

# Achieving Sustainable Development

Esri

GPSDD workshop Ghana





# Vision

## GIS

Is Enabling a Sustainable World

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# Geospatial Data, Spatial Analysis and the Global Goals

- Access to all-weather road (% access within [x] km distance to road)
- Percentage of wastewater flows treated to national standards
- Proportion of total water resources used
- World Distance to Water
- Area of public and green space as a proportion of total city space













# Story Map on Global Poverty

[OPEN](#)



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The MPI here represents the index, or score, that each country received from the 2014 Global MPI findings.

[OPEN](#)


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# ArcGIS includes a Living Atlas of the World

## Maps and Layers from Esri and Thousands of Contributors



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The Collection is **growing and changing**  
on a daily basis...



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*... with Curated Content on Many Topics*

# Living Atlas Content

NOAA

Precipitation Estimates



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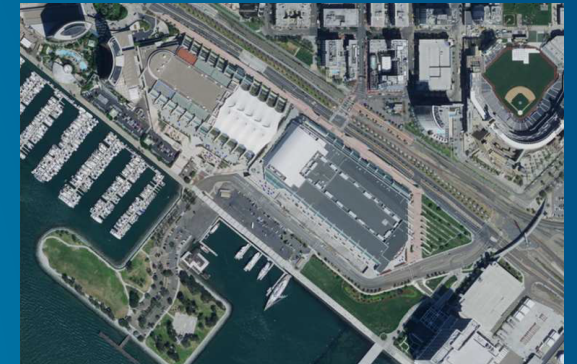
Real-Time Observations



Weather Radar



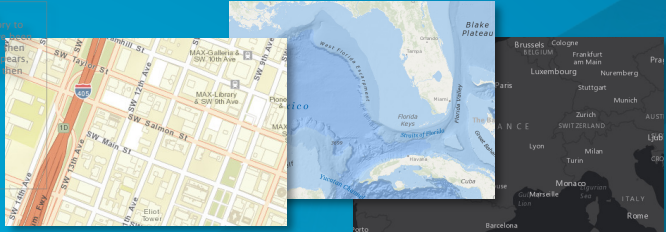
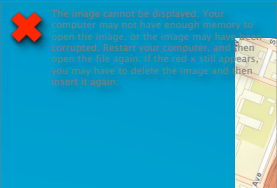
Nearmap Imagery (7cm)



Hexagon Imagery (30cm)



# Esri Content



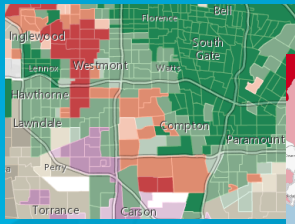
NAIP (NDVI)



