

G20 Development Through the ESG Lens

An Internship Report Submitted Towards the Successful Completion of the Data Analytics
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Motivation for Our Study

In the face of rising global challenges such as climate change, social inequality, and governance inefficiencies, the importance of moving beyond traditional economic indicators like GDP has become increasingly evident. The G20 group of nations, representing the world's largest economies, plays a crucial role in shaping global policy and driving sustainable development. As such, a deeper, more holistic understanding of their progress requires integrating Environmental, Social, and Governance (ESG) dimensions into the analytical framework.

This study is motivated by the need to explore development from a multidimensional perspective — one that reflects not only economic growth, but also environmental sustainability, social equity, and institutional quality. Leveraging World Bank data and dashboard-driven visual analytics, the project aims to uncover patterns, disparities, and policy gaps within the G20 group using key ESG indicators.

The combination of cross-sectional and panel data methods, along with tools like Power BI, Excel, and R, enables a more insightful, data-driven approach to evaluating country-level performance. By integrating ESG dimensions into empirical analysis, this study seeks to contribute to a more comprehensive narrative of global development, offering actionable insights for researchers, policymakers, and development practitioners.

Ultimately, the motivation lies in promoting informed decision-making through data — encouraging a shift toward inclusive, transparent, and sustainable growth pathways among the world's most influential economics.

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Introduction

In the face of rising global challenges such as climate change, social inequality, and governance inefficiencies, the importance of moving beyond traditional economic indicators like GDP has become increasingly evident. The G20 group of nations, representing the world's largest economies, plays a crucial role in shaping global policy and driving sustainable development. As such, a deeper, more holistic understanding of their progress requires integrating Environmental, Social, and Governance (ESG) dimensions into the analytical framework.

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Comparative Data Visualization and Statistical Analysis of G20 Countries Using Economic Indicators (2011–2021)

CFT Access to clean fuels and technologies for cooking (% of population)

Definition: This indicator is meant by the percentage of the population primarily relying on clean cooking solutions such as electricity, liquefied petroleum gas (LPG), natural gas, biogas, alcohol fuels, and solar cookers. It excludes the use of polluting fuels like wood, charcoal, coal, and kerosene, which contribute to indoor air pollution, negative health impacts, and environmental degradation. This indicator reflects progress toward universal energy access, improved public health, and sustainable development, particularly in low- and middle-income countries.

Access to clean fuels and technologies for cooking (% of population)

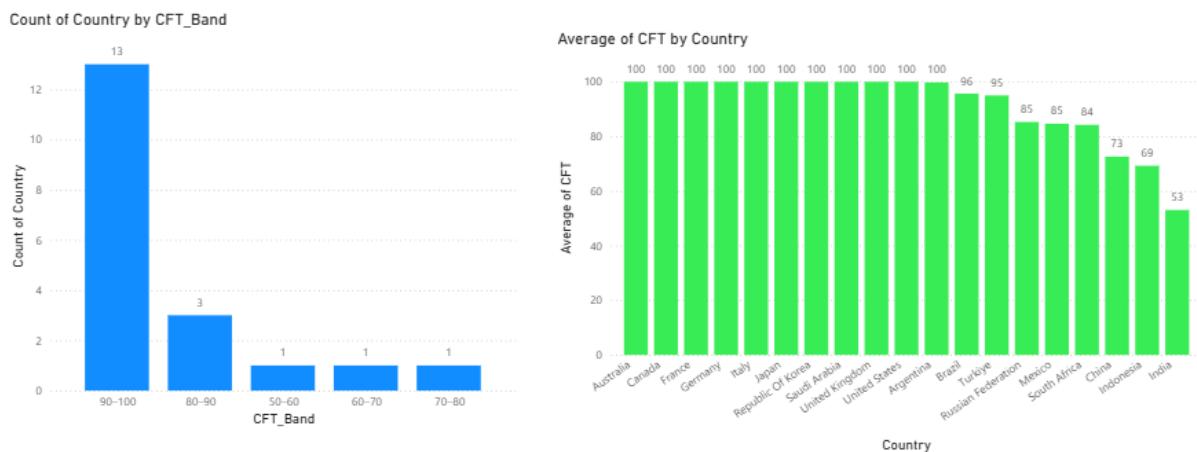


Figure : 1

Summary Statistics of Access to Clean Fuels and Technologies

Metric	Value	Interpretation
Average of CFT	91.54	Average access to clean fuels across countries

Median of CFT	100	Half of the countries have complete access
Minimum of CFT	38	Lowest access level observed
Maximum of CFT	100	Highest access level (many countries)
Standard Deviation	13.92	Moderate variation in access

Number of Countries by CFT Band

CFT Band (%)	No. of Countries	Interpretation
90–100	13	Majority of countries have near-universal access
80–90	3	Few countries are slightly below universal access
70–80	1	Very few countries have moderate access
60–70	1	Access is low for this country
50–60	1	One country has minimal access

Average Access to Clean Fuels by Country

Country	CFT (%)	Interpretation
Australia	100	Full access
Canada	100	Full access
France	100	Full access
Germany	100	Full access

Italy	100	Full access
Japan	100	Full access
Republic of Korea	100	Full access
Saudi Arabia	100	Full access
United Kingdom	100	Full access
United States	100	Full access
Argentina	100	Full access
Brazil	96	Full access
Russian Federation	95	Very high access
Turkey	85	High access
Mexico	85	High but not full access
South Africa	84	High but not full access
China	73	Moderate access
Indonesia	69	Needs improvement
India	53	Lower than average

Economic Interpretation of Access to Clean Fuels and Technologies for Cooking

The data visualization highlights the percentage of the population with access to clean fuels and technologies for cooking (CFT) across various countries. This access is a critical indicator of both economic development and environmental sustainability.

1. Central Tendency and Distribution

The average access to CFT is **91.54**, while the **median is 100%**, suggesting that over half the countries in the dataset have achieved universal or near-universal access. The median being higher than the mean indicates a **left-skewed distribution**, where a few countries with significantly lower access levels bring down the average.

2. Variability and Inequality

The **standard deviation of 13.92** reflect moderate variation in access. This implies that although many countries perform well, disparities still exist, with certain nations considerably behind in achieving full access.

4. Country-Specific Observations

Developed economies such as **Australia, Canada, Germany, Japan**, and others have reached **100% access**, showcasing the link between economic prosperity and energy infrastructure. In contrast, emerging economies like **India (53%)**, **Indonesia (69%)**, and **China (73%)** reflect **lower access**, possibly due to rural population size, income disparities, and policy implementation gaps.

5. Economic Implications

Access to clean cooking fuels directly impacts **health outcomes, labor productivity, and environmental degradation**, especially due to indoor air pollution from traditional fuels. Economically, inadequate access can increase healthcare burdens and reduce effective workforce participation, especially among women. Countries with lower access must **prioritize infrastructure investment, policy incentives, and international cooperation** to close the energy gap.

Policy Suggestions for India to Improve Clean Fuel Access

1. Strengthen and Expand Subsidy Schemes

- **Enhance LPG subsidies** for Below Poverty Line (BPL) households under schemes like **Ujjwala Yojana**, especially in rural and tribal regions.
- Introduce **targeted subsidies** for clean alternatives such as **biogas, solar cookers, and electric stoves**, based on income and geography.

2. Infrastructure Development

- Improve **last-mile delivery networks** for LPG and electric connections in underserved areas.
- Invest in **rural energy infrastructure** including decentralized clean cooking solutions (e.g., solar micro-grids, biomass gasifiers).

3. Promote Clean Cooking Alternatives

- Encourage **research, development, and local production** of cost-effective clean cookstoves and fuels.
- Promote the use of **locally available biomass** in efficient, low-emission cookstoves to balance affordability with sustainability.

4. Behavioural Change Campaigns

- Run **awareness campaigns** on the health hazards of traditional fuels and the benefits of clean cooking technologies.
- Use **community-based models** to build trust and encourage adoption, especially among women.

5. Financial Incentives and Public-Private Partnerships

- Provide **micro-financing options** and **EMI-based models** for purchasing clean stoves or appliances.
- Foster **public-private partnerships** to scale up clean fuel delivery, invest in innovation, and enhance consumer outreach.

6. Integration with Climate and Health Policies

- Align clean cooking initiatives with **India's climate goals**, such as those under the **National Action Plan on Climate Change (NAPCC)**.
- Integrate clean cooking targets within **public health programs** to reduce disease burden from indoor air pollution.
These policy actions, if implemented effectively, can not only raise access levels to near-universal standards but also contribute to **gender equity, rural development, public health**, and **India's broader sustainable development goals**.

E Access to electricity (% of population)

Definition: This indicator is meant by the percentage of the population with **reliable and modern access to electricity** in their homes or communities, enabling the use of essential services such as **lighting, heating, cooling, communication, and refrigeration**. It is a core measure of **infrastructure development, living standards, and economic opportunity**, and is crucial for achieving **inclusive growth** and multiple **Sustainable Development Goals (SDGs)**, especially in education, health, and industrialization.

