

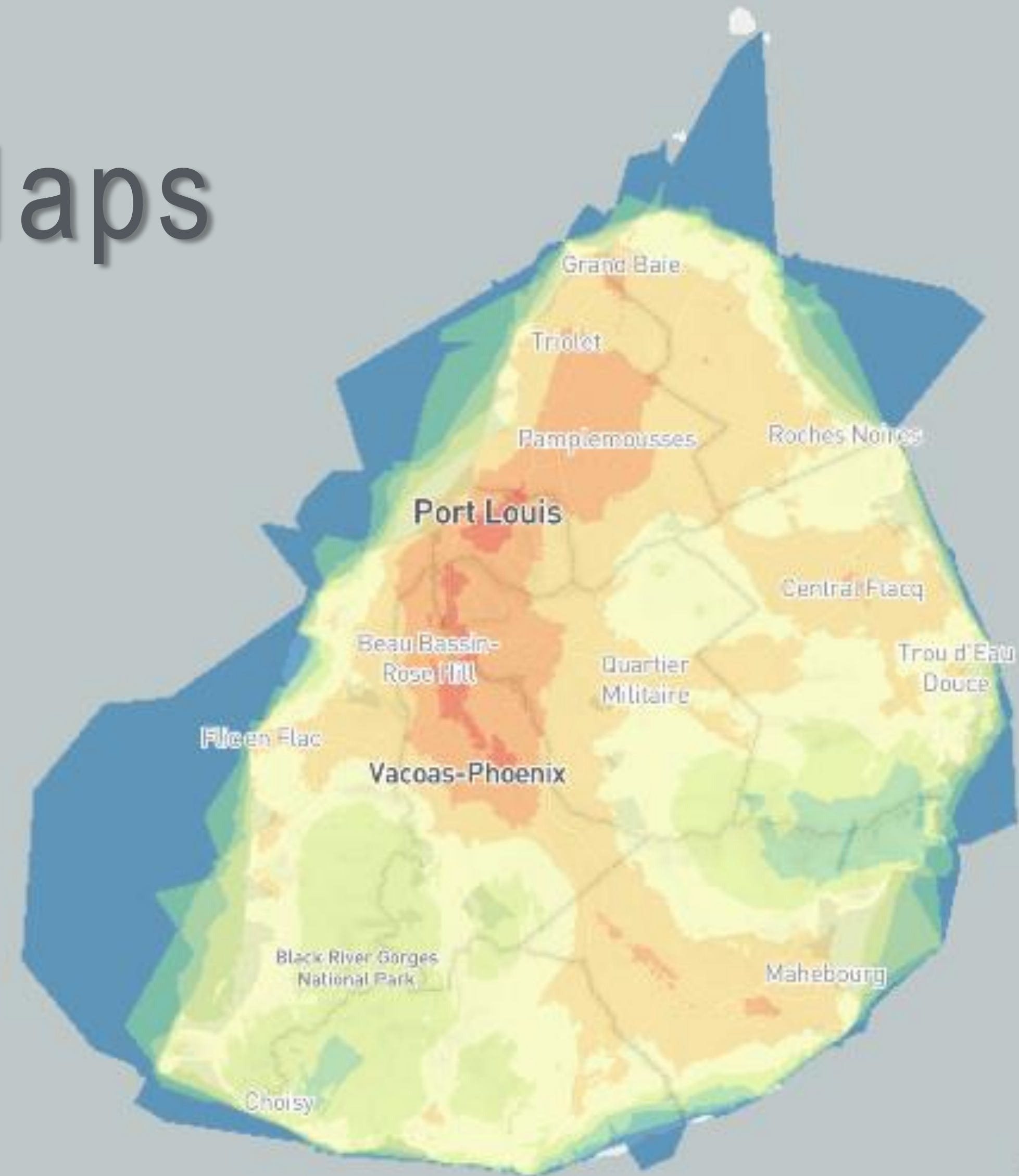
Facebook Disaster Maps

ITU GET-19

Alex Pompe
alexpompe@fb.com

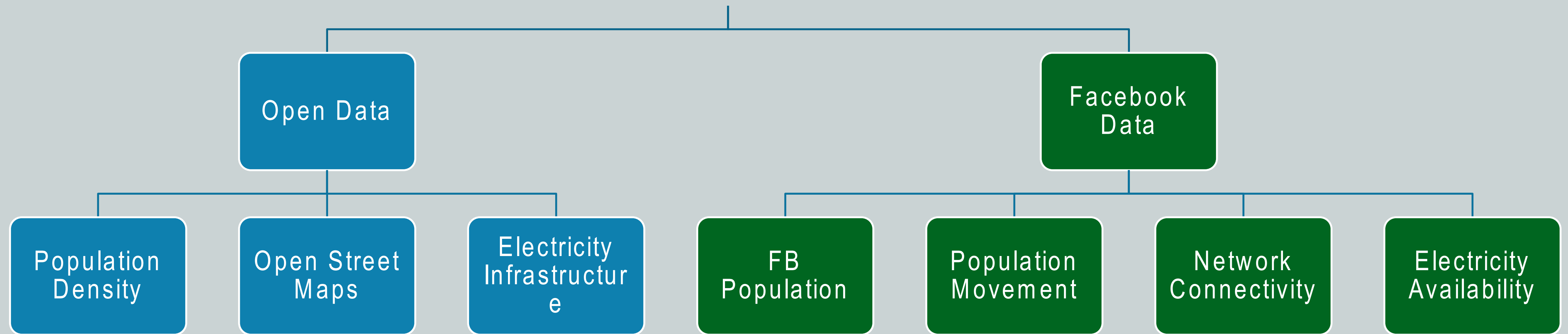


10km



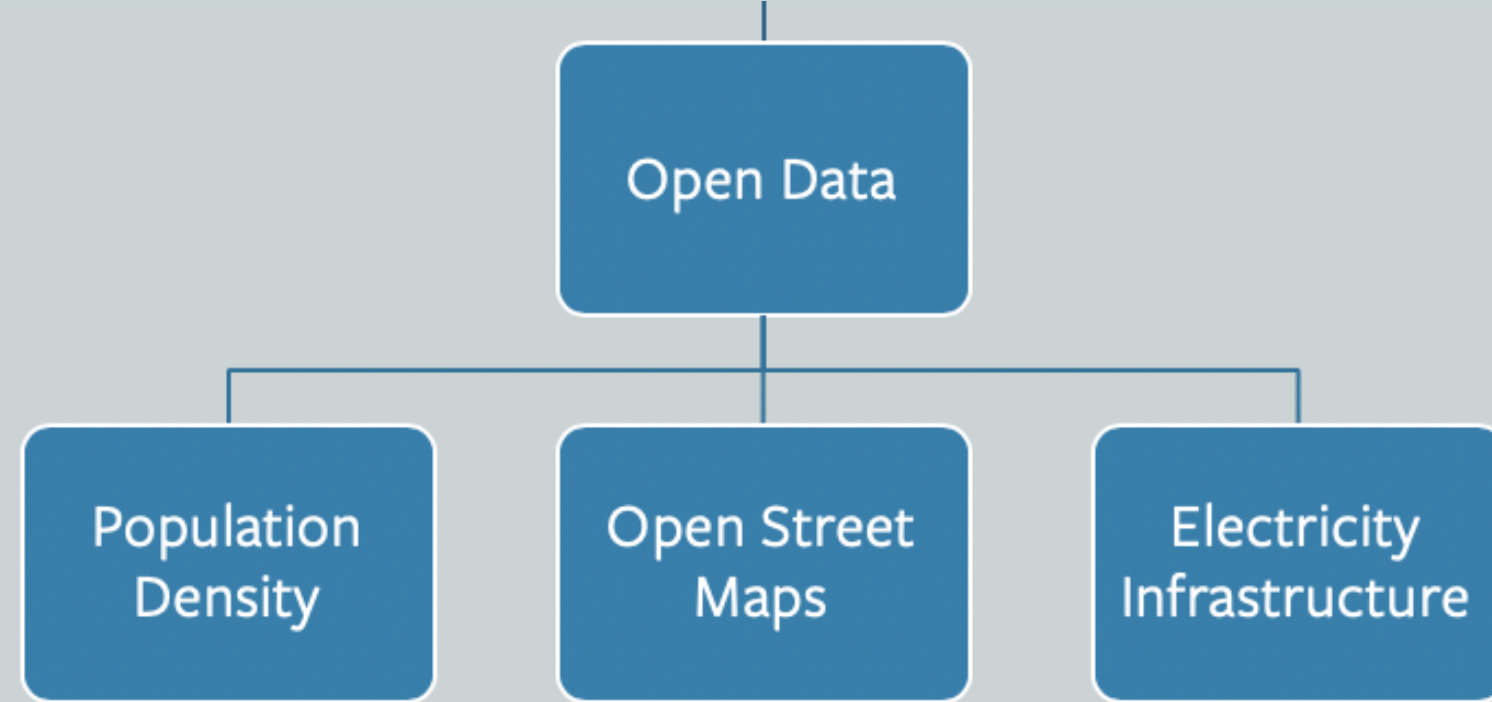
Global Network Coverage
2019-02-01
Count 4g

Facebook Disaster Maps



- Non-Facebook Data
- Machine Vision + Satellite Imagery
- Publicly Available