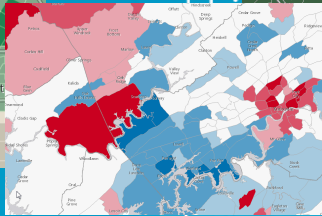
MODIS



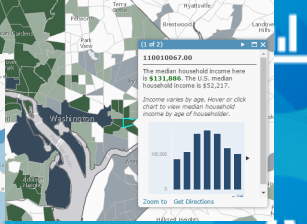
Landsat 8



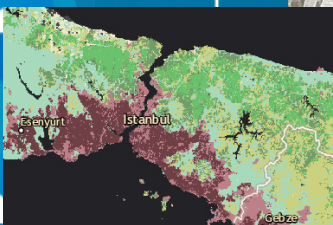
Demography



Income



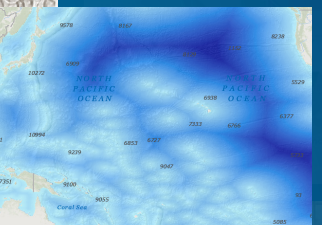
Behaviors



Land Cover



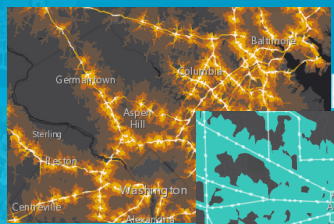
Elevation



Oceans



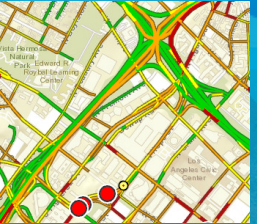
Earth Observations



Access



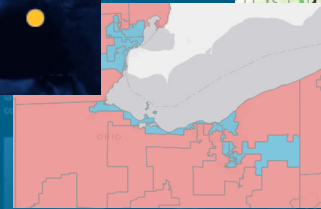
Urban Sprawl



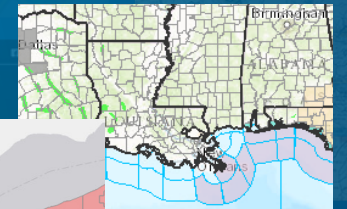
Traffic



Earthquakes



Boundaries



Warnings

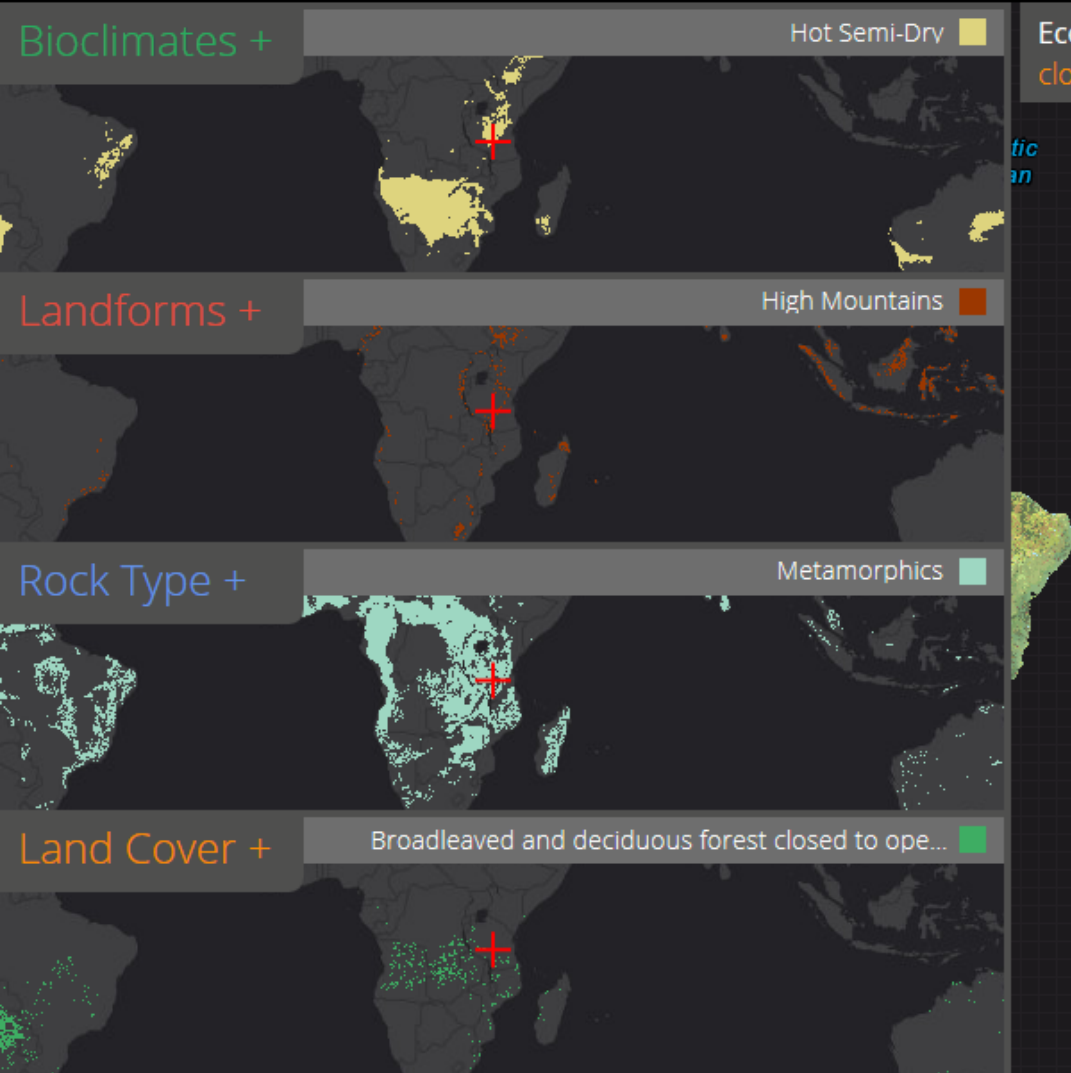


# Global Ecological Land Units

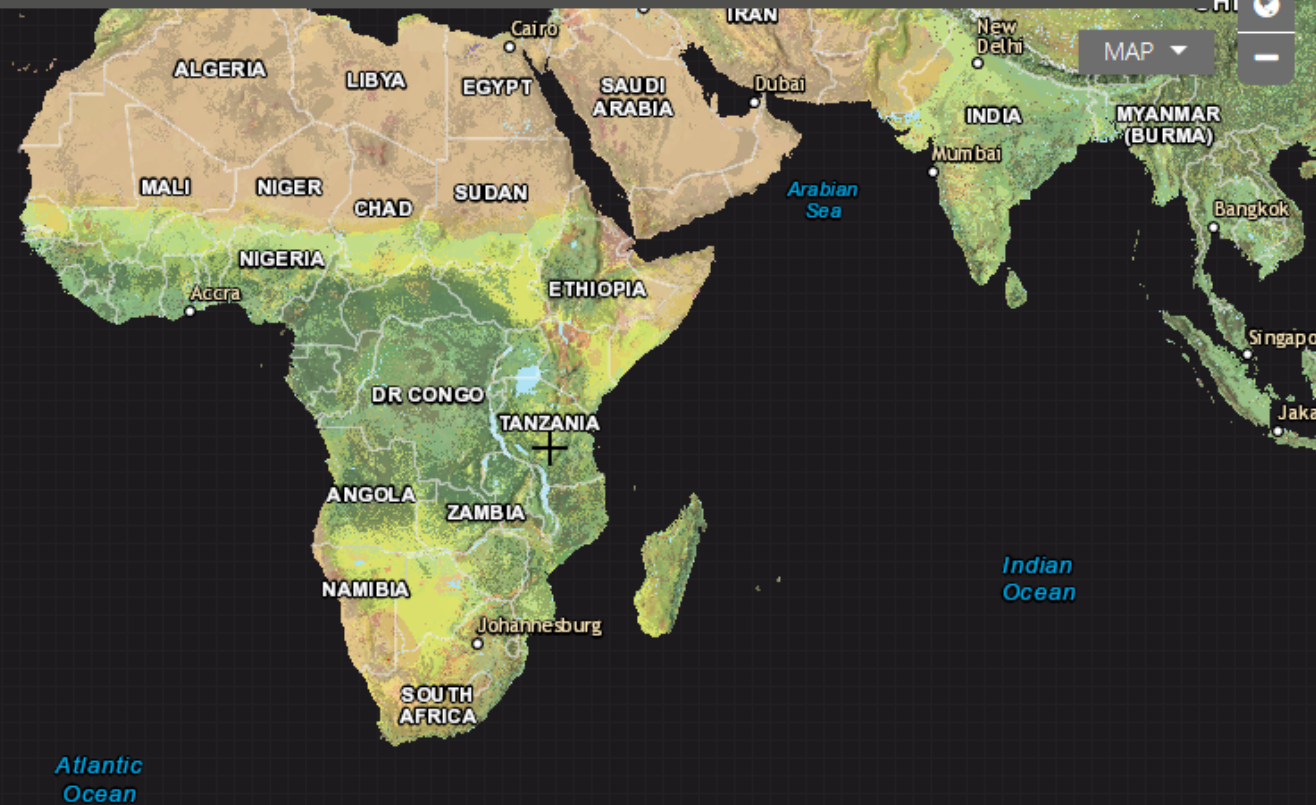
Explore the Ecological Tapestry of the World



Search



Ecological Name: Hot Semi-Dry / High Mountains / Metamorphics / Broadleaved and deciduous forest closed to open (>15%)



**1.1.1 Proportion of population below \$1.25 (PPP) per day disaggregated by sex/age**

**1.4.1 Proportion of the population living in households with access to basic services**

**1.5.1 Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people**

**2.1.1 Prevalence of undernourishment**

**2.3.1 Value of production per labor unit (measured in constant USD), by classes of farming/pastoral/forestry enterprise size**

