INTERNSHIP PROJECT REPORT

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Internship Organization: Unified Mentor

Project Title: Data Governance and Security Dashboard

Domain: Business Analyst

Tools Used: Tableau Desktop, Microsoft Excel

Report contents

1. Introduction

This report outlines the development of a Data Governance and Security Dashboard created using Tableau as part of an internship project.

In the modern world, the role of data in shaping sustainable and ethical decision-making is more important than ever. Governments, organizations, and institutions increasingly rely on Environmental, Social, and Governance (ESG) indicators to measure progress in areas such as climate action, social responsibility, and good governance. These indicators offer valuable insights into how well a country or entity is managing its environmental impact, promoting social equity, and ensuring transparency and accountability.

The main objective of this project was to convert complex ESG datasets into a clear, interactive, and user-friendly dashboard. Tableau was used to create various visualizations, including world maps, line charts, bar graphs, and summary cards, all aimed at helping users explore and analyze ESG trends across countries and over time.

The dashboard enables users to easily filter data by year, country, or ESG indicator, making it a powerful tool for tracking performance, identifying challenges, and supporting data-driven policy decisions. By replacing large tables of raw data with intuitive visuals, the dashboard enhances understanding and promotes better communication of key insights.

This project demonstrates how data visualization tools like Tableau can be used effectively to bring greater clarity and transparency to global development issues, helping stakeholders at all levels engage with critical ESG data in meaningful ways.

2. Problem Statement

While ESG (Environmental, Social, and Governance) data is publicly accessible through reputable sources such as the World Bank, it is often distributed across multiple files, formats, and portals. This scattered nature of data makes it difficult for end-users—such as researchers, analysts, students, and policymakers—to derive meaningful insights quickly. Additionally, the raw ESG datasets are usually presented in complex, technical formats that require time-consuming cleaning and transformation before they can be analyzed or visualized.

As sustainability and ethical governance continue to be global priorities, the ability to monitor and compare ESG performance across countries is more important than ever. However, the absence of a unified, user-friendly platform often limits access to this critical information, especially for those without advanced technical skills.

This project aims to bridge that gap by developing an interactive dashboard that consolidates diverse ESG indicators into one centralized, easy-to-navigate interface. The dashboard transforms complex data into visual insights that are simple to explore and understand, empowering users to analyze trends, make comparisons, and support data-driven decisions related to environmental and governance challenges.

3. Project Objectives

The primary goal of this project is to develop a comprehensive and interactive dashboard that visualizes ESG (Environmental, Social, and Governance) data in a clear, accessible format. To achieve this, the following objectives were established:

- Design and implement an interactive ESG dashboard using Tableau that allows users to explore key sustainability and governance indicators across multiple countries and time periods.
- Enable category-based filtering, allowing users to easily switch between Environmental, Social, and Governance data sets for targeted analysis.
- Support comparative analysis by country and year, making it possible to evaluate ESG trends, progress, and disparities at a national level over time.
- Incorporate footnotes, definitions, and metadata to provide additional context, improving user understanding of the indicators and ensuring transparency in the data source and structure.
- Document the entire process and results through a structured project report that includes data cleaning steps, visualization design, insights discovered, and conclusions drawn from the dashboard.

4. Tools & Technologies Used

This project primarily utilized **Tableau** and **Microsoft Excel** to transform raw ESG data into meaningful visual insights. **Microsoft Excel** was used in the initial stages for data cleaning, formatting, and transformation. Tasks such as removing null values, reshaping wide-format data into long-format, and standardizing indicator names were performed using Excel functions and filters. Once the data was prepared, it was imported into **Tableau**, a powerful data visualization tool. Tableau was chosen for its ability to create dynamic, interactive dashboards with minimal coding. It enabled the creation of multiple views, including maps, bar charts, line graphs, and KPI cards, all linked with filters to allow real-time analysis. These tools together helped simplify complex datasets and present them in a way that supports clear understanding and decision-making.

5. Data Source & Cleaning

The data used in this project was obtained from the **World Bank's ESG (Environmental, Social, and Governance) Draft Dataset**, which provides publicly accessible global ESG indicators across various countries and years. The dataset includes time series data for key sustainability metrics such as carbon emissions, renewable energy usage, access to education, healthcare indicators, and governance effectiveness. However, the raw data was originally in a wide and partially unstructured format, with multiple null values, inconsistent naming conventions, and scattered metadata.

