```python
indv_project = ["Waste Management Analysis"]
print('\nIndividual Project:',indv_project)

PAI_789 = {
  "student": "Sahil Mammadli",
  "professor": "Peter Wilcoxen",
  "school": "Maxwell"
}

print(PAI_789["student"])
print(PAI_789["professor"])
print(PAI_789["school"])

from datetime import date
today = date.today()
print("Today's date:", today)
```

Project overview

- Identifying, grouping, and visualizing waste generation per capita in the world using QGIS

- Understanding the relationship between municipal solid waste (MSW) per capita and GDP per capita

- Analyzing and visualizing total waste and recycling after the adoption of EPR (Extended Producer Responsibility) in high-income countries.
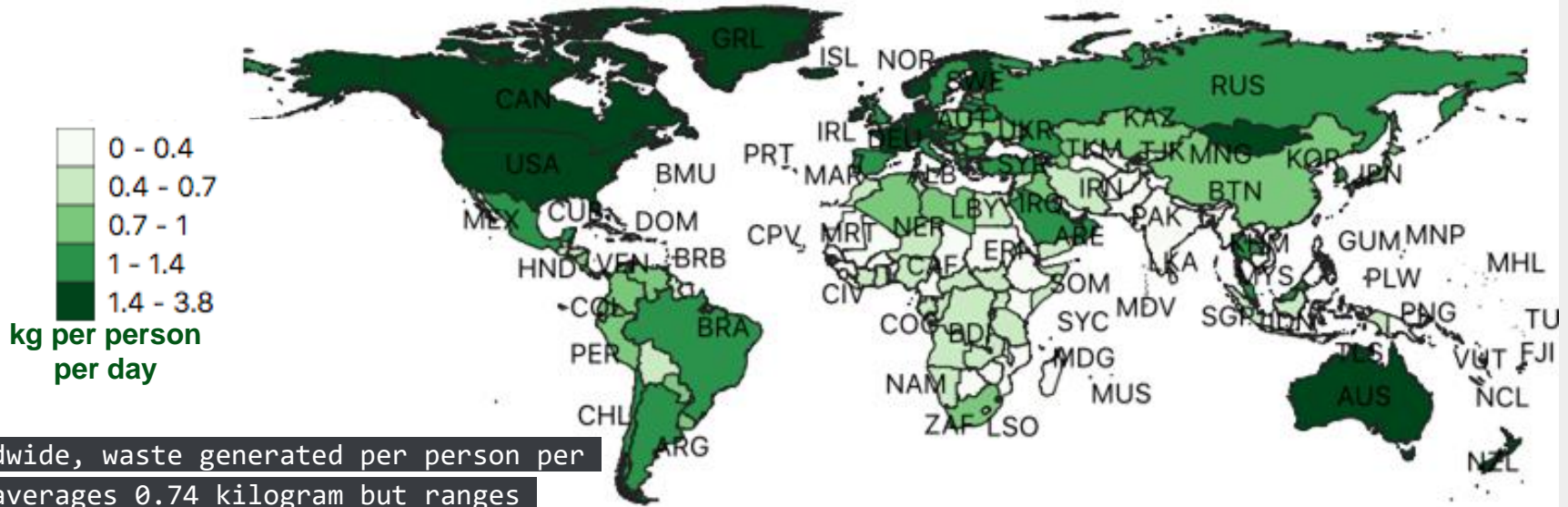
Data_source.info()

- ## OSCE
  - ### Out [1]:
    - RangeIndex: 24078 entries, 0 to 24077
    - Data columns (total 15 columns):

    - dtypes: float64(1), int64(3), object(11)
    - memory usage: 2.8+ MB

- ## WorldBank
  - ### Out [2]:
    - [5 rows x 15 columns]
    - 24078
    - memory usage: 86.6+ KB

  - ### Out [3]:
    - RangeIndex: 266 entries,
    - (total 67 columns):
    - memory usage: 139.4+ KB