**2.4.1 Percentage of agricultural area under sustainable agricultural practices**



# GIS Provides the Framework and Process

For Enabling a Smarter World



Data Collection  
and Development

Data Integration  
and Management

Analysis  
and Modeling

Planning and  
Decision-Making

Stakeholder  
Engagement

Action

Informing

Understanding

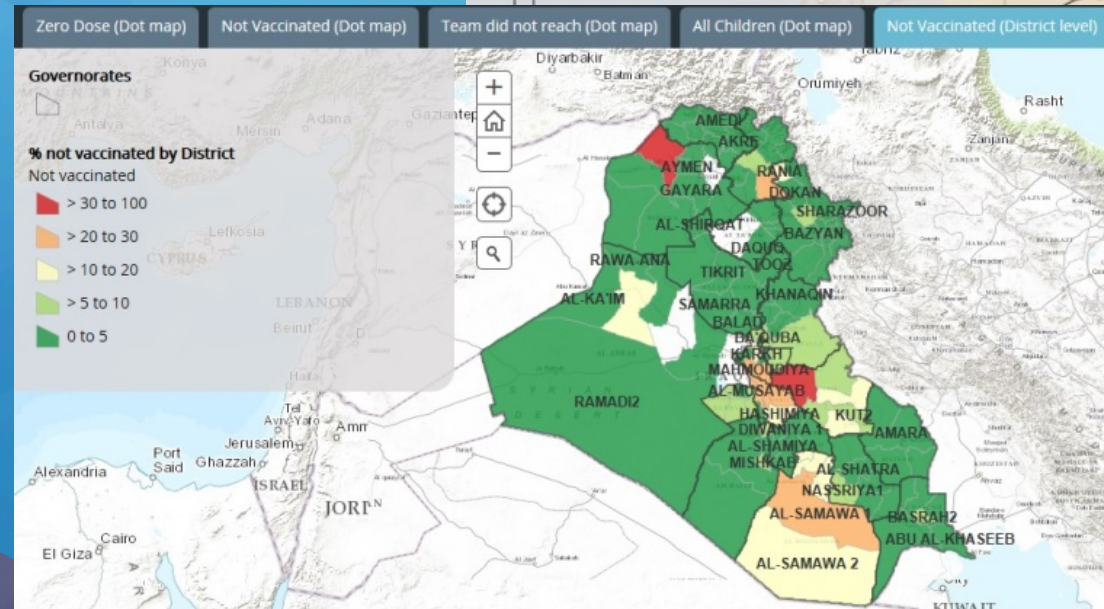
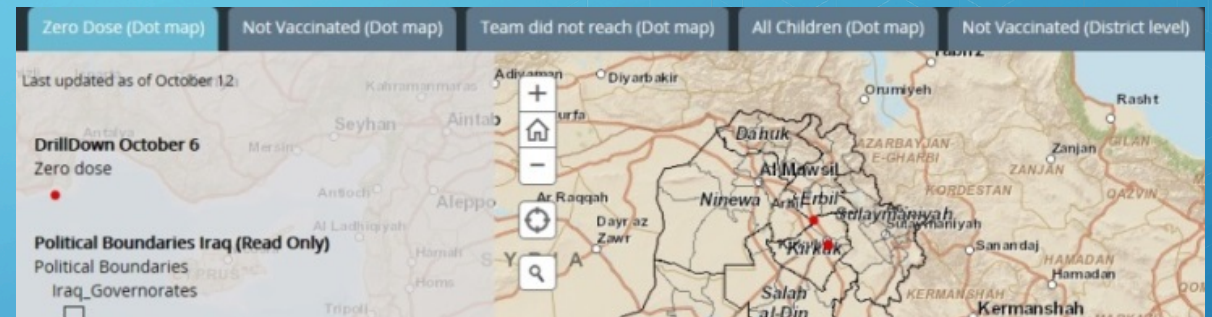
Collaborating

*Transforming How We Think and Act . . .  
. . . Creating a More Sustainable Future*



## Data Collection and Development

- In Iraq, use of Geospatial data and the ArcGIS Platform together allowed the WHO and Iraqi Red Crescent to more quickly collect data on the ground, and understand the vaccination needs and thereby close the gap on Polio.



Iraqi Red  
Crescent  
Society



World Health  
Organization



## Workflows To Publish, Curate, Share and Integrate SDG Content

**SDG Promoter**

Select a Group to Review Items

- Open APIs**  
A group to hold links to Open APIs related to the SDGs.
- SDG 1: No Poverty**  
End poverty in all its forms everywhere
- SDG 2: Zero Hunger**  
End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- SDG 3: Good Health and Well-Being**  
Ensure healthy lives and promote wellbeing for all at all ages
- SDG 4: Quality Education**  
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- SDG 5: Gender Equality**  
Achieve gender equality and empower all women and girls
- SDG 6: Clean Water and Sanitation**  
Ensure availability and sustainable management of water and sanitation for all
- SDG 7: Affordable and Clean Energy**  
Ensure access to affordable, reliable, sustainable and modern energy for all
- SDG 8: Decent Work and Economic Growth**  
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- SDG 9: Industrial Innovation and Infrastructure**  
Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

**SDG Promoter** Adam

SDG Data & Services Staging Group (8 Items)

\*  Owner  Type  Type Keywords  Tags

	<b>Preliminary SDG Global Index</b> Web Map - Updated Apr 02, 2016 Public 45 views	39 / 100 REVIEWING
	<b>Project Everyone International Women's Day - Story Map Journal Example 1</b> Web Mapping Application - Updated Apr 02, 2016 Public 16 views	31 / 100 NOT REVIEW
	<b>SDG_PROMOTER_AUDIT</b> CSV - Updated Oct 22, 2016 Not Shared 2 views	13 / 100 NOT REVIEW
	<b>SDG_PROMOTER_AUDIT</b> Feature Service - Updated Oct 22, 2016 Public 8 views	26 / 100 NOT REVIEW
	<b>test scene</b> Web Scene - Updated Oct 19, 2016 Not Shared 1 views	21 / 100 NOT REVIEW

« 1 2 »

**SDG Promoter** Adam

SDG Data & Services Staging Group (8 Items)

\*  Owner  Type  Type Keywords  Tags

	<b>Preliminary SDG Global Index</b> Web Map - Updated Apr 02, 2016 Public 45 views	39 / 100 REVIEWING
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**Details** Use/Credits Tags Settings User Profile

0 / 9 Thumbnails  
MISSING small thumbnail  
MISSING large thumbnail

8 / 8 Title

8 / 8 Summary

0 / 8 Description  
MISSING description

Send Notes Set Status

Project Everyone International Women's Day - Story Map Journal Example 1  
Web Mapping Application - Updated Apr 02, 2016  
Public  
16 views
 31 / 100 NOT REVIEWED ||  | **SDG\_PROMOTER\_AUDIT** CSV - Updated Oct 22, 2016 Not Shared 2 views | 13 / 100 NOT REVIEWED |

localdev.arcgis.com:4200/#

# Analysis and Modeling

## Access to Health Care

Learn more about access to health care...

Layers Analysis

### Facilities

- Hospitals *Add a new hospital*
- Health Centers *Add a new health center*

### Travel Mode

- Walk
- Bike
- Ride
- Walk / Ride

Update Scenario

### Population Served

#### Scenario 1

Population Served

- 418,556
- 779,673
- 978,704
- 1,131,887



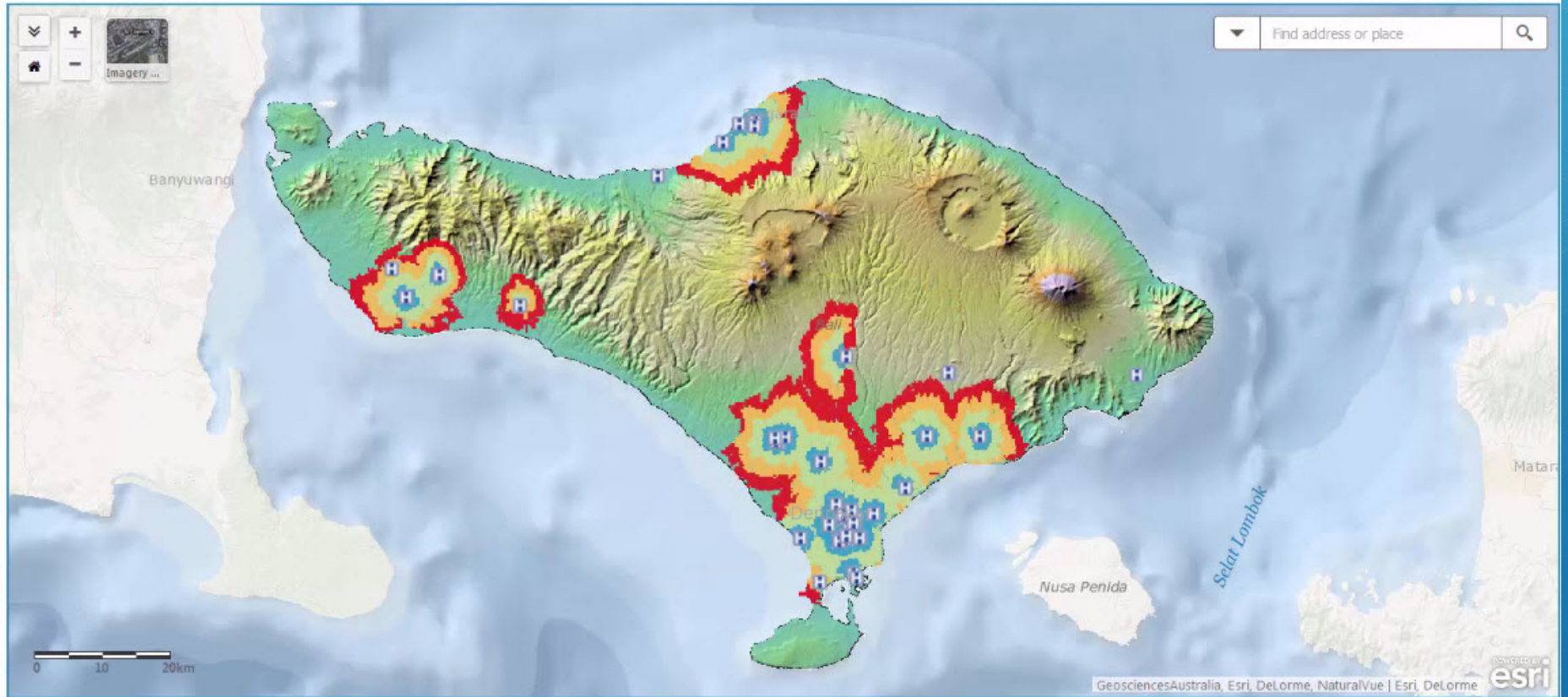
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Scenario 1

