

**GEO-X**

# Making a Difference with GEO

OR for the developers in the room:

```
import arcpy  
arcpy.Union_analysis( ["GEO", "GIS"], awesomeness)
```

Thank You Attending This Workshop



# Introduction



# You

A Global Network of Policy Makers, Scientists, Earth  
Observation Professionals, ...

Backgrounds

Cultures

Disciplines

Interests

Organizations

*Evolving Geography as a Platform*

# Our World is Facing Serious Challenges

Collectively We Need to Create a Better Future





# GIS Is Already Helping Users Address These Challenges

An aerial GIS map showing a river and surrounding land. The map is displayed on a large screen. In the foreground, the silhouettes of three people are visible, looking at the map. One person in the center is pointing at the map with their right hand. The background is a dark blue gradient.

**Integrative**

**Visual**

**Qualitative**

**Systematic**

**Comprehensive**

*Providing the Practical Means  
for Transforming Our World*

# GIS Users

Demographic and Health Surveys | USAID





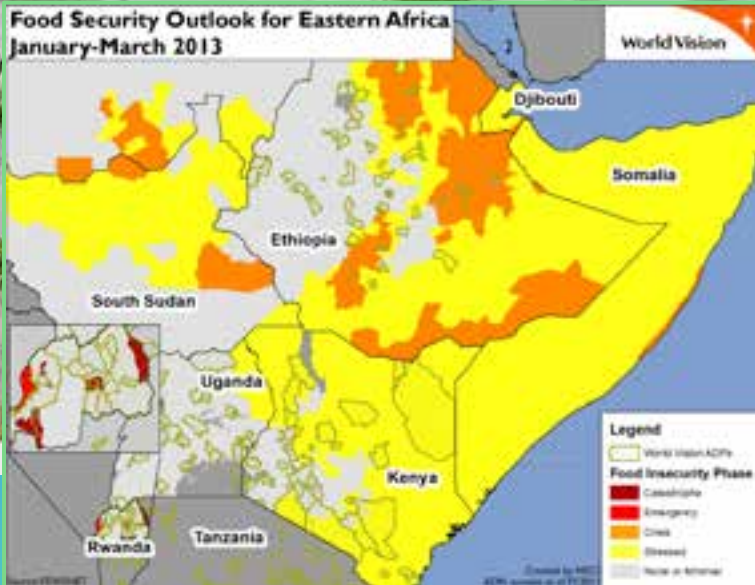
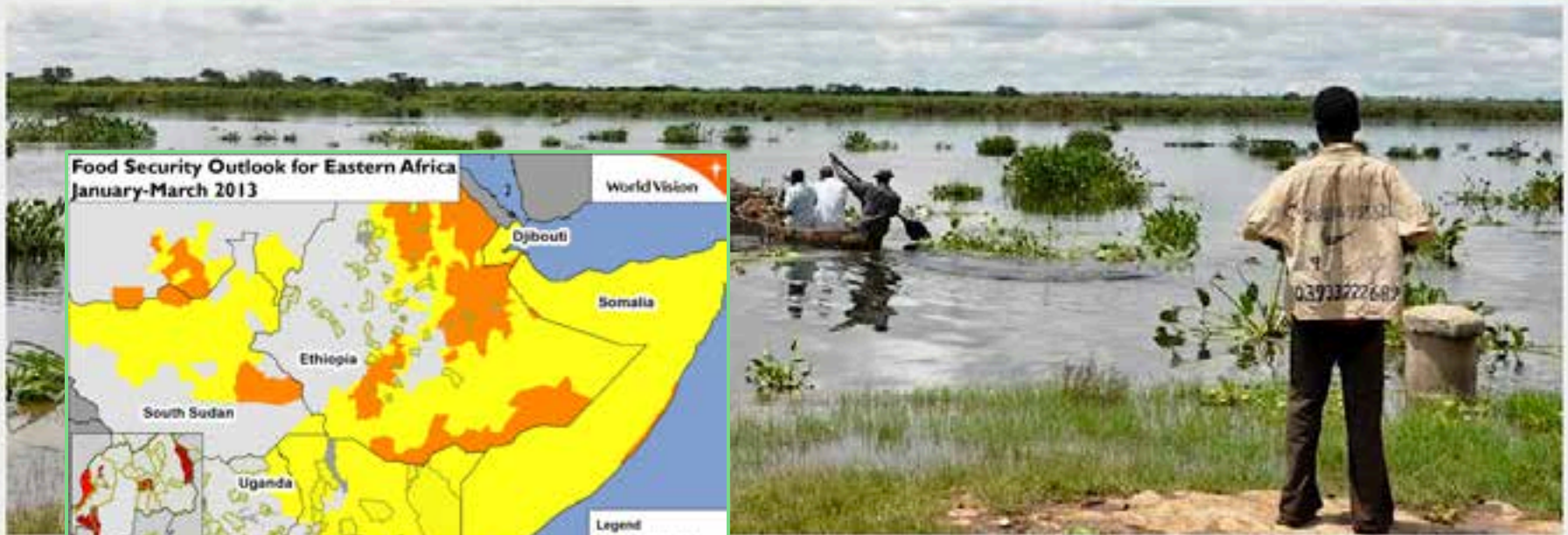
# GIS Users