- Anonymized & Aggregated Facebook Data
- Custom data pipelines
- Controlled Access



Where are people, roads, electricity?

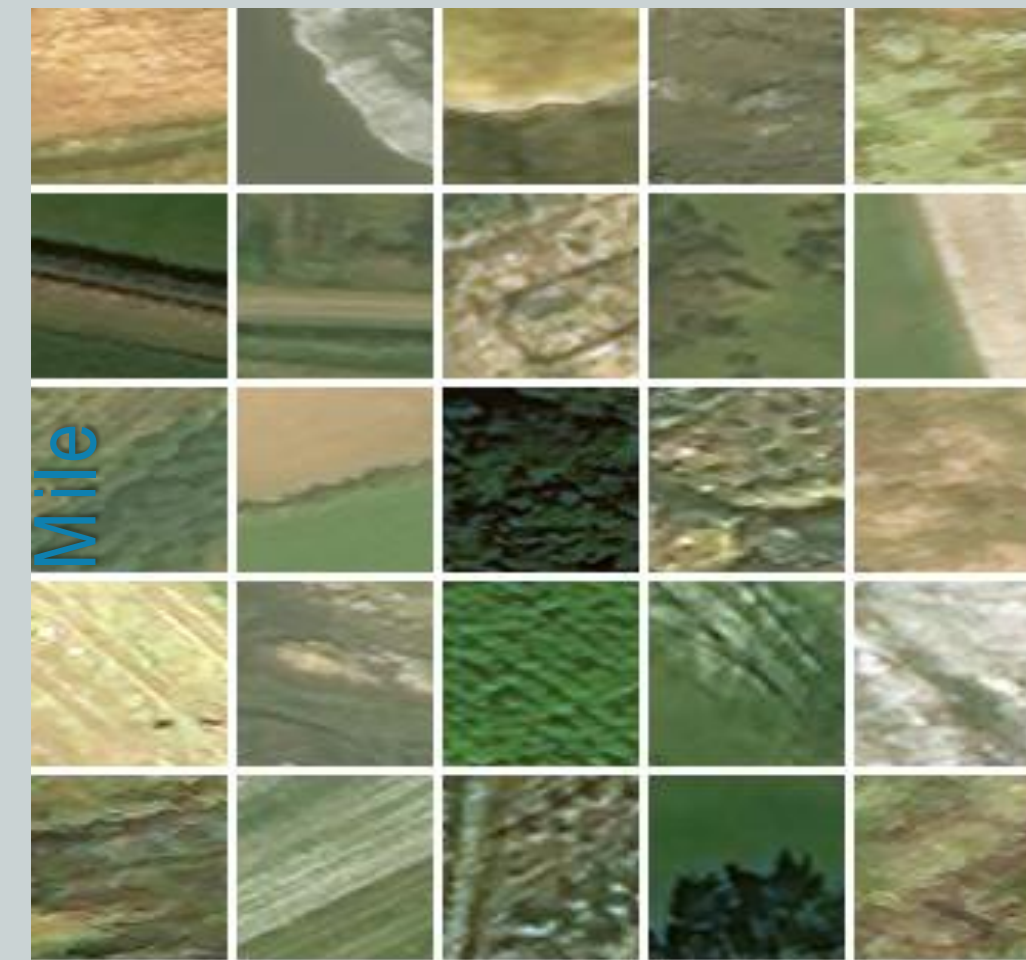
FB has mapped **200+** countries

Used for

- Vaccination campaigns in Malawi, Mozambique
- Electrification in Tanzania
- Telecoms in Indonesia, Peru, Nigeria
- Open Street Maps in Thailand