New

Manage

Sign In









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# Yellow Fever *in Angola*



# Stakeholder Engagement

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The World's Largest Lesson

[+ Participate](#)

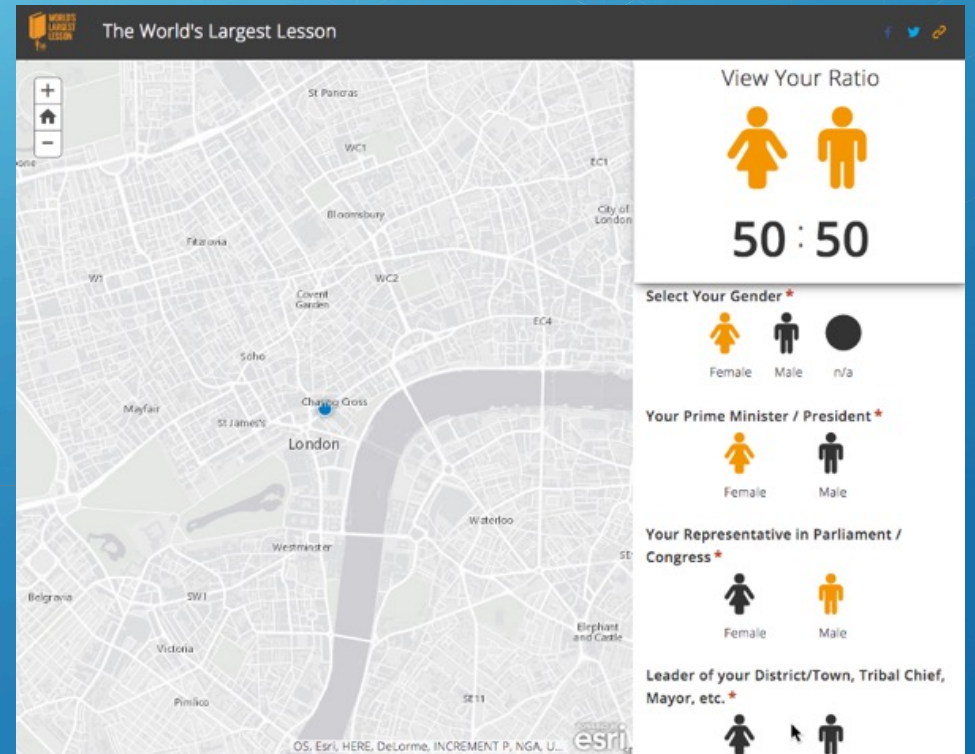
**From Where I Stand**  
Survey your local community influencers and decision makers.

[+ Participate](#)

Explore Map





# PROJECT EVERYONE



The World's Largest Lesson




[+ Participate](#)

View Your Ratio



**50 : 50**

Select Your Gender\*



Female Male n/a

Your Prime Minister / President\*



Female Male

Your Representative in Parliament / Congress\*

Female Male

Leader of your District/Town, Tribal Chief, Mayor, etc.\*

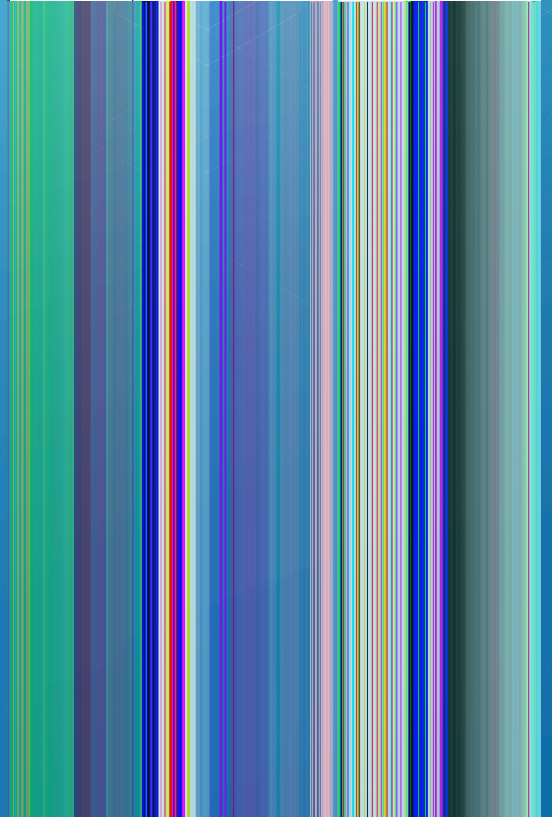
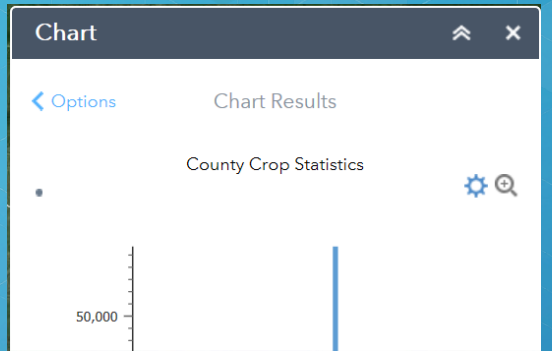
 

OS, Esri, HERE, DeLorme, INCREMENT P, NGA, U...

