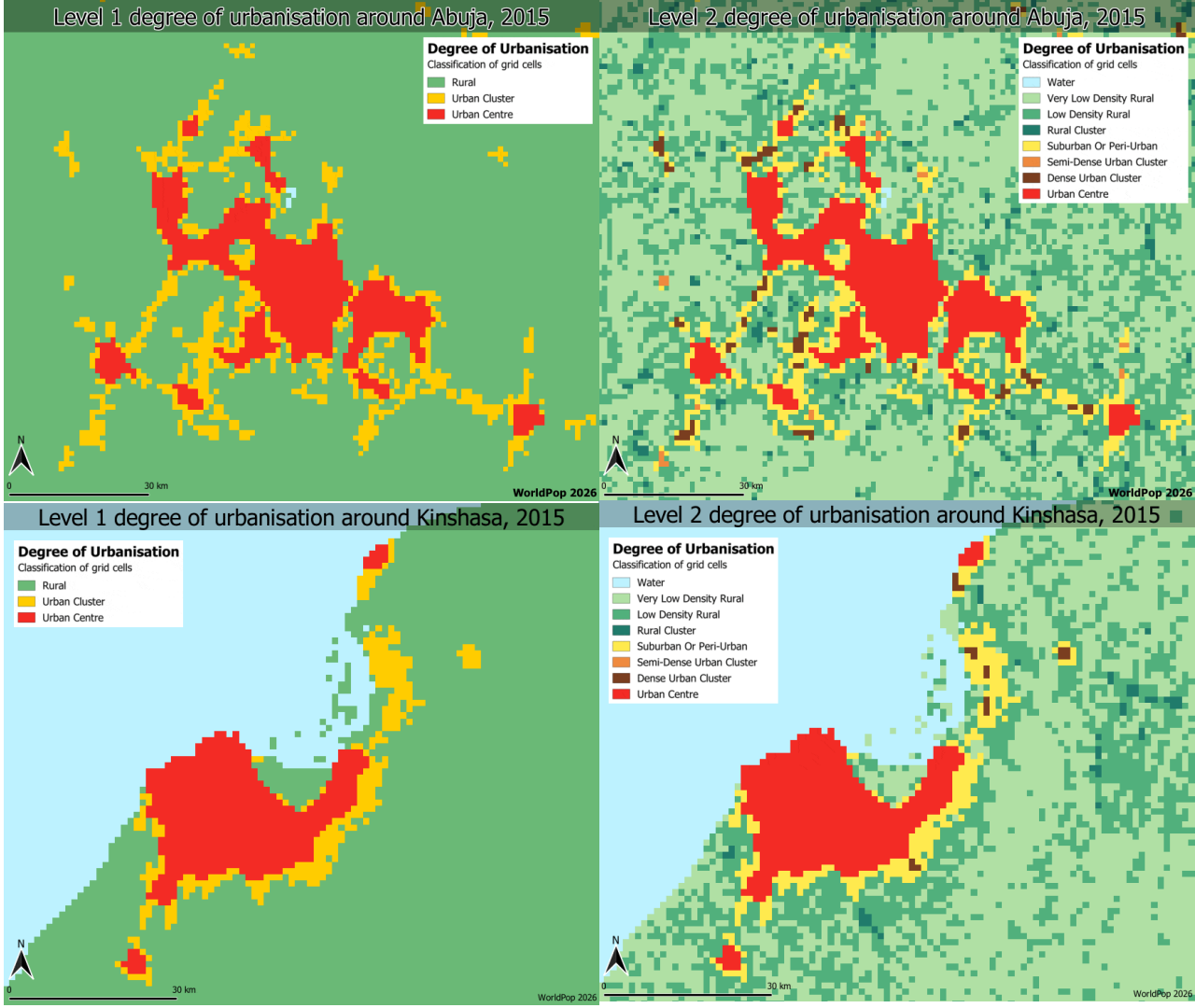
Mapping mobile population groups



Dynamic health facility catchment populations



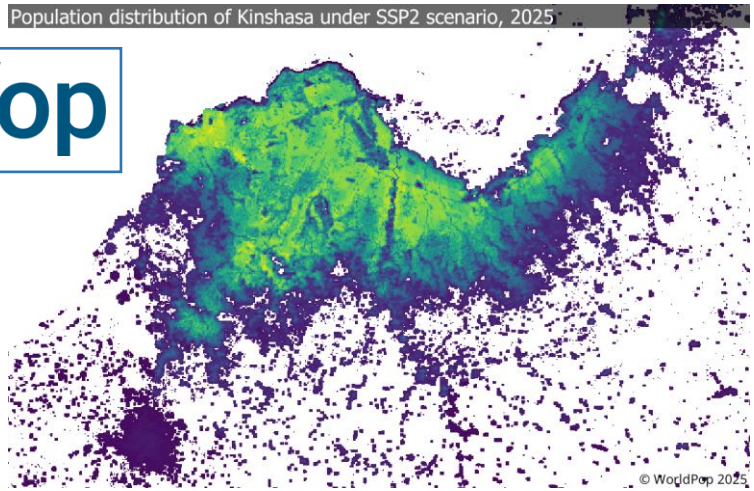