Great Britain

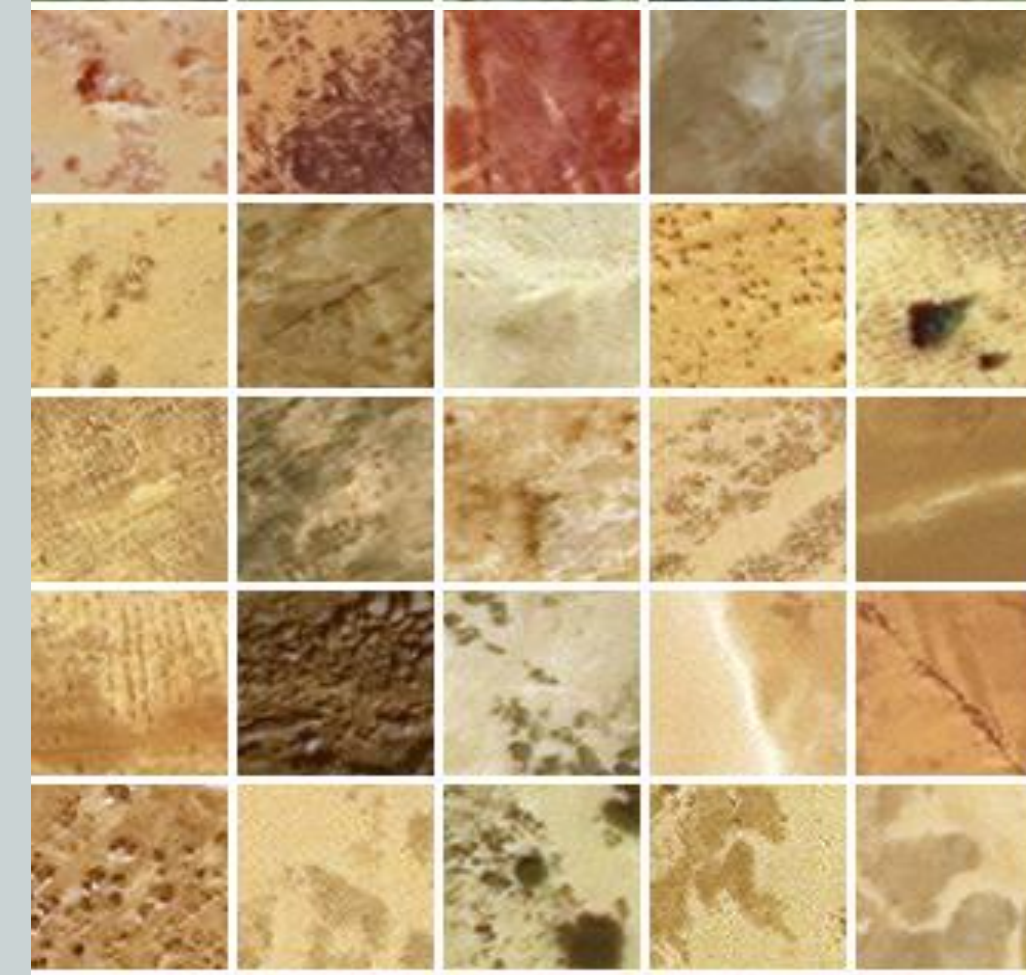
705 People/Sq. Mile



Mile

Niger

44 People/Sq. Mile



No Structures

Structures





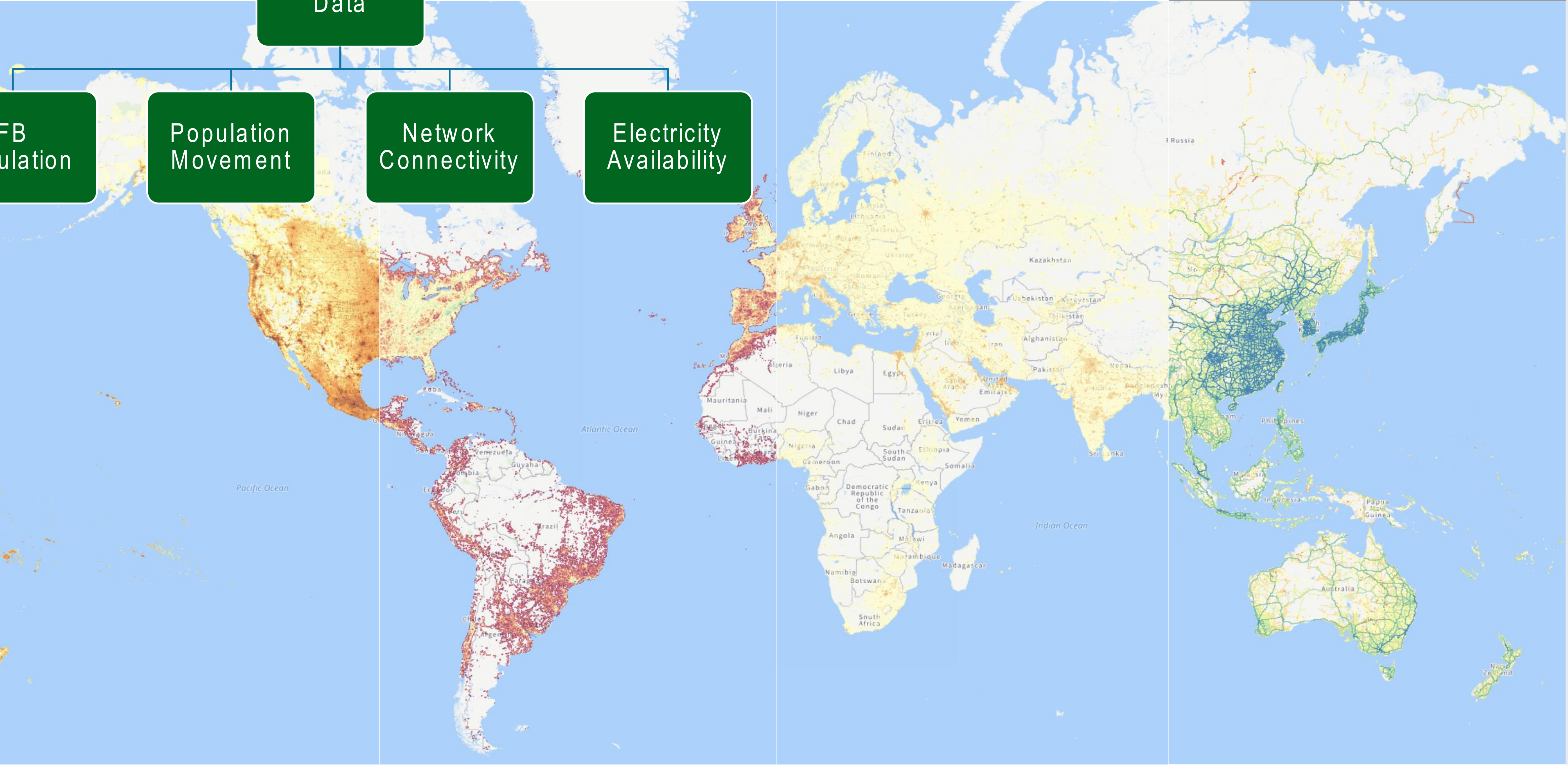
Facebook
Data

FB
Population

Population
Movement

Network
Connectivity

Electricity
Availability



FB Population

Population Movement

Network Connectivity

Electricity Availability

Facebook Disaster Maps

Impact in 2018

Activated for **100+** disasters

- Evacuation Routes
- Medical and Food Supplies
- Satellite Internet (VSAT) Stations
- Electrical Generators

