

C7083 – DATA VISUALIZATION AND ANALYTICS

ID NO: 22302900

GitHub link: <https://github.com/kksam2705/Data-visualization-and-analytics.git>

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Introduction

The data sets included in this portfolio comes from the Tidy Tuesday and contain data collected from our world in data. Five datasets are used throughout to create visualizations concerning world deforestation and change in forest area. And we have Brazilian forest loss due to specific factors and soybean and vegetable oil production and usage.

Forest.csv

Change in Forest area for the year of 1990, 2000, 2010 and 2015 almost all the countries are included.

| Variable | class | Description |
|-----------------------|-----------|-----------------------------------|
| entity | character | country |
| code | character | Country code |
| year | double | year |
| Net_forest_conversion | double | Net forest conversion in hectares |

Forest_area.csv

Change in global forest area as a percent of global forest area.

| Variable | Class | Description |
|-------------|-----------|-------------------------|
| entity | character | country |
| code | character | Country code |
| year | integer | year |
| Forest_area | double | % of global forest area |

Brazil_loss.csv

Loss of Brazilian forest due to specific types.

| Variable | Class | Description |
|----------------------------------|-----------|-----------------------|
| entity | character | country |
| code | character | Country code |
| year | double | year |
| Commercial_crops | double | Commercial crops |
| Flooding_due_to_dams | double | flooding |
| Natural_disturbances | double | Natural disturbances |
| pasture | double | Pasture for livestock |
| Selective_logging | double | Logging for lumber |
| fire | double | Fire loss |
| mining | double | mining |
| Other_infrastructure | double | infrastructure |
| roads | double | Roads |
| Tree_planatations_including_palm | double | Tree planations |
| Small_scale_clearing | double | Small scale clearing |

Soybean_use.csv

Soybean production and use by year and country.

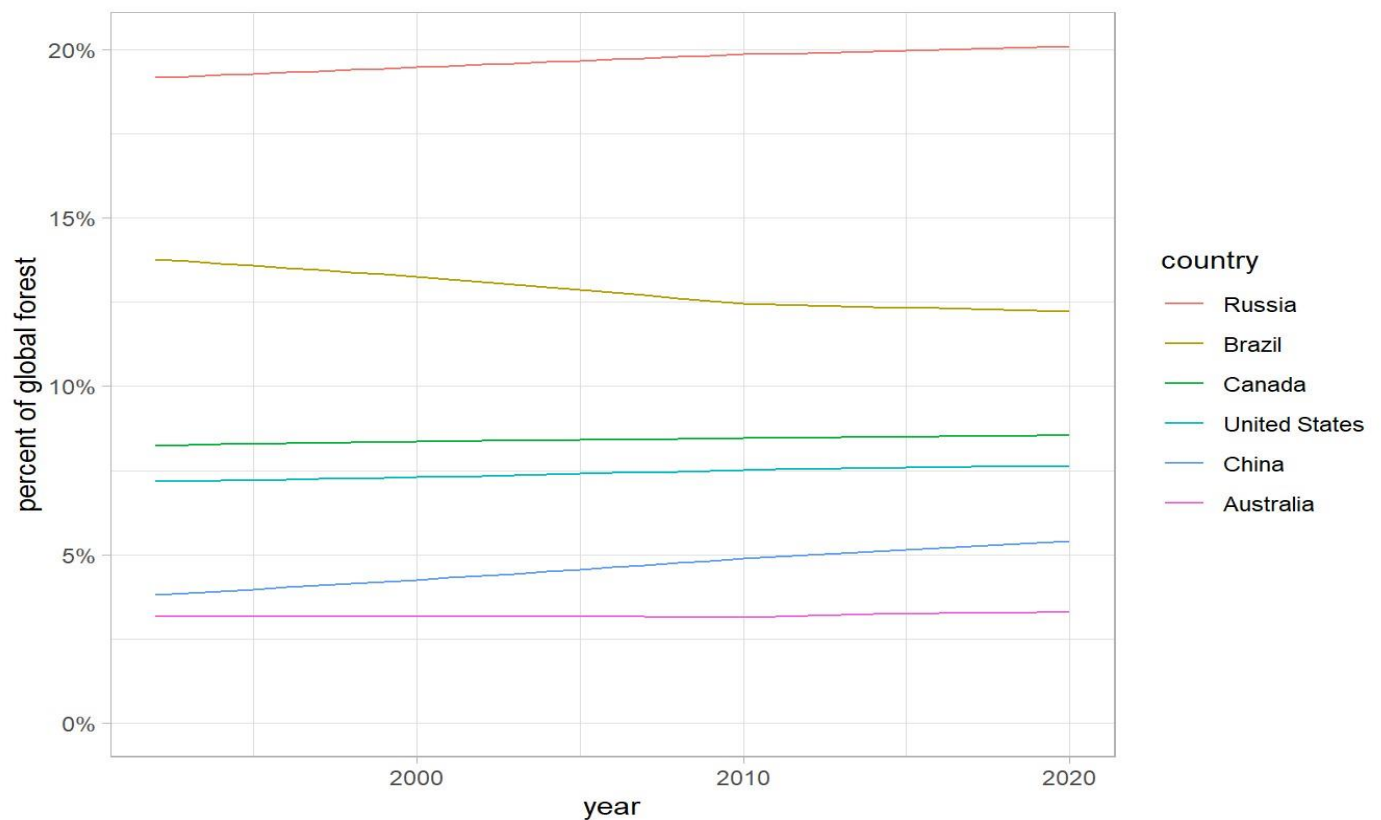
| Variable | Class | Description |
|-------------|-----------|--|
| entity | character | country |
| code | character | Country code |
| year | double | year |
| Human_food | double | Use for human food(tempeh,tofu,etc) |
| Animal-feed | double | Used for animal food |
| processed | double | Processed into vegetable oil,biofuel,processed animal feed |