Health and Nutrition | World Vision

## Water Sanitation and Hygiene (WASH) Field Reporting System



Welcome | Data Collection | Data Submission | Manager Review | Analyze Data



# GIS users

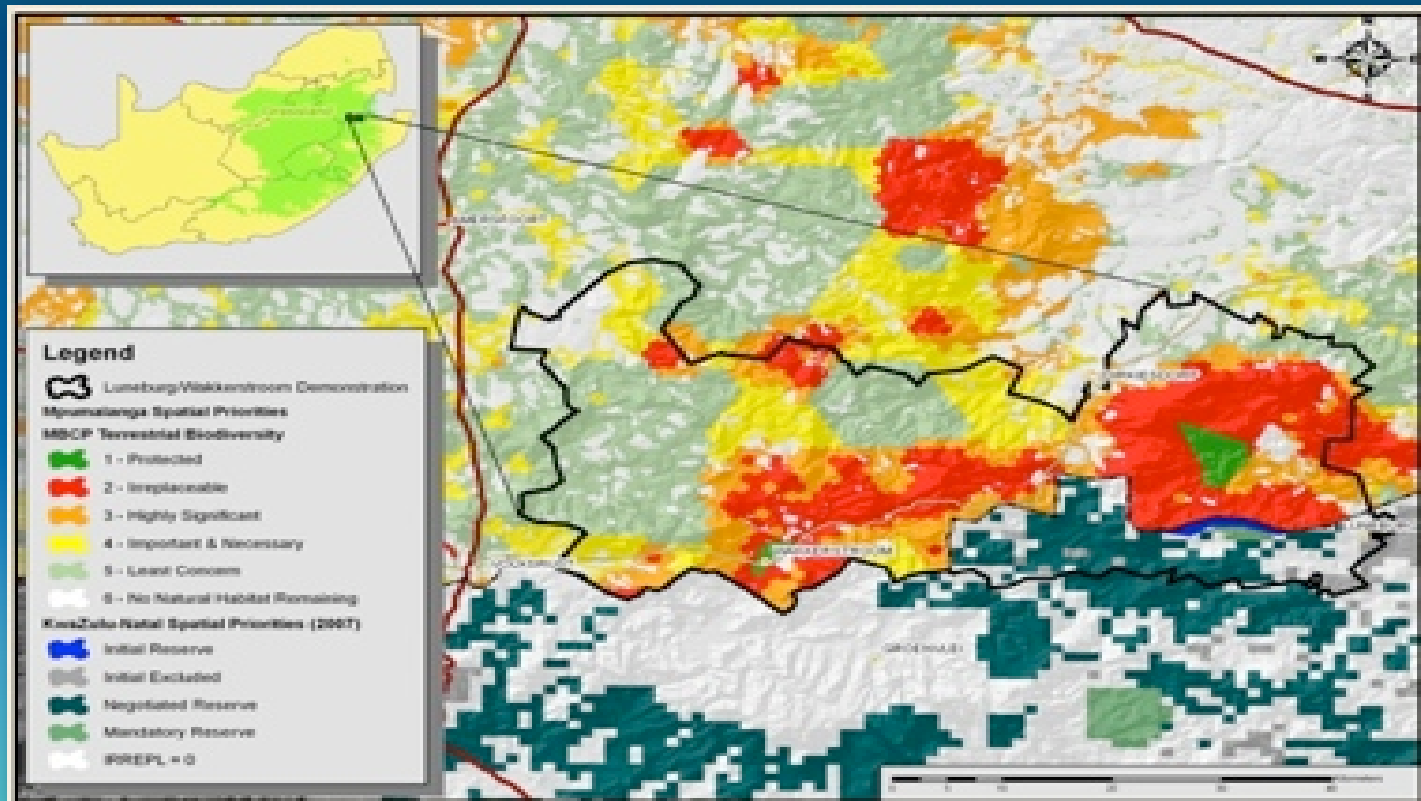
Clean Water | World Resources Institute





# GIS Users

## Conservation Planning I South Africa



# GIS Users

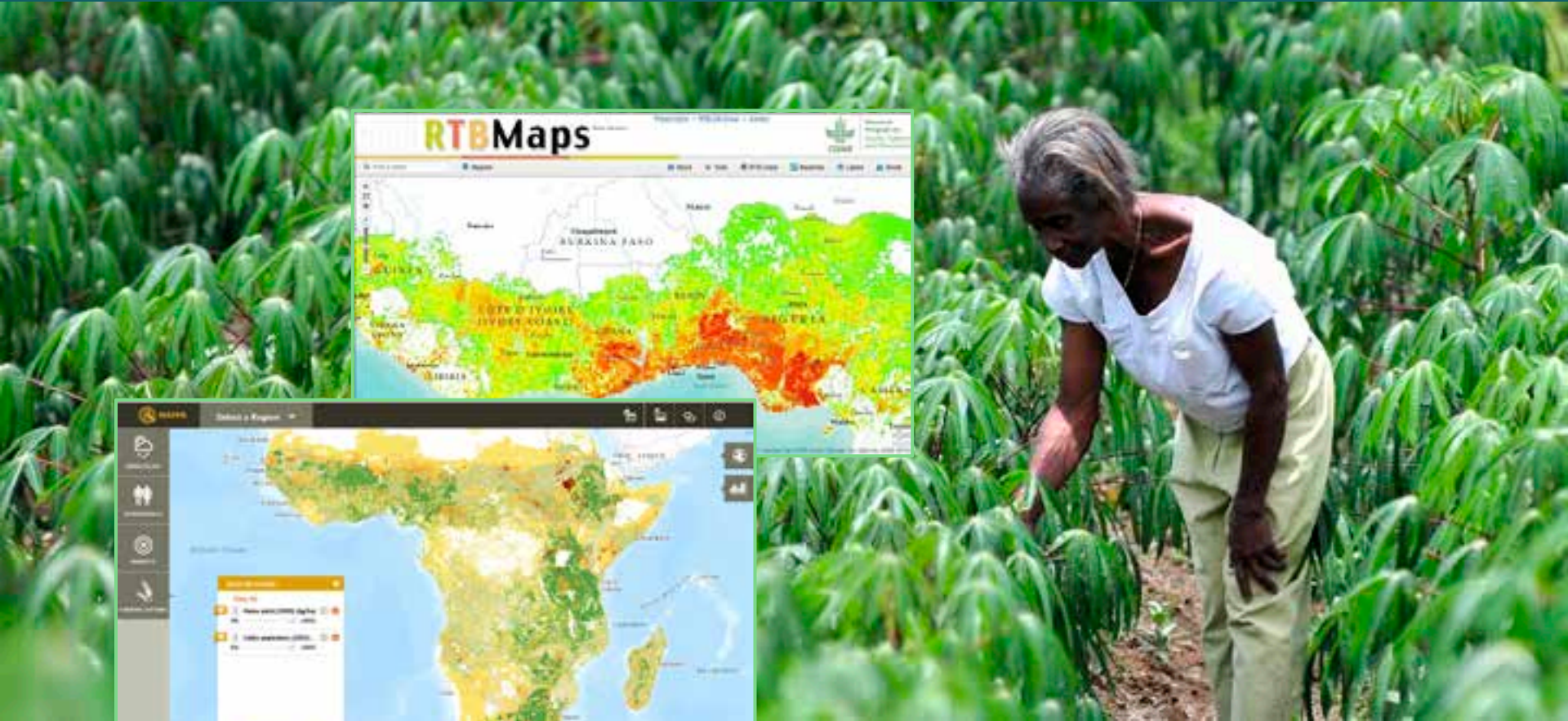
Polio Eradication | Gates Foundation





# GIS users

Agricultural Production CGIAR and HarvestChoice





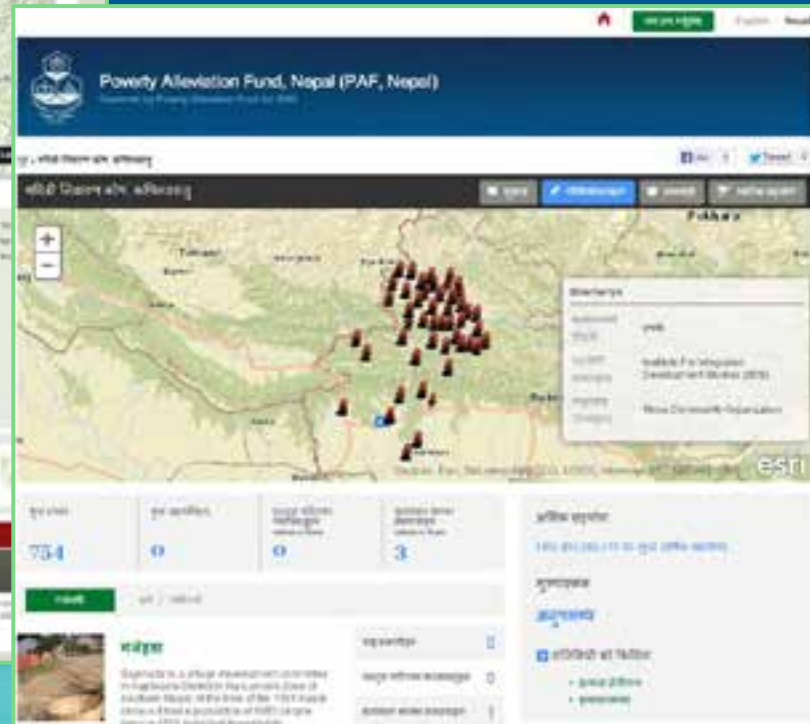
# GIS users

Citizen Engagement and Accountability | The World Bank

## GeoResults



## OnTrack



# GIS Is Changing How We Think and Act

Integrating Geographic Science into What We Do

Measure

Predict

Analyze

Prepare

Plan

Design

Decide

Evaluate

Manage

Act

*We Need to Expand GIS . . .  
. . . Across Organizations and Society*

# GIS Is Being Transformed Into A Web GIS



## Leveraging

Big Data  
Web  
Cloud  
Faster Computing  
Web Services  
Measurement  
Devices

## Integrating

LBS  
Real Time  
3D  
Location Analytics  
Imagery  
GPS  
Lidar  
Pervasive Content

## Emerging

Apps  
Pervasive Access  
Open  
Mapping  
Online Content  
Collaboration  
Analytics  
Mashup  
Easy