To prepare the data for visualization, **Microsoft Excel** was used extensively for cleaning and transformation. This involved removing blank rows, filtering out incomplete records, standardizing column headers, and reshaping the data from wide to long format (where each year became a separate row instead of a column). Relevant fields such as Country Name, Indicator Name, Year, and Value were preserved, while unnecessary metadata was excluded for simplicity. The cleaned dataset was saved in both CSV and Excel formats and then imported into Tableau for dashboard development.

DATASET:

ESG country:
https://drive.google.com/file/d/1E2nJTBC75WRx_4v95MMx0D4kBrgV9orE/view?usp=sharing

ESG data:

https://drive.google.com/file/d/1xRIJoZCxoSMWNGpStMCVdq6hucvWNEOE/view?usp=sharing

ESG Footnote:

https://drive.google.com/file/d/1wDcvSqVIxa4bQG55qIYJf9udkT907l-F/view?usp=sharing

ESG Series:

https://drive.google.com/file/d/1wDcvSqVIxa4bQG55qIYJf9udkT907l-F/view?usp=sharing

ESG Series time:https://drive.google.com/file/d/1KzTdtVhcVyyf81zhfC_loHmKD0dGZlt6/view?usp=sharing

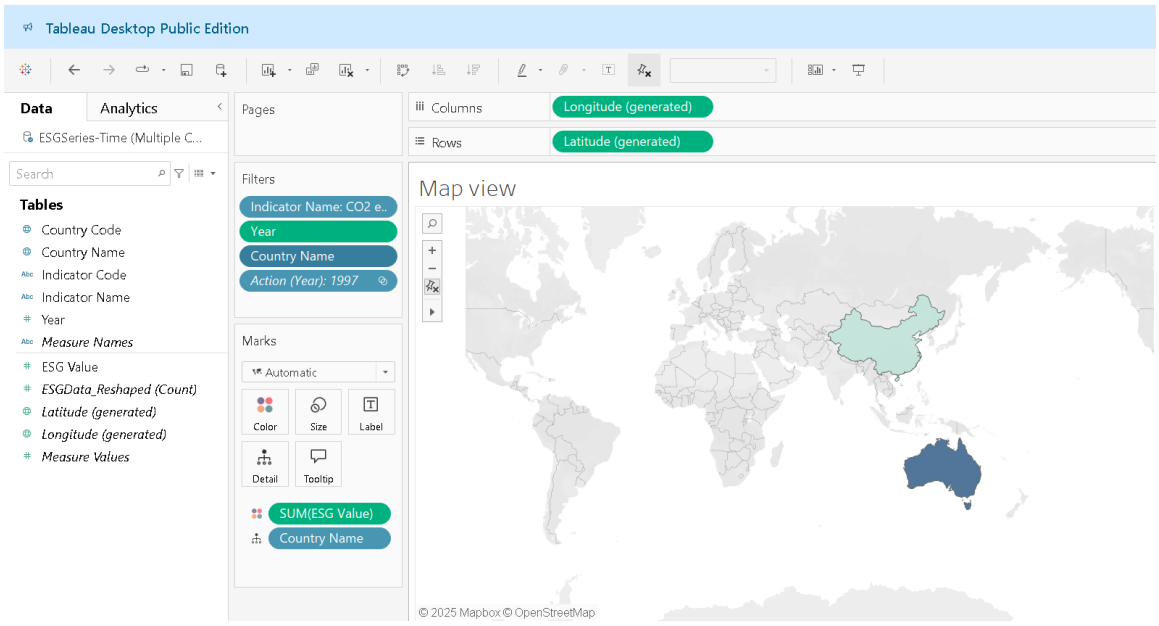
ESG country:
https://drive.google.com/file/d/1FArkcya3RQztQyu0lhYdw989qeKgtMxa/view?usp=sharing