The world generates 2.01 billion tonnes of municipal solid waste annually, with at least 33 percent of that not managed environmentally safe.
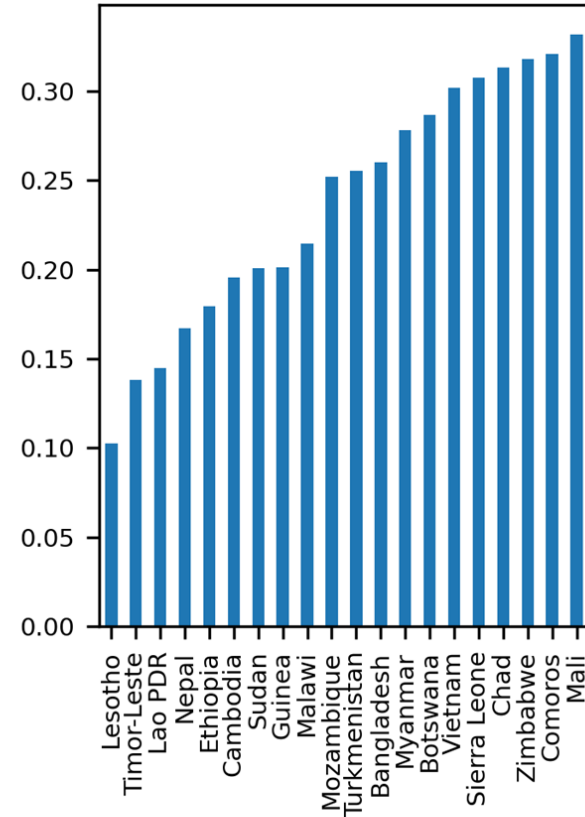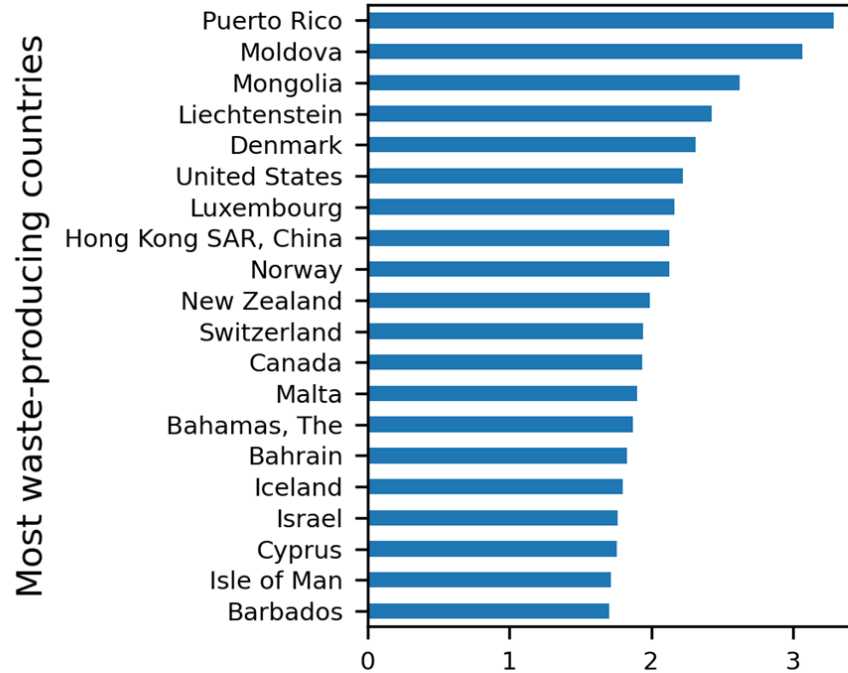
Waste per capita

