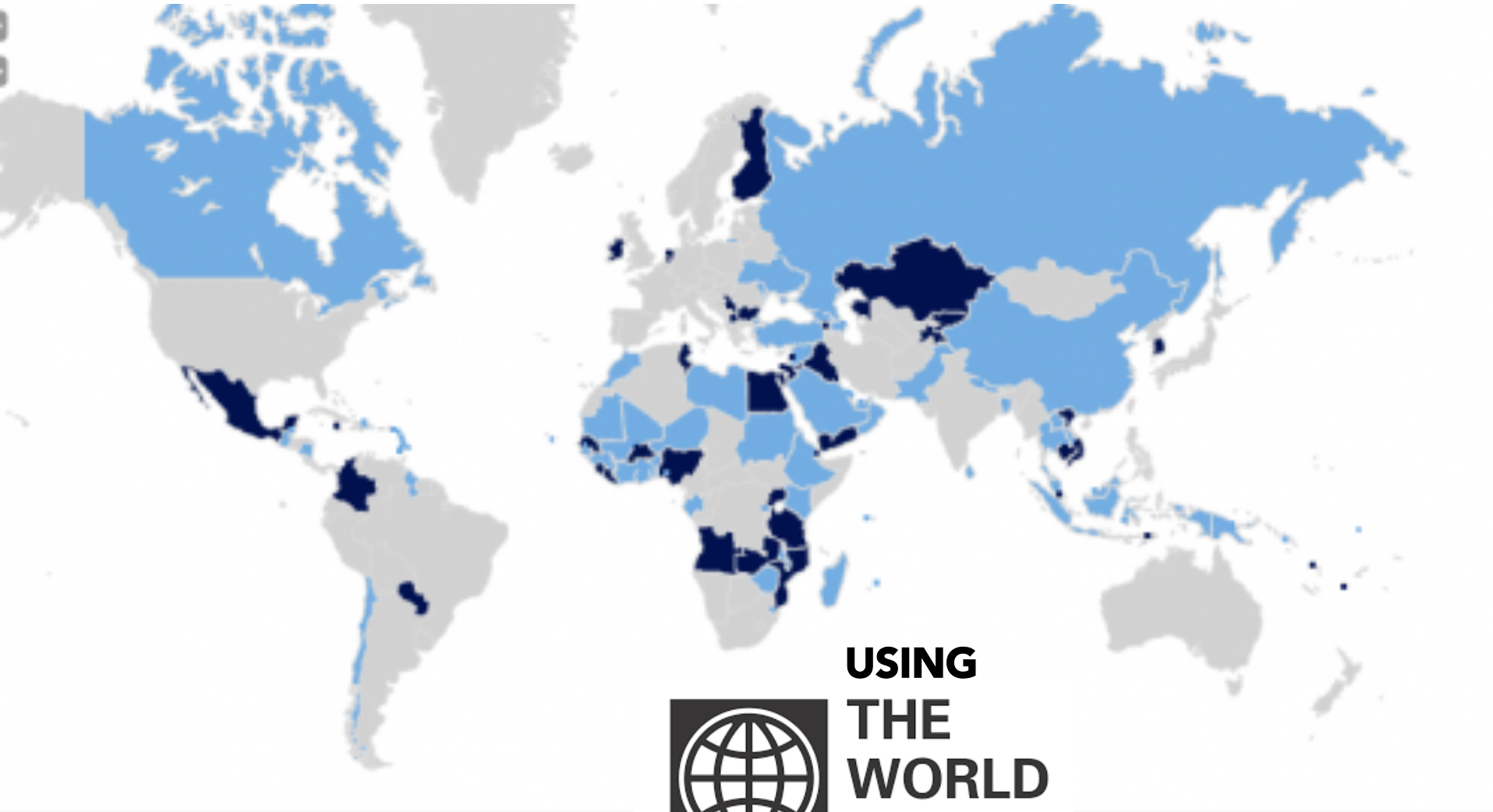


# A Better World in Numbers



**USING  
THE  
WORLD  
BANK  
DATABANK**

# Before We Start: Tableau

- Free for students!
- Download from [www.tableau.com/academic/students](http://www.tableau.com/academic/students)
- Click through installer
- Verification takes a few minutes so

# Where are we from?

You are all scientists and engineers

We have the power to make our communities better

What would you change?