WorldPop Global2 Degree of Urbanisation implementation

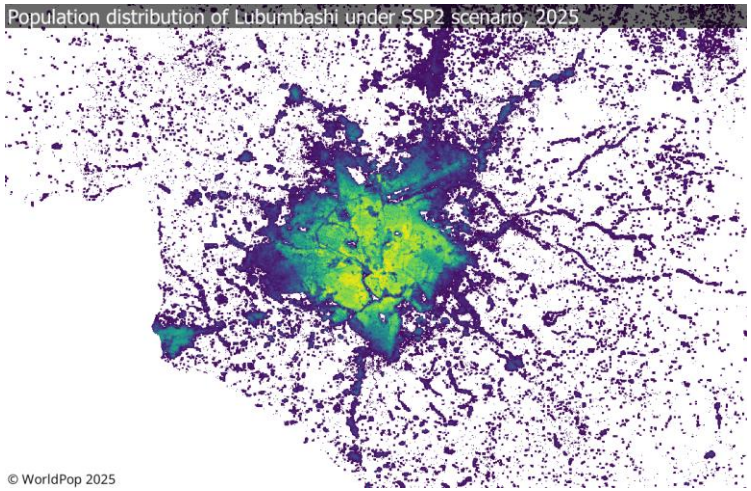


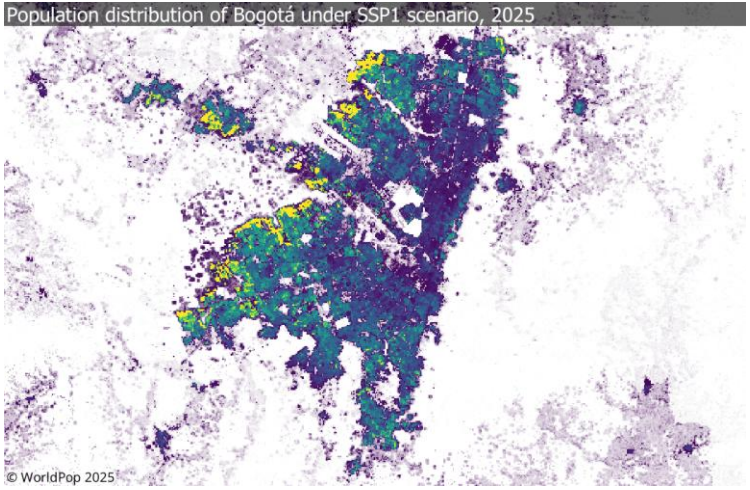
https://hub.worldpop.org/geodata/listing?id=146