Common Geospatial Platform

*Making GIS Easier, and Always Available,*



# The ArcGIS Platform

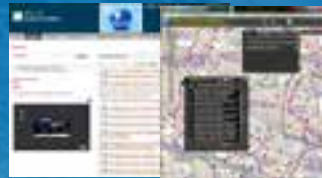
# GIS Users

## Portals- Organizing Data Access

### Citizen Access



### Government Infrastructure



### Open Data



### Internal



# Web GIS Connects Everyone

Knowledge  
Workers



Executive  
Access



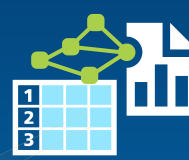
Public  
Engagement



Work  
Anywhere



Enterprise  
Integration



Geospatial  
Professionals



Web GIS

**Making Mapping and GIS  
Available Across Organizations**

*Transforming the Role of GIS*



# Web GIS Makes Maps and Geography More Accessible

Extending The Reach of Geo-Sciences



Demo

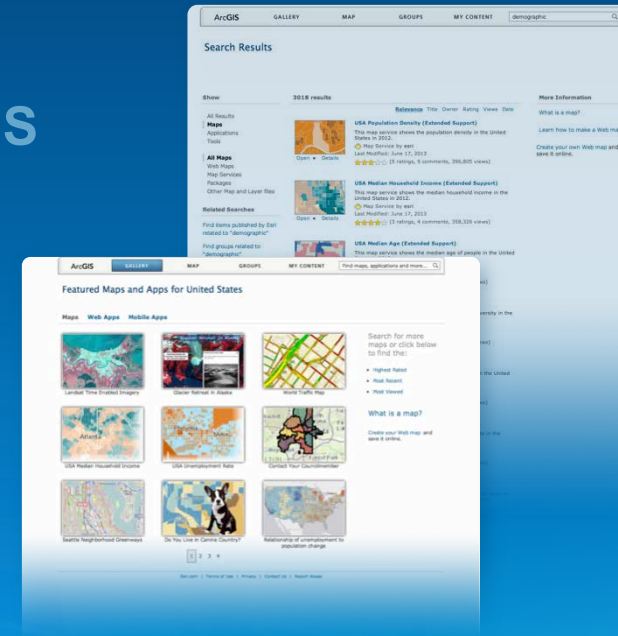
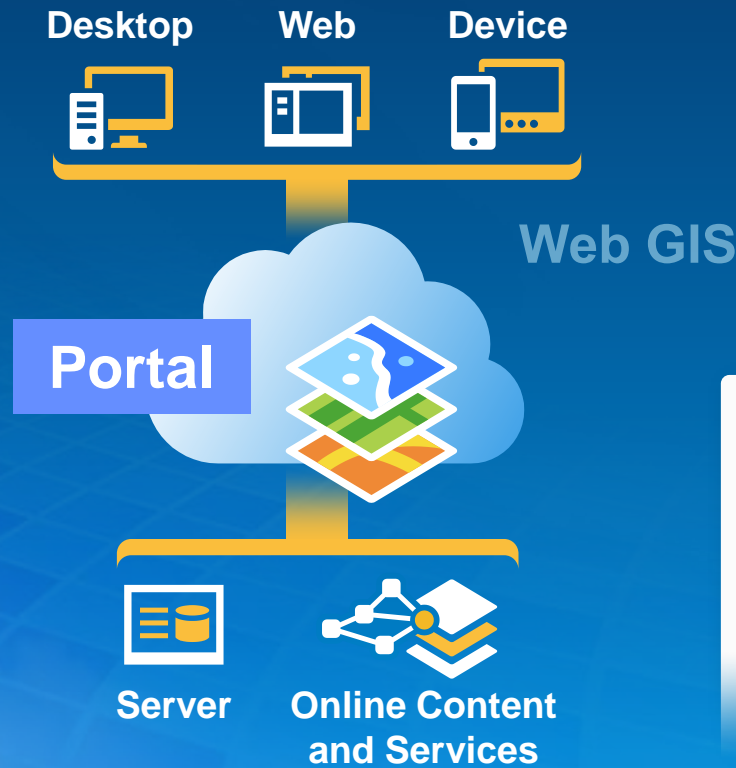
# Esri GEO Portal