Let's illustrate a map!



OpenStreetMap contributors

The World is Full of Problems

Education

Credit systems

Transportation

City Planning

Hunger

Gender equality

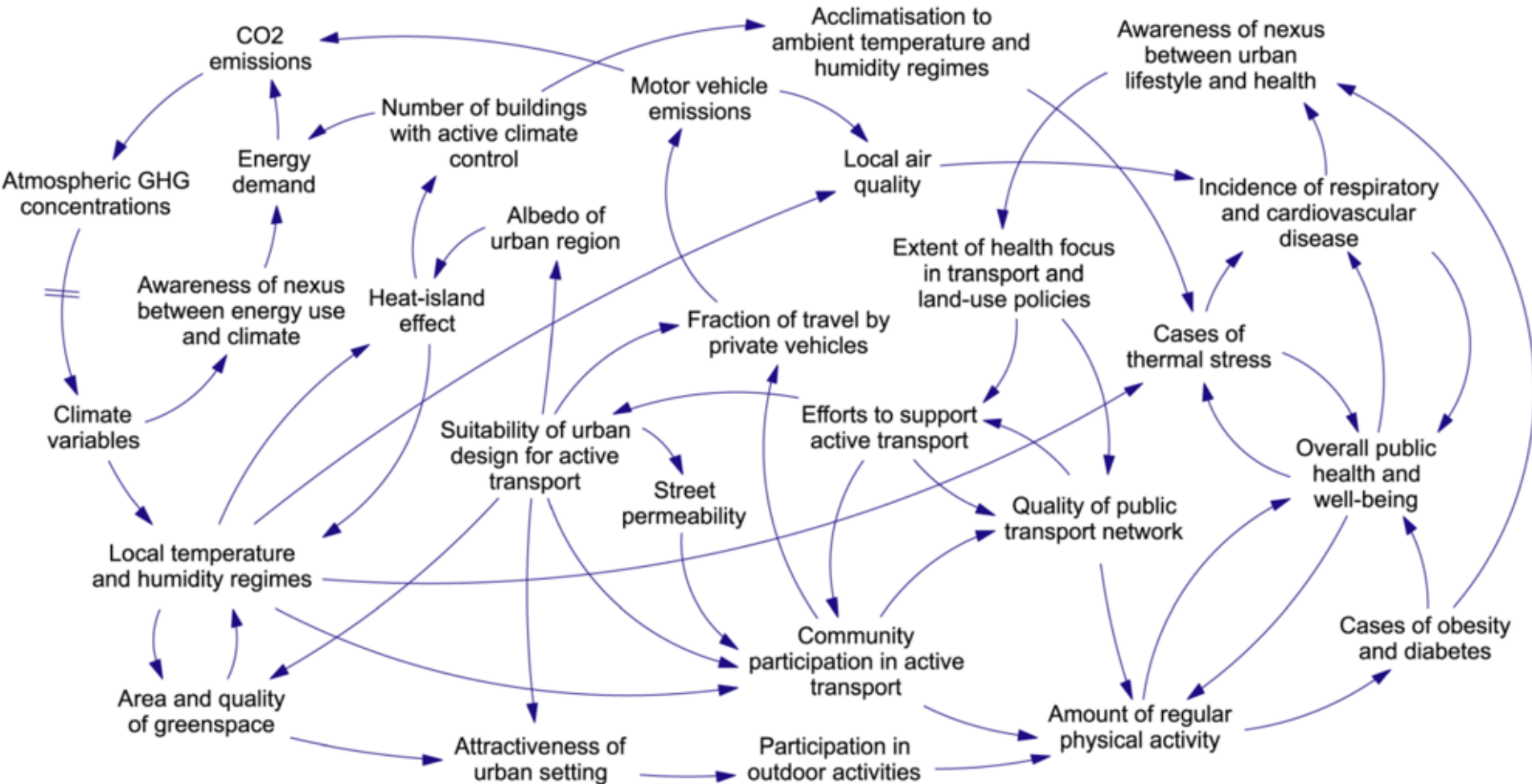
Healthcare

Poverty

Disaster Management



# These Issues Can Get Chaotic Fast!

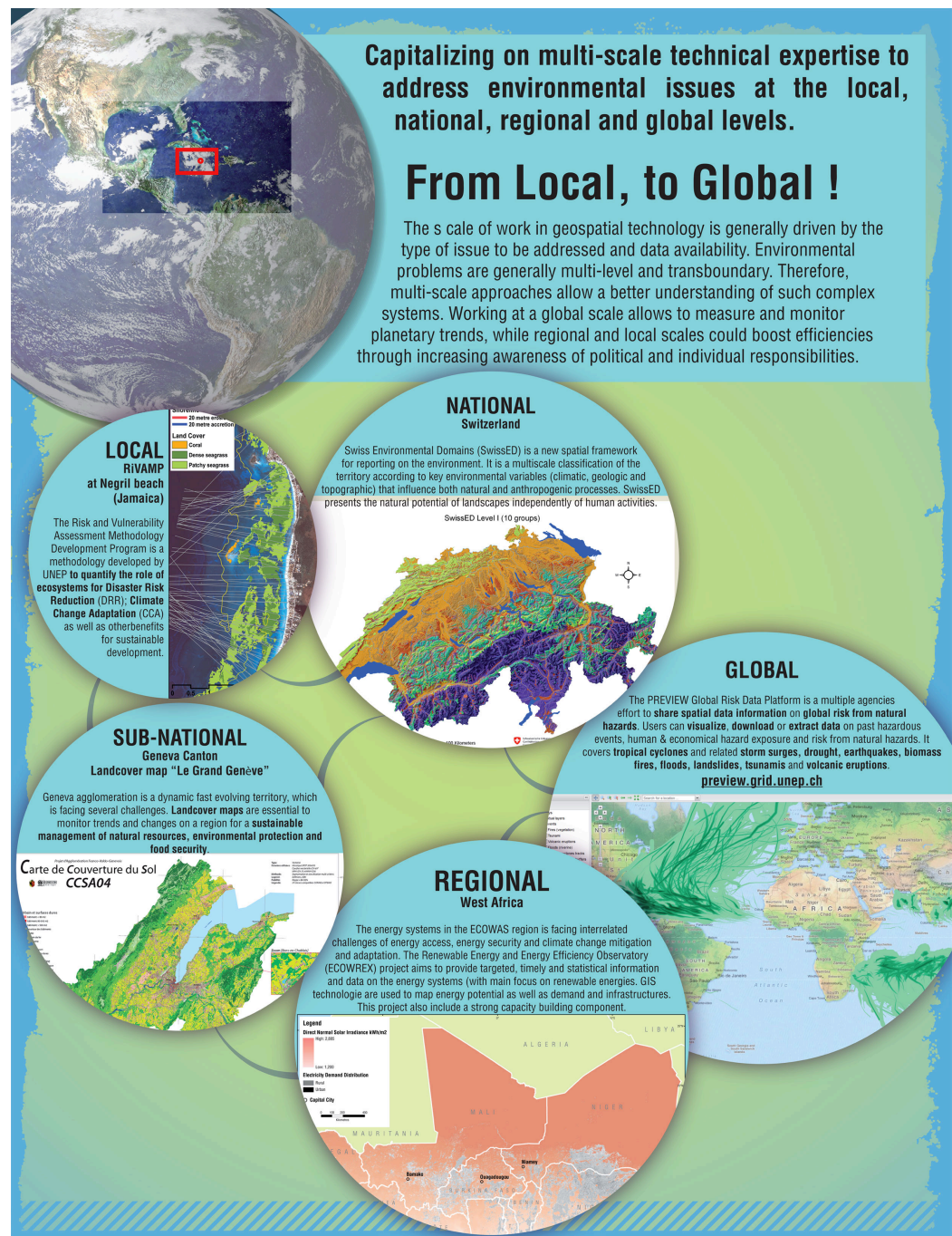


# Issues at Different Scales Talk to Each Other

## Example: Disaster management

Local measurements of tremors  
Compiled into regional database  
→ National database  
→ Global database

Local information necessary to  
build big picture  
Large scale patterns in space and  
time drive policy and infrastructure  
on local level