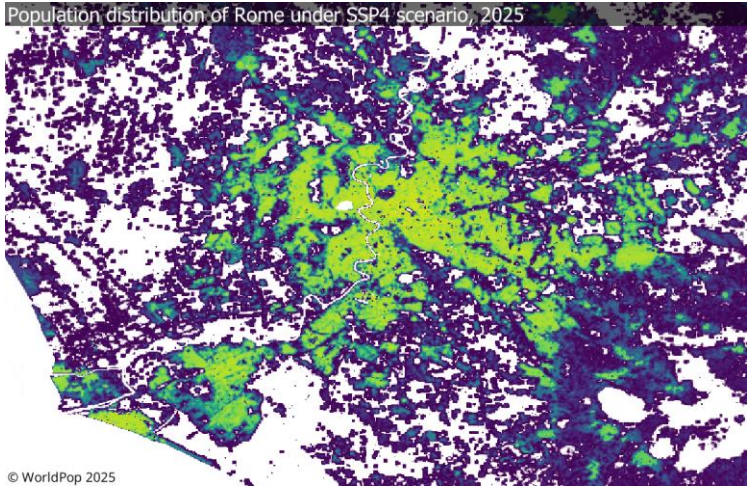
FuturePop

SSP scenario 1km datasets 2025-2100, harmonised with WorldPop Global2









University of Southampton

University of BRISTOL

wellcome

V0.2 datasets: https://hub.worldpop.org/project/categories?id=21

Key messages

- Question all population data!
- Geospatial modelling approaches are not a replacement for traditional enumeration, but can be complementary
- The wide variety of needs, data and changing situations mean that one-size-fits-all approaches are typically not the most appropriate – a toolbox is needed
- Many uncertainties and challenges remain – quantifying and communicating uncertainties and limitations is important
- Local ownership and co-development are vital for developing trust and seeing outputs used

GLOBAL DATA FESTIVAL 2026

Lorien Innes

Senior Business & Sustainable Development Manager (Esri)

Intelligence Layer 4: WorldPop - From Signals to People

Kenya Space Expo & Conference

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Global Partnership for Sustainable Development Data

POPINTEL HACK

Digital Innovation for People & Climate

from data to decisions

Lorien Innes, Senior Business & Sustainable Development Manager Africa

linnes@esri.com

esri

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into Organizations
. . . Everywhere

Advancing GIS
& The Science Of Where

Supporting Our
User Community

Promoting Spatial Literacy

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Recently added & On The Horizon

European Commission's Joint Research Centre
✓ Global Surface Water
✓ Global Forest

Confluvio
Americas HydroSheds 2.0

✓ **Purdue University**
Global Wet Bulb Globe Temperature Projections

Clark University
Future Landcover Change Tutorials for Remote Sensing

✓ **World Resource Institute**
Aqueduct 4.0 Global Water Risk

National Geographic
World Water Map Policy Explorer

University of Southampton
World Pop. estimates in analysis-optimized layers

Group on Earth Observations
Global Synthesis Ecosystems Atlas

Global Biodiversity Information Framework - GBIF
Global Species Map

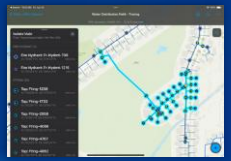
✓ Recen
tly

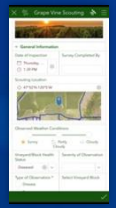
ArcGIS includes Many Apps

Supporting All Types of Users

Earth

Field Maps

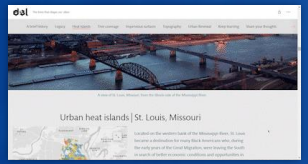


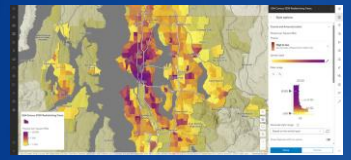


Survey123

QuickCapture

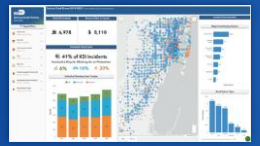
StoryMaps



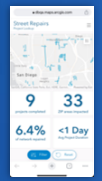


Map Viewer

Dashboards



Instant Apps



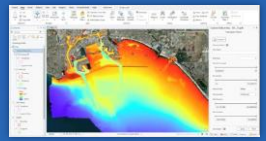
Experience Builder

Infographics

Atlas

Scene Viewer

Business Analyst



Pro

Web

Mobile

Desktop

Instant Apps

Transform Web Maps into Apps

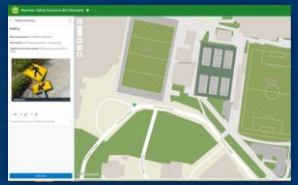
Templates

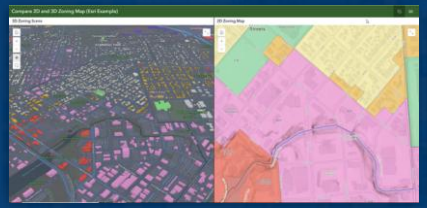
- 3D Viewer
- **Atlas**
- Attachment Viewer
- **Basic (Media Map)**
- Category Gallery
- Chart Viewer
- **Compare**
- Countdown
- Exhibit
- Imagery Viewer
- Insets
- Interactive Legend
- Manager
- **Nearby**
- Observer
- **Portfolio**
- Public Notification
- **Reporter**
- **Sidebar**
- Slider
- Zone Lookup