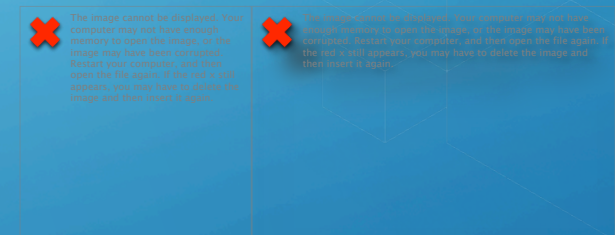
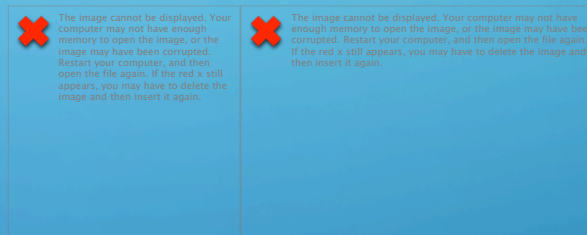
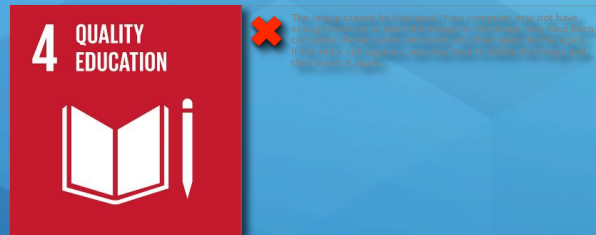
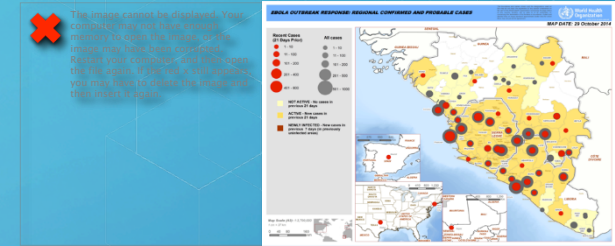
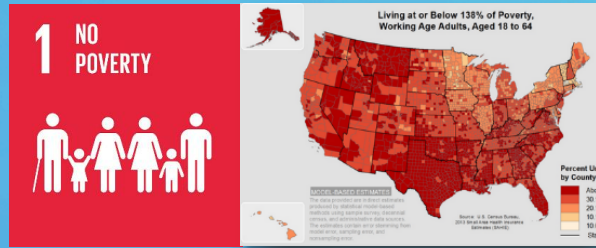


# ACTION

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# GIS In Action



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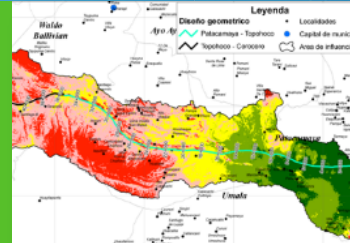
**13 CLIMATE ACTION**



**14 LIFE BELOW WATER**



**15 LIFE ON LAND**



**16 PEACE AND JUSTICE STRONG INSTITUTIONS**



**17 PARTNERSHIPS FOR THE GOALS**



# ArcGIS an SDG Platform

Planning



Statistics



Environment



Social Services



Inside  
Collaboration

Agency or  
Organization

Outside  
Engagement

Community



Partners

- United Nations
- Development Banks
- Private Foundations
- Foreign Investment





esri®

THE  
SCIENCE  
OF  
WHERE™

THANK YOU

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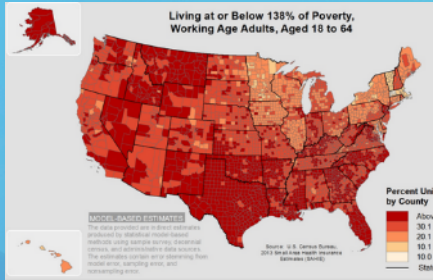


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## Health Insurance and Poverty



Census Bureau

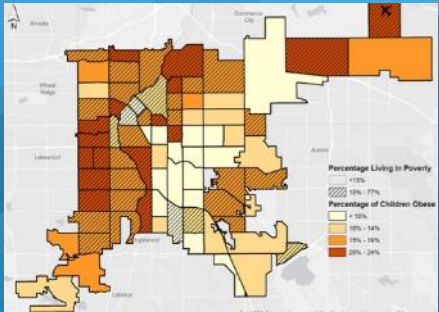


## Food Supply



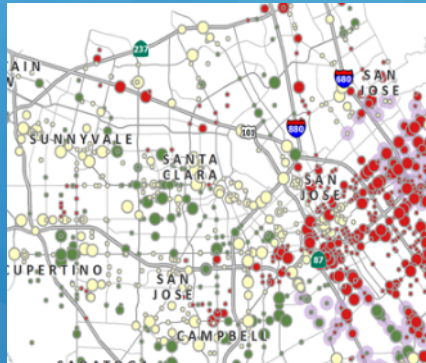
UN-Yemen

## Childhood Obesity and Poverty



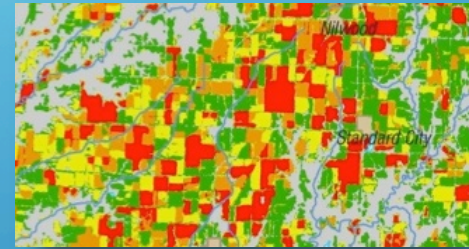
Denver, CO

## Vulnerable Populations



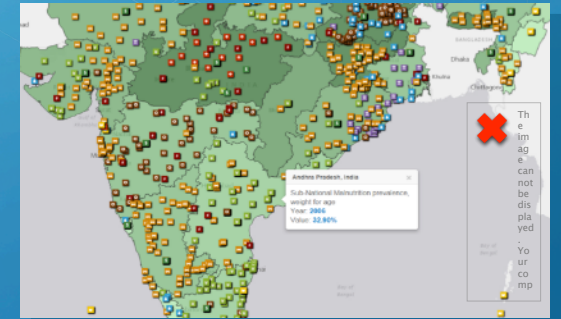
Santa Clara

## Crop Rotation



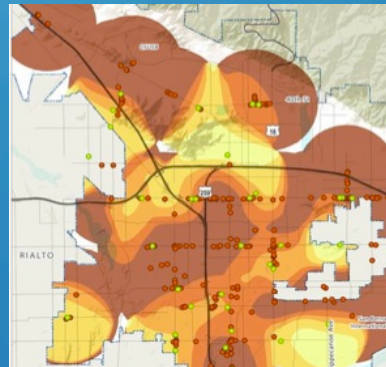
USA

## Malnutrition



World

## Healthy Food Access



California

## Precision Agriculture

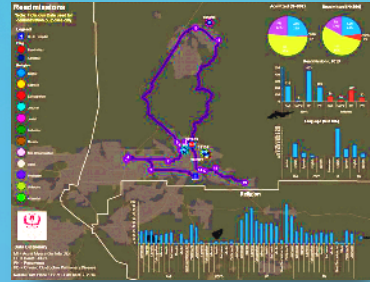


New Zealand



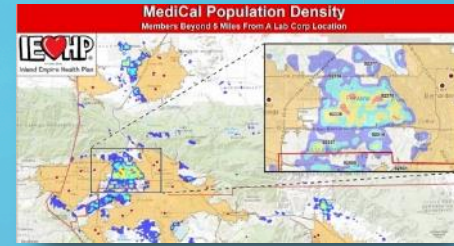
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## Track Hospital Readmissions