6. Dashboard Design

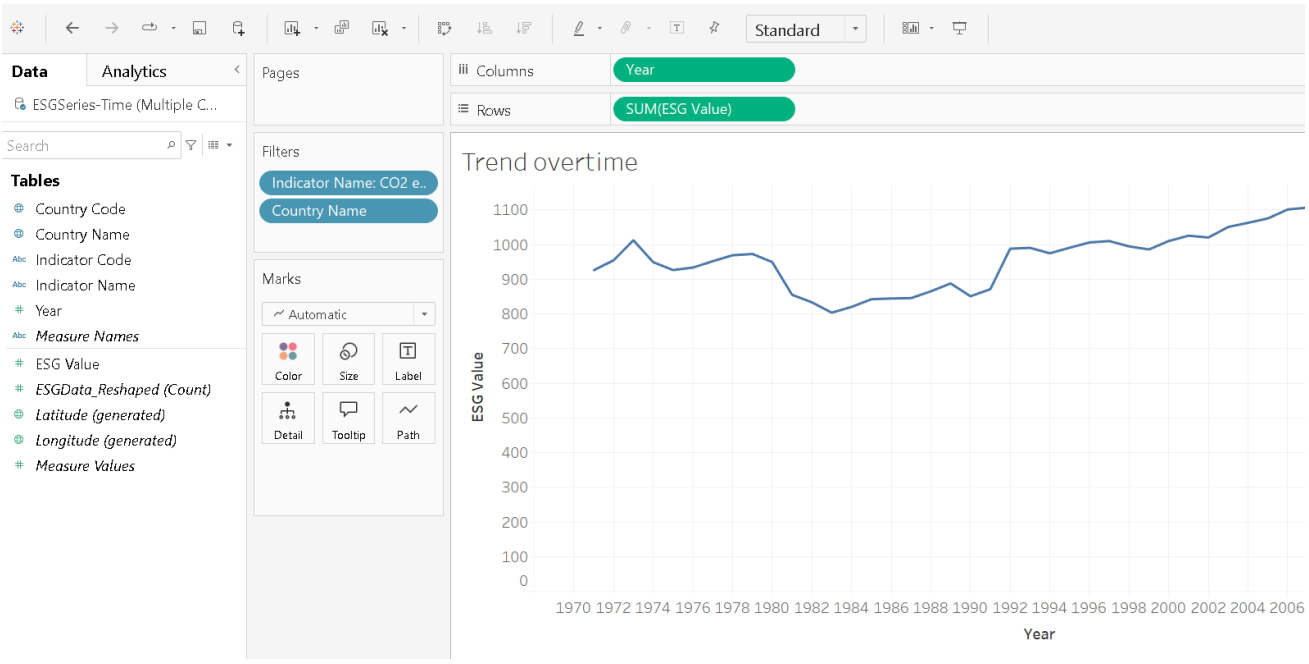
The ESG Dashboard was designed in **Tableau** with the goal of making complex global data easier to explore and understand. Multiple visual components were created to represent ESG indicators from different perspectives. The dashboard includes a **map view** to display country-wise ESG values geographically, a **line chart** to show trends over time, and a **bar chart** for comparing multiple countries based on a selected indicator and year. A **KPI card** was added to highlight specific values, such as the CO_2 emission level of a selected country in a given year. Additionally, a **pie chart** was included to show the proportional distribution of Environmental, Social, and Governance categories for selected filters.

To improve user interactivity, **filters for year, indicator name, and country** were integrated into the dashboard. These filters allow users to view specific subsets of the data based on their interest. The layout was kept clean and intuitive, with charts positioned logically and titles clearly indicating the content of each section. This design approach ensures that users—from analysts to policymakers—can navigate the dashboard with ease and gain actionable insights without needing technical expertise.