Tripled number of partners to **35+**



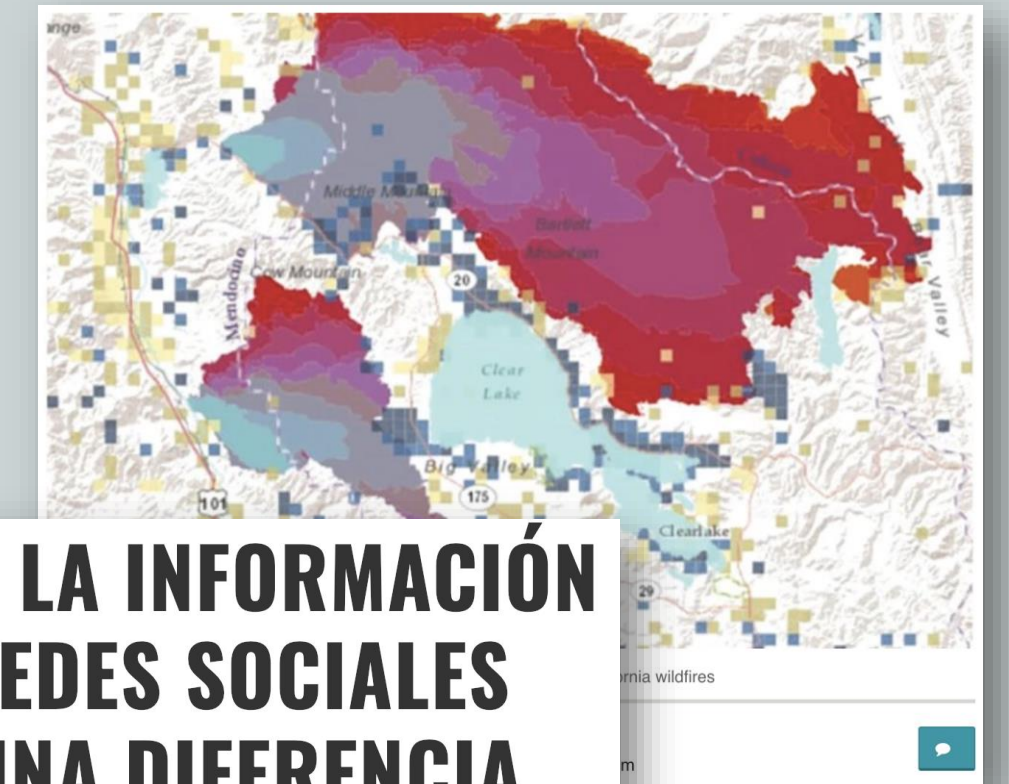
American Red Cross



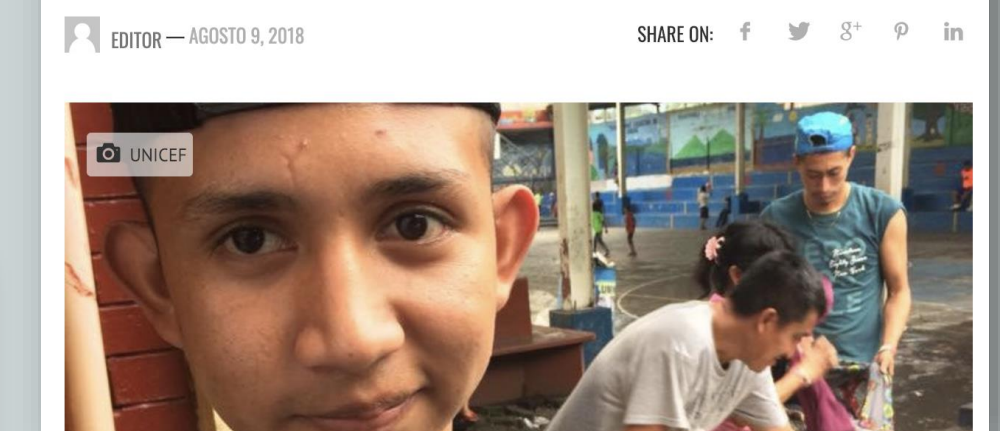
World Food Programme



NETHOPE



POR QUÉ LA INFORMACIÓN EN LAS REDES SOCIALES MARCA UNA DIFERENCIA EN LOS DESASTRES NATURALES



Privacy Protection

FB Population and Electricity Availability Maps

1. A small amount of random noise is added to the spatial tile to make “true counts” impossible.
2. Smooth each tile with nearby tiles with inverse-distance-weighted averaging.
3. Drop both the crisis and baseline counts if either value is less than 10 but keep percent differences and z-scores.

Movement Maps

1. Drop both the crisis and baseline counts if either value is less than 10 but keep percent differences and z-scores.

Network Connectivity

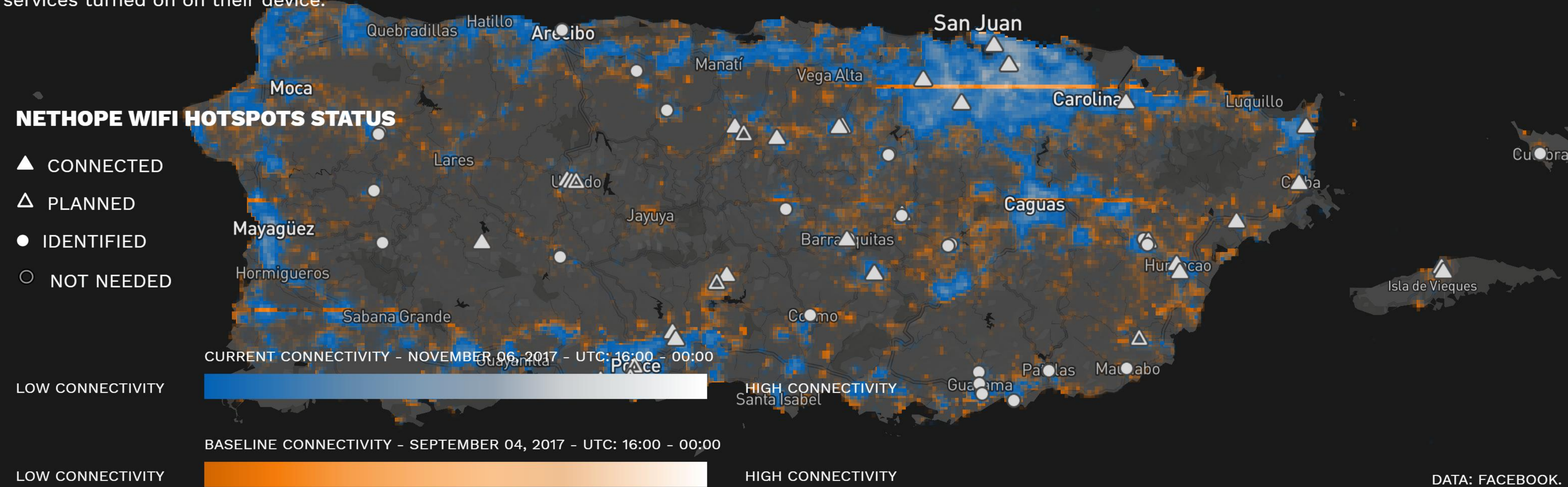
1. Only estimate a cell site’s coverage if we have at least 10 location pings of users.