Marten Hogeweg

# ArcGIS Is a Platform

## Organizing Content and Managing Access

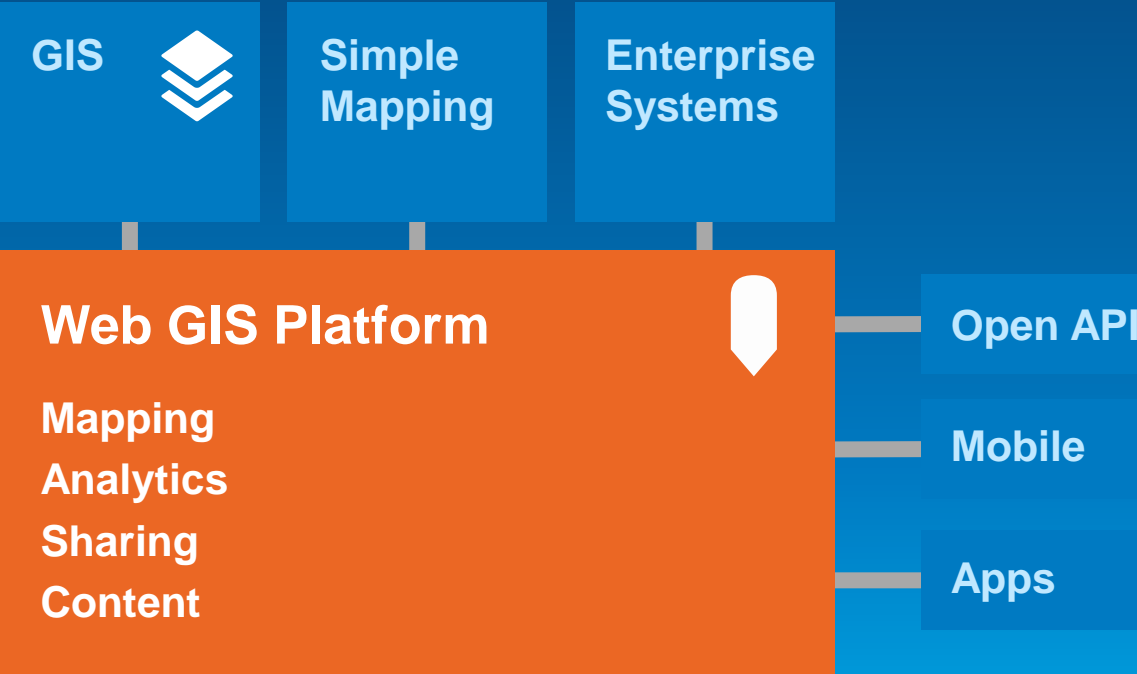
Simple  
Integrated  
Open



*Available in the Cloud . . .  
. . . and On-Premises*



# The Web GIS Platform Supports Everything



# Web GIS Integrates All Data Types

As Web Maps and Web Services



*Providing a New Medium for GIS*

# GIS Servers and Cloud Services Provide Infrastructure

Powerful Data Management and Geospatial Services

Secure  
Highly Scalable



*The Foundation for Shared GIS Resources*



Demo

# Water SBA Demo

Steve Kopp

# GIS Contributes to GEO

# GIS Integrates Organizations and People

Breaking Down the Barriers



Creating New Relationships



*Creating Easy Opportunities  
....for Sharing and Collaboration*



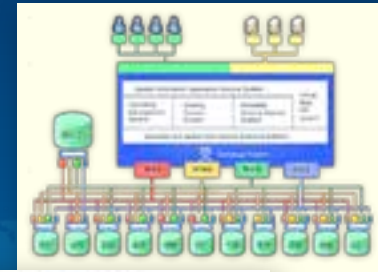
# Creating Regional and National GIS Infrastructure



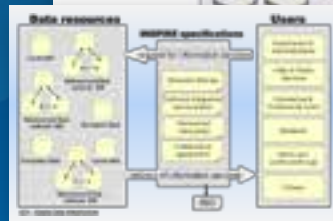
US



Russia



China



EU



Geneva, Switzerland



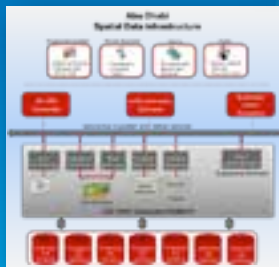
Bogotá, Colombia



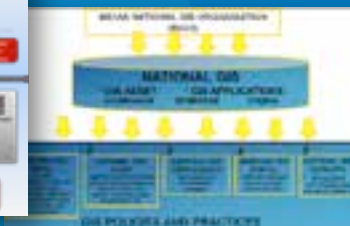
Singapore



Indonesia



Abu Dhabi



India

# ArcGIS Includes Online Content – A Living Atlas

Ready to Use

Best Available

Global





# Online Basemaps

Oceans

Topographic

Canvas

Imagery

Terrain





# GIS Consumes from GEO

# ArcGIS Enables Spatial Analytics

Leverage Cloud Infrastructure

Find Hot Spots



Merge Layers



Summarize Within



Field Calculator  
Extract Data

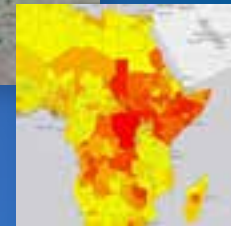
Overlay Layers



Summarize  
Nearby



Enrich Layer



Find Nearest

Create Buffers

Dissolve Boundaries

Aggregate Points



Drive-Time Areas



*Enabling New Approaches for GiScience*

# ArcGIS Supports Developers

Open – Empowering a New Community



```
--(void)addNewLayer:(NSString *)layerName  
{  
    // Add data as a Feature Layer  
    NSMutableArray *featureLayers = [NSMutableArray arrayWithCapacity:1];  
    self.featureLayers = [NSMutableArray arrayWithCapacity:1];  
    self.featureLayers.addObject(self);  
    [self.featureLayers addObject:self];  
}  
  
--(void)addNewLayer:(NSString *)layerName  
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}
```

- Silverlight
- Web
- REST
- Objective-C
- JavaScript
- WPF
- HTML5
- .NET
- Flex
- iOS





# Benefits for the Users of GEO

# Shift Focus From Infrastructure to Use



*We have figured out the plumbing aspect of SDI*

# Focus on Using SDI

- Who ARE the users?
  - GIS Professionals
  - Subject Matter Experts
  - New Media Editors
  - Policy advisors
  - Executives
  - ~~Developers~~
- What do they NEED?
  - Information Products
  - Maps
  - Data
  - ~~C#, Java, .NET, PHP~~