0 - 0.4
0.4 - 0.7
0.7 - 1
1 - 1.4
1.4 - 3.8

kg per person per day

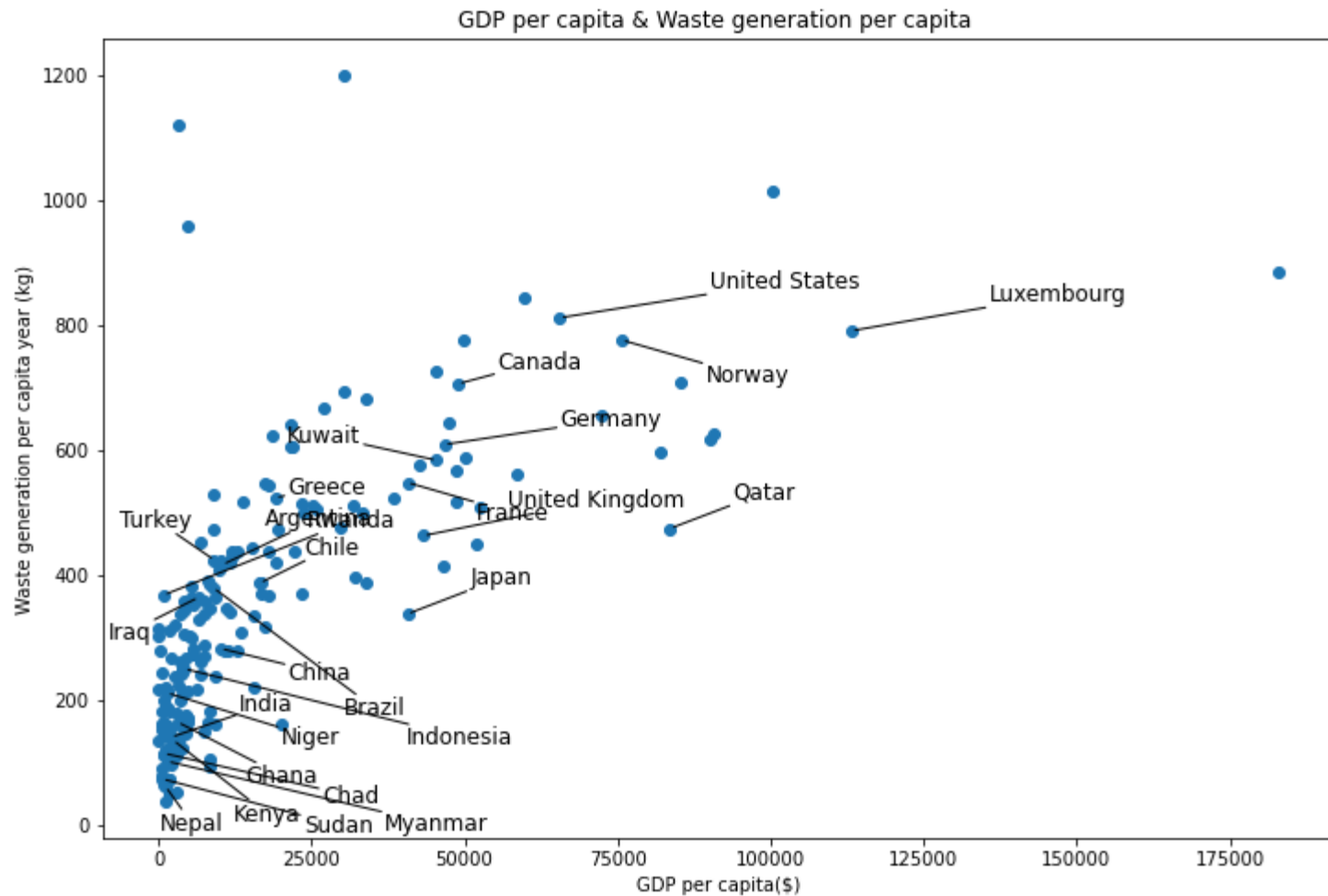Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 3.8 kilograms.

US – 4.9 pounds (2.2 kg) per person per day

Countries' daily waste generation per capita (kg)

Most waste-producing countries (left chart, top to bottom):
Puerto Rico, Moldova, Mongolia, Liechtenstein, Denmark, United States, Luxembourg, Hong Kong SAR, China, Norway, New Zealand, Switzerland, Canada, Malta, Bahamas, The, Bahrain, Iceland, Israel, Cyprus, Isle of Man, Barbados

Least waste-producing countr. (right chart, left to right):
Lesotho, Timor-Leste, Lao PDR, Nepal, Ethiopia, Cambodia, Sudan, Guinea, Malawi, Mozambique, Turkmenistan, Bangladesh, Myanmar, Botswana, Vietnam, Sierra Leone, Chad, Zimbabwe, Comoros, Mali