Connectivity in Puerto Rico



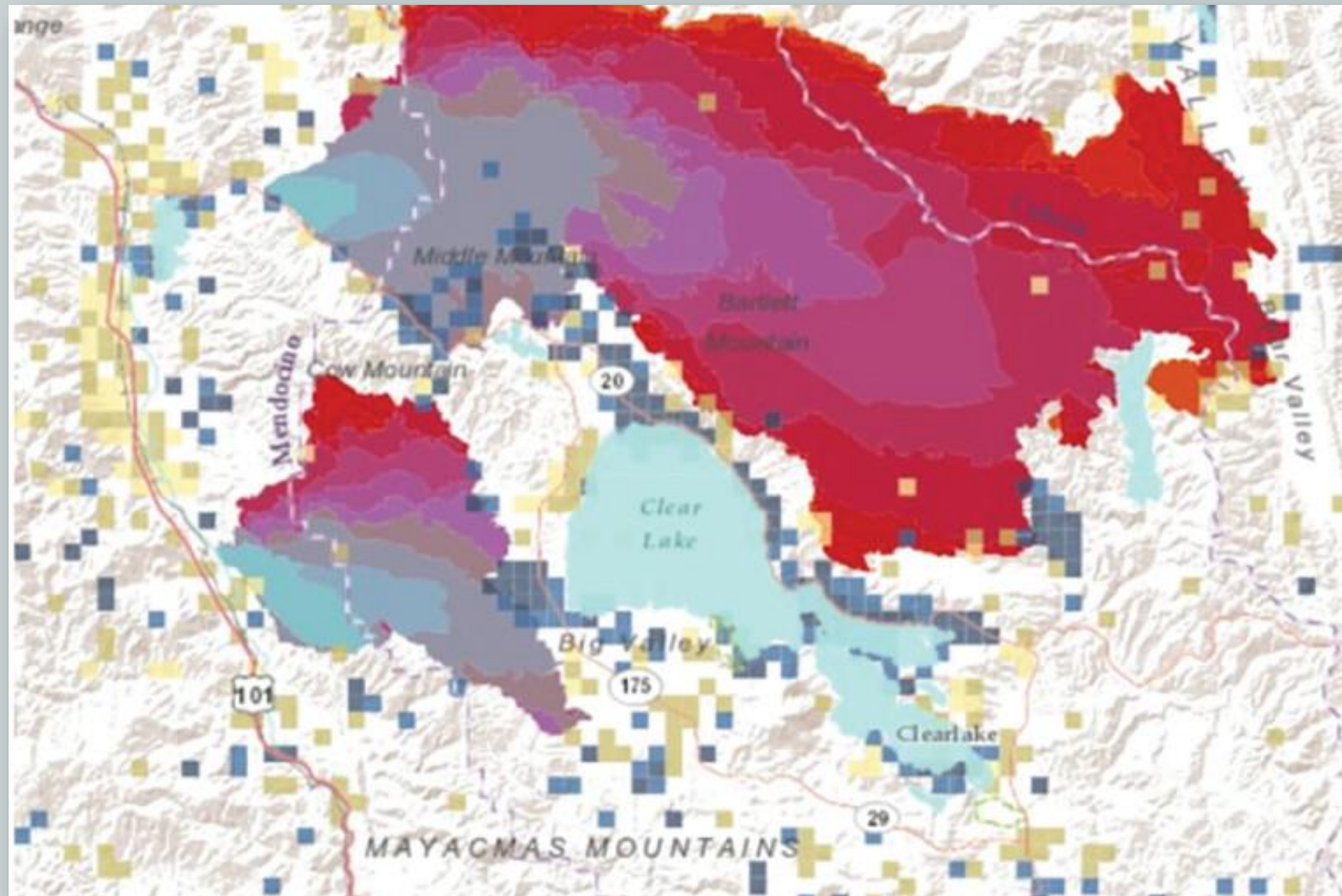
The data represents aggregated and de-identified Facebook data from mobile-app users. These users have connectivity and location services turned on on their device.

With thanks to the American Red Cross  for data analysis support.



Camp and Woolsey Fires in California

American Red Cross used FB data for its operational response, Direct Relief used FB data to distribute over 10K respiratory masks, and CalOES used FB data to monitor evacuations.