Vegetable_oil.csv

Vegetable oil production by crop type and year.

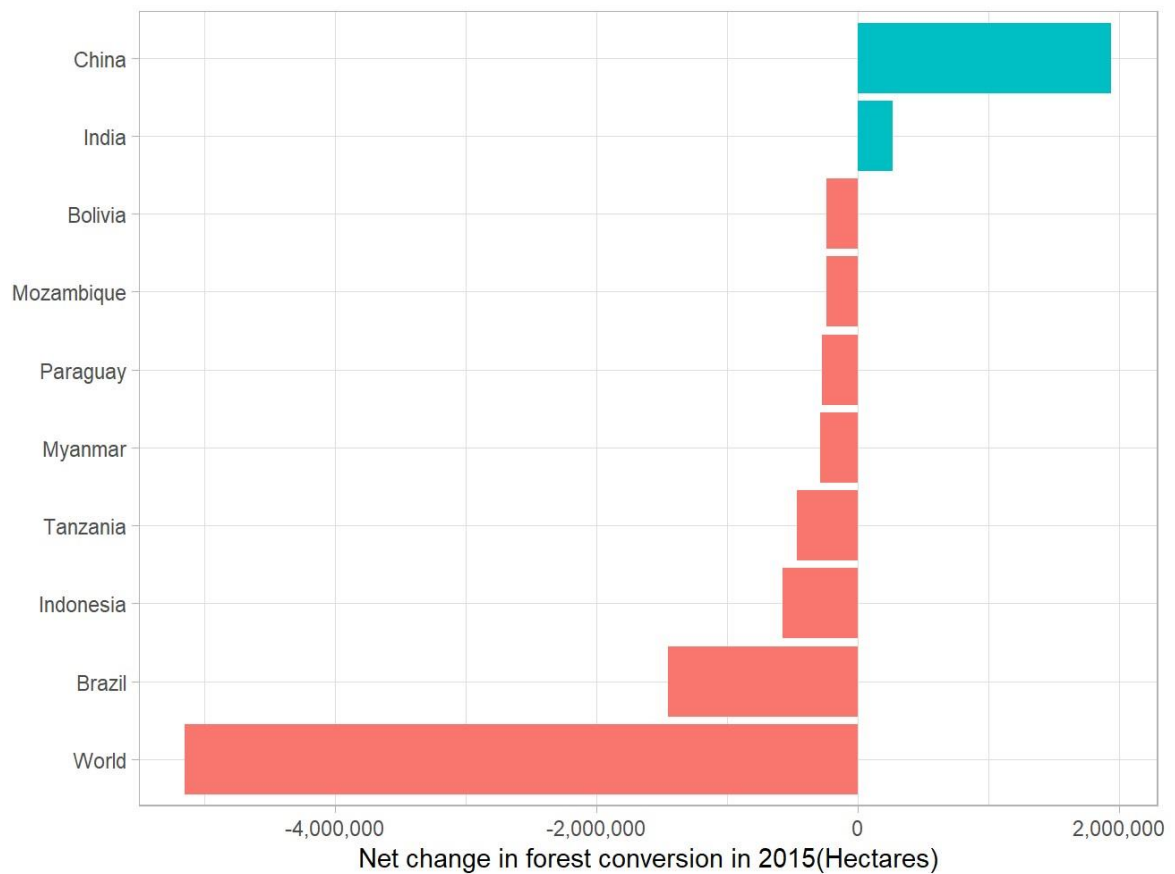
| Variable | Class | Description |
|------------|-----------|---|
| entity | character | country |
| code | character | Country code |
| year | double | year |
| Crop_oil | character | Crop that was used to produce vegetable oil |
| production | double | Oil production in tones |