Though they only account for 16 percent of the world's population, high-income countries generate about 34 percent, or 683 million tonnes, of the world's waste.
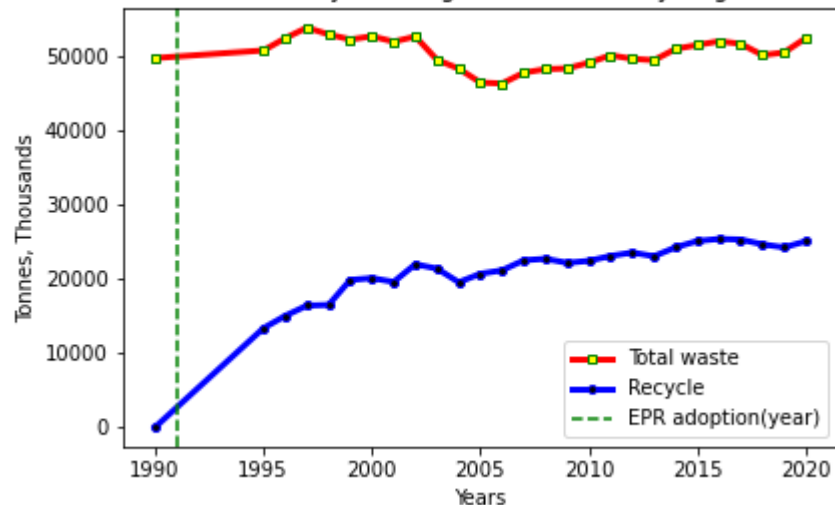
GDP per capita & Waste generation per capita

According U.S. Environmental Protection Agency, for every $5,000 increase in real GDP, the tons of MSW generated per person increases by approximately 0.065 tons per year (130 pounds).
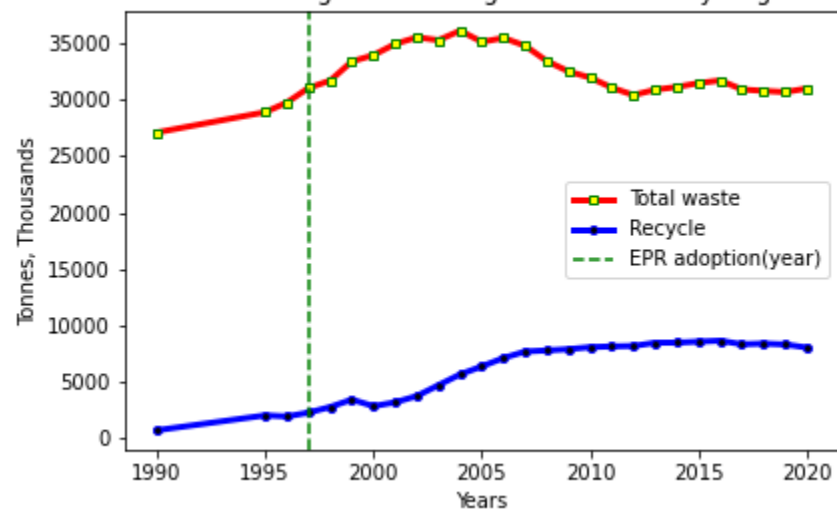
Extended Producer Responsibility (EPR)