# Creating Order from Chaos

Ultimately: Data Helps Us Understand  
Cause and Effect

# But How Do We Get this Data?

- In some cases, we can collect microdata using smartphones and sensors in public spaces

THE LOCAL SENSE LAB



## LIVE FROM DOWNTOWN CROSSING

**30**

people on Summer  
Street

**36 DB**

noise level

**77 °F**

temperature

**388 PPM**

carbon dioxide levels

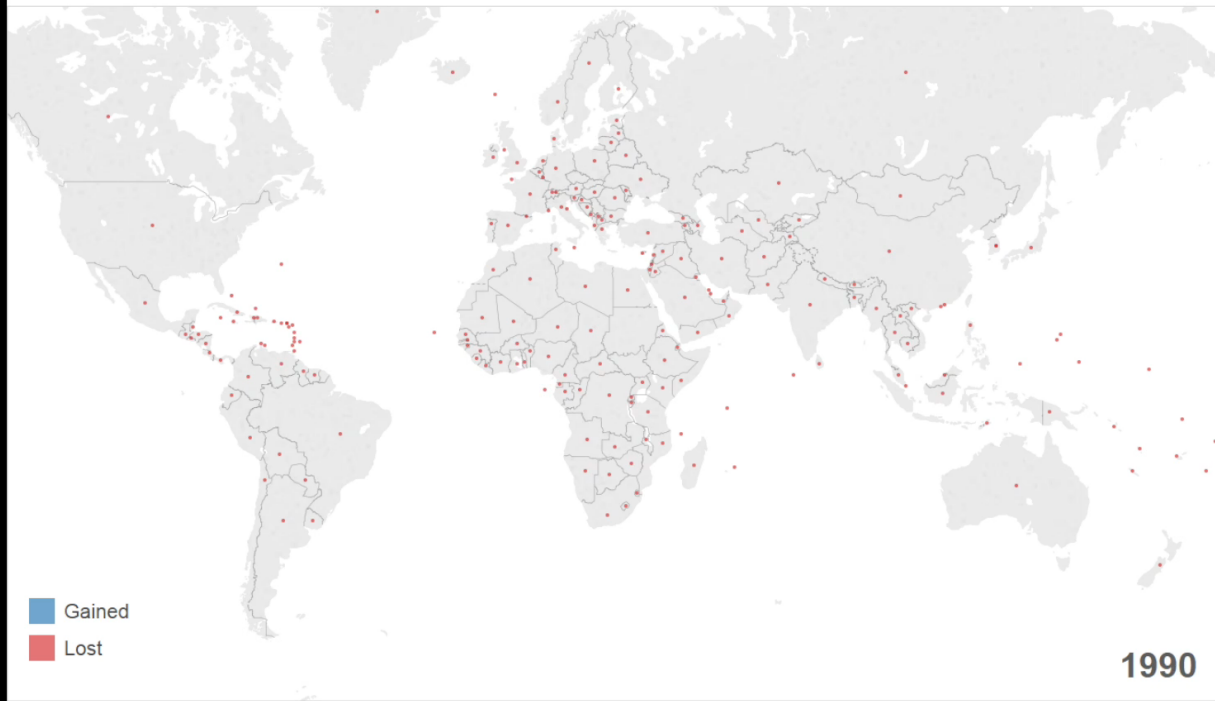
Instead, today we let the World Bank do the work for us.

The screenshot shows the World Bank Data website. At the top, the logo for THE WORLD BANK (IBRD • IDA) is on the left, with the tagline "Working for a World Free of Poverty". To the right are language options: English, Español, Français, عربي, Русский, 中文, and a search bar. Below the header is a navigation menu with links for Home, About, Data (underlined), Research, Learning, News, Projects & Operations, Publications, Countries, and Topics. A dark red banner with the word "Data" in white is below the menu. Underneath the banner is a horizontal menu with buttons for "By Country", "By Topic", "Indicators", "Data Catalog", "Microdata", "Initiatives", "What's New", "Support", and "Products". Below this menu, it says "This page in English | Español | Français | العربية | 中文". The main content area features a headline: "World Bank Open Data: free and open access to data about development in countries around the globe." Below the headline are three panels. The left panel has a line graph showing an upward trend and the text "Troubled waters: ensuring sustainable fishing and healthy oceans" by R. Brummert, dated May 10, 2016. The middle panel is titled "Find an indicator" and has a search box containing "GNI per capita, Atlas method (current US\$)" and a "Go" button. Below the search box are "BROWSE DATA" options: "By Country" (with a globe icon), "By Topic" (with a folder icon), "Indicators" (with a document icon), and "Use our Data" (with a download icon). At the bottom of the middle panel are "FEATURED" and "RECENTLY UPDATED" sections, both listing "World Development Indicators". The right panel is titled "The World at a Glance" and features "Economy & Growth" with a magnifying glass icon. It displays "GDP at market prices (current US\$)" and a large value of "\$77.96 trillion" for the year "2014". Below this is a line graph showing an upward trend.

