Deforestation and Forest Conversion

How do we treat our forests?

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Abstract

In this project we explore the trends of deforestation in the past 3 decades. We use visualisation techniques in order to find patterns behind deforestation and it's driving factors. Following this, we attempt to answer questions regarding conversion of forests to land for other purposes and questions regarding Brazil's excessive loss of forest cover. Then we aim to develop a dashboard to explore the above posed questions.
Keywords: Deforestation, `R`, `ggplot`, visualisation

Contents

1 Introduction

We have always been told that the earth's surface is $\frac{2}{3}$ water and $\frac{1}{3}$ land. A slightly lesser popular fact is that 10% of the world is covered by glaciers, and another 19% is barren land. We call the leftover "habitable land". Of this, a little more than $\frac{1}{3}$ is covered by forests today. This is a far cry from the past when global forest area used to be a majority of the total land area.

The reasons behind this are simple enough:

- Deforestation
- Conversion of forest land to lands for agriculture, pasture, logging
- Land degradation and wastage due to erosion, natural disasters and pollution

Tackling deforestation begins with understanding where and when are we losing forest and the driving factors behind it. This is what we aim to address in this project.

2 About the data

We will be using the following 3 datasets from this `repository`:

- `Net forest conversion by country`
- `Forest area by country`
- `Factors behind loss of Brazil's forest cover by year`

The data is sourced from [1].

2.1 Variables of interest

1. In the dataset of net forest conversion by country we have the following variables:
   - `entity`, `code`, `year` - country/region name, country code (if applicable) and year of observation respectively
   - `net_forest_conversion` - net forest conversion area in a country/region in a specific year in hectares

2. In the forest area by country dataset:
    - we have the `entity`, `code` and `year` variables as before
    - `forest_area` - percentage of the global forest area that is present in a country in a specific year
3. In the dataset exploring factors behind loss of Brazil's forests:
    - `entity`, `code`, `year` - same as above
    - `commercial_crops`, `flooding_due_to_dams`, `natural_disturbances`, `pasture`, `selective_logging`, `fire`, `mining`, `other_infrastructure`, `roads`, `tree_plantations_including_palm`, `small_scale_clearing` - how much forest was lost in Brazil due to these reasons (in hectares)

Important Links

Project GitHub link: deforestation-and-forest-conversion
`R Shiny` dashboard link: to be added later.

References

[1] Hannah Ritchie and Max Roser. "Forests and Deforestation". In: *Our World in Data* (2021). URL: https://ourworldindata.org/forests-and-deforestation.