Where to invest for a better plastic waste management?

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Introduction

Over 5 trillion pieces of plastic currently litter the ocean. Trash accumulates in five ocean garbage patches, the largest one being the Great Pacific Garbage Patch, located between Hawaii and California. If left to circulate, the plastic will impact our ecosystems, health, and economies. Solving it requires a combination of closing the source, and cleaning up what has already accumulated in the ocean.

Technologies
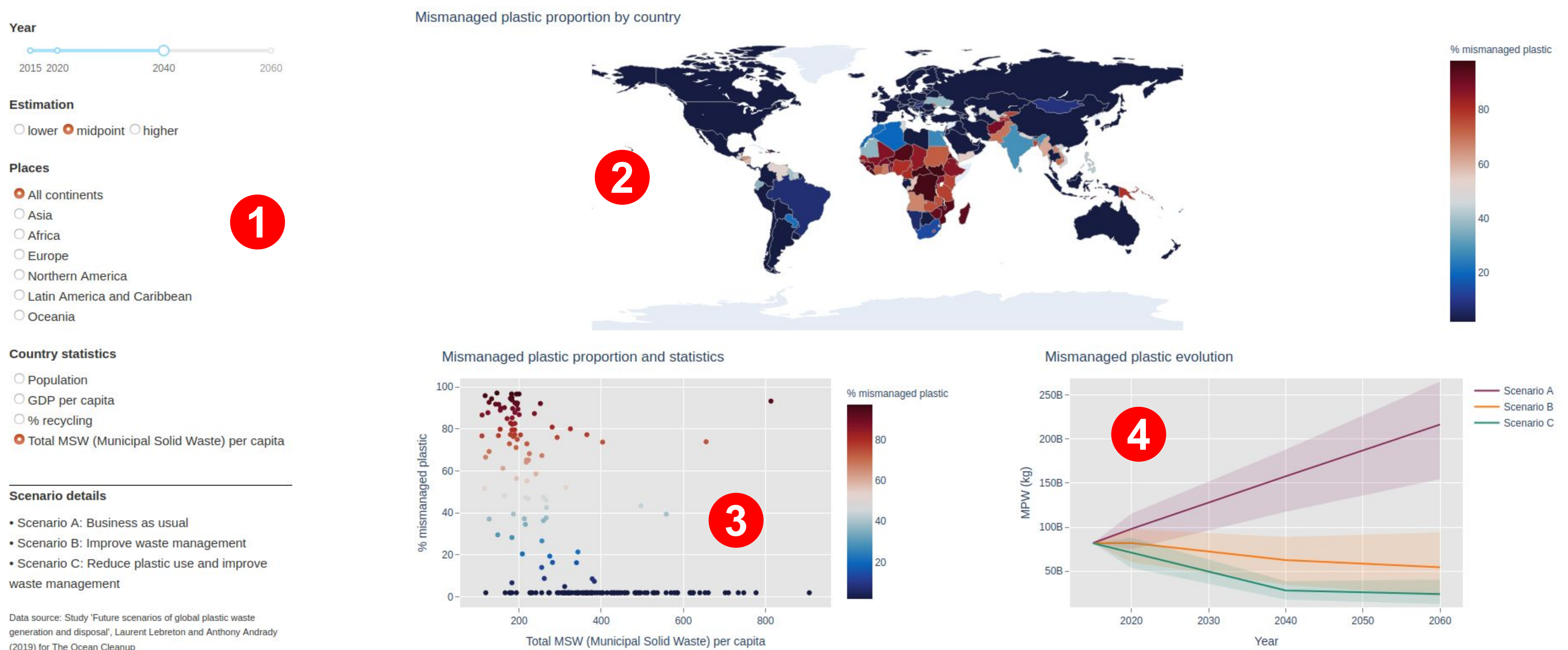
plotly | Dash

The data

The dataset comes from the study "*Future scenarios of global plastic waste generation and disposal*" achieved in 2015 and supported by The Ocean Cleanup Foundation.

Objectives

We wanted to offer a decision support dashboard that would allow potential investors to identify countries in which to invest in order to better manage plastic waste and limit plastic pollution of the oceans. The idea is to show a global image of the problem, to find in which countries an investment has the greater impact and to see the importance of investing.

Investment in the fight against plastic pollution

In which countries should we invest to limit plastic pollution of the oceans?

