Weel 10 documentation

1. What is your project about?

Waste management in Singapore

1. What is the data you plan to use?

(A link to the dataset with one sentence describing it)

<https://www.mse.gov.sg/files/resources/Key-Environmental-Statistics-2021-Publication.pdf>

Key Environmental Statistics in 2021 from National Environmental Agency Singapore

1. What is the question you plan to answer?

(One sentence that ends with a question mark that could act like the title of your data story)

What is the current waste disposal and management situation in Singapore, and how can it be improved to address the Semakau Landfill Crisis?

1. Why is this an important question?

(Three sentences, each of which has some evidence, e.g., “According to the United Nations…” to justify why the question you have chosen is important

According to ZeroWaste SG, waste disposed has increased seven-fold over the past 40 years in Singapore. It has became a prominent issue.

According to Ministry of Sustainability and the Environment, just 15 years from now, Pulau Semakau will be completely filled. The minstry aslo states that we need to reduce the waste sent to Semakau Landfill by 30% by 2030, thus extending Semakau Landfill’s lifespan beyond 2035.

1. Which rows and columns of the dataset do you plan to use, to answer this question?

(Actual names of the values you plan to filter (rows) or subset (columns) the data on)

My goal is to filter the dataset and obtain three separate sets of data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2017 | 2018 | 2019 | 2020 |
| total waste generated |  |  |  |  |
| total waste recycled |  |  |  |  |
| total waste disposed |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2017 | 2018 | 2019 | 2020 |
| total waste recycling rate |  |  |  |  |
| Domestic recycling rate |  |  |  |  |
| non-domestic recycling rate |  |  |  |  |

I extracted data until 2020 because that was the most recent data available.

Moreover, I extracted data for waste generated, waste disposed, waste recycled, and recycling rate for major waste sources, including Ferrous metal, Paper/Cardboard, Construction & Demolition, Plastics, Food, Horticultural, Wood, Ash & sludge, Textile/Leather, Used slag, Non-ferrous metal, Glass, and Scrap tyres. To be considered as 'major,' the annual amount of waste generated for each source had to be larger than 20,000 tonnes.

Lastly, this week I decide to add in Finland's total recycling rate, domestic recycling rate, and non-domestic recycling rate. Finland was chosen as a reference point because its economic development and country size are similar to Singapore's, which allows for a more accurate comparison.

Some progress:

(Week 9)

Chart, bar chart

Description automatically generatedChart, line chart

Description automatically generated

Chart, scatter chart, bubble chart

Description automatically generated

After learning the concepts from lecture 10, I realize my current way of making charts does not make the best use of my data. Hence, I make several changes to my diagram:

1. Stacked area diagram

In order to illustrate changes in the cumulative amount of waste generated, recycled, and disposed over time, I added a stacked area chart to my presentation. This approach is more effective than displaying data for individual years because waste filling up in Semakau landfill accumulates over time.

Chart, line chart

Description automatically generated

Challenges I faced: firstly, I don’t have dataset of cumulative waste generated / recycled / disposed, so I need to create such dataset from exisiting data. I make use of for loop and array to do so:

//DATA

const year = [2017, 2018, 2019, 2020];

const totalWasteGenerated = [7704, 7759, 7278, 5880];

const totalWasteRecycled = [4724, 4790, 4293, 3040];

const totalWasteDisposed = [2980, 2969, 2984, 2841];

//CHART1

// Calculate cumulative values for waste generated, recycled and disposed

const cumulativeWasteGenerated = [];

const cumulativeWasteRecycled = [];

const cumulativeWasteDisposed = [];

let totalGenerated = 0;

let totalRecycled = 0;

let totalDisposed = 0;

for (let i = 0; i < year.length; i++) {

  totalGenerated += totalWasteGenerated[i];

  totalRecycled += totalWasteRecycled[i];

  totalDisposed += totalWasteDisposed[i];

  cumulativeWasteGenerated.push(totalGenerated);

  cumulativeWasteRecycled.push(totalRecycled);

  cumulativeWasteDisposed.push(totalDisposed);

}

1. Dual – axis diagram

I enhanced my stack bar chart by transforming it into a dual-axis chart, where stacked bars are plotted on different sides of the x-axis and a line plot is overlaid on top.

The reason behind this modification is to provide a more effective visualization of the trend in waste recycled and generated, and facilitate comparisons across different years. The inclusion of a plotted line representing recycling rate provides an accurate representation of the ratio of waste recycled / recycled + disposed.

Chart, bar chart

Description automatically generated

Plan for next week:

Add in event for interactivity. I think scrolling seem to be quite interesting, hence I would like to experiment with that.

<https://www.w3schools.com/jsref/tryit.asp?filename=tryjsref_onscroll2>