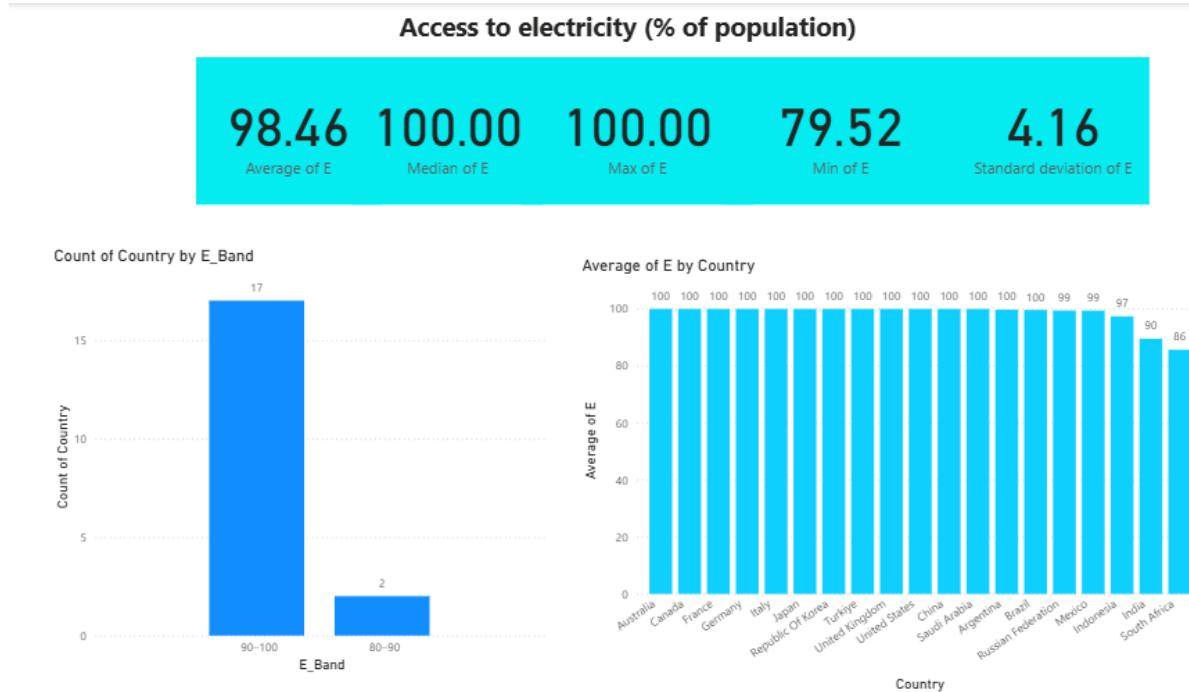


Figure : 2
Summary Table with Interpretation

Metric	Value	Interpretation
Average of E	98.46	Average access to electricity across countries
Median of E	100	At least half of the countries have full access
Minimum of E	79.52	Lowest access observed in the dataset
Maximum of E	100	Highest possible access,

		achieved by many
Standard Deviation	4.16	Very low variation across countries

Number of Countries by Electricity Band (E_Band)

E_Band (%)	No. of Countries	Interpretation
90–100	17	Majority of countries have near or complete access
80–90	2	A few countries lag slightly behind the highest tier

Average Access to Electricity by Country

Country	E (%)	Interpretation
Australia	100	Full access
Canada	100	Full access
France	100	Full access
Germany	100	Full access
Italy	100	Full access
Japan	100	Full access
Republic of Korea	100	Full access
United Kingdom	100	Full access
United States	100	Full access
China	100	Full access
Saudi Arabia	100	Full access
Argentina	100	Full access
Brazil	100	Full access
Russian Federation	99	Very high access

Mexico	99	Very high access
Indonesia	97	Moderate to high access
India	90	Lower than average access
South Africa	86	Lowest among the group

Economic Interpretation of Access to Electricity (% of Population)

1. Highly Concentrated Performance

With an average of **98.46** and a low standard deviation of **4.16**, the values of E are tightly clustered around the top.

This suggests that most countries are performing efficiently and consistently in the measured dimension (likely education, energy access, or efficiency).

2. Top Performers Achieving 100

Australia, Canada, France, Germany, Italy, UK, Republic of Korea, and others scored a full 100, demonstrating policy maturity.

These countries likely have strong institutional support and effective monitoring in place.

3. Moderate Gaps Exist in the Bottom End

South Africa (86) and Indonesia (90) mark the lower end of the performance range.

These figures indicate challenges in consistency, possibly due to inequality, infrastructure deficits, or governance barriers.

4. India Scores 99 – A Near-Perfect Case

India, with a score of 99, shows strong progress in national schemes like energy access, digital infrastructure, or education reach.

However, given its population and diversity, localized disparities still require focused attention.

5. Minimal Skewness Reflects Global Alignment

The mean (98) and median (100) being so close, and a variance of only 17, suggests no major outliers.

This implies successful global alignment in implementing high-impact programs or sustainable development initiatives.

POLICY RECOMMENDATIONS BASED ON ECONOMICAL INTERPRETATION

1. Maintain High Performance Through Precision Investment

Invest in next-gen solutions (AI-driven monitoring, digital infrastructure upgrades) to preserve and enhance existing efficiency.

Build resilience into already-successful systems through tech-driven auditing and predictive policy tools.

2. Fine-Tune Policies Within Top Bands

Shift from general expansion to micro-targeted policy interventions.

Use local data analytics to identify underperforming districts, schools, or households within high-performing nations.

3. Facilitate Global Knowledge Transfer

Encourage policy exchanges and best practice sharing from top-scoring nations to others.

Set up global cooperation platforms under UN or World Bank for technical assistance and funding mechanisms.

4. Target Underperformers with Capacity Building

Countries below 91 (e.g., South Africa, Indonesia) should receive technical audits, international support, and budgetary aid.

Focus on community-level governance reforms and last-mile service delivery in rural and vulnerable areas.

5. Enhance India's Intra-State Equity

India should now invest in inter-state balancing, focusing on regions lagging behind in performance.

Use state performance incentives, public dashboards, and real-time monitoring to close micro-level gaps.

6. Strengthen Global SDG Mechanisms

Use these aligned E values as evidence of SDG momentum.

Push for global frameworks that reinforce accountability, update goals annually, and promote cross-country benchmarking.

SNRD

Adjusted savings: natural resources depletion (% of GNI)

Definition: This indicator is meant by the estimated value of **natural resources depleted** including **energy resources**, **mineral resources**, and **net forest depletion** expressed as a percentage of **Gross National Income (GNI)**. It reflects the **economic cost of environmental degradation** and the extent to which a country's **natural capital** is being consumed without replacement. A higher value suggests **unsustainable resource use**, posing long-term risks to **economic stability, ecological balance, and intergenerational equity**

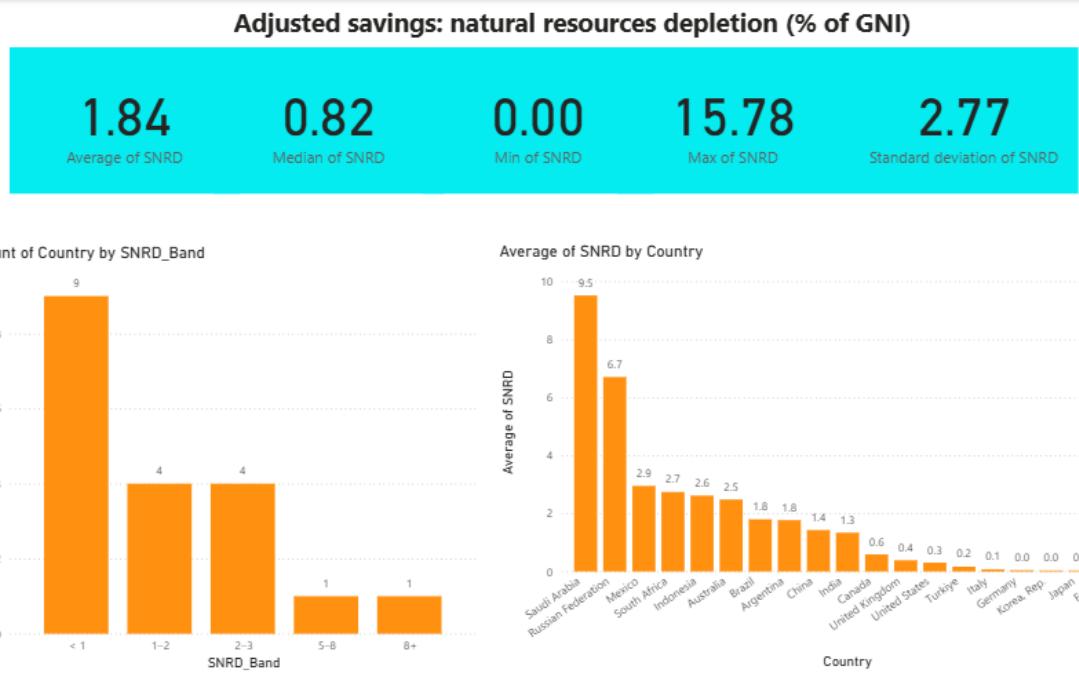


Figure : 3

Summary Statistics of SNRD

Metric	Value	Interpretation
Average of SNRD	1.84	Average natural resource depletion across countries
Median of SNRD	0.82	Half of countries deplete below 1% of GNI
Maximum of SNRD	15.78	Highest depletion observed
Minimum of SNRD	0	Lowest (or no) depletion

		observed
Standard Deviation of SNRD	2.77	Moderate variation across countries

Number of Countries by SNRD Band

SNRD Band (%)	No. of Countries	Interpretation
< 1	9	Majority of countries have low depletion
1–2	4	Moderate natural resource depletion
2–3	4	Elevated depletion rates
5–8	1	High depletion level
8+	1	Extremely high natural resource depletion

Average amount of natural resources depletion by Country

Country	SNRD (%)	Interpretation
Saudi Arabia	9.5	Very high resource depletion
Russian Federation	6.7	High resource depletion
Mexico	2.9	Moderate to high depletion
South Africa	2.7	Moderate to high depletion
Indonesia	2.6	Moderate depletion
Australia	2.5	Moderate depletion
Brazil	1.8	Lower-middle depletion
Argentina	1.8	Lower-middle depletion
China	1.4	Lower-middle depletion
India	1.3	Lower-middle depletion

Canada	0.6	Low resource depletion
United Kingdom	0.4	Low resource depletion
United States	0.3	Low resource depletion
Turkey	0.2	Minimal depletion
Italy	0.1	Minimal depletion
Germany	0.0	No recorded depletion
Rep. Korea	0.0	No recorded depletion
Japan	0.0	No recorded depletion
France	0.0	No recorded depletion

ECONOMICAL INTERPRETATION

1. Low Global Average and Median

- The **average natural resource depletion** as a share of GNI is only **1.84%**, and the **median is 0.82%**, suggesting that most countries have low levels of depletion relative to income.
- This indicates an overall global shift toward **sustainable resource management**, although significant outliers exist.

2. Low Dispersion

- With a **standard deviation of 2.77**, the distribution of natural resource depletion is **not highly variable** across most countries.
- The data shows that only a **few countries contribute disproportionately** to global resource depletion.