Global forest visualization by countries in percentage



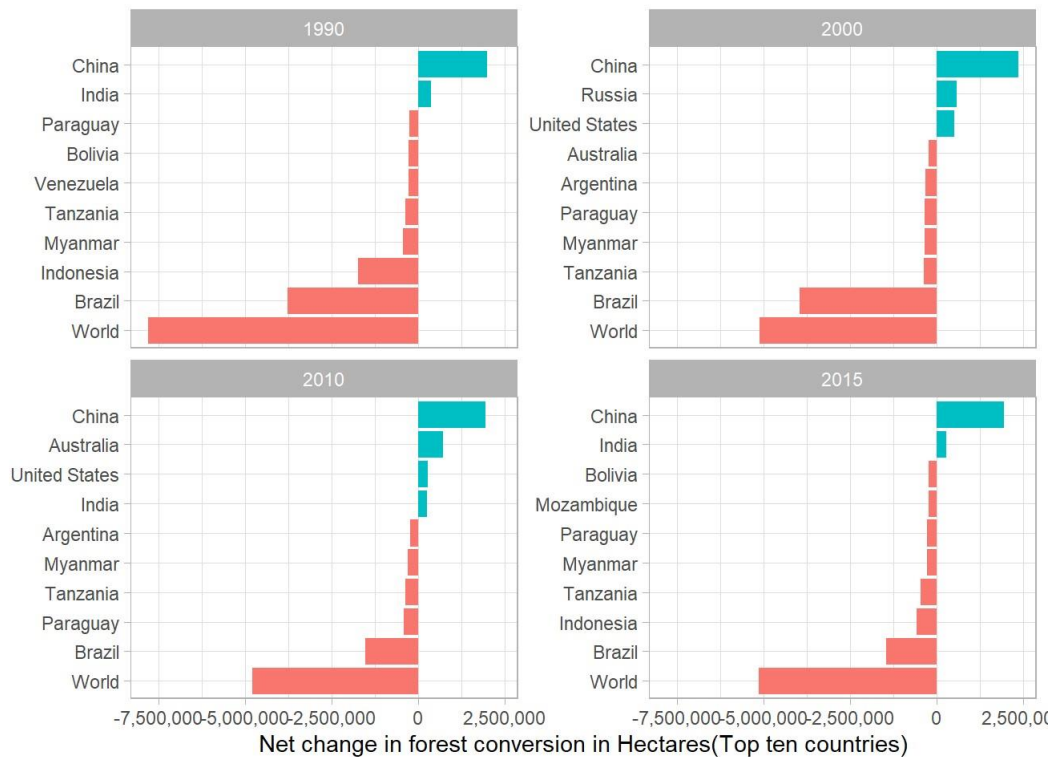
The change in the global forest area in percentage from 1990 to 2020. From the line plot we can clearly say that the forest area of Russia is constantly increasing. Therefore, we can say that Russia is making some big changes to increase the forest area. While for the Brazil its going down its huge loss in forest area for the Brazil. For China and Canada there is a slightly increasing in forest area while list no changes for Australia and United states.