California

## Medical Lab Siting

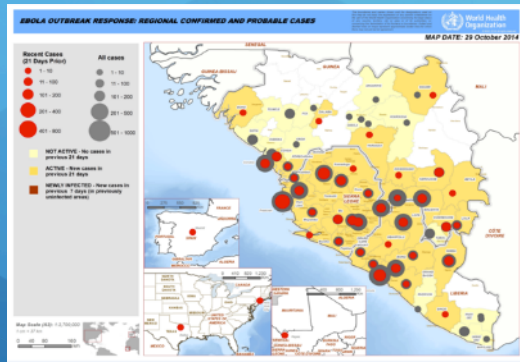


## Health Care Accessibility



Sweden

## Ebola



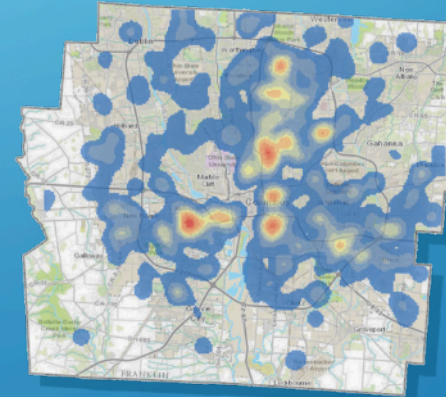
West Africa

## Response



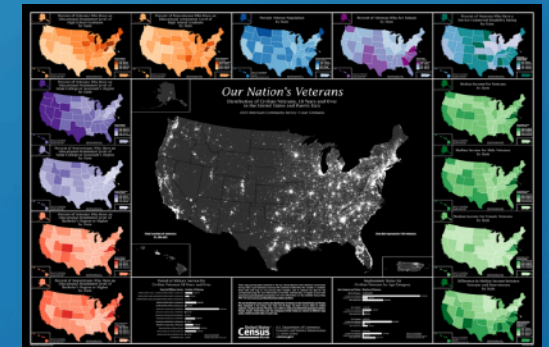
Liberia

## Infant Mortality



Columbus, OH

## Veteran Characteristics



USA

## Zika Risk



Americas

## Access to Health Facilities

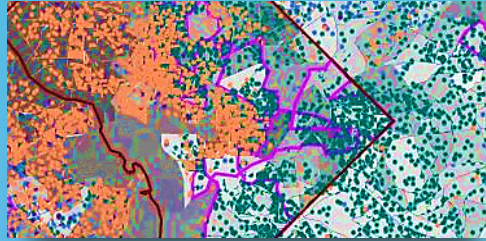


Queensland, Australia



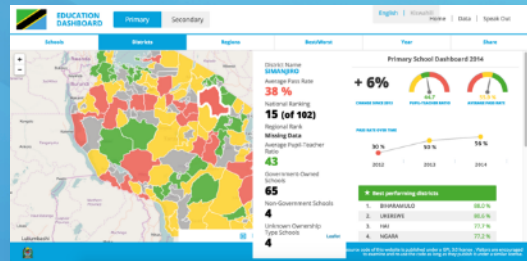


## Disparity of School Access



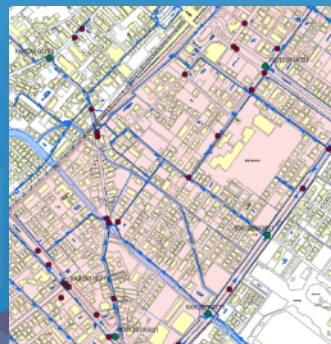
Washington, DC

## School Performance



Tanzania

## Traffic Accidents and Schools



Japan

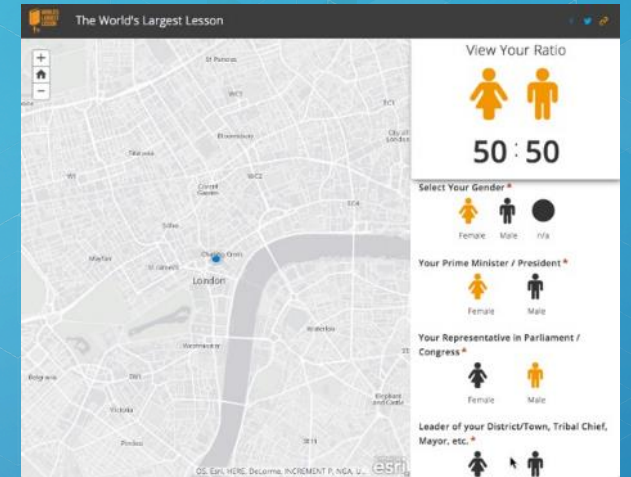
## Child Maltreatment Prediction

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Texas

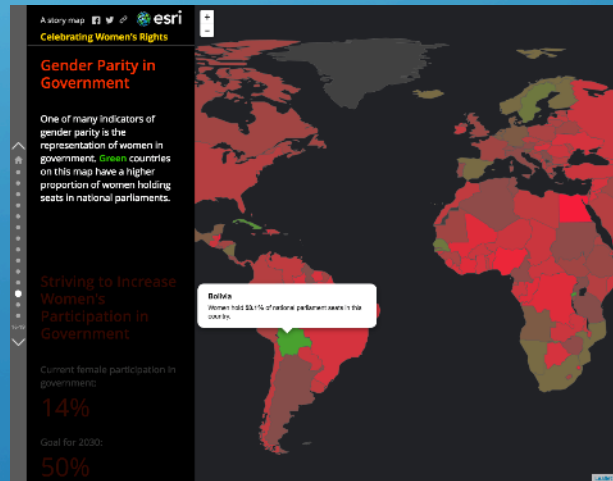
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## Gender Ratio



London

## Gender Equality



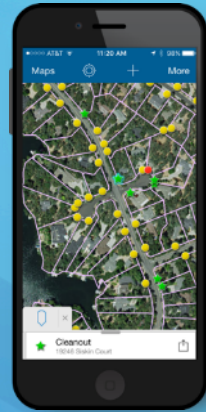
Global





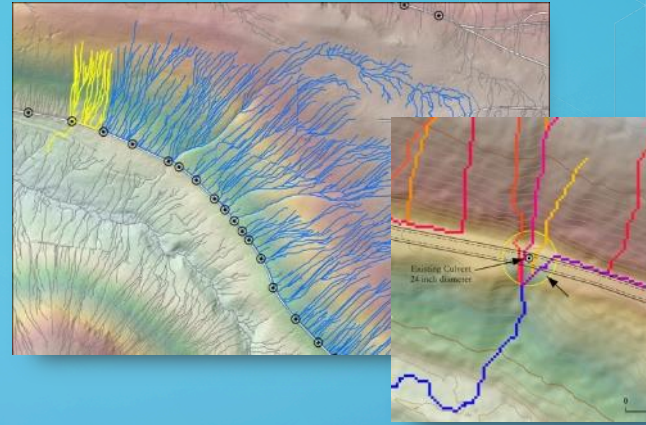
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### Sanitation Cleanout Locations