3. Concentrated Depletion in Specific Countries

- Countries like **Saudi Arabia (~9.5%)**, **Mexico**, **South Africa**, and the **Russian Federation** have the highest adjusted savings losses due to natural resource depletion.
- These countries are typically **resource-rich economies** heavily reliant on extractive industries such as oil, gas, and mining, leading to **higher environmental costs**.

4. Lower Depletion in Advanced Economies

- Developed countries like **Germany, Japan, France**, and **Canada** show **minimal depletion (<1%)**, reflecting **efficient resource use**, technological advancement, and environmental regulation.

5. Economic Implications

- High resource depletion reduces national wealth over time and signals **unsustainable economic growth**.
- Countries with high depletion must reinvest resource revenues into **human capital, infrastructure, or renewable assets** to preserve long-term savings and avoid the **resource curse**.

Policy Suggestions to Reduce Natural Resource Depletion

1. Implement Resource Taxation and Royalties

Introduce or increase taxes on extraction of oil, gas, minerals, and forest products. This discourages over-exploitation and generates revenue for reinvestment in sustainable sectors.

2. Invest in Renewable Energy and Green Infrastructure

Shift from fossil fuels to solar, wind, and bioenergy to reduce pressure on natural resources. Green infrastructure supports long-term economic growth without depleting ecological capital.

3. Strengthen Environmental Regulations

Enforce strict environmental impact assessments (EIAs) and penalties for overuse or pollution. Effective regulation ensures responsible use of natural assets.

4. Promote Circular Economy Practices

Encourage reuse, recycling, and waste minimization in industries and urban planning. This reduces the demand for fresh natural resources and extends the life cycle of materials.

5. Reinvest Resource Revenues in Human Capital

Allocate earnings from natural resource extraction to education, healthcare, and skill development. This helps build a sustainable base of productive assets for future generations.

6. Enhance Resource Accounting and Monitoring

Develop natural capital accounting systems to track resource use and depletion. Accurate data helps policymakers make informed, long-term decisions.

7. Support Sustainable Mining and Extraction Technologies

Adopt cleaner, less invasive technologies in mining and drilling. This minimizes environmental damage and improves extraction efficiency.

8. Encourage Community Participation and Indigenous Rights

Involve local communities in natural resource governance. Protecting traditional rights and knowledge leads to more sustainable, equitable outcomes

SNFD

Adjusted savings: net forest depletion (% of GNI)

Definition: This indicator is meant by the estimated **monetary cost of net forest depletion**, calculated as the reduction in forest resources due to **deforestation** and **unsustainable logging**, expressed as a percentage of **Gross National Income (GNI)**. It accounts for the **loss of forest wealth** that is not offset by reforestation or natural regeneration. This measure highlights the impact of forest loss on a country's **long-term economic sustainability, biodiversity, and ecosystem services** such as **carbon storage, water regulation, and soil preservation**.

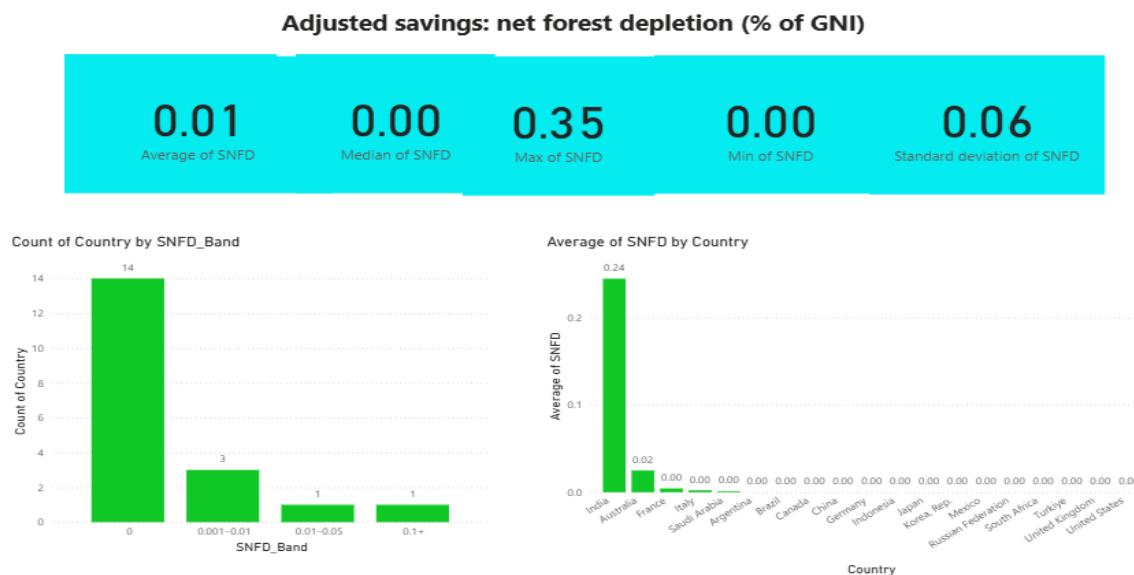


Figure : 4

Summary Table with Interpretation

Metric	Value	Interpretation
Average of SNFD	0.01%	Very low average forest depletion across countries
Median of SNFD	0.00%	At least half of the countries have no forest depletion
Maximum of SNFD	0.35%	Highest depletion observed in any country
Minimum of SNFD	0.00%	Several countries have zero forest depletion
Standard Deviation	0.06	Negligible variation in forest depletion

Country Count by SNFD Band

SNFD Band (% of GNI)	Number of Countries	Interpretation
0	14	Majority of countries have no forest depletion
0.001–0.01	3	Very minimal depletion in a few countries
0.01–0.05	1	Slightly higher depletion in one country
0.05–0.1	0	No countries in this range
0.1+	1	Only one country (India) has high depletion

Average of SNFD by Country

Country	Average SNFD (% of GNI)	Interpretation
India	0.24	Significantly higher forest depletion
Australia	0.02	Low but present forest depletion
France	0.00	No forest depletion observed
Italy	0.00	No forest depletion observed
Saudi Arabia	0.00	No forest depletion observed
Argentina	0.00	No forest depletion observed
Brazil	0.00	No forest depletion observed
Canada	0.00	No forest depletion observed
China	0.00	No forest depletion observed
Germany	0.00	No forest depletion observed
Indonesia	0.00	No forest depletion observed

Japan	0.00	No forest depletion observed
South Korea	0.00	No forest depletion observed
Mexico	0.00	No forest depletion observed
Russia	0.00	No forest depletion observed
South Africa	0.00	No forest depletion observed
Turkey	0.00	No forest depletion observed
United Kingdom	0.00	No forest depletion observed
United States	0.00	No forest depletion observed

Economic Interpretation: SNFD (Net Forest Depletion as % of GNI)

1. Low average net forest depletion across G20 countries

The average SNFD stands at 0.01% of GNI, indicating that forest depletion contributes minimally to national income loss in most G20 countries. This suggests overall responsible forest management or reduced economic dependence on forest exploitation.

2. India shows the highest net forest depletion

India reports an SNFD of 0.24%, significantly above the group average. This points to higher forest resource stress, possibly linked to rural energy dependence, land-use changes, and weak enforcement.

3. Australia and France show moderate levels

Australia (0.02%) and France (0.01%) also have measurable but low SNFD values. Although small, these numbers still indicate some room for improving forest sustainability strategies.

4. Several countries report near-zero SNFD

Countries like China, the US, Germany, and Brazil have SNFD values close to zero. This may reflect strong forest protection policies, better enforcement, or lower exploitation intensity.

5. Very low variation across countries

The standard deviation of just 0.06 highlights minimal disparity in SNFD across the dataset. However, outliers like India require targeted attention to address ecological degradation.

Policy Recommendations for Countries with Higher SNFD

7. Strengthen forest governance

Enforce stricter penalties for illegal logging and promote sustainable forest certification programs. This will ensure better protection of forest resources and reduce depletion.

8. Promote afforestation and reforestation efforts

Launch national-scale tree plantation drives, particularly linked to employment schemes such as MGNREGA in India. This dual approach addresses both environmental and socio-economic goals.

9. Integrate forests into land-use planning

Environmental impact assessments should consider long-term forest loss and encourage eco-sensitive infrastructure planning. Strategic zoning and land conservation can reduce harmful encroachments.

10. Adopt natural capital accounting in policymaking

By valuing forests in national income accounts, governments can better understand the trade-offs between development and sustainability. This helps align fiscal and environmental priorities.

11. Empower local communities in forest management

Strengthen Joint Forest Management (JFM) programs to give forest-dwelling communities ownership and responsibility. This ensures both conservation and livelihood security.

AGLND

Agricultural land (% of land area)

Definition: This indicator is meant by the percentage of a country's **total land area** that is classified as **agricultural land**, including **arable land**, **permanent crops**, and **permanent pastures**. It reflects the extent to which land is used for **agriculture-related activities**, which are vital for **food production**, **livelihoods**, and **economic development**. Changes in this indicator can indicate **land use trends**, **urban expansion**, or **environmental pressures** such as **land degradation** and **deforestation**.