Global forest conversion in 2015



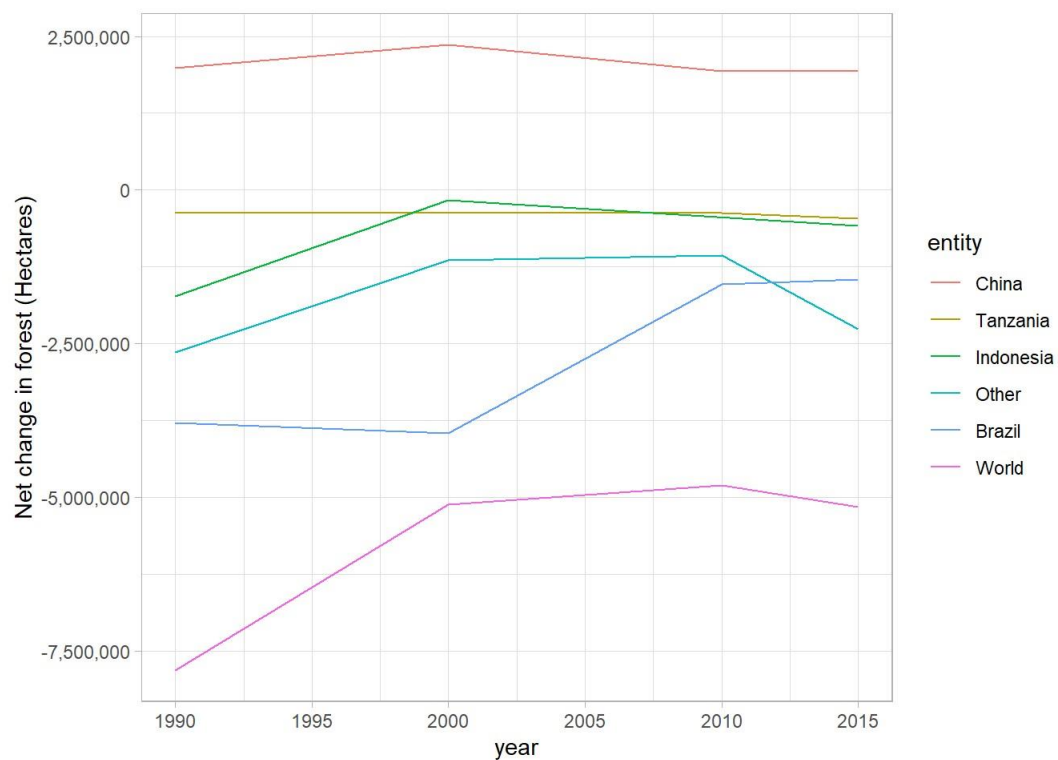
Net change in forest conversion in 2015(Hectares). For China Net Forest conversion is high and India is better as well, but for the world its huge decrease in net forest conversion, followed by Brazil and other countries so on.

Forest conversion for top 10 countries over the years



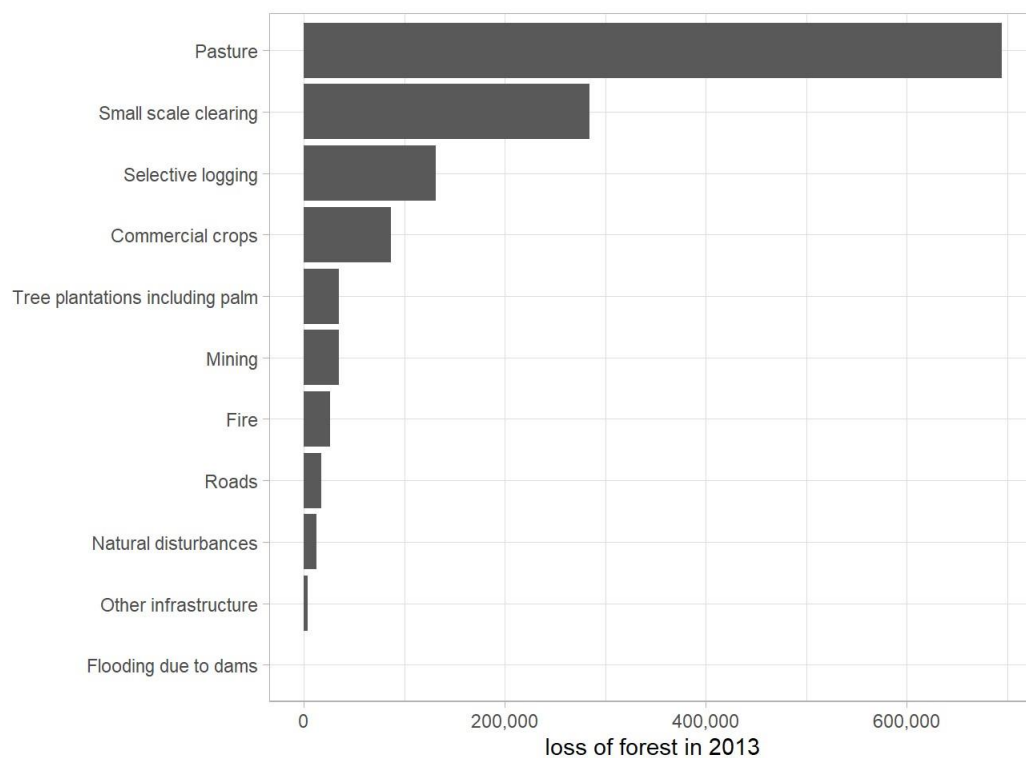
This graph is the best example for the comparison how the Net Forest conversion rate changed over the years. For the world Deforestation is high in 1990 and reduced over the years. But for the Brazil deforestation is high in 1990 and 2000 and some good changes in 2010 and 2015. For China the net forest conversion is constant over the years.

