

## Final Project – State of the World by United Nations Indicators

In response to this month's report from the Inter-Governmental Panel on Climate Change (IPCC), Kevin Anderson (University of Manchester, UK), brings attention to the world's huge asymmetry of consumption, emphasizing that "50% of global carbon emissions arise from the activities of around 10% of the global population, increasing to 70% of emissions from just 20% of citizens". His article at: <https://www.commondreams.org/views/2018/10/09/what-does-science-demand-global-energy-transformation-focus-inequality-consumption>.

In this context, in the final project we will take a look at countries of the world from the perspective of better understanding their relationship between *stage of development* and impact on nature. Thus, Earth is our study area. We will develop our own index that measures good governance of countries. For the development of this index we will use 12 - 16 variables organized in Measures and Indicators. A good method used for a similar topic is the Social Progress Index project at: <http://www.socialprogress.org>.

What will we learn through this project?

- Work with socio-demographic and secondary data that are not inherently geospatial and that do not represent the physical environment explicitly.
- Build a Geospatial Data Library of 12 - 16 variables, by collecting, evaluating, and standardizing publicly available data that are not in a geospatial format.
- Use spatial analysis to summarize Geospatial Data into meaningful information and knowledge, expressed analytically and cartographically in a manner that is easily understood by broad audiences.

How will we reach our goal?

This project is wide open. Each group can choose to entirely create its own data, and/or make use of the provided data. Each group will create their own composite indexes from Measures and Indicators (for example you can create an index of progress by combining literacy rate, internet use, poverty level, and incarceration level, and also weight each variable if you want). There are no constraints on how to use the data, or design the method. Each group can come up with an initial hypothesis at the start of the project, and then let the data and methods, prove or disprove it. But setting an initial hypothesis, or research question, is not required. You should only do it, if you feel that it helps you design the project better. The final goal, is to shed some light into issues that are not easily seen in the noise of too many (and often not geographic) data.

## Preparing the data for the Final Project

Most of the data that we will need, is compiled by institutions of the United Nations, that are responsible for monitoring the welfare of the world. Out of hundreds of available indicators, you can: **(a)** pick from the 16 that are listed below, organized under 7 measures, and **(b)** create new ones (3 - 4 per group, at least).

To prepare the additional indicators we will download the data from the web in an excel format, then we will convert it to GIS, and then we will clean and standardize it according to the needs of our project. Following the step by step guide on how to convert an excel file to a shapefile, each group will prepare at least 3 - 4 datasets which can also be shared with the other groups.

### **Original Data Downloads:**

UN Statistics Division - Global Indicators Database, <http://data.un.org/Explorer.aspx?d=KI>

More from here: <http://www.uis.unesco.org/datacentre/pages/default.aspx>

## **Provided Geographic Data Library for 16 Indicators**

### **Population**

Population density

Life expectancy

Infant mortality

### **Education**

Primary education i.e. literacy

Total public expenditure on education as total of government expenditure

### **Culture and communication**

Internet

Mobile cellular

### **Gender**

Seats held by women in national parliament – percentage

### **Human Development**

Human development

Human development inequality

### **World development**

Military expenditure

Income share held by lowest 20%

Poverty ratio at national poverty line

Incarceration rates<sup>1</sup>

### **Environment**

Percentage of land area covered by forest

Carbon dioxide emission (CO<sub>2</sub>) – metric tons per capita

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<sup>1</sup> This does not seem available from UN, but was constructed with info from here:  
[http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_incarceration\\_rate](http://en.wikipedia.org/wiki/List_of_countries_by_incarceration_rate)