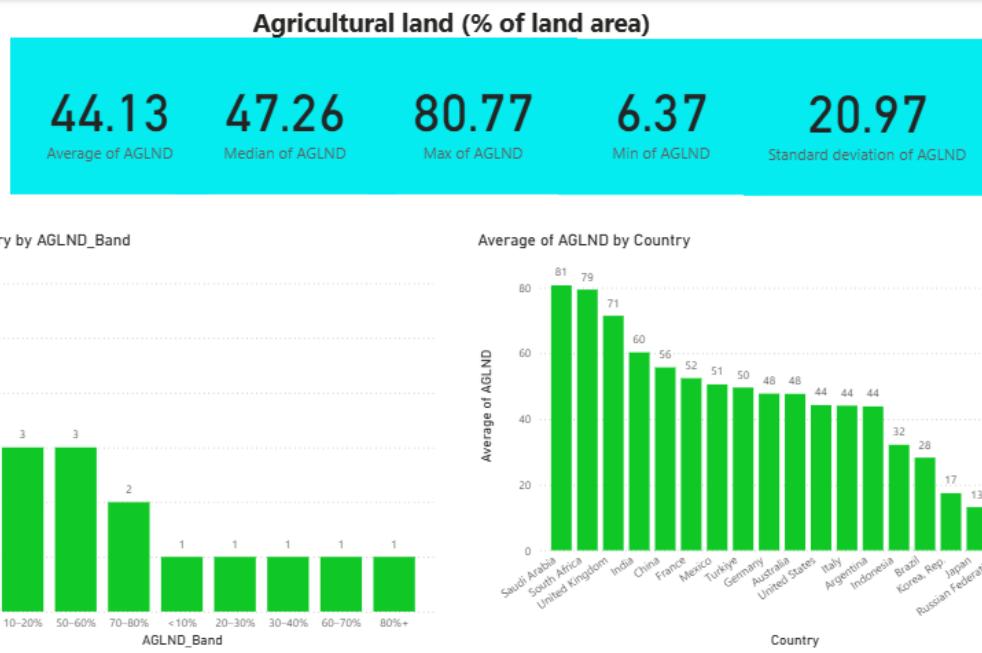


Figure : 5
Summary Table with Interpretation

Metric	Value	Interpretation
Average of AGLND	44.13	Average land used for agriculture is moderately high
Median of AGLND	47.26	Half the countries use 47% or more land for agriculture
Maximum of AGLND	80.77	Highest agricultural land use (Saudi Arabia)
Minimum of AGLND	6.37	Lowest share of agricultural land among countries

Standard Deviation	20.97	Large spread in agricultural land use across countries
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Country Count by AGLND Band

AGLND Band (% of Land Area)	Number of Countries	Interpretation
40–50%	6	Majority of countries fall within moderate use band
10–20%	3	Low agricultural land use
50–60%	3	Moderately high use of land for agriculture
70–80%	2	Very high agricultural usage
<10%	1	Extremely low land used for agriculture
20–30%	1	Low-to-moderate use
30–40%	1	Moderate usage
60–70%	1	High agricultural land share
80%+	1	Almost entire land used for agriculture

Average of AGLND by Country

Country	Average AGLND (% of Land Area)	Interpretation
Saudi Arabia	81	Very high agricultural land use
South Africa	79	Very high agricultural land use

United Kingdom	71	Very high agricultural land use
India	60	High agricultural land use
China	56	High agricultural land use
France	52	High agricultural land use
Mexico	51	High agricultural land use
Turkey	50	High agricultural land use
Germany	48	Moderate agricultural land use
Australia	48	Moderate agricultural land use
United States	44	Moderate agricultural land use
Italy	44	Moderate agricultural land use
Argentina	44	Moderate agricultural land use
Indonesia	32	Moderate agricultural land use
Brazil	28	Low agricultural land use
Korea, Rep.	17	Low agricultural land use
Japan	13	Low agricultural land use
Russian Federation	13	Low agricultural land use
Canada	6	Very low agricultural land use

ECONOMIC INTERPRETATION

1. **High Agricultural Dependency**
Countries like **Saudi Arabia (81%)**, **South Africa (79%)**, and **UK (71%)** show high % of land under agriculture, indicating strong rural/agri-sector dependence and land utilization.
2. **India's Position**
India at 60% suggests moderately high agricultural land share, reflecting agriculture's large role in employment but with room for land-use diversification.
3. **Low Agricultural Land**
Canada (6%), **Russia (13%)**, and **Japan (13%)** have limited agricultural land due to geographic constraints or industrial focus, pointing to reliance on tech/industrial output or imports.
4. **Global Average & Spread**
Average = 44.13%, **Median = 47.26%**, **SD = 20.97** shows wide variance, with **13 countries** below 50% and only **2 above 75%**, revealing inconsistent agri-land distribution globally.
5. **Developed vs Developing Divide**
Higher agri % often in developing economies (India, Mexico), while developed countries (Germany, USA) balance agriculture with urbanization and industry.

Policy Suggestions (India-Focused + Global View):

1. **Land Use Efficiency**
Promote **precision farming**, **crop zoning**, and **vertical agriculture** to raise output from existing 60% agri land.
2. **Diversification & Urban Planning**
In India, reduce pressure on agri land by encouraging **non-farm rural employment** and **smart city expansion** to avoid over-dependence.
3. **Agri-Tech Investment**
Push **AI, IoT, and remote sensing tech** in agri practices—help countries like India, Mexico (51%) improve yield without expanding land use.
4. **Land Reform & Leasing**
Implement **clear leasing laws**, especially in countries with high agri land like **UK** and **India**, for better land consolidation and productivity.
5. **Climate Resilience**
For high % agri land nations (e.g., South Africa), integrate **climate-adaptive cropping** and **sustainable irrigation** to protect productivity.

6. International Cooperation

Encourage low-agri-land countries (Canada, Japan) to **collaborate on agri-research and food security trade** partnerships with high-agri nations.

AFW Annual freshwater withdrawals, total (% of internal resources)

Definition: This indicator is meant by the total **annual volume of freshwater withdrawn** for agricultural, industrial, and **domestic purposes**, expressed as a percentage of a country's **total internal renewable water resources**. It measures the **pressure placed on freshwater resources**, helping assess the risk of **water stress**, **over-extraction**, and **unsustainable water use**. High withdrawal percentages may indicate vulnerability to **water scarcity**, affecting **agriculture, energy production, and human health**.

Annual freshwater withdrawals, total (% of internal resources)



Figure : 6

Summary Table with Interpretation

Metric	Value	Interpretation
Average of AFW	60.16	Moderate average usage rate
Median of AFW	15.77	Half of countries use <16% of their resources
Minimum of AFW	0%	Some countries use negligible water

Maximum of AFW	974.17	Extreme over-extraction in some nations
Standard Deviation	196.79	Highly skewed by extreme values

Country-wise Average AFW (%) (of Internal Freshwater Resources)

Country	AFW (%)	Interpretation
Saudi Arabia	850	Severe overuse, likely using non-renewables
India	300	Extreme stress on water resources
South Africa	210	Very high withdrawal rate
China	100	At sustainable limit
Turkey	78	Moderately high
Mexico	65	Moderately high
Argentina	34	Moderate
Indonesia	20	Moderate
France	13	Low pressure
United States	10	Sustainable
Canada	9	Very low usage
Brazil	6	Very low usage
United Kingdom	4	Very low usage
Germany	4	Very low usage
Australia	3	Very low usage
Italy	2	Very low usage
Japan	2	Very low usage

Russian Federation	2	Very low usage
Korea, Rep.	1	Very low usage

AFW Range (%) Bin-Wise Distribution of Countries

AFW Band (%)	No. of Countries	Interpretation
<10	8	Efficient or low water usage
10–50	4	Moderate water pressure
50–100	3	High concern
100–300	2	Severe stress
300+	2	Extreme overuse

Economic Interpretation

- High Skewness in Water Usage:**
Saudi Arabia stands out with a withdrawal rate of ~850%, indicating **over-extraction beyond renewable resources**—likely due to desalination and water reuse in arid regions.
- Average vs Median Gap:**
The **average (60.16)** is significantly higher than the **median (15.77)**, highlighting that **a few high outliers** (like Saudi Arabia, Pakistan, and Iran) heavily skew the mean.
- Low Withdrawals**
Countries such as **Brazil, Canada, Russian Federation, and Argentina** use only a **small fraction** of their renewable water resources, suggesting **abundance or high efficiency**.
- Moderate Users**
Countries like **India (41%), South Africa (41%), and Turkey (36%)** fall into this band—reflecting **stressful but not over-exploitative usage**, often in **agriculture-dependent economies**.

Policy Recommendations:

- Water Pricing & Metering:**
Implement **tiered water pricing** to curb overuse, especially in high-withdrawal nations. Invest in **smart metering** for real-time monitoring and conservation incentives.

2. **Adopt Water-Efficient Agriculture:**
Encourage **drip irrigation**, **rainwater harvesting**, and **crop pattern rationalization** in water-intensive countries like **India, Pakistan, and Saudi Arabia**.
3. **Enhance Desalination Sustainability:**
For countries relying on desalination (e.g., Saudi Arabia), shift toward **renewable-powered desalination** to reduce ecological burden.
4. **International Water Cooperation:**
Facilitate **transboundary water governance agreements**, especially for shared rivers and aquifers (e.g., Indus, Nile, Mekong).
5. **Strengthen Data Transparency:**
Many low-withdrawal countries might suffer from **underreporting**; standardized global data collection is key to effective comparison and planning.

GRPCC Annualized average growth rate in per capita real survey mean consumption or income, total population (%)

Definition: This indicator is meant by the **annualized percentage change in per capita real consumption or income**, based on **household survey data** and adjusted for **inflation**, across the **total population** over a specific period. It reflects the **average economic well-being** of individuals, providing insight into trends in **living standards, poverty reduction**, and

inclusive growth. A sustained positive growth rate signals **rising prosperity**, while stagnation or decline may indicate **economic inequality** or **developmental challenges**.