Net Change in forest conversion by line graph



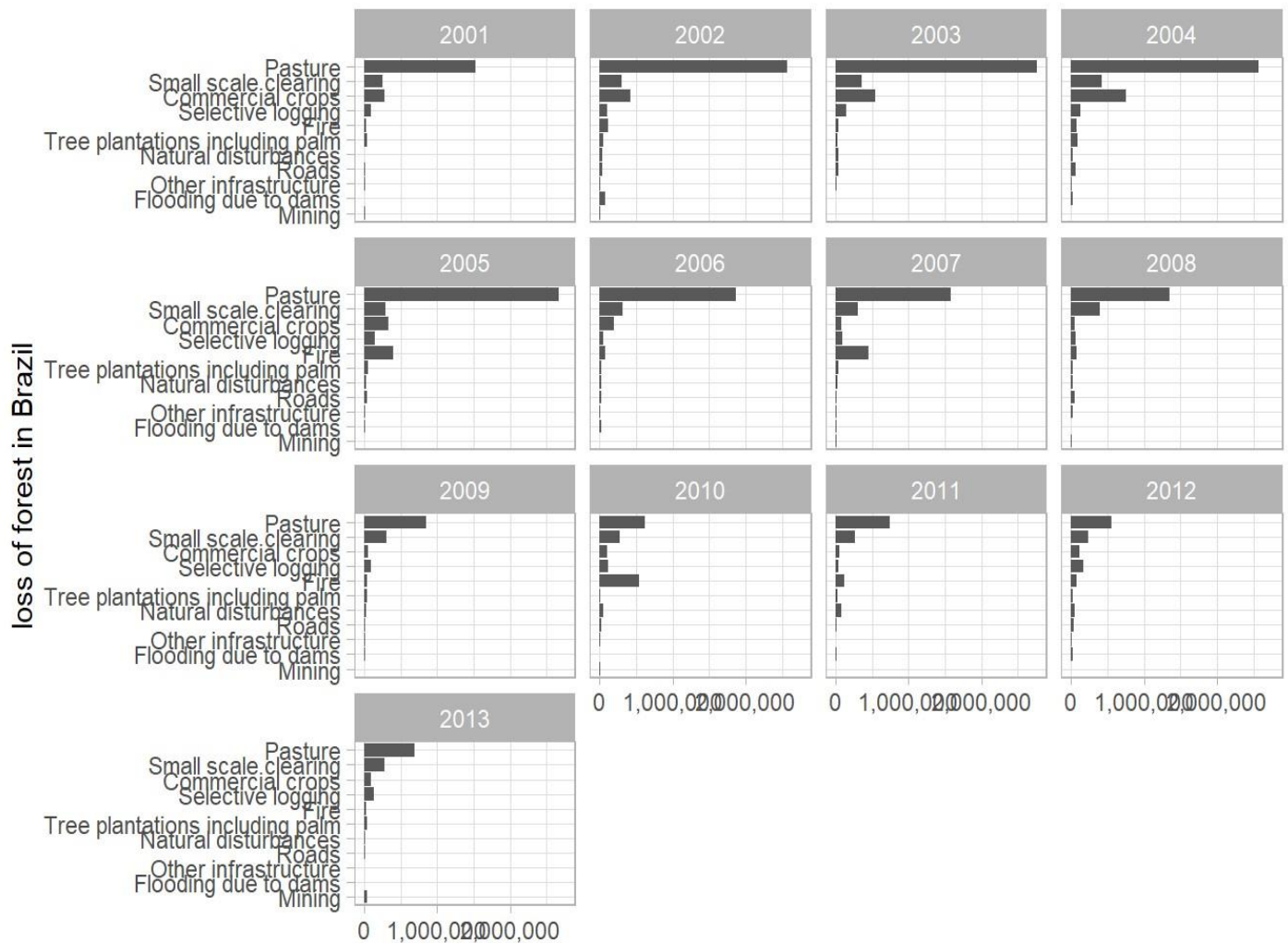
This graph is about net change in forest conversion from 1990 to 2015. There is a major change in world forest net conversion followed by Brazil. Indonesia made an impact that moved from negative conversion to positive conversion over the years. China is maintaining the constant position in forest conversion.

