

## Chapter 13: Google Earth Exercise

### Exercise 1

#### Examining Housing and Urban Poverty in Detroit

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Detroit is an example of city experiencing industrial decline, urban blight, and depopulation. The city's population peaked at 1.8 million in the 1950s but today, after decades of decline in manufacturing jobs and flight of residents to the suburbs, it has approximately 700,000 residents. While the metropolitan area is affluent, downtown Detroit continues to struggle to maintain its infrastructure, deal with crime, and cope with property foreclosure and abandonment.

**The task:** Using data overlays in Google Earth, examine the City of Detroit to understand the relationship between the various socio-economic indicators and the built environment.

**Step 1:** Open the [Chapter 13.kmz](#) file; enable the “borders and labels” layer, the “roads” layer and the “Rail Network.”

**Step 2:** Begin by examining the lower west side of the city—the area bordered by John Kronk Street and the railroad tracks to the north and the St Clair River to the south. Click through the data layers as you view this area.

- **Question 1:** Examining both the data layers and the satellite view, what spatial patterns can you identify?
- **Question 2:** How has the built landscape contribute to these spatial patterns?
- **Question 3:** How are the neighbourhoods adjacent to the St. Clair River different from the surrounding neighbours?
- **Question 4:** Where are the high income neighbourhoods located?

## Exercise 2

### Global Oil Consumption, Production, and Economic Growth

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Since the 1960s, oil has been the leading source of energy worldwide. As noted in your textbook, economic growth has a strong impact on oil consumption. For instance, rising oil consumption within a country reflects rapid economic growth. Structural conditions such as the dominance of certain type of industries also influences oil consumption rates. Developing countries tend to have a greater proportion of economic activities in the manufacturing sector, which are more energy intensive than service-based industries. Few countries dominate oil production, and some of these countries are not the largest consumers of oil—or may not be in the future due to dwindling reserves. This gap between geographies of oil production and consumption means that countries with high rates of consumption will have to increasingly rely on importing oil and/or find viable alternatives, thus potentially straining economic growth or stability.

**The task:** Using Google Earth, examine the geographies of oil production and consumption and the relationship of oil use and economic growth using choropleth maps assembled by the Center for Geographic Analysis, Harvard University.

**Step 1:** Disable all layers of Google Earth except “Borders and Labels.” Load the [Chapter 13.2.kmz](#) file. Enable the layer “oil consumption per capita.”

- **Question 1:** Which world region has the highest rate of per capital oil consumption? Which region has the lowest? How does Canadian oil per capital consumption compare with the US?

**Step 2:** Disable the “oil consumption” per capita layer and enable the “oil production” layer.

- **Question 2:** What are the top three oil producing countries?

**Step 3:** Disable the “oil production” layer and enable the “GDP” layer.

- **Question 3:** Which three countries have the highest GDP?

**Step 4:** Next, disable the **GDP** layer and enable the **global oil consumption (1980-2006)** layer.

- **Question 4:** Think about the relationship between economic growth (measured in GDP), oil consumption and the dominant types of industries in each country to describe the oil consumption graphs for the three countries you identified in question as having the highest GDP levels.

## Answers

### Exercise 1

- **Question 1:** The area defined as the Delray neighbourhood has several unique characteristics. It has the highest foreign-born population in Detroit. Despite the low housing value and low levels of post-secondary education, poverty and unemployment levels are low and there is a lower reliance on social assistance.
- **Question 2:** The neighbourhood is bisected by railway lines and highways and contains a high proportion of industrial land use. These all contribute to lower neighbourhood desirability. The loss of connectivity is especially evident in the southernmost section of Delray, encircled by rail lines and cut off from the northern neighbourhoods by Interstate 75. This section has many empty lots where houses have been abandoned and demolished. The area has a different demographic as it has more American-born residents than the surrounding area and is more dependent on various forms of social assistance.
- **Question 3:** There is an apparent trend of gentrification in the downtown core. The area is characterized by lower rates of poverty, higher rates of foreign born residents and low unemployment. The area immediately adjacent to the St Clair River is defined by a strip of high-income census tracts in an otherwise poor area.
- **Question 4:** The higher income and land value areas tend to be located away from centres of industry and major transportation routes. There are no older, entrenched high-income census tracts in the central downtown core.

### Exercise 2

- **Question 1:** The region with the highest rate of oil consumption per capita is Canada and the USA. The region with the lowest rate is the African continent. Canada consumption is higher than the USA.
- **Question 2:** Saudi Arabia (10,250,000 billions of barrels/day); Russia, (8,457,000 bbl/day); and USA (8,457,000 bbl/day)
- **Question 3:** USA (14,330,000 million USD); Japan (48,44,000 million USD) and China (42,22,000 million USD)
- **Question 4:** The USA oil consumption chart (24.34 per cent of the global total) shows a modest growth in oil consumption interrupted by periods of decline or no growth. This suggests slowing economic growth, and also reflects the countries modest economic growth, as well as its transition away from oil intensive manufacturing industries toward more service and knowledge-based economies.

Japan's oil consumption chart (6.12 per cent of the global total) shows peaks and troughs, with a significant decline in oil consumption in the 1980s, followed by a sharp increase in the late 1980s and throughout the 1990s. Most recently it shows signs of decline, which may indicate the overwhelmingly dominant role the service economy plays in its contemporary economy as well as Japan's recent experience with a stagnating economy.

China's oil consumption chart (8.51 per cent of the global total) shows modest growth between 1980-1990, followed by very rapid growth onward. This likely reflects the explosion of China's manufacturing sector as well as its growth in resource extractive industries, both of which are quite oil intensive.