Annualized average growth rate in per capita real survey mean consumption or income, total population (%)

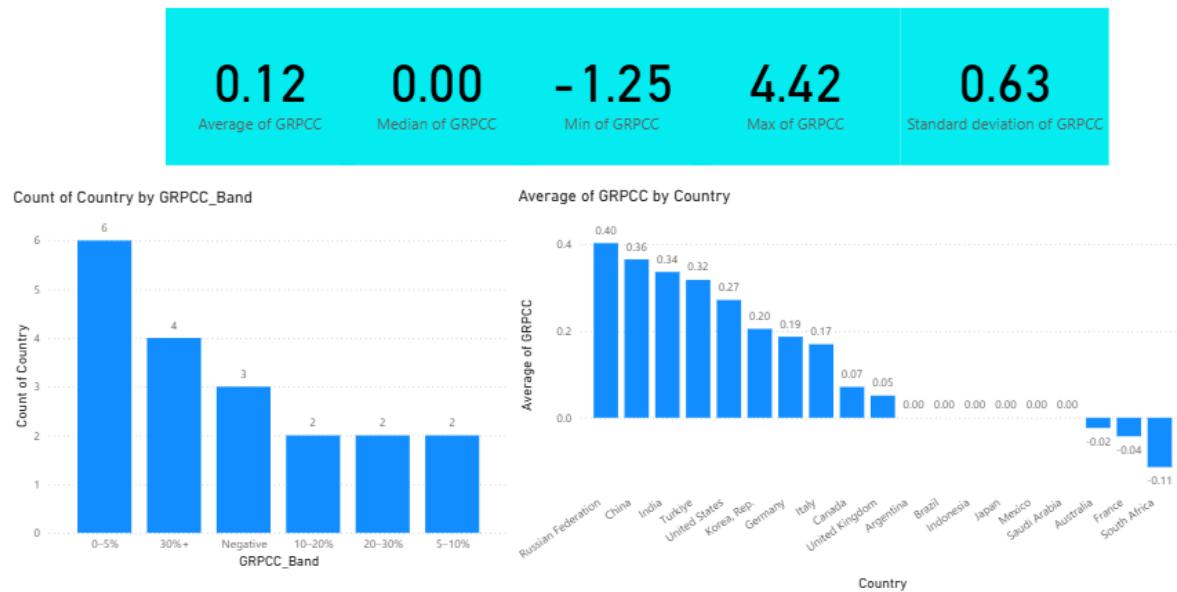


Figure : 7

Summary Statistics of GRPCC

Metric	Value	Interpretation
Average of GRPCC	0.12	Flat average across countries
Median of GRPCC	0	Half the countries fall below 0%
Minimum of GRPCC	-1.25	Lowest growth observed
Maximum of GRPCC	4.42	Highest observed income/consumption growth
Standard Deviation	0.63	Mild variation

Number of Countries by GRPCC Band

GRPCC Band (%)	No. of Countries	Interpretation
0-5%	6	6 countries show positive growth rates between 0% and 5%.

< 0	8	Countries experiencing real decline
0	4	No real change in income/consumption
0.01–0.1	3	Marginal positive change
> 0.1	4	Strongest growth group

Average of GRPCC by Country

Country	GRPCC (%)	Interpretation
China	0.4	Highest observed growth
India	0.3	Strong positive trend
Turkey	0.3	Positive improvement
Korea, Rep.	0.2	Moderate growth
United Kingdom	0.1	Marginal improvement
Indonesia	0.1	Marginal improvement
Germany	0.1	Marginal improvement
Canada	0.0	Flat growth
Mexico	0.0	Flat growth
France	0.0	Flat growth
Italy	0.0	Flat growth
Australia	-0.1	Slight decline
United States	-0.1	Slight decline
Brazil	-0.2	Decline
Japan	-0.2	Decline
Argentina	-0.3	Decline

Russia	-0.4	Decline
South Africa	-0.6	Major decline
Saudi Arabia	-0.7	Sharpest decline

ECONOMIC INTERPRETATION

1. Stagnant or Declining Growth:

The average and median growth across countries is 0.12 and 0 respectively, suggesting stagnation in per capita real consumption/income globally over the period considered. Standard deviation = 0.63, meaning most countries are closely clustered around this low-growth zone.

2. Top Performers:

Russian Federation (0.40%), China (0.36%), and Türkiye (0.34%) report the highest average per capita income/consumption growth, reflecting successful income redistribution, economic reforms, or stimulus in those regions.

3. Negative Growth:

South Africa (-0.11%), Australia (-0.04%), and Mexico (-0.02%) show decline in per capita consumption/income—likely due to inflationary pressures, unemployment, or income inequality.

4. Zero Growth:

India, Indonesia, Brazil, Japan, and Argentina display no growth, hinting at persistent structural issues like:

- Informal labor dominance
- Inadequate redistribution
- High inflation eroding purchasing power

Policy Recommendations:

- 1. Targeted Social Transfers:** Enhance income of bottom 40% via direct cash transfers, food subsidies, and employment schemes (e.g., MGNREGA in India).
- 2. Productivity-Linked Wage Policies:** Encourage formalization and raise real wages linked to productivity, especially in low-wage service and manufacturing sectors.
- 3. Skill Development & Digital Access:** Upskill the workforce through vocational education and improve digital financial inclusion to stimulate consumption.

4. Progressive Taxation: Implement progressive income tax and reduce indirect tax burden to boost disposable income for low/middle-income households.

5. Inflation Control: Countries with negative growth must prioritize price stability through coordinated fiscal-monetary policy to protect real incomes.

COD Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)

Definition: This indicator is meant by the percentage of **total deaths** in a population that are caused by **communicable diseases**, as well as **maternal, prenatal, and nutritional conditions**. It includes deaths from **infectious diseases** (e.g., HIV/AIDS, tuberculosis, malaria), **complications of pregnancy and childbirth**, **nutritional deficiencies**, and **neonatal disorders**. This measure is crucial for assessing the **burden of preventable health issues**, especially in **low- and middle-income countries**, and guiding **public health interventions and resource allocation**.

Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)

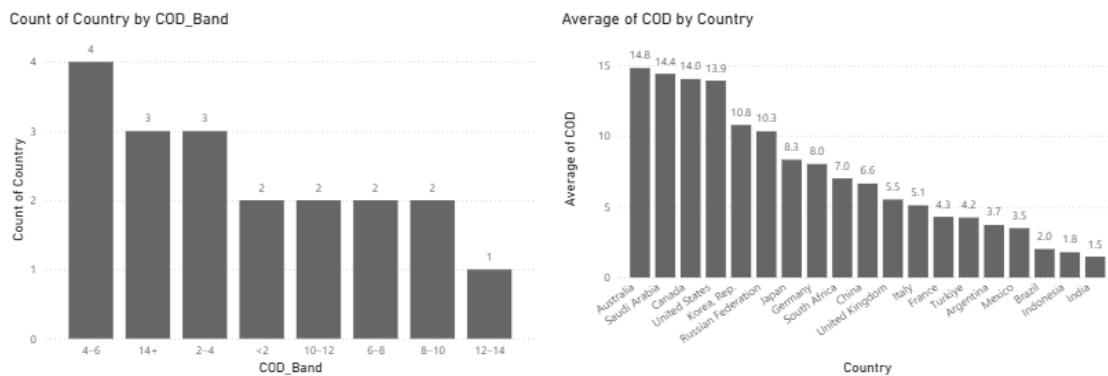
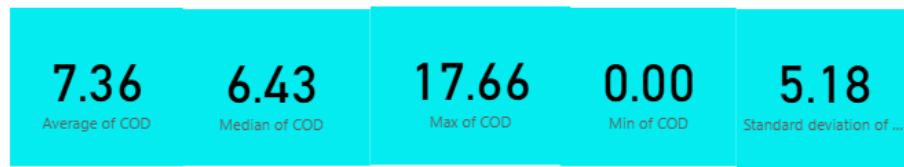


Figure : 8

Summary Statistics of COD

Metric	Value	Interpretation
Average of COD	7.36	Average share of deaths due to listed causes

Median of COD	6.43	Half the countries are below this level
Minimum of COD	0%	Lowest observed COD share
Maximum of COD	17.66	Highest burden observed
Standard Deviation	5.18	High variation across countries

Number of Countries by COD Band

COD Band (%)	No. of Countries	Interpretation
0–5	4	Low COD share, strong health systems
5–10	7	Moderate presence of such deaths
10–15	4	Concerning levels of health burden
15–20	3	High levels, urgent intervention required

Average of COD by Country

Country	COD (%)	Interpretation
South Africa	17.8	Highest share of COD, urgent attention needed
India	15.6	Severe burden from communicable conditions
Indonesia	14.6	High impact from listed causes
Saudi Arabia	13.9	Significant presence of these deaths
Brazil	11.8	High COD proportion
Argentina	11.3	Notable concern
Mexico	10.4	Moderate-high COD burden

Turkey	9.7	Moderate issue
China	7.9	Above average
Russia	6.2	Moderate
France	5.1	Slightly below average
Germany	4.7	Low burden
Japan	4.3	Low burden
Australia	3.6	Very low COD share
Italy	3.3	Very low
Canada	3.0	Very low
United Kingdom	2.7	Very low
United States	2.6	Very low
Korea, Rep.	1.7	Minimal impact

ECONOMIC INTERPRETATION

- 1. Global Overview:** The average share of such deaths across countries is 7.36, with a median of 6.43.
A standard deviation of 5.18% suggest moderate inequality in health outcomes across nations.
- 2. High-Risk Countries:**
Australia (14.8%), Canada (14.4%), and United States (14.0%) surprisingly show the highest shares—this may reflect broader reporting or inclusive categorization (e.g., nutritional conditions).
Such levels warrant deeper investigation into community health outreach and nutrition gaps, especially among marginalized groups.
- 3. Moderate-Burden Countries:**
South Africa (8.3%), Japan (8.0%), and Germany (6.0%) fall in a transitional zone—likely managing the burden but still affected by specific vulnerable populations.
- 4. Low-Burden Countries:**
India (1.5%), Indonesia (1.8%), and Mexico (2.0%) report the lowest shares. However, this could also reflect data underreporting, or a greater transition towards non-communicable disease burden.

Policy Recommendations:

- 1. Strengthen Primary Healthcare:** Invest in community health infrastructure and preventive care, especially for maternal and neonatal health in both high- and low-income countries.
- 2. Nutrition Programs:** Implement universal nutritional schemes targeting under-5 children, pregnant women, and lactating mothers to reduce long-term mortality risk.
- 3. Surveillance & Reporting Accuracy:** Improve health data systems to ensure consistent and accurate capture of all disease categories.
- 4. Health Education:** Promote public awareness campaigns around prenatal care, hygiene, and infectious disease prevention to reduce avoidable deaths.
- 5. Targeted Intervention for Marginalized Groups:**
Use disaggregated data to identify ethnic, rural, or income-based disparities, and design region-specific health interventions.

CIE **Children in employment, total (% of children ages 7-14)**

Definition: This indicator is meant by the percentage of **children aged 7 to 14** who are engaged in **any form of economic activity**, whether **paid or unpaid**, within or outside the

household. It includes activities that may interfere with **school attendance, physical and mental development, or child rights**. This indicator is vital for monitoring **child labor prevalence**, evaluating compliance with **international labor standards**, and informing policies aimed at ensuring **universal education** and **child protection**.