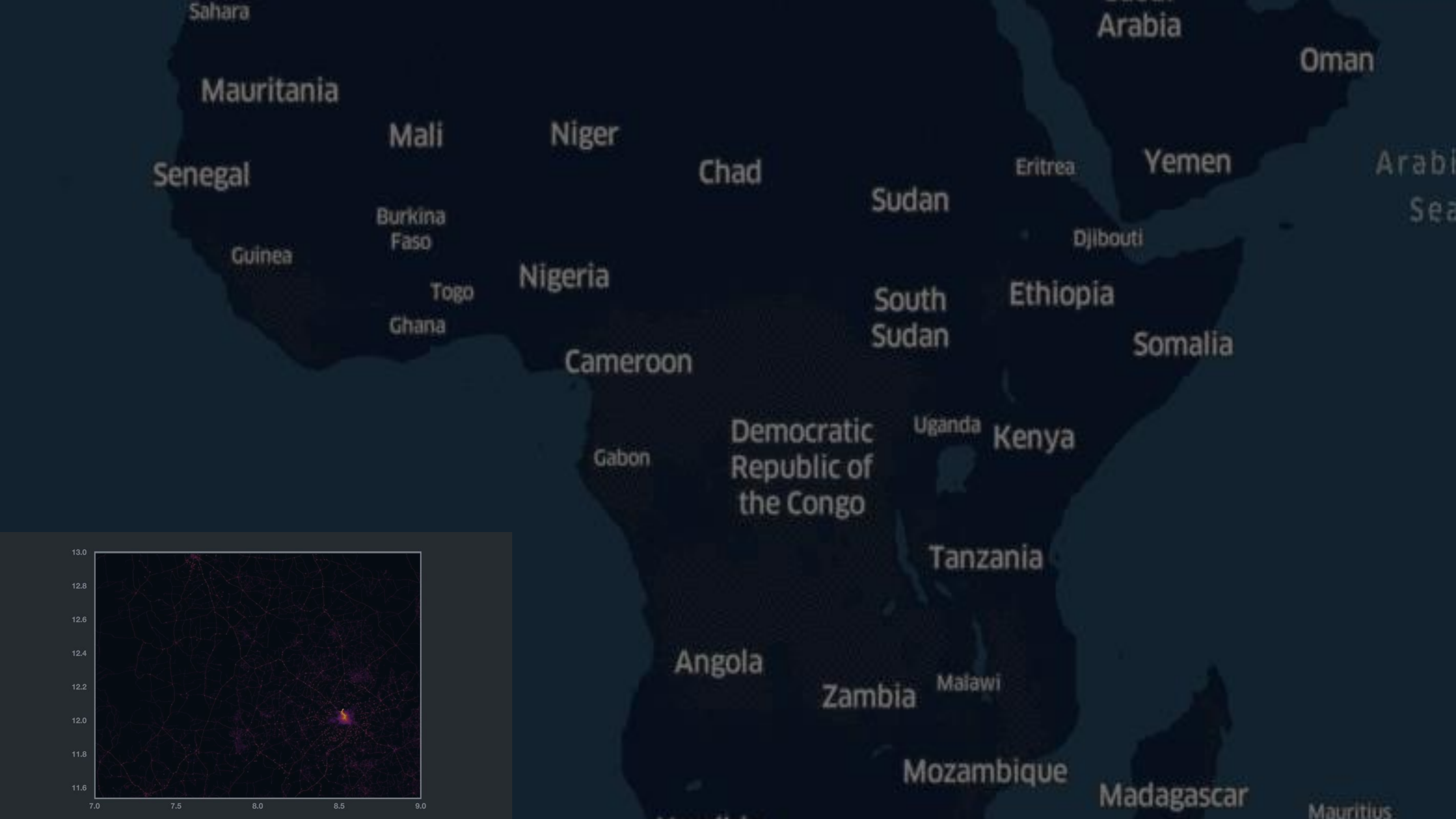




Questions



Extra Case Studies for Reference



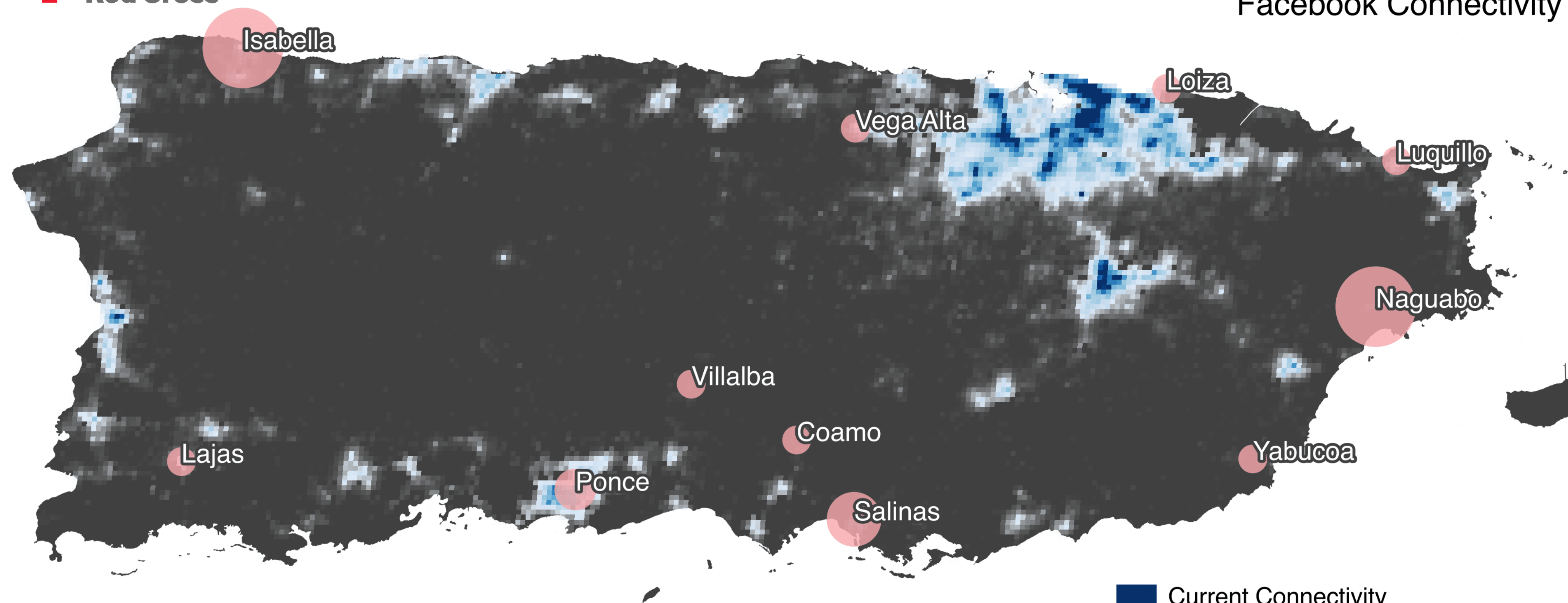


Hurricane Maria

Puerto Rico



Red Cross Reunification Sites & Facebook Connectivity



Data: Facebook, October 7, 2017
Map Date: 10/9/2017

■ Current Connectivity
● Red Cross VSAT Reunification Sites