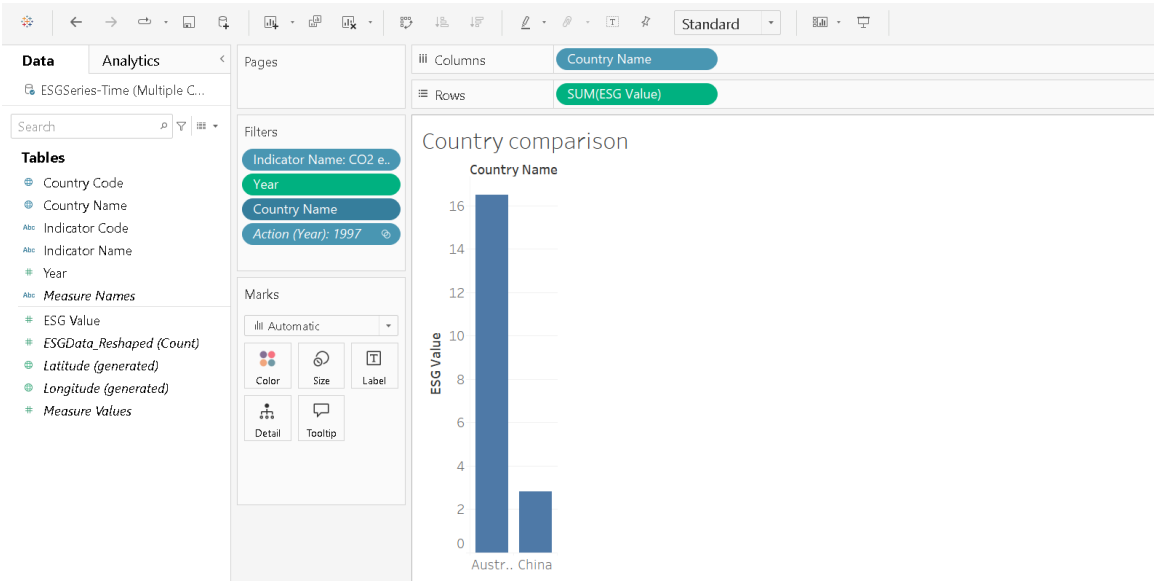
- The dashboard was designed with the user experience in mind, providing:
  - A world map visualizing ESG values by country of Australia and China