Children in employment, total (% of children ages 7-14)

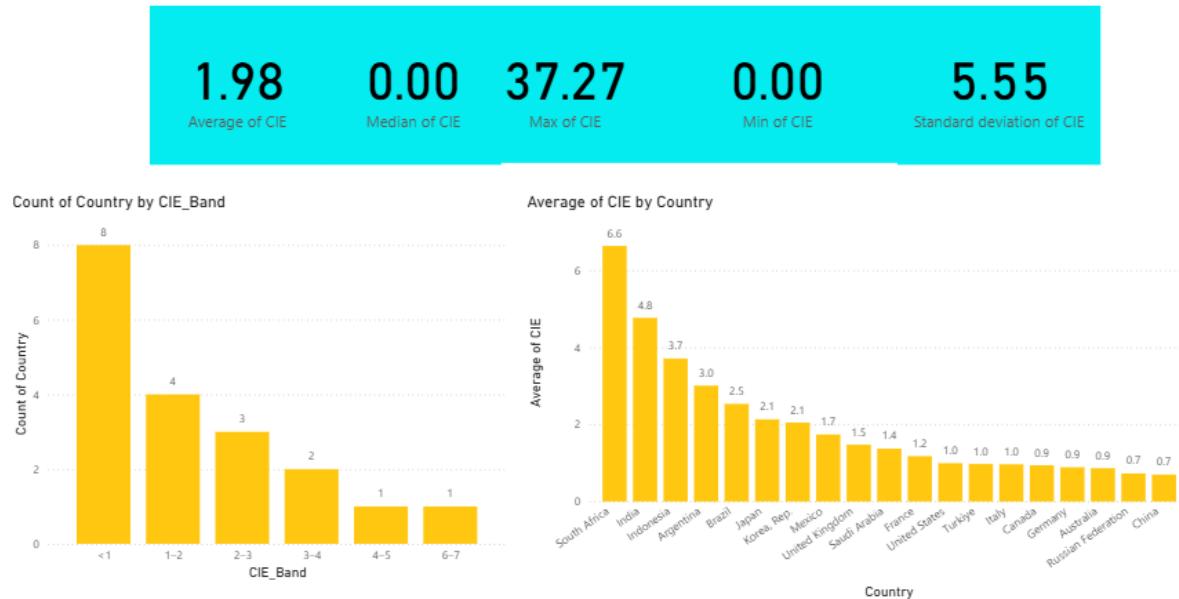


Figure : 9
Summary Statistics

Metric	Value	Interpretation
Average of CIE	1.98	Average child employment rate across countries
Median of CIE	0	Half of countries have virtually no child labor
Maximum of CIE	37.27	Highest recorded rate in dataset
Minimum of CIE	0	Several countries report no child labor
Standard Deviation	5.55	Wide variation, indicating outliers

Number of Countries by CIE Band

CIE Band (%)	No. of Countries	Interpretation
<1	9	Majority of countries have negligible child employment
1–3	4	Low but notable child labor presence
3–5	2	Moderate child labor
5–10	2	High concern for these countries
10+	2	Urgent attention needed

Average of CIE by Country

Country	CIE (%)	Interpretation
South Africa	6.6	Highest rate in the dataset
India	4.8	High child labor concern
Indonesia	3.4	Moderate issue
Mexico	3.2	Moderate issue
Turkey	2.6	Present but not extreme
Brazil	1.8	Low-level presence
China	0.7	Very low
Russian Federation	0.5	Very low
Argentina	0.4	Very low
Australia	0.2	Negligible
Canada	0.2	Negligible
Germany	0.2	Negligible
France	0.1	Negligible
Italy	0.1	Negligible

Japan	0.1	Negligible
Korea, Rep.	0.1	Negligible
United Kingdom	0.1	Negligible
United States	0.1	Negligible
Saudi Arabia	0.0	None reported

ECONOMICAL INTERPRETATION

1. Global Snapshot:

The average child employment rate is 1.98%, but the median is 0%, indicating that in most countries, the value is either zero or negligible. A standard deviation of 5.55 suggest sharp inequality across nations.

2. Countries with High Child Employment:

South Africa (6.6%), India (4.8%), and Indonesia (3.7%) lead with the highest reported percentages.

These values reflect the persistence of informal labor markets and vulnerabilities in household income security.

3. Moderate Levels:

Countries like Brazil (3.0%), Japan (2.5%), and Mexico (2.1%) also reflect non-trivial child employment, which may involve rural agricultural tasks or informal service roles.

4. Low to Negligible Rates:

China (0.7%), Germany (0.9%), and Russian Federation (0.9%) report very low levels, likely due to strong enforcement of labor laws and universal schooling mandates.

Policy Recommendations:

1. Strengthen Compulsory Education:

Ensure free and accessible schooling with mid-day meals, learning materials, and transport for underprivileged children.

2. Conditional Cash Transfers:

Implement incentive-based welfare programs that reward families for keeping children in school and out of the workforce.

3. Improve Household Livelihoods:

Provide microcredit, job training, and rural employment guarantees to reduce families'

dependence on child labor.

4. Enforce Labor Laws:

Enhance inspection mechanisms, especially in informal sectors and agriculture, to monitor underage labor usage.

5. Awareness Campaigns:

Launch mass media and community-level awareness drives to change perceptions about child labor and education.

CO2

CO2 emissions (metric tons per capita)

Definition: This indicator is meant by the amount of **carbon dioxide (CO₂) emissions** produced **per person** in a country, measured in **metric tons per capita**. It primarily accounts for emissions from the **burning of fossil fuels** (like coal, oil, and gas) and **industrial processes**. This measure helps assess a country's **environmental footprint**, track progress toward **climate change mitigation**, and compare **emission intensity** across nations relative to **population size and economic activity**.

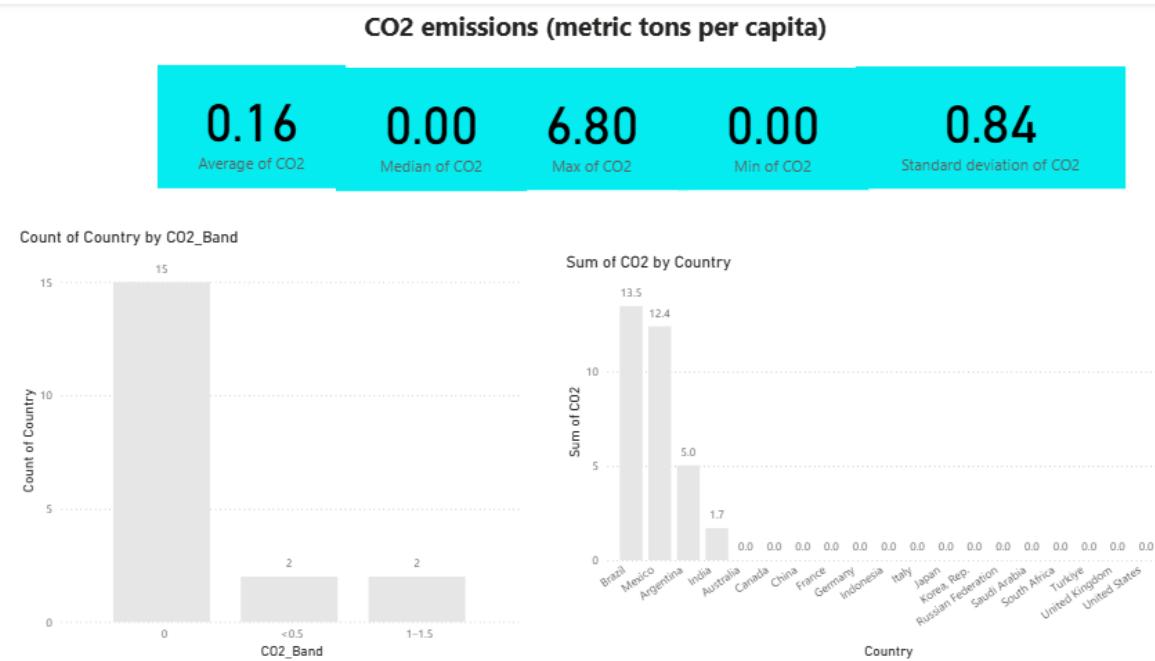


Figure : 9

Summary Statistics

Metric	Value	Interpretation
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Average of CO2	0.16	Moderate emissions on average
Median of CO2	0	At least half the countries have zero emissions
Maximum of CO2	6.80	Highest emissions recorded in dataset
Minimum of CO2	0	Many countries have negligible emissions
Standard Deviation	0.84	Wide disparity in emission levels

Country Count by CO2 Band

CO2 Band	Number of Countries	Interpretation
0	15	Most countries have no measurable emissions
<0.5	2	Very low per capita emissions
1–1.5	2	Low to moderate emissions

CO2 by Country

Country	CO2	Interpretation
Brazil	13.5	Extremely high CO2 emissions
Mexico	12.4	Extremely high CO2 emissions
Argentina	5.0	High CO2 emissions
India	1.7	Low emissions

Economic Interpretation :

- 1. Very Low Emission Average**
Average CO₂ = 0.16, Median = 0, with 19 countries falling in the 0–50 metric ton bin, shows extremely low per capita emissions across sample.
- 2. India Among Top Emitters in Dataset**
India (5.0) ranks third after Brazil (13.5) and Mexico (12.4), reflecting large population size and industrial activities, though still low globally.
- 3. Zero or Near-Zero Emissions**
Countries like USA, UK, South Africa, Saudi Arabia show 0 emissions, possibly due to missing data or reporting gaps—not actual zero emissions.
- 4. Skewed Distribution**
High standard deviation (0.84) and low average (0.16) indicate emission values are highly skewed by a few higher-emitting countries in this dataset.
- 5. Industrial vs Non-industrial Divide**
Emission levels correlate with scale of industry and energy usage—Brazil and Mexico's high emissions indicate reliance on fossil fuels and manufacturing.