# Global issues: Forest Cover

## Where Have Forests Been Lost and Gained?

Change in forest area (km<sup>2</sup>) by country since 1990



1990

Show History

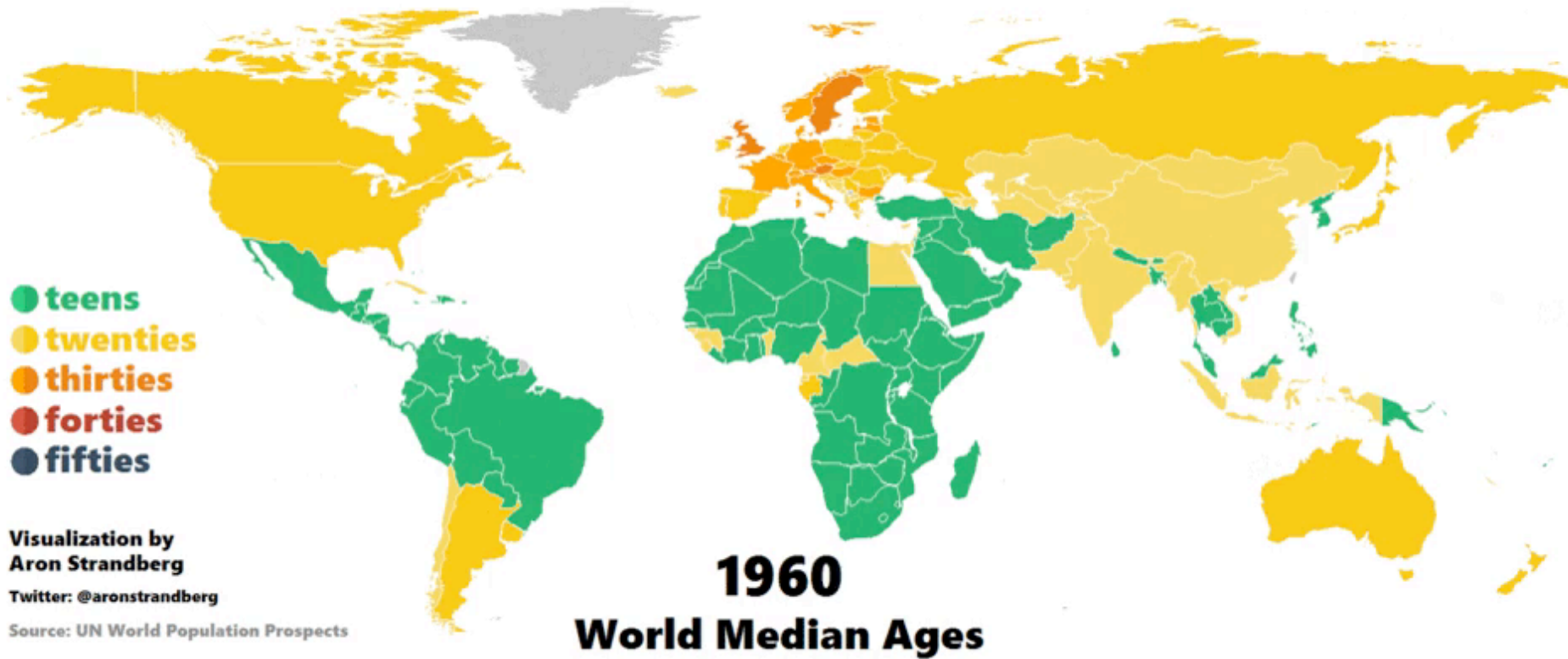
Source: <http://data.worldbank.org/indicator/AG.LND.FRST.K2>

# Global issues: Forest Cover

- Red stays red, blue stays blue
- Most gain has been in Europe, North America, China and India
- Most loss in South America and Africa
- Outliers?
  - Not obvious
  - How could we make this more obvious?