Easy to Configure and Use

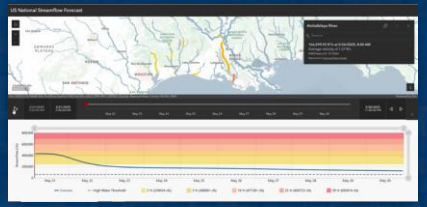
Observer

Reporter





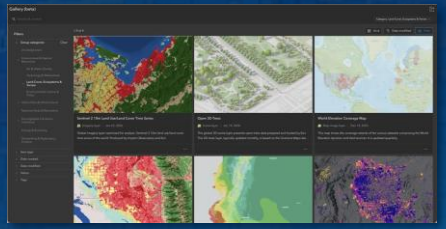
Compare



Streamflow Viewer

Now Supports Creating Multilingual Apps

Atlas



Gallery

Supporting Accessible Apps

New Templates

- **Gallery**
- **Web Editor**
- **Compare**
- **Reporter**
- Streamflow Viewer

Instantly creating web apps . . .

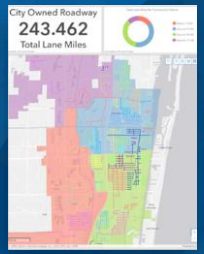
Dashboards

Visualizing Relevant & Timely Information

New & Improved

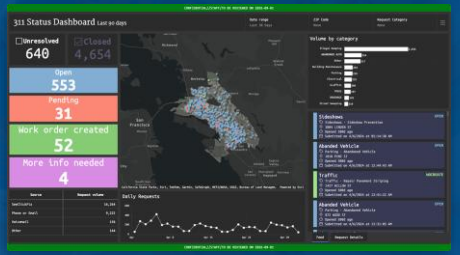
- **Update or Replace Data Sources**
- **Date Selector Slider**
- **Item Classification (Enterprise)**
- Theming & Styling
- Date Type Fields Support
- Dual-Axis Charts
- Element Headers

Monitor Status



Visualize Trends

Manage Performance



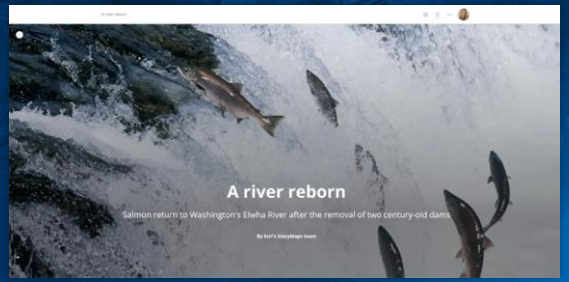
Item Classification

Easy to Configure & Embed

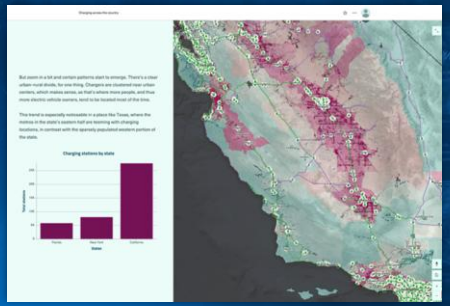
Creating an operational view

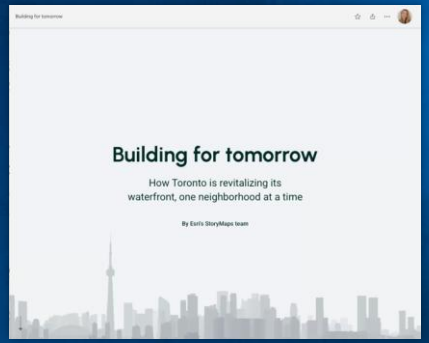
StoryMaps Enabling Geospatial Storytelling