Extended Producer Responsibility (EPR) is defined as an environmental protection strategy that makes the manufacturer of the product responsible for the entire life cycle of the product and especially for the take back, recycling and final disposal of the product (Lindhqvist, 2000; Khetriwal et al., 2009).
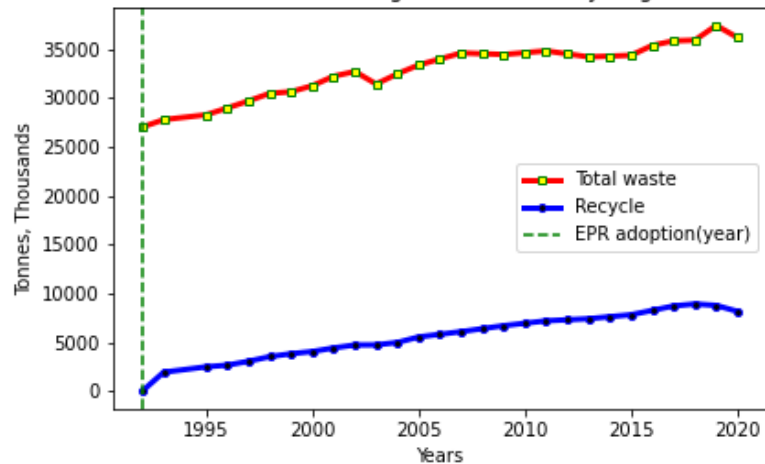
Germany: Waste generation vs Recycling
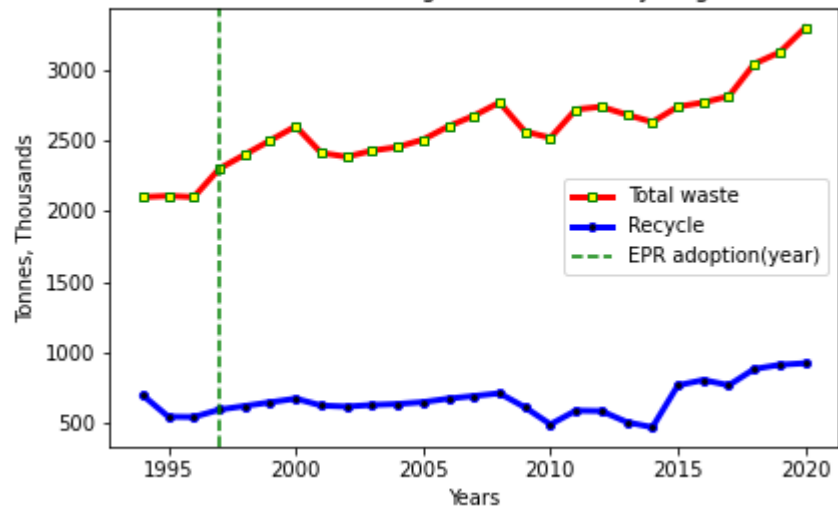
United Kingdom: Waste generation vs Recycling
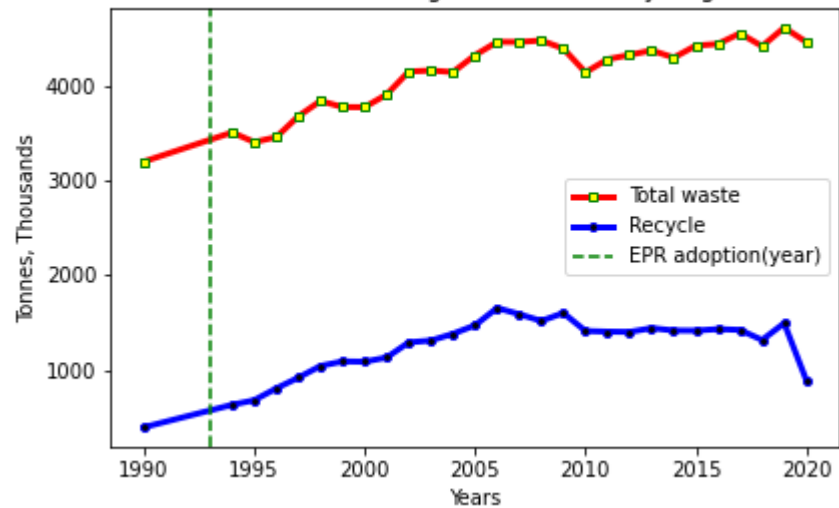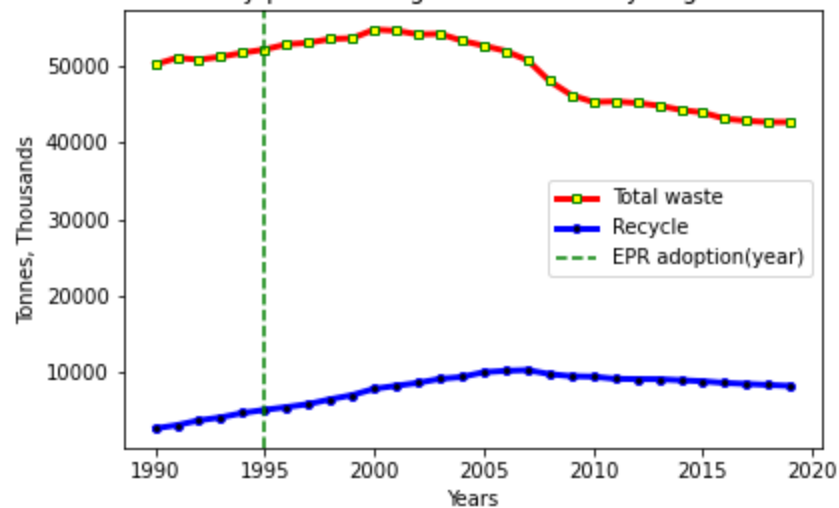
France: Waste generation vs Recycling