# Regional issues: Aging





# Local issues: Entrepreneurship

#DoingBiz

DOINGBUSINESS.ORG

**Starting a business is becoming easier around the world**

In 2003,  
it took an average of  
**51 days**  
worldwide to start a business



In 2015,  
this has been more than halved to  
**20 days**



DOING BUSINESS 2016



WORLD BANK GROUP

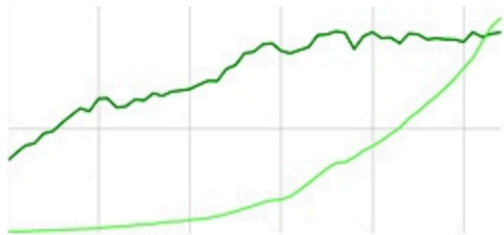
# So let's play!

## Data

By Country By Topic Indicators Data Catalog Microdata Initiatives What's New Support Products

This page in English | Español | Français | العربية | 中文

**World Bank Open Data:** free and open access to data about development in countries around the globe.



**Troubled waters: ensuring sustainable fishing and healthy oceans**

R. Brummert | Posted on 10 May 2016

**Protecting life on land to protect the poor**

M.E. Tabary and P. Agostini | Posted on 12 May

### Find an indicator

GNI per capita, Atlas method (current US\$)

#### BROWSE DATA



#### FEATURED

World Development Indicators

#### RECENTLY UPDATED

World Development Indicators

### The World at a Glance

#### Economy & Growth

GDP at market prices (current US\$)

**\$77.96 trillion** 2014



# Enter Tableau

- By now the installer should have opened Tableau
- Check your email for a license key
- Use that to Activate your Tableau



# Common Thread: Visualization is Powerful

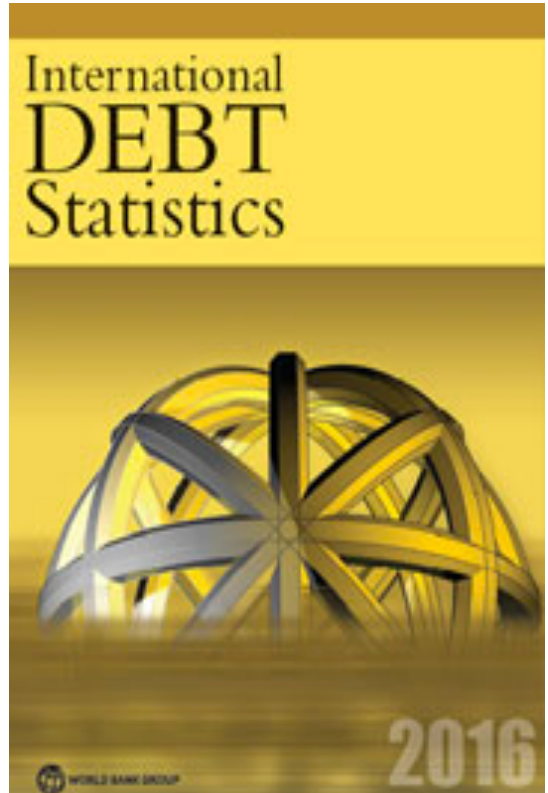


**Gender  
Data  
Portal**

# Making a Movie

- Digest this tutorial <http://www.tableau.com/learn/training>
- Use data from one of the sets above
- Compile images into animation using
- **If you have Mac:**
  - iMovie
- **If you have Windows:**
  - [timelapsetool.com](http://timelapsetool.com)
- **If you have Unix:**
  - `sudo apt-get install ffmpeg`
  - `ffmpeg -r 2 -i %04d.png -s hd480 -vcodec libx264 -vpre hq your-time-lapse-name.mp4`

# Lots More from the World Bank



# Questions? Ideas!