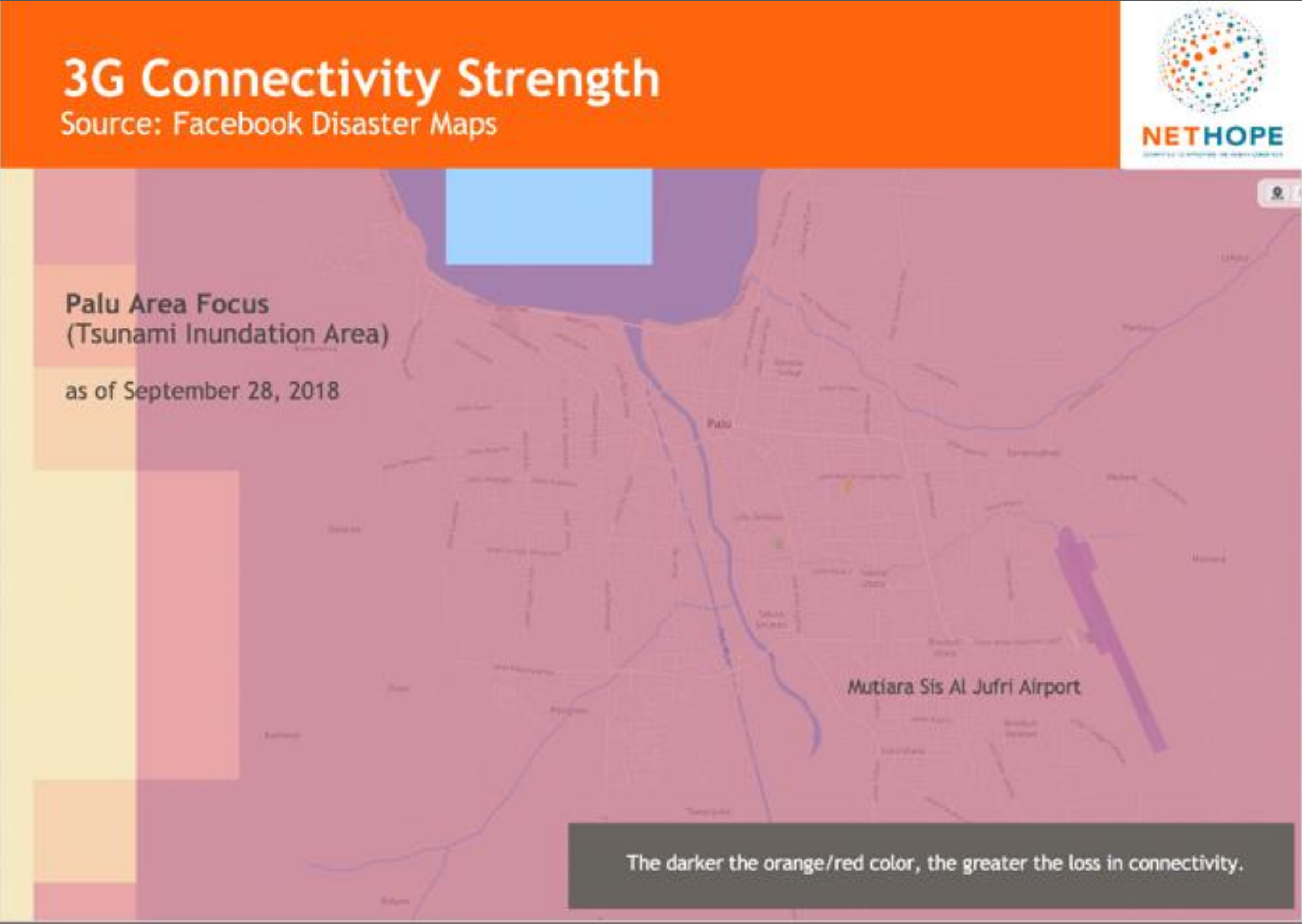
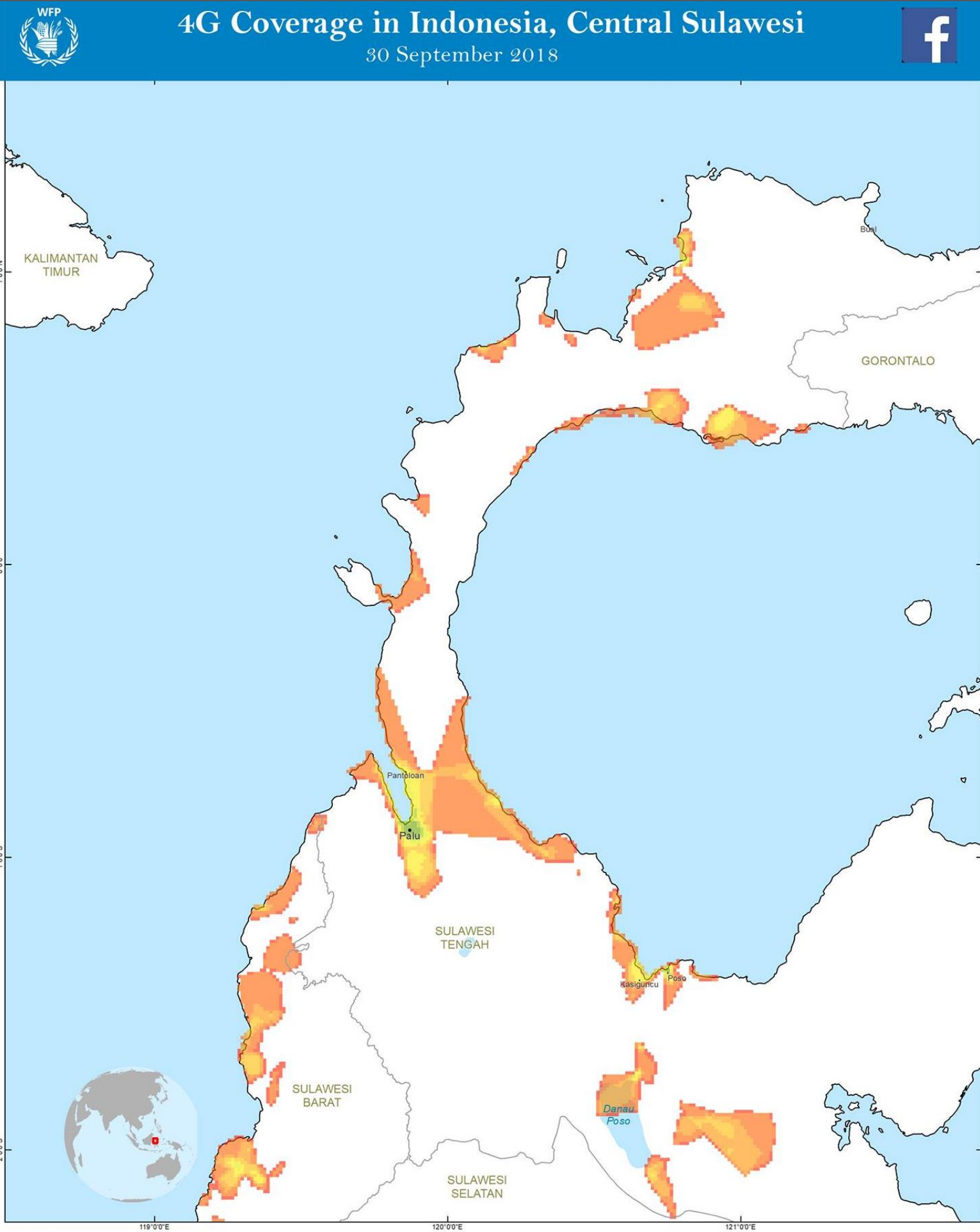
Indonesia Earthquake

Sept-Oct 2018



Indonesia Sulawesi Earthquake

Network Coverage Data, shared with NGO and UN community



Indonesia Sulawesi Earthquake

Impact on the Ground – UNICEF outreach tool deployed to receive needs from the field