California

### Drainage Network Modeling



Washington

### Water Quality Monitoring

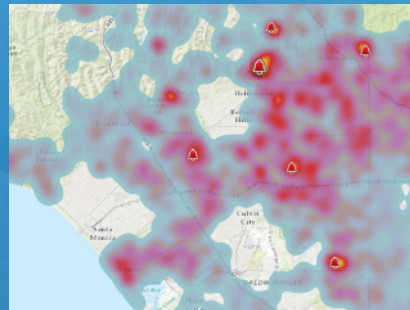


China

### Water and Sanitation Projects

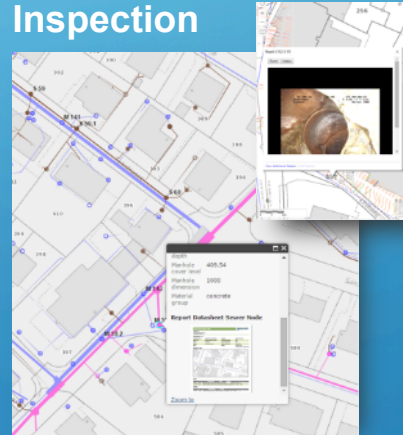
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### Water Monitoring



Los Angeles

### Sewer Inspection



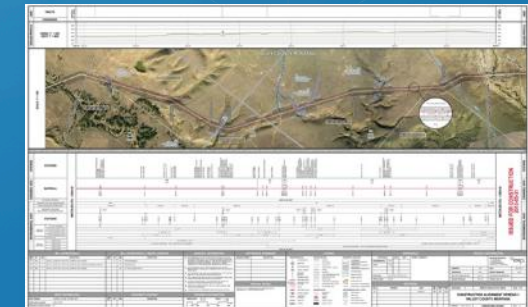
Switzerland

### Work Order Management



New Jersey

### Pipeline Alignment



Montana

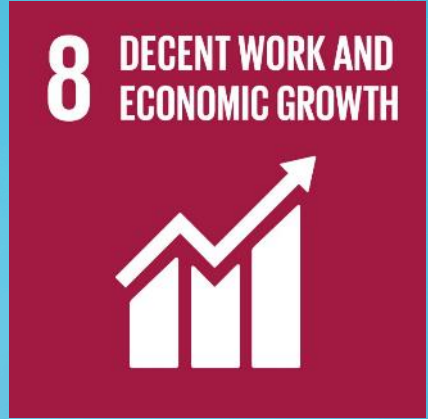
Mozambique



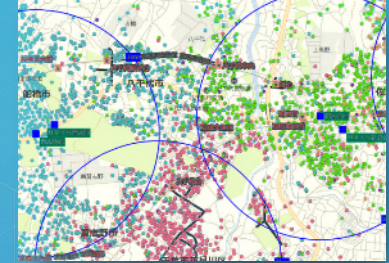
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## Rooftop Solar Potential

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## Market Segmentation



Japan

## Solar and Wind Energy



Philippines

## Massachusetts

## Renewable Energy Monitoring



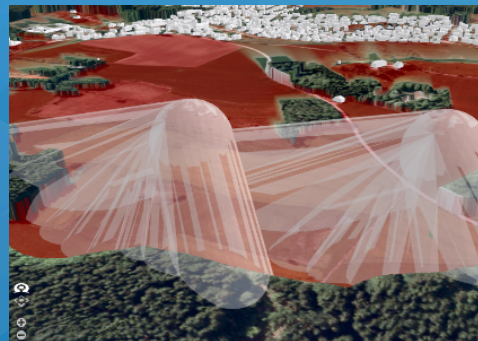
China

## Manufacturing Site Selection

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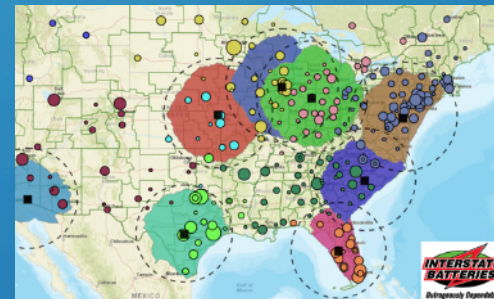
Brazil

## Wind Farm Design



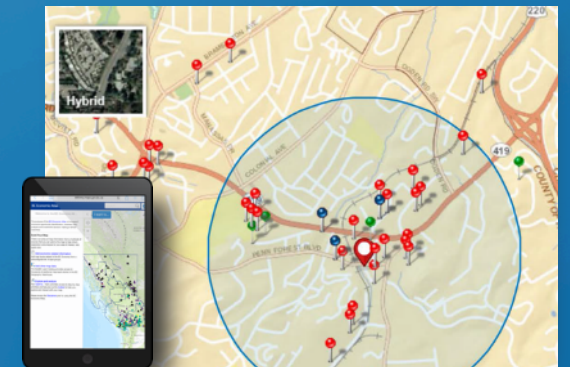
Bavaria, Germany

## Supply Chain Assessment




USA

## Economic Development




Virginia




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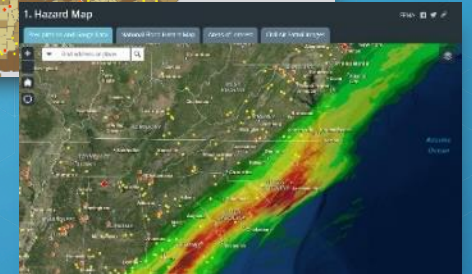
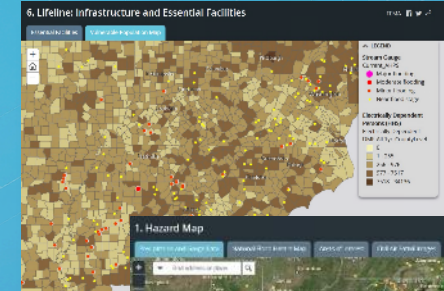
## Smart Network Management

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Denmark


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## Assessing Vulnerable Populations




Florida

## Cell Coverage

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India

## Smart Meters

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Malta

## Job Accessibility



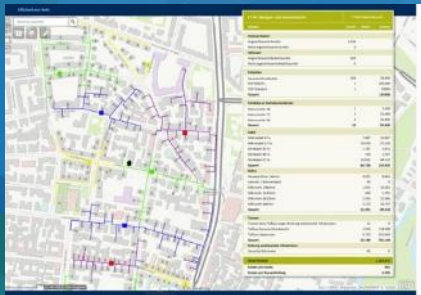
Denver

## Income Inequality

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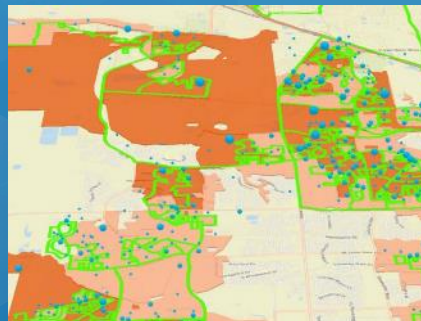
Boston

## Fiber Management




Germany

## IoT Assessment



Houston

## Donation Modeling

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North Carolina



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## Noise Pollution



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Switzerland

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## Walking and Transit Model

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Wisconsin

## Zoning



Honolulu

## Urban Planning

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Abu Dhabi, UAE

## Recycling Communications

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Charlotte

## Urban Heat Islands

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Minneapolis



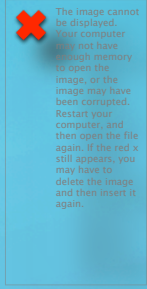


## Glacial Melt



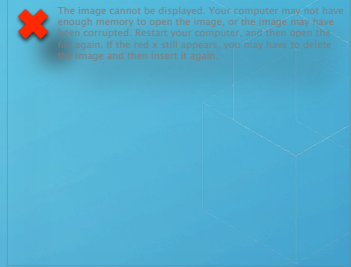
Bhutan (ICIMOD)