# Information Products Require Good Design

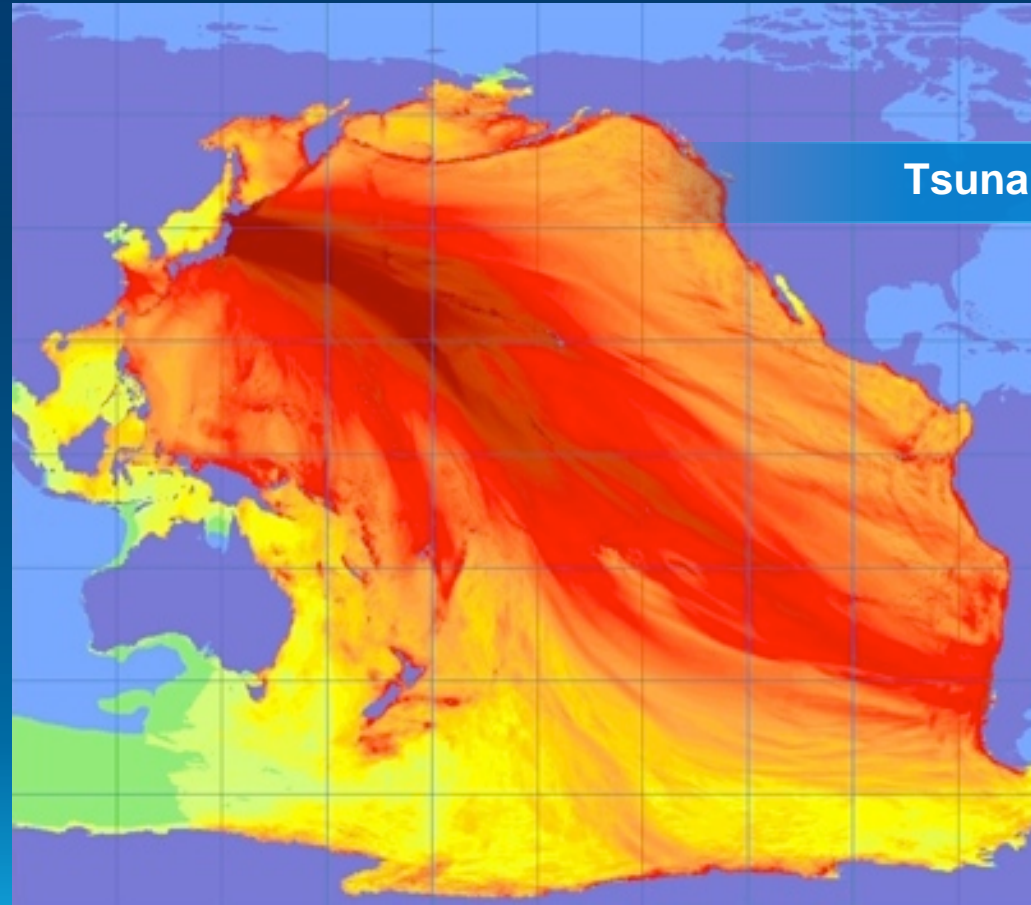
- Understanding Issues
- Appropriate Data
- Analysis & Manipulation