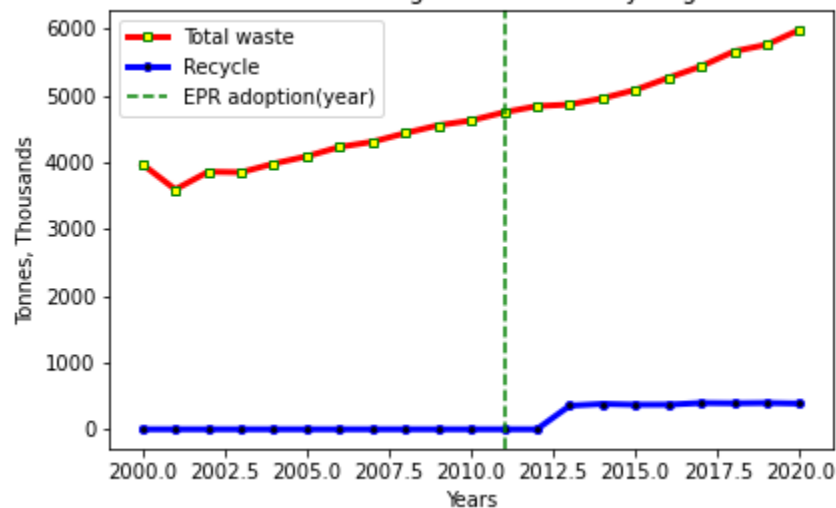Finland: Waste generation vs Recycling
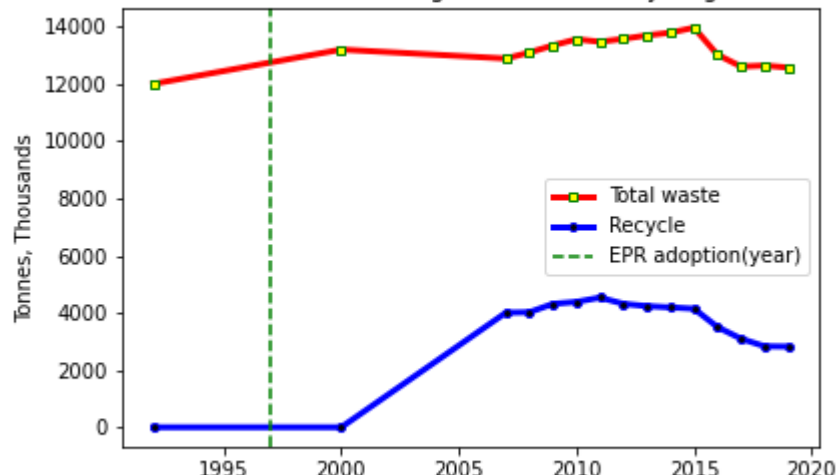
Sweden: Waste generation vs Recycling

Japan: Waste generation vs Recycling

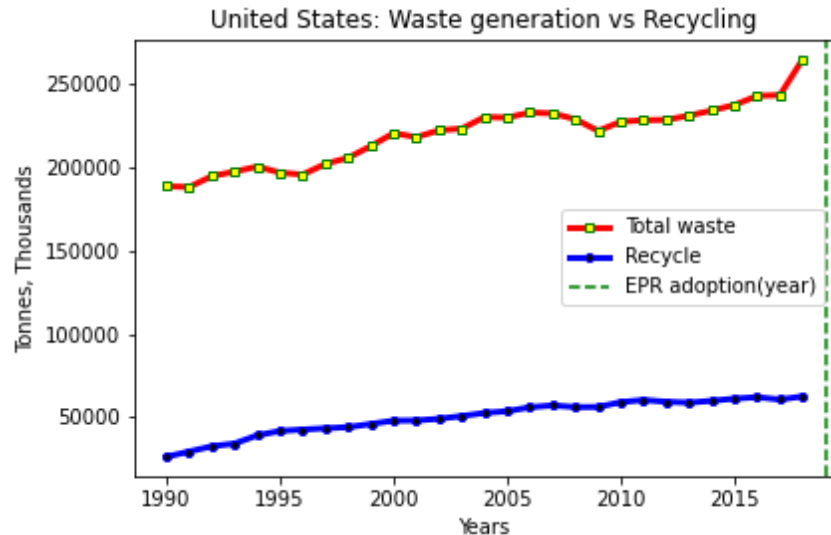Israel: Waste generation vs Recycling

Australia: Waste generation vs Recycling

United States: Waste generation vs Recycling

EPR legislation is passed on a state-by-state level, which is why the status quo of EPR legislation varies greatly across the US (WWF, 2019). EPR legislation for packaging is currently developed in several states and passed in very few (e.g., California, Hawaii, and Oregon). However, there are also several states without any EPR for packaging. The terms PS and EPR are often used interchangeably or synonymously.

```
print('\nThank you!')
```