## Desertification Survey



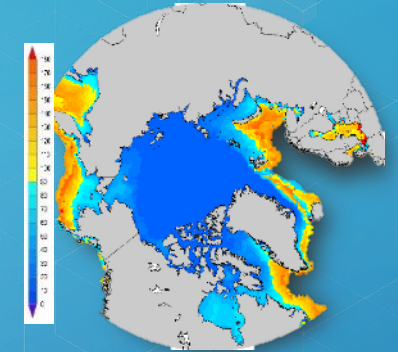
Turkey

## Biomass Assessment



Africa

## Calculating First Ice Freeze



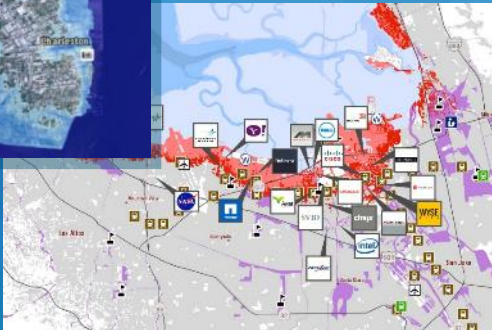
## Monitoring Drought

NOAA

## Sea Level Rise



South Carolina



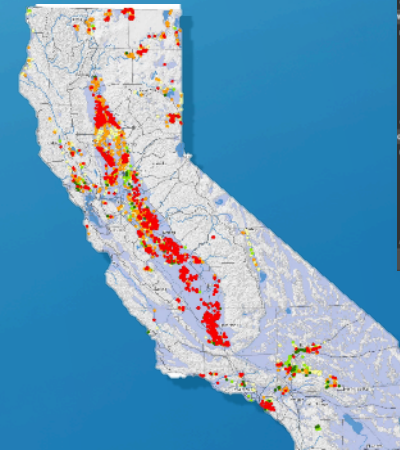
San Francisco

## Forest Carbon Reserves



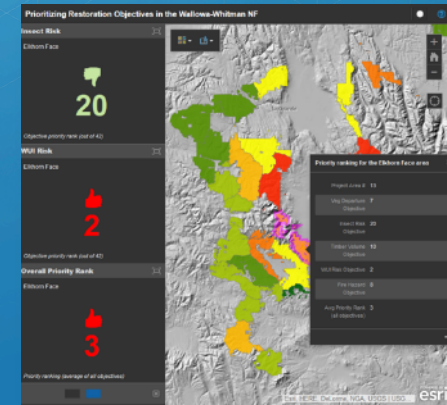
South America

## Groundwater Change



California

## Forest Restoration

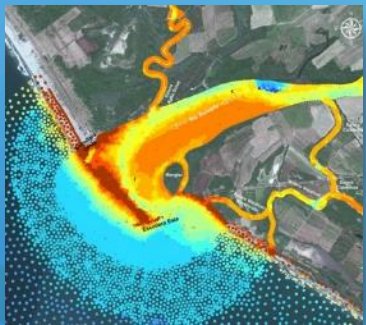


Wallowa-Whitman NF





Sediment Change



Mexico

Coral Communities



Martinique



Biodiversity



Philippines

Habitat Corridors

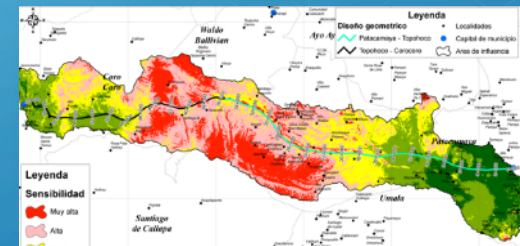


Atlanta



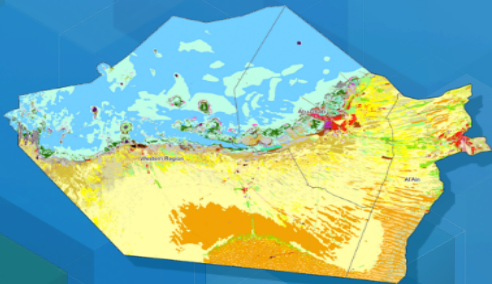
Wildlife Conservation  
South Africa

Ecosystem Sensitivity



Bolivia

Marine and Terrestrial Habitat



Abu Dhabi, UAE

Watershed



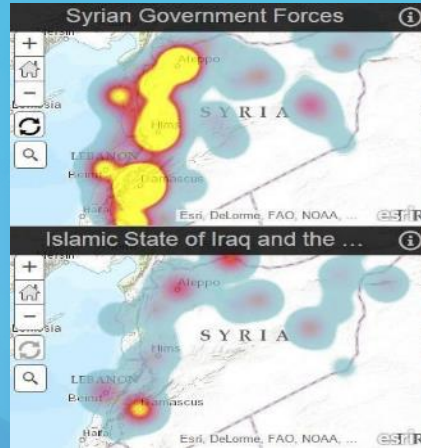
Alaska



16 PEACE AND JUSTICE  
STRONG INSTITUTIONS



### Violence Hot Spots

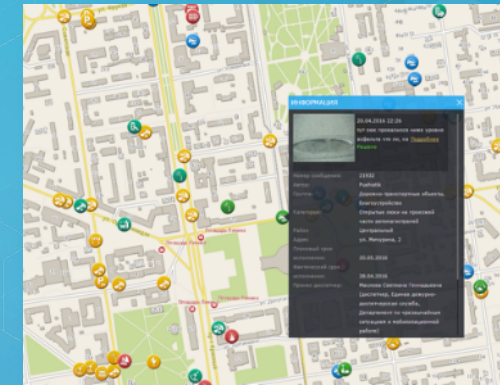


Syria

17 PARTNERSHIPS  
FOR THE GOALS

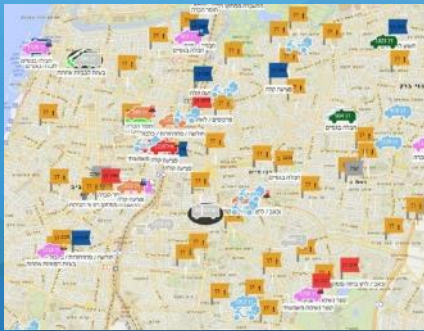


### Citizen Feedback



Novosibirsk, Russia

### EMS Resources



Tel Aviv, Israel

### Marathon Viewshed



London, England

### USAID



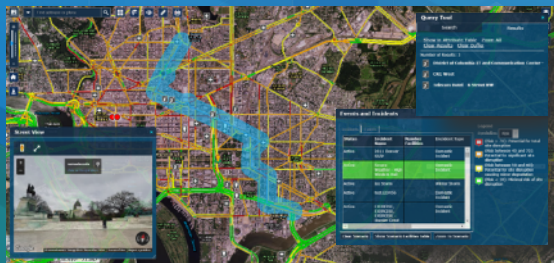
Africa

### Citizen Portal



Ireland

### Infrastructure Protection



DHS



Thailand