*... And A Compelling Design*



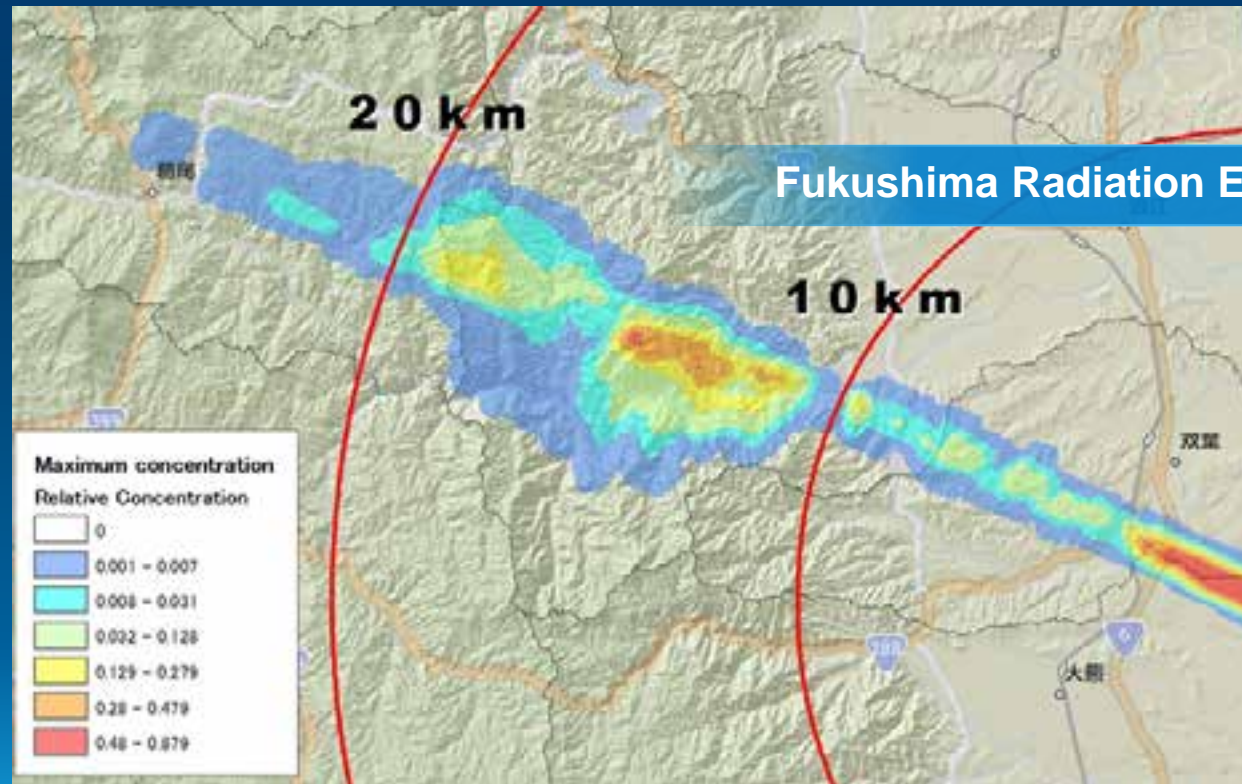
*... Not This*

# Good Information Products Are Timely

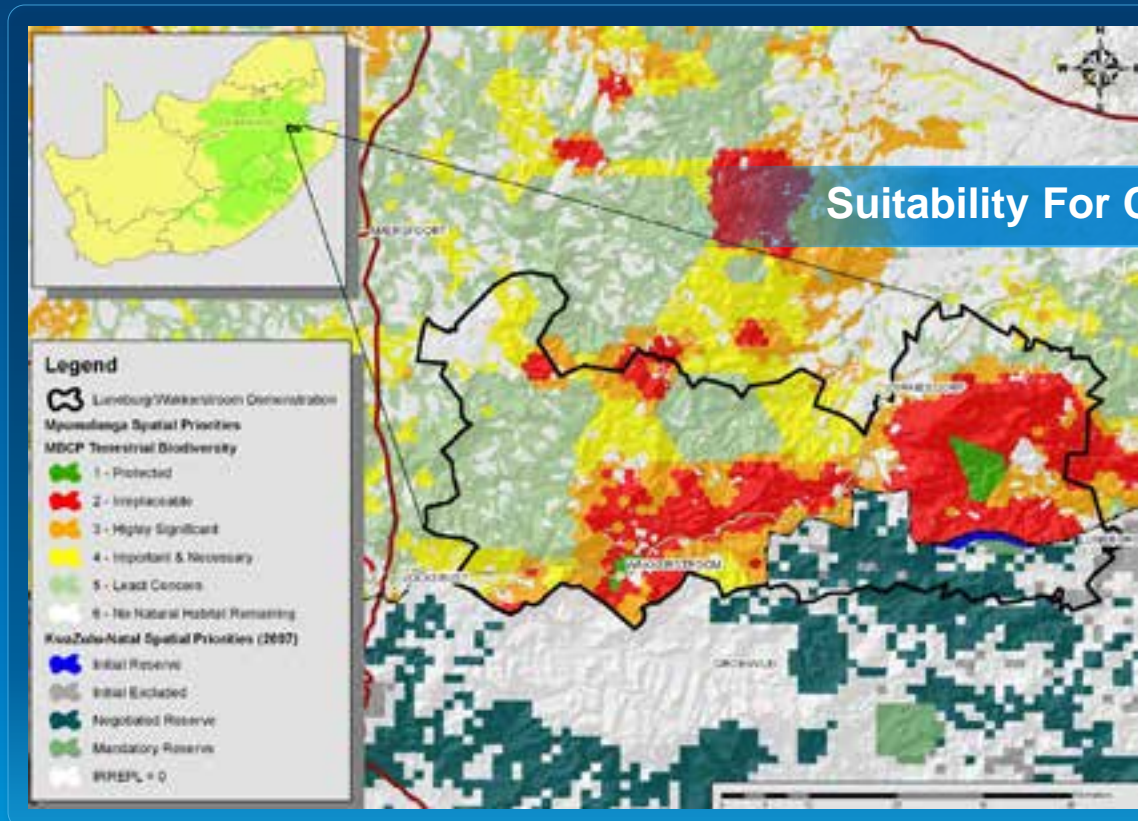


Tsunami Forecast

# Good Information Products Disseminate Knowledge



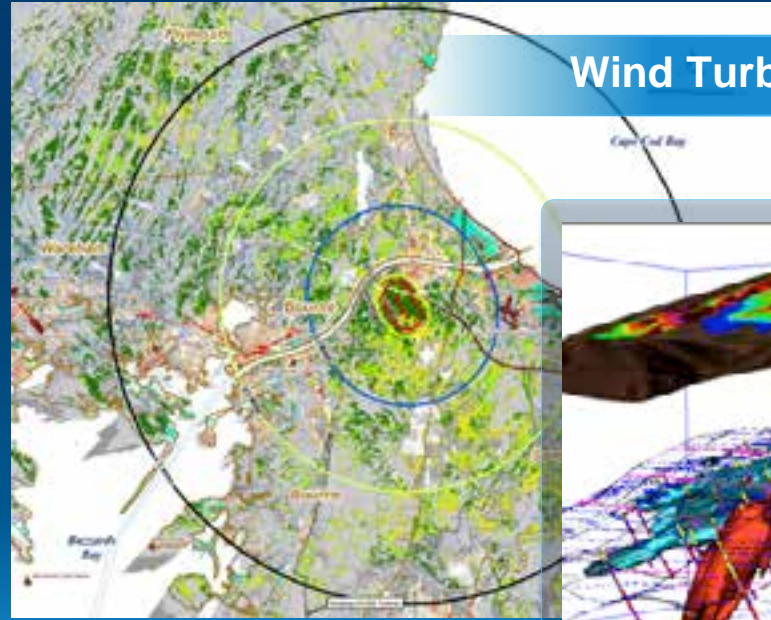
# Good Information Products Communicate Importance