Brazil forest loss in 2013



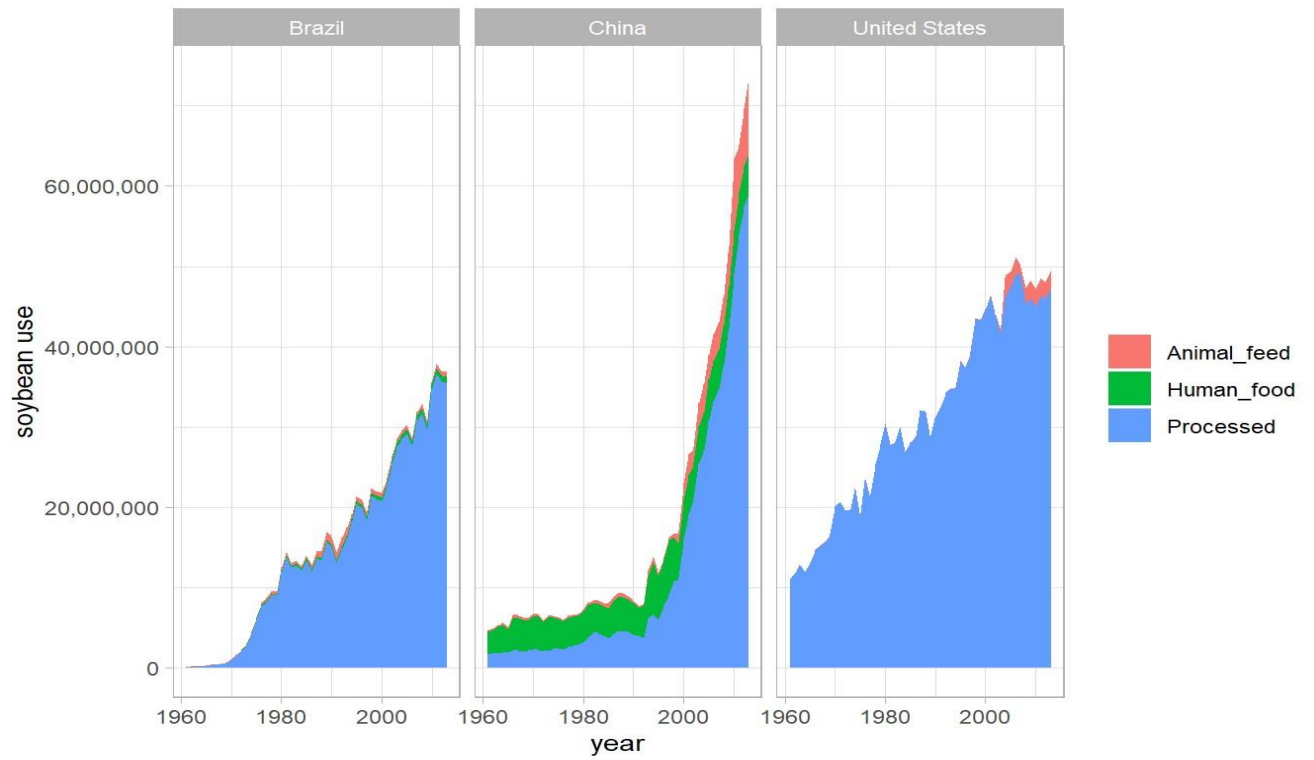
Brazil forest loss due to specific factors in 2013. Pasture is the main cause of Brazil forest loss and followed by small scale clearing, selective logging and so on.