Year
2015 2020 | 2040 | 2060

Estimation
○ lower ● midpoint ○ higher

Places
● All continents
○ Asia
○ Africa
○ Europe
○ Northern America
○ Latin America and Caribbean
○ Oceania

Country statistics
○ Population
○ GDP per capita
○ % recycling
● Total MSW (Municipal Solid Waste) per capita

Scenario details

• Scenario A: Business as usual
• Scenario B: Improve waste management
• Scenario C: Reduce plastic use and improve waste management

Data source: Study 'Future scenarios of global plastic waste generation and disposal', Laurent Lebreton and Anthony Andrady (2019) for The Ocean Cleanup

Mismanaged plastic proportion by country

Mismanaged plastic proportion and statistics

Mismanaged plastic evolution

Interactivity

1 An advantage of the data, which is also the main challenge, is the number of **dimensions**. Some are materialized by filtering options impacting the map and the scatter plot:

- **Year**: Choose between the actual data at the time of the study (2015) or short, medium and long term projections.
- **Estimation**: The projections have ranges of uncertainty that the user can choose to display.
- **Places**: Filter to display continent by continent, to easily compare the countries of a continent.
- **Country statistics** : Choose the statistics to display for the X-axis of the scatter plot.

3 The scatter plot shows the **relations** between the statistics of countries and the mismanaged plastic proportion. The X-axis is chosen with *"country statistics"*.

The **flyover** of the country displays its statistics and indicators. Some statistics are given for 2015, others are projections ; it is specified for each.

Thailand - 2015

Mismanaged plastic proportion: 60 %

Population (2015): 67.95936 millions
GDP per capita (2015): 16130 (2016 USD)
% overall recycling (2015): 60 %
Total MSW (Municipal Solid Waste) per capita (2015): 365 k

2 The **map** shows the proportion of mismanaged plastic per country. The color scales highlights the countries where the situation is most worrying.

When we change the year observed, we can easily note the difference in the **evolution between countries**.

Clicking on a country applies filters on the other graphs and highlights the selected country.
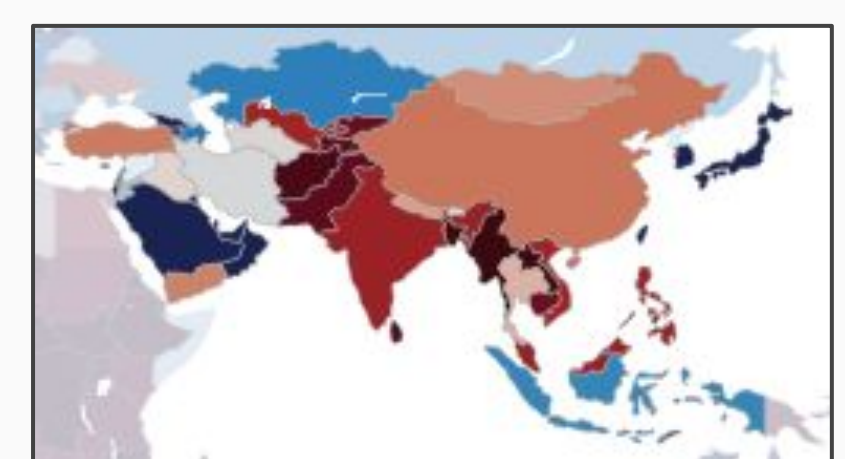
The situation in Asia in 2015
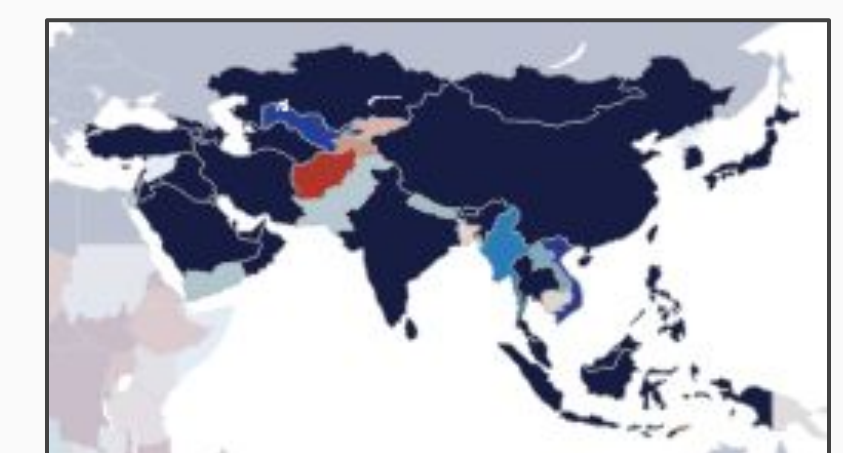
The projection for 2020

4 The last graph shows the **general evolution** of the mismanaged plastic waste from 2015 to 2060, with a curve per scenario. There are **3 scenarios**. The first without major changes, the second one with an improvement of waste management, and the last one with also a reduction of plastic use.

This graphs highlights the importance to act and to invest. It is a call to action for our users.