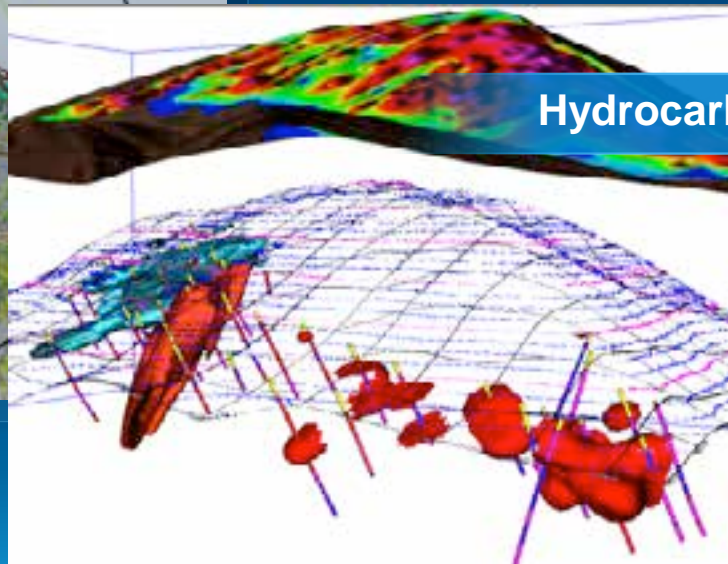
Suitability For Conservation



# Good Information Products Support Decision Making



Wind Turbine Suitability



Hydrocarbons

# Good Information Products Show Status

Government Expenditures vs. Need



Haiti AID Funding

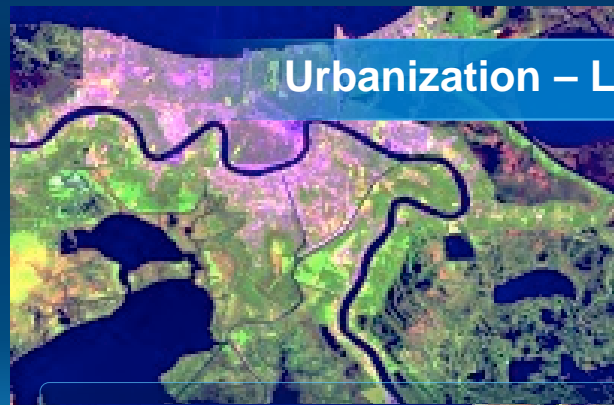


World Bank Projects

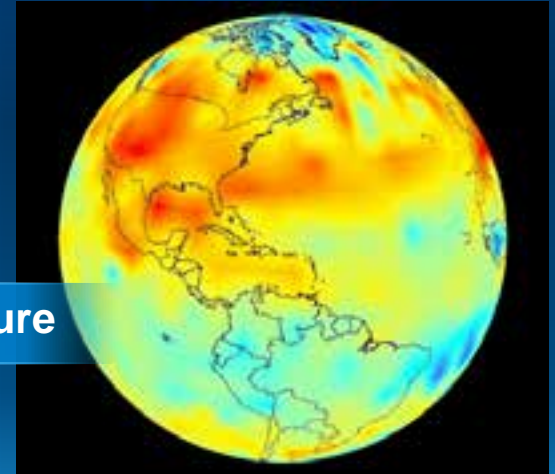


# Good Information Products Illustrate Change

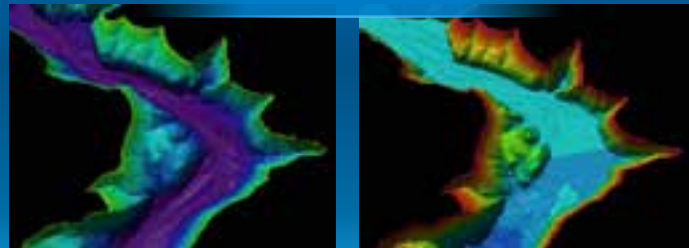
Urbanization – Landsat



Temperature

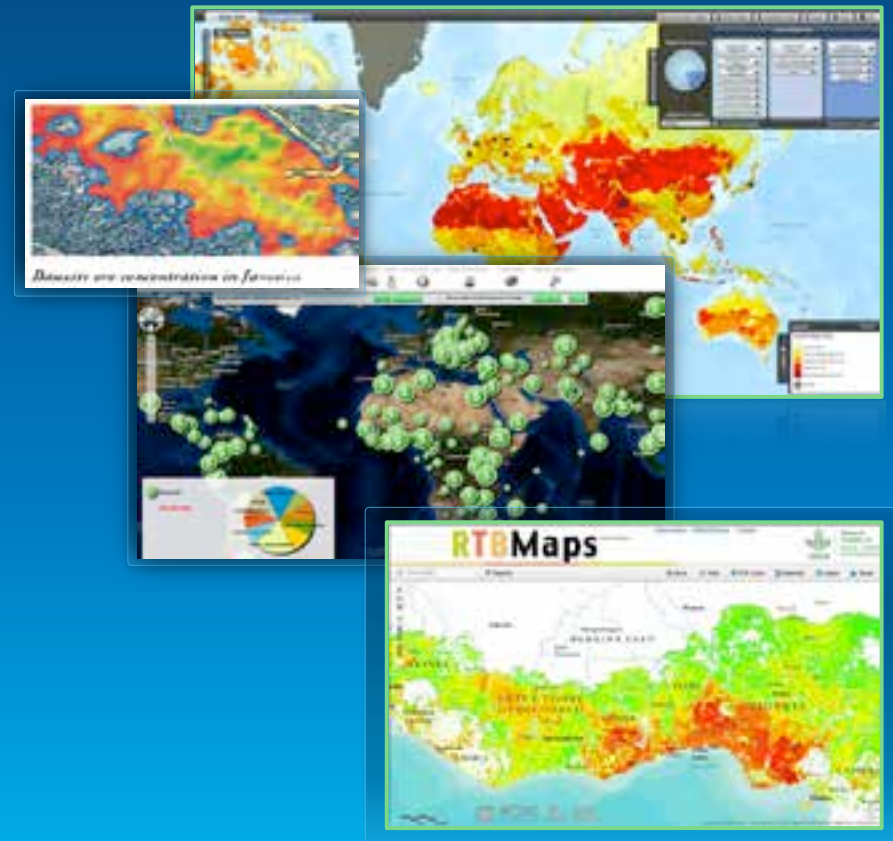


Sedimentation



# Web Maps are a Medium for Information Products

- Integrating Services (Data, Maps, Models...)
- High quality mapping
- Pop-ups, charts, and graphs
- Live links to web services
- Temporal data (trend data)
- Spreadsheets and map data
- User annotation and sketching
- Spatial analysis
- Embedding in other applications





Demo

# Building an Information Product

Marten Hogeweg



Understanding our world.

# GIS Community Development

Advancing UN and International Collaboration

## GIS for the United Nations and International Community Conference

Geneva, Switzerland | April 7-8, 2014



[GISfortheUN.com](http://GISfortheUN.com)