Brazil forest loss over the years

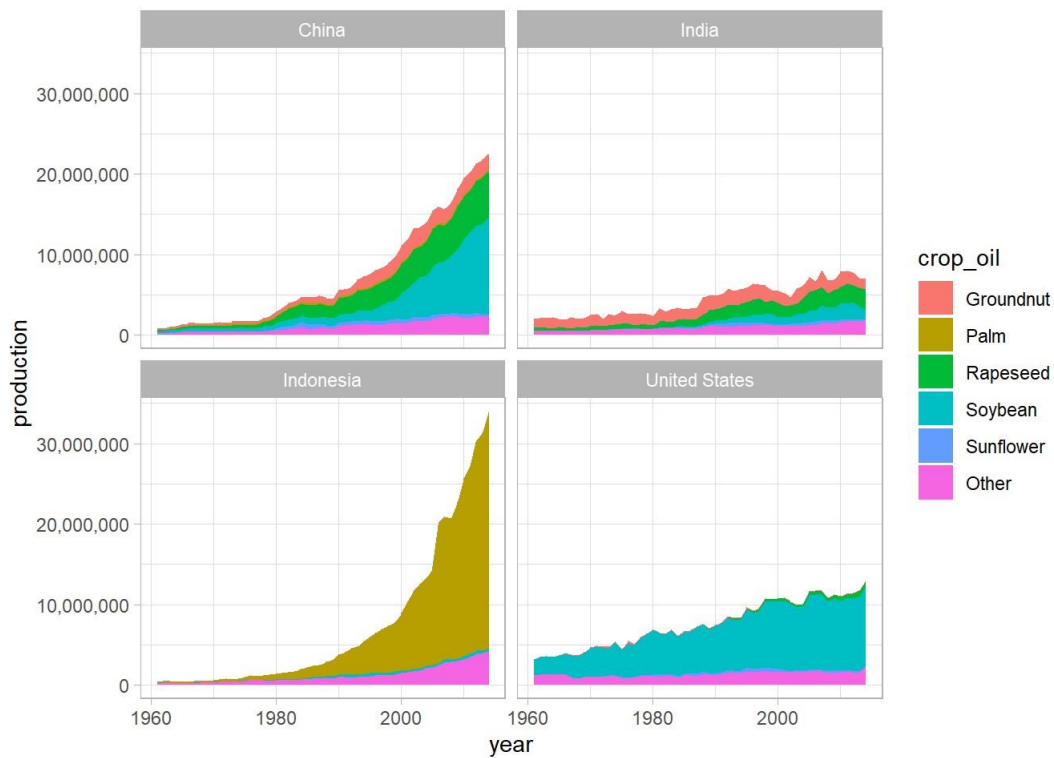


This is the good representation of Brazil forest loss over the years. From this graph we can say that pasture is the main reason for the forest loss. Although in some years it is down, but it is the major factor for forest loss all over the years. And another reason for the major loss is small scale clearing and commercial crops. And other factors like fire, selective logging and tree plantations including palm.

Soybean use



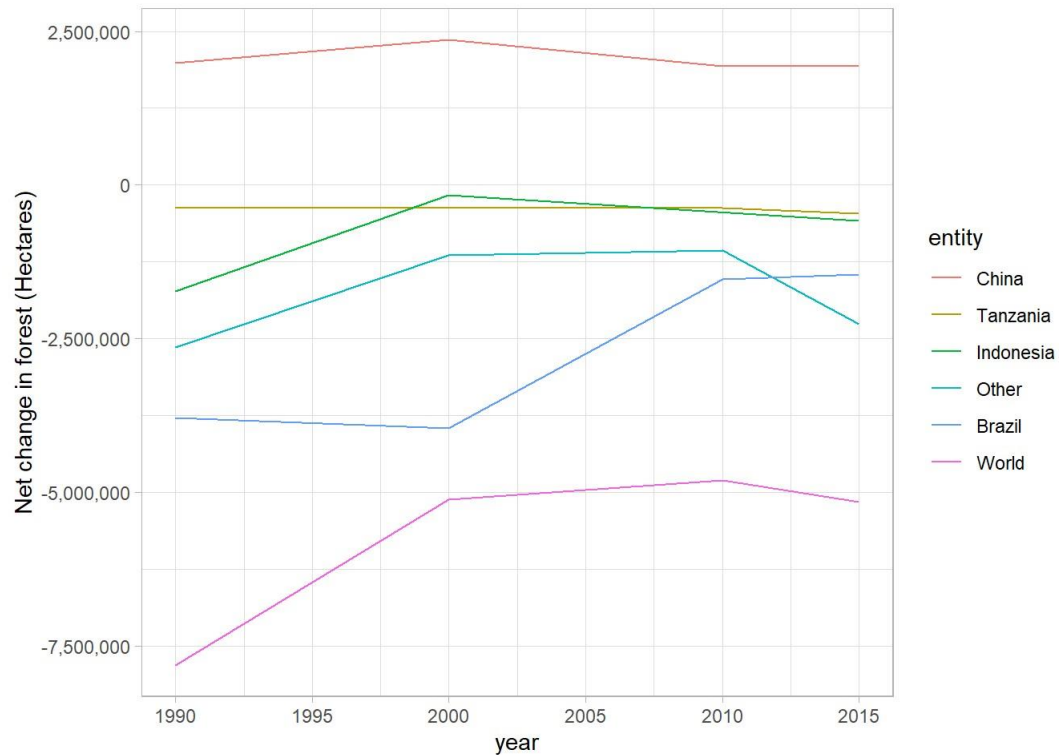
Soybean is mainly is used for processing in united states, China and Brazil. United States is the main consumer of soybean followed by China and Brazil. As a human food China is the main consumer.