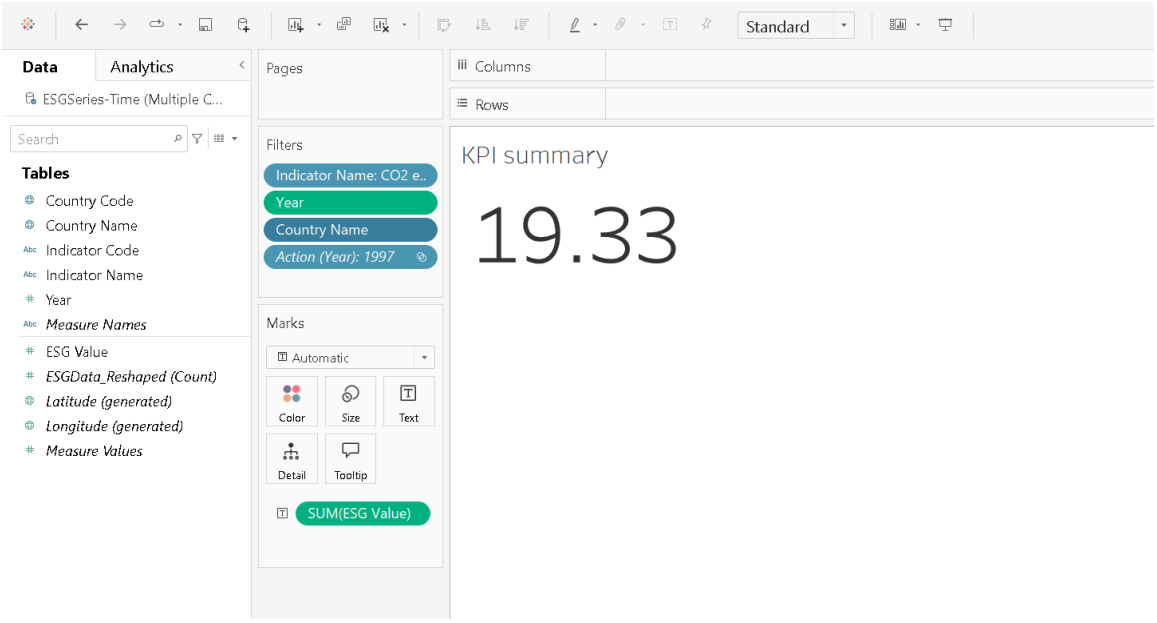
- Trend overtime



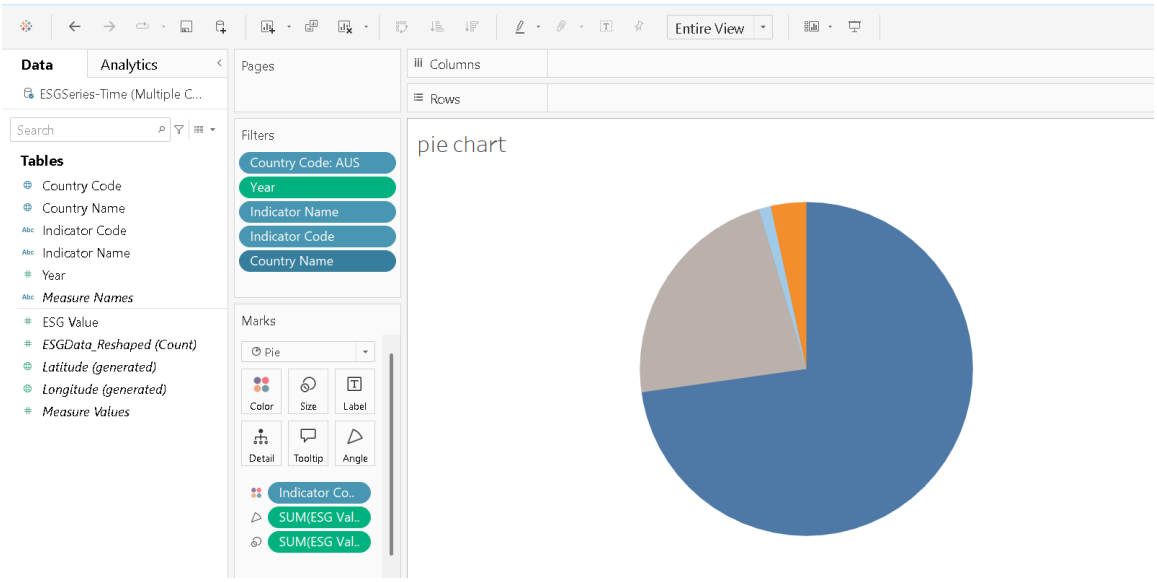
- Bar charts for indicator-based comparisons between Australia and China



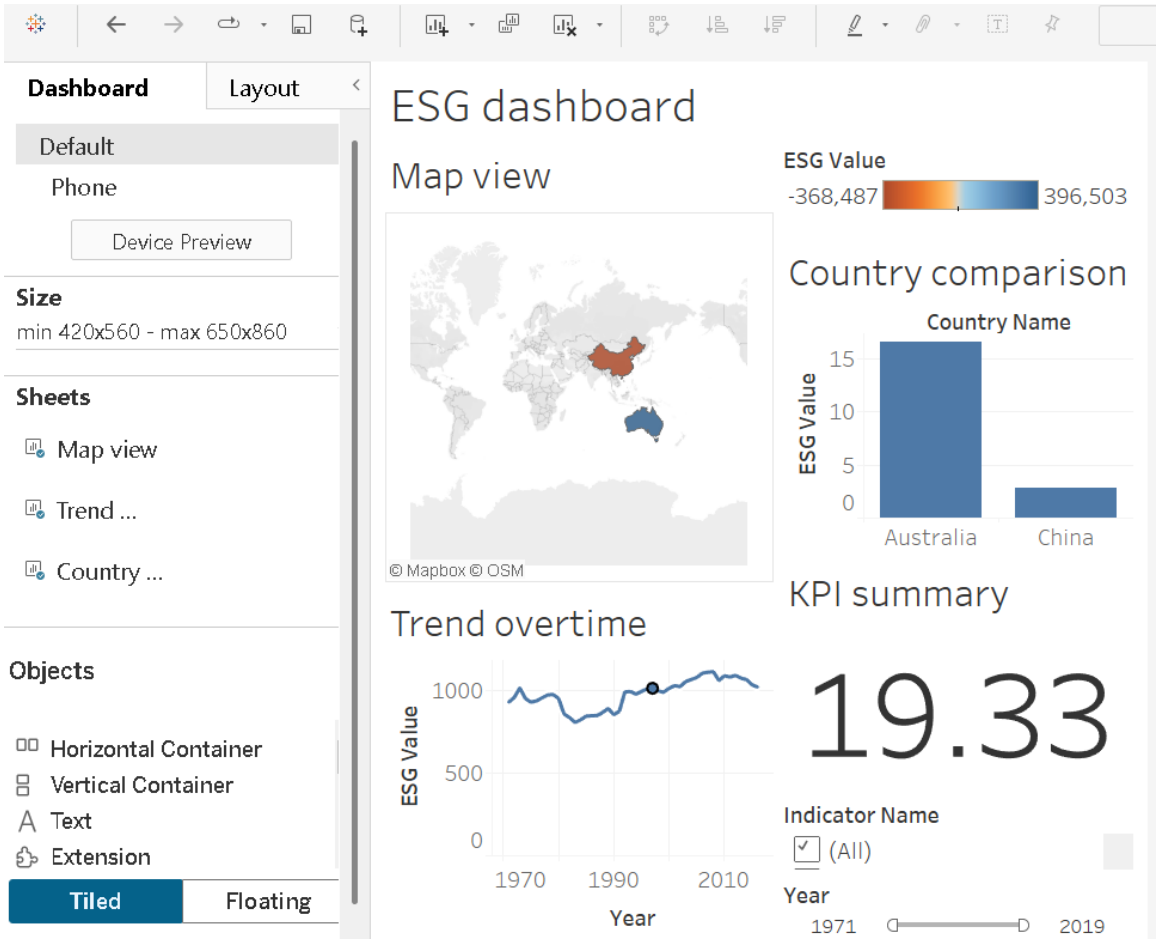
- KPI summary between Australia and China