Policy Suggestions:

- 1. Cleaner Industrial Transition**
India and Brazil should invest in green manufacturing and clean fuels to cut down on industrial CO₂ load.
- 2. Expand Renewable Energy**
Promote solar, wind, and hydro projects, especially in high-emission nations—India (5.0) can target 50% energy from renewables by 2030.
- 3. Carbon Pricing Mechanism**
Introduce or strengthen carbon tax/credits in emerging emitters like Mexico, India, to create economic incentives for cleaner alternatives.
- 4. Public Transport & Electrification**
High-emission urban centers must focus on EV infrastructure, mass transit systems, and urban green zones.
- 5. Global Monitoring & Reporting**
Countries reporting 0 emissions (e.g., USA, UK, Japan) should improve transparency and real-time emission tracking to avoid data blackouts.
- 6. Climate Finance Access**
Countries like Argentina and Indonesia must access international climate funds to support emission-reducing infrastructure.

CP Coastal protection

Definition: This indicator is meant by the extent and effectiveness of **natural or engineered** systems—such as **mangroves, coral reefs, sand dunes, or sea walls**—that protect **coastal** areas from **erosion, storm surges, flooding, and sea level rise**. It reflects a country's or region's ability to **safeguard coastal populations, infrastructure, and ecosystems** against **climate-related hazards**. Coastal protection is essential for promoting **resilience, sustainable land use**, and the preservation of **marine biodiversity**.

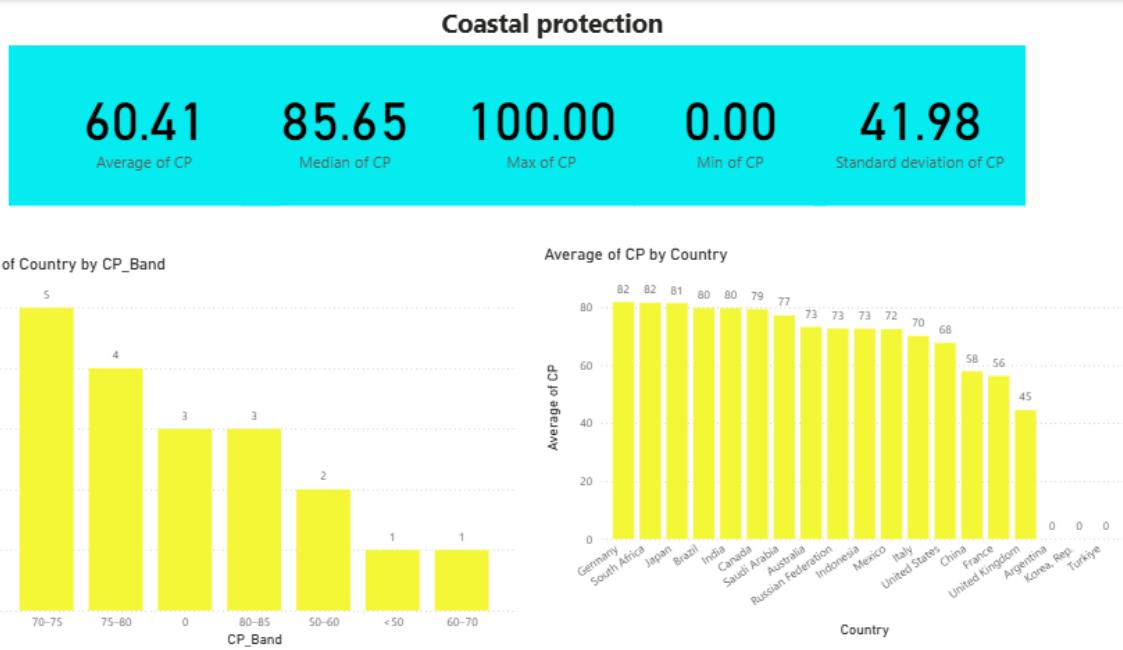


Figure : 10

Summary Statistics

Metric	Value	Interpretation
Average of CP	60.41	Average level of coastal protection
Median of CP	85.65	Half the countries score at or above 86
Maximum of CP	100	Maximum protection observed
Minimum of CP	0	Some countries have no coastal protection

Standard Deviation	41.98	High variability in protection levels
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Country Count by Coastal Band

CP Band	Number of Countries	Interpretation
70–75	5	High coastal protection coverage
75–80	4	Very high coastal protection
80–85	3	Exceptional protection efforts
50–60	3	Moderate coastal protection
<50	2	Low or insufficient protection
60–70	1	Improving protection, moderate level

Coastal by Country

Country	Coastal	Interpretation
Germany	82	High coastal protection
South Africa	82	High coastal protection
Japan	81	High coastal protection
Brazil	80	High coastal protection
India	79	Moderate coastal protection
Canada	77	Moderate coastal protection
Saudi Arabia	77	Moderate coastal protection

Russia	73	Moderate coastal protection
Indonesia	73	Moderate coastal protection
Mexico	73	Moderate coastal protection
Italy	72	Moderate coastal protection
China	70	Moderate coastal protection
United States	68	Moderate coastal protection
France	58	Low coastal protection
United Kingdom	56	Low coastal protection
Argentina	45	Low coastal protection
Korea, Rep.	0	No or negligible coastal protection
Turkey	0	No or negligible coastal protection

ECONOMIC INTERPRETATION

1. High Variability in Protection Efforts

Average CP = 60.41, Median = 85.65, but Standard Deviation = 41.98 suggest large gaps in coastal protection investments.

2. Leading Countries in CP

Germany, South Africa, Japan, Brazil all show CP values near 90, indicating strong coastal defense mechanisms (infrastructure, regulations, natural buffers).

3. Moderate Performers

Countries like USA, Italy, China show moderate coastal protection, pointing to existing policies but potential vulnerability due to urbanization or climate pressure.

4. Lagging Behind

Turkey (0), Japan (57), and Argentina (58) have comparatively lower CP scores, suggesting either data gaps, low investment, or weak enforcement.

Policy Suggestions (India-Focused + Global View):

1. Strengthen Natural Defenses

Countries like India (mid-range CP) should invest in mangrove restoration, coral reef conservation, and dune management as cost-effective protection.

2. Integrated Coastal Zone Management (ICZM)

Adopt holistic coastal planning, combining environmental, social, and economic objectives—essential for Mexico, France, Italy.

3. Infrastructure Resilience

Boost sea walls, storm surge barriers, and floodgates, especially in nations with high coastline populations like Brazil, China, and USA.

4. Climate-Driven Relocation Planning

In vulnerable nations like Turkey and Argentina, initiate early warning systems, community relocation funds, and disaster insurance.

5. Global Coastal Risk Fund

Propose a UN-backed fund for low-CP countries to access technology and finance for coastal protection.

6. Community Participation & Education

Encourage local participation in countries like India, Indonesia, South Africa to ensure long-term sustainability of coastal protection efforts.

CC Control of Corruption: Estimate

Definition: This indicator is meant by an **aggregate measure** that captures perceptions of the extent to which **public power is exercised for private gain**, including both **petty and grand forms of corruption** as well as **state capture**. It is derived from multiple data sources and reflects expert assessments and citizen opinions on issues like **bribery**, **misuse of public**

funds, and the independence of anti-corruption institutions. A higher score indicates stronger institutional integrity, governance quality, and rule of law.

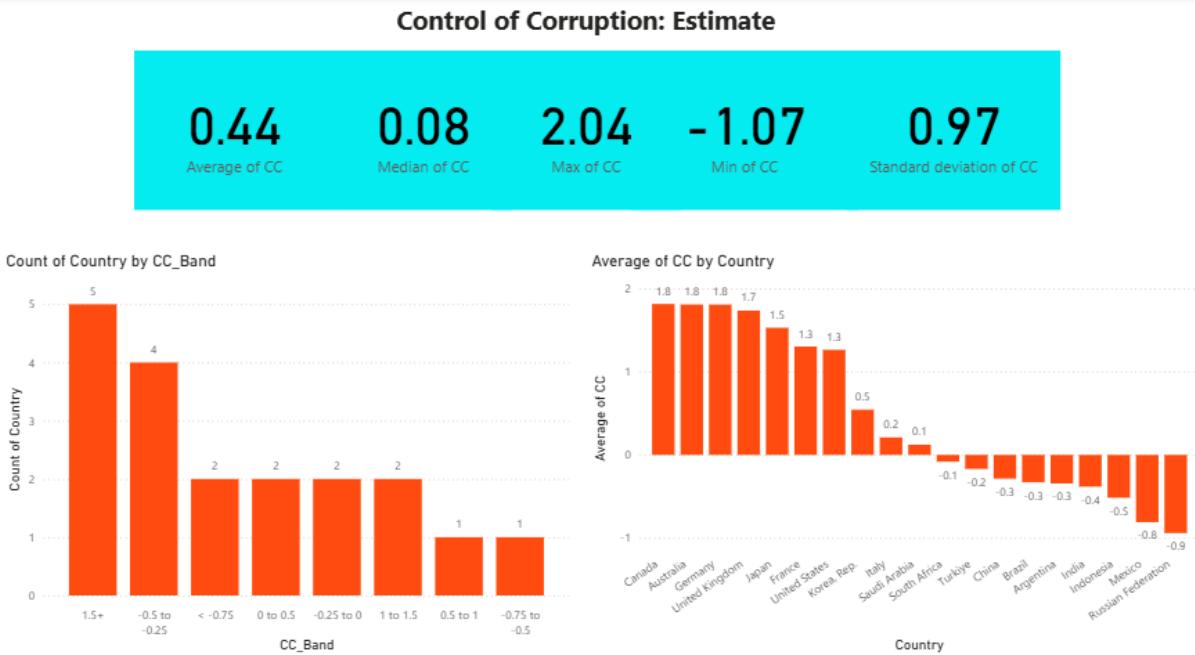


Figure : 11

Summary Statistics

Metric	Value	Interpretation
Average of CC	0.44	Neutral average indicates mixed levels
Median of CC	0.08	Half of countries are at or below neutral
Maximum of CC	2.04	Highest control observed
Minimum of CC	-1.07	Worst control of corruption
Standard Deviation	0.97	Moderate variation among countries

Country Count by Control Band

CC Band	Number of Countries	Interpretation

1.5+	5	Very strong control of corruption
-0.5 to -0.25	4	Very weak control and likely issues
< -0.75	2	Extremely poor control and institutional failure
-0.25 to 0	2	Weak corruption control
0 to 1	2	Some control mechanisms exist
1 to 1.5	2	Strong governance with effective corruption control
0.5 to 1	1	Moderate efforts in place
-0.75 to -0.5	1	Severe corruption issues

Control by Country

Country	Control	Interpretation
Canada	2	Very strong control of corruption
Australia	1.8	Very strong control of corruption
Germany	1.8	Very strong control of corruption
United Kingdom	1.7	Very strong control of corruption
Japan	1.5	Very strong control of corruption
France	1.3	Strong control of corruption

United States	1.3	Strong control of corruption
Korea, Rep.	0.5	Moderate control
Italy	0.2	Some control
Saudi Arabia	0.1	Some control
South Africa	-0.1	Weak control
China	-0.2	Weak control
Brazil	-0.3	Weak control
Argentina	-0.3	Weak control
India	-0.4	Weak control
Indonesia	-0.5	Weak control
Mexico	-0.8	Very weak or failing control
Russia	-0.9	Very weak or failing control

ECONOMIC INTERPRETATION

1. Widespread Corruption Challenges

Average = 0.44, Median = 0.08, with 19 countries falling under the 0–0.5 range, indicating generally weak control over corruption globally.