Put Maps at the Center of Your Story

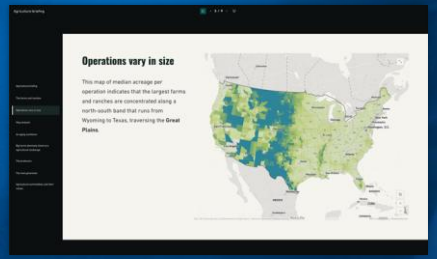


Data Visualization with Charts

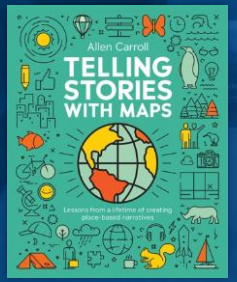




Map Interactivity



Briefings

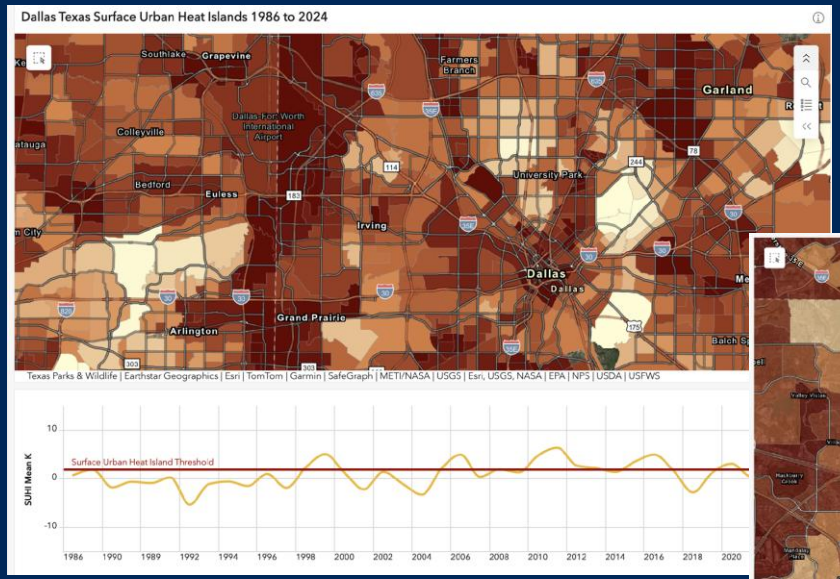


New & Improved

- **Advanced Embedding**
- Story Templates
- **AI Assistant (beta)**
- **Categorized Map Tour**
- **Charts and Infographics**
- **360-Degree Images**
- Layouts in Briefings