Vegetable oil production

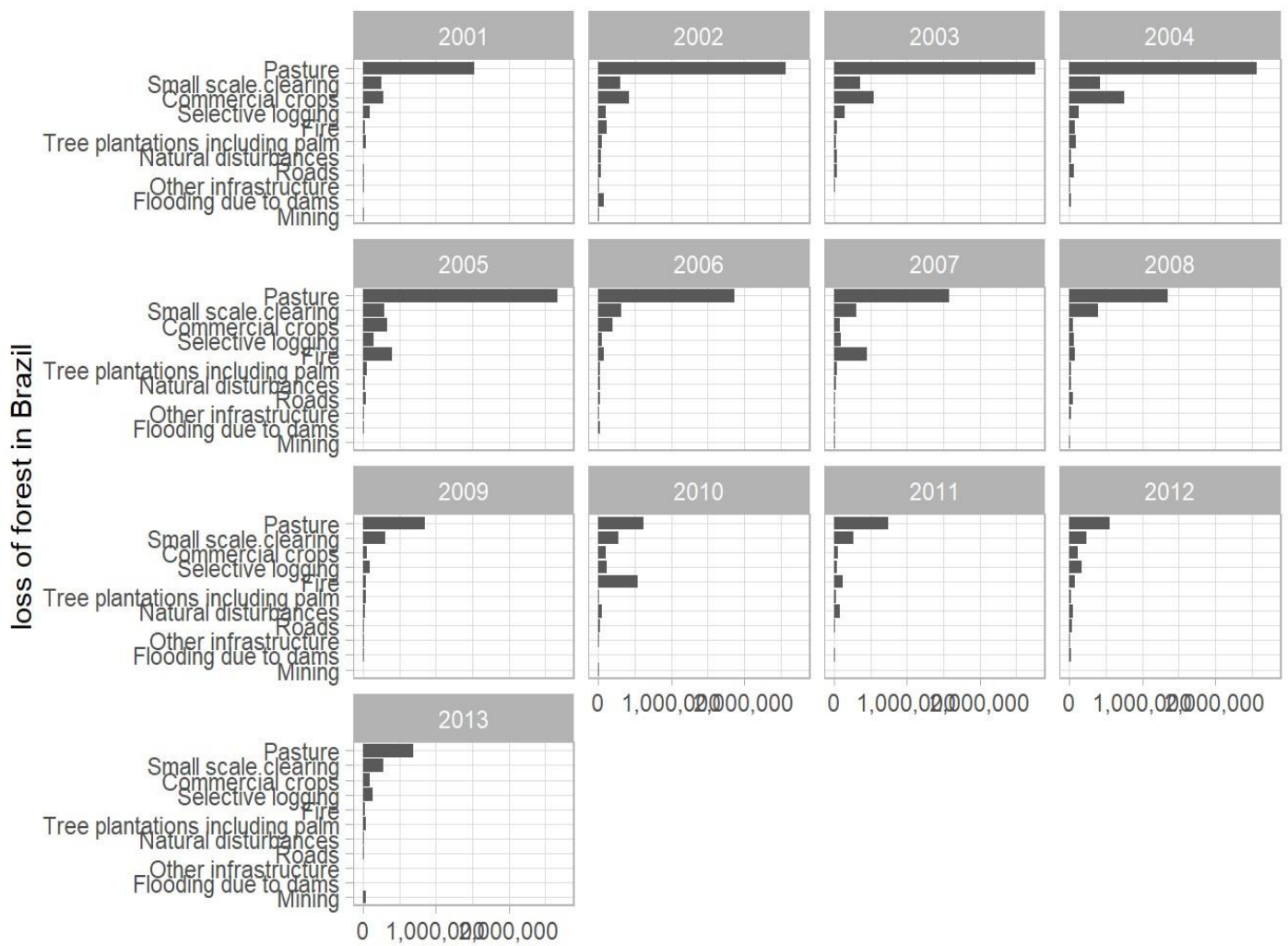
China and India are producing more ground nut oil. Indonesia is producing more palm oil. China is producing more rapeseed oil and followed by India. United States produce more soybean oil followed by China. From this graph we can say that China is producing most of the crop oil.

Good graph critic



This is perfect example of good graph visualization because here I attempted to show the net change in forest conversion over the years by line graph. So, the line denotes the change in forest conversion which we can easily understand the concept. on the x-axis year in y-axis net change in forest conversion in hectares. The line denotes the country with different color for different countries with entity showing right corner of the graph. with this graph we can make good decisions how we can improve the forest conversion by coming years. The use of this graph makes people easily readable.

Bad graph critic



I think its good visualization but I attempted to show the Brazil forest loss due to specific factors over the years. But the values are not clear and the names of the graph is messy not so clear. I did not add the x- axis label which is empty. This graph can be improved by adding some color for different factors and make the values easily readable.

References

Interactive Web-Based Data Visualization with R, plotly, and shiny by carson sievert.

<https://ggplot2.tidyverse.org/>

<https://r-graph-gallery.com/ggplot2-package.html>