- pie chart of Australia and China



-overall dashboard of ESG data



7. Insights/observation

A comparison between **Australia** and **China** in the ESG dashboard reveals a contrast in strengths and challenges across the Environmental, Social, and Governance dimensions.

China, as one of the world's largest emerging economies, has shown substantial progress in areas such as **industrial development, infrastructure, and renewable energy investment**. Over the years, China has scaled up its solar and wind power capacity, signaling a shift toward more sustainable energy. However, it continues to face significant challenges in managing **air pollution and carbon emissions**, which remain high due to its large manufacturing sector and coal usage. Governance indicators in China tend to show **moderate performance**, with areas like transparency and regulatory quality needing improvement.

On the other hand, **Australia**, a developed nation, demonstrates relatively strong performance in **governance and social indicators**, including **access to education, public health, and rule of law**. It consistently ranks high in political stability and regulatory effectiveness. However, environmental indicators for Australia reveal challenges, especially regarding **carbon emissions per capita**, land degradation, and biodiversity loss. Despite having strong policy frameworks, environmental action has often lagged behind due to reliance on fossil fuels and export-driven resource sectors.

This comparison highlights the **dual nature of ESG development**.where one country may excel in governance but struggle with environmental sustainability, while another aggressively pursues renewable goals yet needs to strengthen its institutional frameworks. These insights help users of the dashboard identify opportunities for improvement and shared learning across regions.

8. Conclusion

The ESG Data Governance and Security Dashboard project successfully transformed complex and scattered ESG data into an interactive and insightful visual platform. By utilizing tools like Microsoft Excel for data cleaning and Tableau for visualization, the project was able to highlight key trends and comparisons in environmental, social, and governance performance across multiple countries and years.

The dashboard allows users to explore ESG metrics through maps, trend lines, bar charts, and key performance indicators, making the information more accessible to researchers, analysts, and policymakers. With filtering capabilities and clear visual layouts, users can analyze data in real time and derive meaningful conclusions.

This project not only improved technical skills in data handling and visualization but also deepened understanding of sustainability and governance issues on a global scale. The final outcome serves as a practical tool to support data-driven decisions, promote transparency, and encourage responsible development worldwide.

9. Future scope

While the current ESG dashboard provides a strong foundation for analyzing global sustainability indicators, there are several opportunities for future enhancement. One potential improvement is the integration of real-time or annually updated ESG data through APIs or live data feeds, which would keep the dashboard current without manual updates. Additionally, the scope of the dashboard can be expanded to include organization-level or sector-specific ESG metrics, allowing deeper insights beyond country-level analysis.

Incorporating predictive analytics and forecasting models could also help in estimating future ESG trends based on historical patterns. Furthermore, improving mobile responsiveness and embedding the dashboard into websites or policy portals could make it more accessible to a wider audience. Multilingual support and region-specific filters would also enhance usability for international users. Overall, these advancements would make the ESG dashboard a more powerful and dynamic tool for sustainable decision-making.

10. References

 World Bank ESG Dataset
Source of ESG indicators used for the project.
🔗 **https://datacatalog.worldbank.org**

 Tableau Software
Used for dashboard development and data visualization.
🔗 **https://www.tableau.com**

 Microsoft Excel
Used for data cleaning and preparation.
🔗 **https://www.microsoft.com/excel**