Growing rapidly . . .
millions of stories published

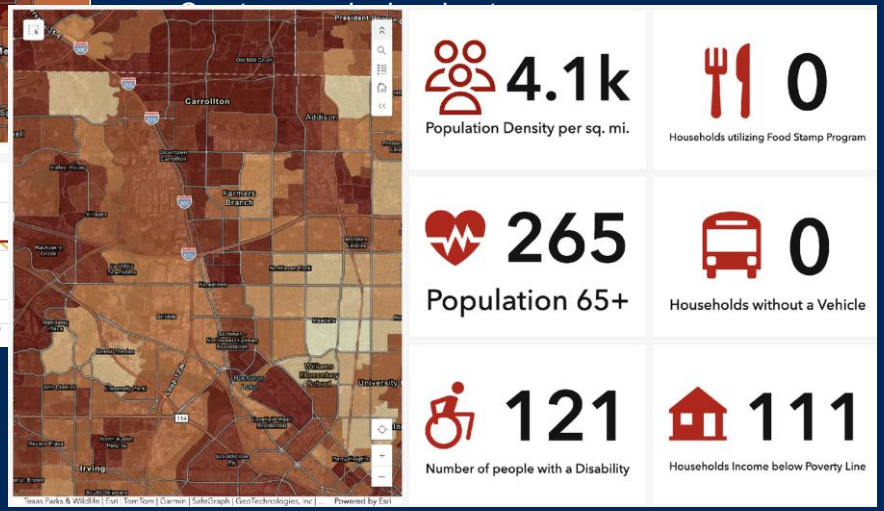
Example Risk scoring health



Annual urban heat maps

-Calculate zonal mean surface temperatures using Landsat imagery

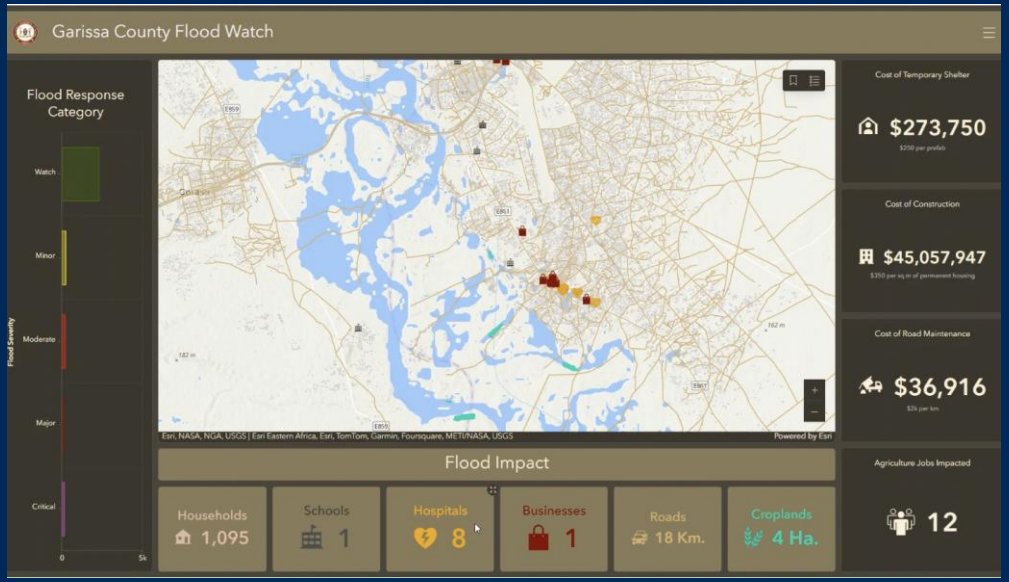
- Calcuate surface heat index
- Convert raster to vector data & enrich with population data or census track



At Risk Demograp

Example Priority scoring Floods

From identifying flood extent in Garissa, Kenya

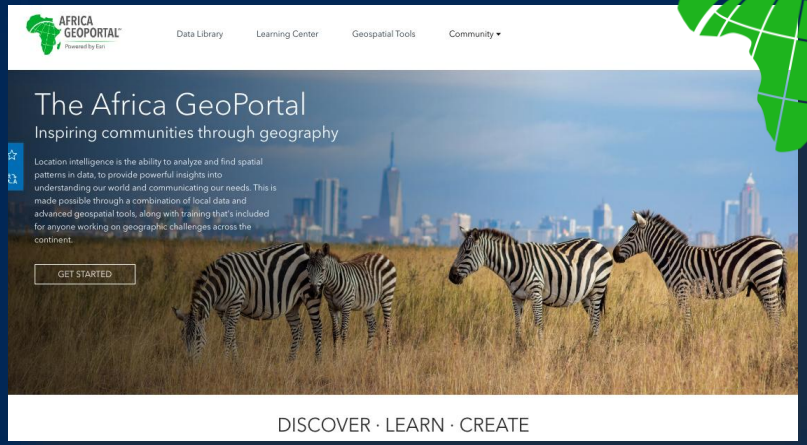


To prioritizing emergency response

The hackahton platform: Africa Geoportal

A Community Mapping platform free for any single user working in or on Africa

- ✓ Open Data for Africa
- ✓ Tools for mapping, analysis & sharing
- ✓ Tutorials



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Derrick DEMEVENG

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Poornima Ramesh

Senior Data Scientist /
Associate Director
(IDinsight)

Dr Godwin Akpan

Senior Advisor
Data Analysis & Use
(UNFPA)

Population Intelligence (PopIntel) Hack

Global Data Festival & Kenya Space Expo | Nairobi | 3 June 2026

A Special

Thank You to Priscilla

For championing Population Intelligence and the partnerships that move foresight into last-mile action.

Thank you for embracing and fostering the vision, collaboration and innovation that can transform how countries see risk, validate signals and act earlier for people.

From signals to foresight. From insight to impact.

With gratitude from everyone here .

Surprise moment before closing remarks

GLOBAL DATA FESTIVAL 2026

Dr Priscilla Idele

Chief Data & Analytics Branch
(UNFPA)

Final Charge:
From Signals to Action

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