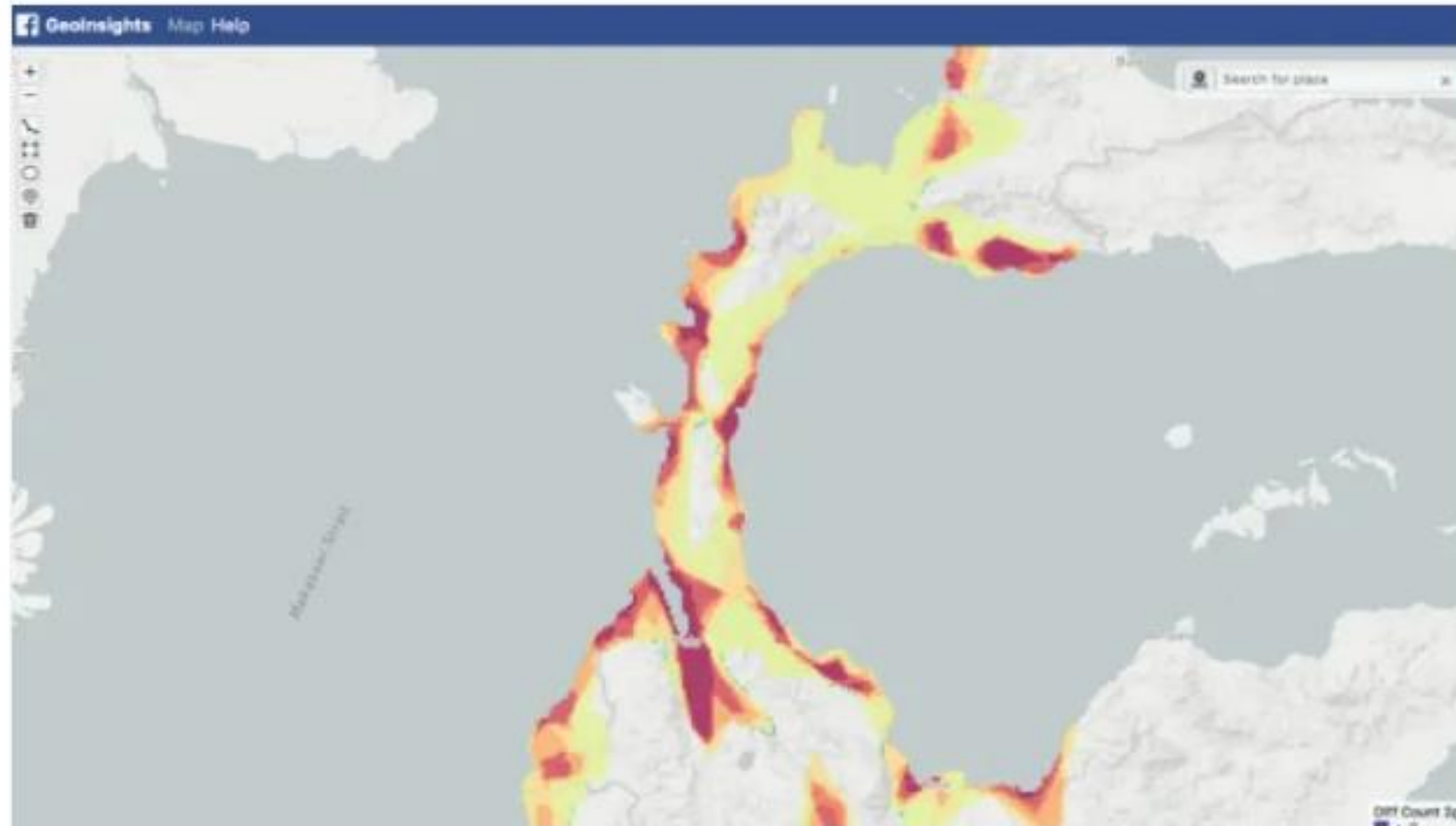


“In one day I travel to a district to take feedback from communities on their needs and reach 20 households a day. With U-Report data my workload will decrease because of direct feedback of communities via WhatsApp – It’s amazing”

Social Worker, 25, West Lombok

How Facebook has tripled its Disaster Maps partnerships

By **Catherine Cheney** // 18 December 2018



A connectivity disaster map for the earthquake and tsunami that hit Palu, Indonesia, in September 2018.

SAN FRANCISCO — While 2018 was a [crisis year](#) for Facebook, it has been a year of scale for its Data for Good team, which has tripled its number of Disaster Maps partners since 2017.

Last year, [Facebook launched](#) a new Disaster Maps initiative to provide anonymized and aggregated location information from users who have their location settings enabled in the form of density maps, Safety Check maps, and movement maps.

RECOMMENDED FOR YOU

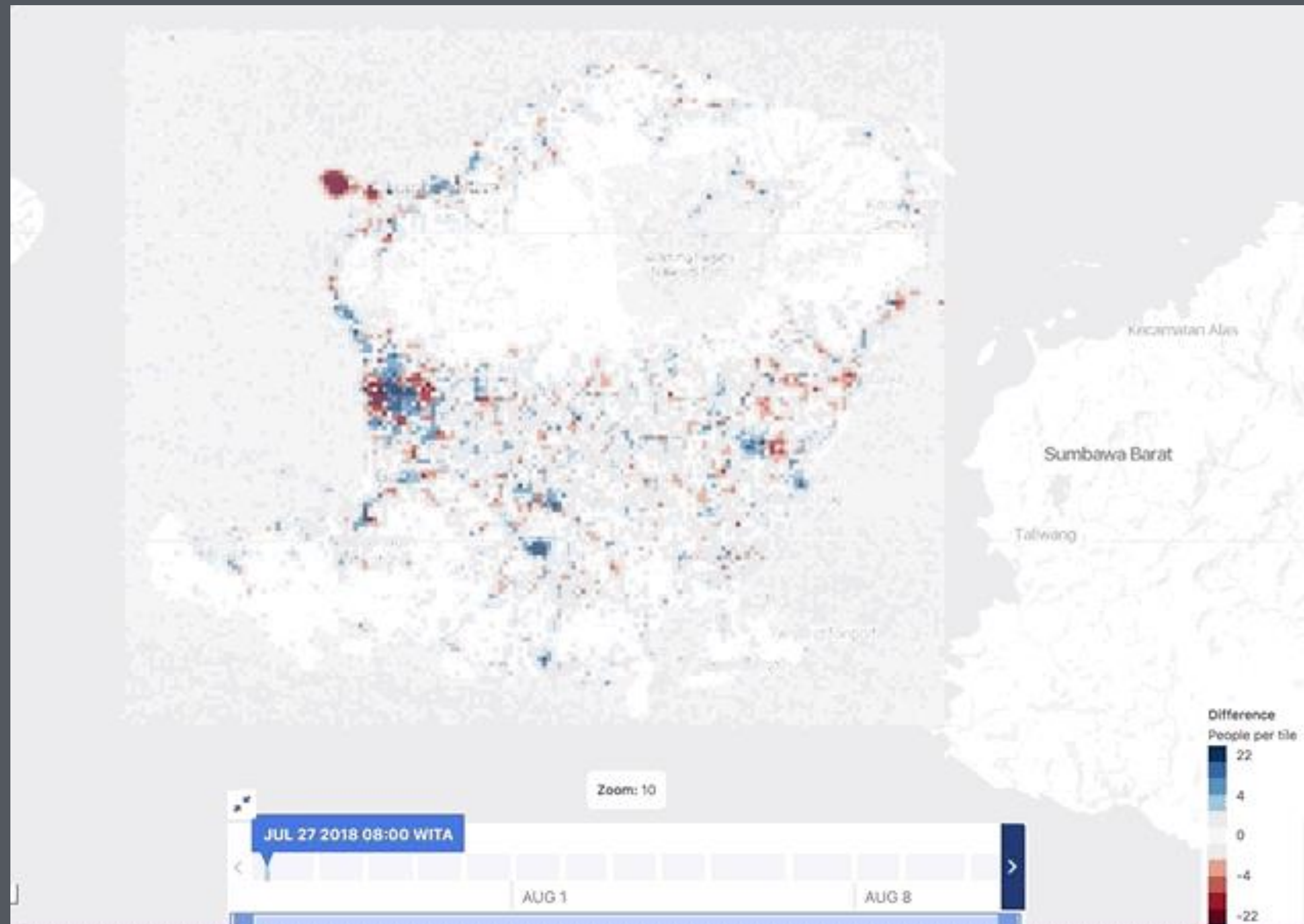
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- 2 Discord looms over WHO board meeting
- 3 As Davos gathers, the development community struggles for attention
- 4 Asia-Pacific's plastic problem ignites waste management movement
- 5 Supporting disability advocacy: Insights from Savina Nongebatu

RELATED JOBS

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[See more](#)

Indonesia Lombok Earthquake





Kerala Floods

August 2018

FB Movement Maps shifted local strategy from relief to recovery

Movement of population during Kerala Floods 2018

Movement Tracking Period: 08 August 2018 to 15 August 2018

