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## Resource consumption and wealth

Audience: Year 12 Geography, Education for sustainability

Time Required: 15 minutes

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- Activity:** This activity highlights patterns of poverty and wealth to address overconsumption and resource extraction.
- Standards:** Some possible links to NZ Curriculum in this inquiry
- Level 2 Geography
- AS 91246 Explain aspects of a geographic topic at a global scale
  - AS 91242 Demonstrate geographic understanding of differences in development
- Education for Sustainability
- AS 90814 investigate the aspects of sustainability in different contexts.
- Learning Outcomes:** Students will
- Students will determine patterns of wealth distribution globally.
  - Students will identify sustainable suggestions for regions of the world.
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**Map URL:** <http://arcg.is/0iyuXe>

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### Engage

#### Where in the world is the wealth?

- ? Which regions of the world earn the highest annual salaries? [*Western Europe, North America, and New Zealand*]
- ? What are some of the top earning countries? Are there any surprises? [*Answers may include the U.S., Canada, the UK, Germany, and the United Arab Emirates. Students may be unfamiliar with smaller countries.*]
- In the Details pane, click the Show Contents of Map button.
- Point to the Gross National Income By Country, 2014 layer, and click the Show Table button.
- In the table, click the Gross National Income Per Capita, PPP column header and sort descending.
- ? What countries have the top five highest gross national income (GNI) earnings in the table? [*Qatar, Singapore, the United Arab Emirates, Norway, and Hong Kong*]
- ? What are the lowest GNI earning countries? (Hint: In the same column, sort ascending.) [*The Central African Republic, the Democratic Republic of the Congo, Liberia, Burundi, and Malawi*]

## Explore

### What are the negative effects of high or low wages?

- ? What environmental issues have you heard about that one of these high-earning countries faces? *[Overconsumption, lots of garbage, unsustainable resource usage, and resource siphoning]*
- ? What environmental issues have you heard about in the low-earning countries? *[Selling raw resources, cash crops but local-goods poor, and exposure to toxins and disease]*

## Explain

### Who leaves the lights on?

- Click the checkbox to the left of the layer named, Energy Use By Country, 2010.
- ? Per capita, what countries consume the most energy? *[U.S. Virgin Is, Trinidad & Tobago, Qatar, UAE, Iceland]*
- Energy use is a good indicator of industrial productivity.
- ? What are life expectancy and adult literacy like in low-energy-consuming countries? *[Countries using less mechanised labour often attend less school and live shorter lives.]*

## Elaborate

### What does human quality of life look like in different countries?

The Human Development Index (HDI) combines several country statistics to monitor progress toward improving quality of human life. (Read a general introduction to the Human Development Index <http://bit.ly/2mBI6my>)

- Turn off all selected layers, and turn on the Human Development Index By Country, 1980-2010 Time Series layer. Notice a new time slider bar appears at the bottom of the map.
- ? What areas of the world have made improvements? *[Answers may include North Korea, China – Hong Kong, Singapore, Vietnam, Argentina, Chile, and India.]*
- ? What do you think has contributed to this growth? *[Answers may include outsourcing, online services and less-expensive labour yet competitive.]*

## Evaluate

### How do earnings and energy consumption vary with human development?

- ? How does GNI relate to HDI countries pre-2010? *[Health increase typically precedes income increase.]*
- ? How does GNI relate in countries with high HDI after 2010? *[Sweden or the UK, as opposed to Chile or India, still have a higher GNI, despite the HDI increasing in the latter countries. Presumably, Chile and India will increase their GNI in time.]*
- ? Does greater energy usage result in a greater increase in industrial production? *[Perhaps not for every country.]*

## Key Skills

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### Identify a map feature

- Click any feature on the map, and a pop-up window will open with information.
- Links and images in the window are often clickable.
- An arrow icon in the upper-right of the window indicates that multiple features have been selected. Click the button to scroll through the features.

### Turn a map layer on and

- Make sure that the Details pane is selected, and click the Show Contents of Map button.
- To show individual map layers, select the check boxes next to the layer names.  
Hint: If a map layer name is light grey, zoom in or out on the map until the layer name is black. The layer can now be turned on.

## Next Steps

**DID YOU KNOW?:** ArcGIS Online is a mapping platform freely available to New Zealand public and private schools. A school subscription provides additional security, privacy, and content features. Learn more about ArcGIS Online and how to get a school subscription at <http://www.eagle.co.nz/gis-schools>.

### THEN TRY THIS...

- Use an ArcGIS Online organizational subscription to calculate hot spots of high consumption and unsustainable resource extraction via raw resource sales such as energy, building materials, food or fabric.
- Visualise the countries to show a life expectancy ratio to energy consumption. Who gets the most life from their produced goods?

### Text References

- Nauman, Ruth. Sustainability. Nelson Cengage Learning New Zealand, 2012

## NEW ZEALAND GEOINQUIRIES

<http://arcg.is/1GPDXe>