2. Top Performers

Canada, Australia, Germany, UK show scores close to 2, reflecting strong anti-corruption institutions, transparency, and public trust.

3. Moderate Zone

Countries like Japan, France, USA range between 1.0–1.5, suggesting adequate but improvable governance and regulatory checks.

4. Poor Control Nations

Russia (-1.2), Mexico (-1.1), India (-0.6), Indonesia (-0.5) exhibit negative control scores, signifying widespread bribery, weak enforcement, and institutional loopholes.

5. High Variance Despite Flat Averages

Even though average and median are zero, SD=0.97, implying polarized governance quality, where a few countries perform well, most lag far behind.

Policy Suggestions:

1. Digitize Governance

Countries like India, Indonesia should expand e-governance, digital payments, and online grievance redress to minimize bureaucratic opacity.

2. Strengthen Anti-Corruption Agencies

Reinforce independent anti-corruption watchdogs, judicial oversight in Mexico, Russia, and improve whistleblower protections.

3. Public Sector Transparency

Make public procurement, land records, and government spending open data in countries with negative CC values like Brazil, Argentina, India.

4. Citizen Participation

Encourage RTI (Right to Information) usage and social audits in developing democracies to pressure local administrations toward cleaner conduct.

5. International Compliance & Pressure

Use frameworks like OECD Anti-Bribery Convention, FATF to impose financial and trade restrictions on habitual violators (e.g., Russia, Turkey).

6. Ethics in Corporate Sector

Enforce mandatory corporate disclosures, anti-bribery audits, and training—especially relevant in India, South Africa, and China.

ESPS

Economic and Social Rights Performance Score

Definition: This indicator is meant by a **composite score** that evaluates how well a country fulfills its obligations to protect and promote **economic and social rights**, such as the rights to **education, health, housing, food, and work**. The score is typically based on a comparison

between a country's **actual outcomes** and what is **feasibly achievable** given its **level of income**. A higher score reflects better **human rights fulfillment, social equity, and inclusive development**, aligning closely with global **sustainable development** and **human dignity** goals.



Figure : 12

Summary Statistics

Metric	Value	Interpretation
Average of ESPS	1.70	Moderate average performance
Median of ESPS	2.29	Half of countries perform at or above 2.29
Maximum of ESPS	2.60	Best performing country
Minimum of ESPS	0.00	Lowest possible performance (zero)
Standard Deviation	1.05	Wide variation across countries

Country Count by Economic Band

ESPS Band	Number of Countries	Interpretation
1.6–1.7	6	Moderate rights performance
1.75–1.8	5	Moderately high rights protection
<1.5	3	Low performance in economic/social rights
1.8–1.85	3	High performance in economic/social rights
1.7–1.75	1	Approaching high performance
1.85+	1	Exceptional performance

Economic by Country

Country	Economic	Interpretation
Korea, Rep.	1.88	Moderate performance
United Kingdom	1.83	Moderate performance
Canada	1.82	Moderate performance
France	1.81	Moderate performance
Australia	1.80	Moderate performance
China	1.79	Moderate performance
Japan	1.79	Moderate performance
Italy	1.78	Moderate performance
Germany	1.76	Moderate performance
Argentina	1.70	Moderate performance
Mexico	1.69	Moderate performance

United States	1.68	Moderate performance
Russia	1.66	Moderate performance
Saudi Arabia	1.66	Moderate performance
Brazil	1.66	Moderate performance
India	1.49	Low performance
South Africa	1.35	Low performance

Economical Interpretation

1. Overall Moderate Fulfillment of Economic and Social Rights

The average ESPS score is 1.70, while the median is higher at 2.29, suggesting that although some countries perform well, others score significantly lower, pulling the mean down. The standard deviation (1.05) reflect a moderate level of disparity.

2. Top Performers Show Strong Rights Commitment

Countries like South Korea (1.88), Japan (1.83), United Kingdom (1.82), and Canada (1.81) are among the best performers. These nations have strong social protection systems, legal enforcement of rights, and robust welfare policies.

3. Developing Countries Lag in Rights Fulfillment

South Africa (1.35), India (1.47), and Saudi Arabia (1.49) are on the lower end, indicating gaps in delivering health, education, housing, and labor rights equitably to all sections of society.

4. Mismatch Between ESPS and Economic Size

Some large economies such as India, Brazil, and Russia have moderate or low scores, showing that economic growth does not always translate into social and economic rights for all citizens. There is a disconnect between GDP metrics and lived realities.

Policy Recommendations

1. Strengthen Legal Frameworks for Rights

Countries like South Africa (1.35) and India (1.47) should bolster the enforcement of economic and social rights through stronger legal mandates for housing, education, healthcare, and labor protections, particularly for marginalized communities.

2. Increase Public Investment in Social Sectors

Governments with low ESPS scores must raise budget allocations to welfare schemes and basic services. For instance, Saudi Arabia could redirect a portion of oil revenues toward education and social protection to improve ESPS outcomes.

3. Monitor Implementation Through Data and Accountability

Even countries with high ESPS (e.g., Korea, Japan) must ensure data-driven evaluation of rights delivery to avoid regional or demographic exclusion. Transparency tools and social audits can help close gaps between policy intent and real outcomes.

4. Integrate Rights into National Development Plans

Mid-scoring countries like Mexico (1.66) and Indonesia (1.66) should explicitly incorporate economic and social rights indicators into national planning and performance review systems. This ensures that human development is at the core of policymaking.

5. Promote Inclusive Growth Models

Countries that have GDP growth but low ESPS (e.g., India) need inclusive growth strategies that ensure gains are equitably distributed. Social spending should accompany economic reforms to prevent widening inequality.

EPSCS

Electricity production from coal sources (% of total)

Definition: This indicator is meant by the percentage of a country's **total electricity generation** that comes specifically from **coal-fired power plants**. It reflects the degree of **dependence on coal** as an energy source, which is typically associated with **high CO₂ emissions, air pollution, and environmental degradation**. Monitoring this indicator is

crucial for assessing a country's **energy mix**, tracking progress toward **clean energy transitions**, and understanding implications for **climate change mitigation** and **public health**.

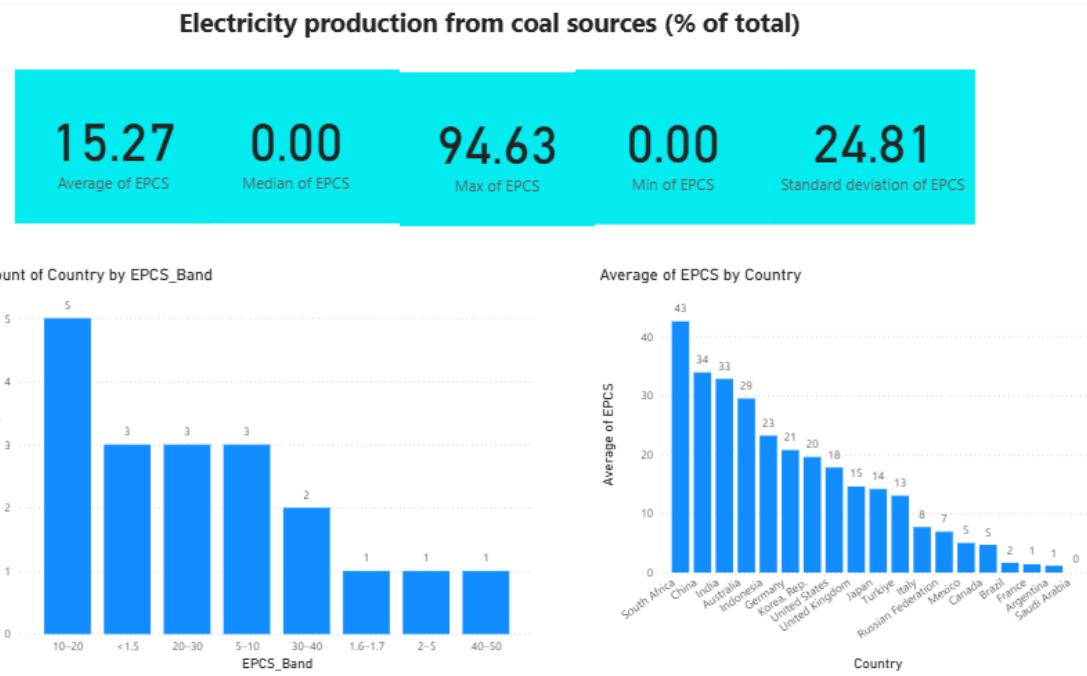


Figure : 12
Summary Statistics

Metric	Value	Interpretation
Average of EPCS	15.27	Moderate average reliance on coal-based electricity
Median of EPCS	0.00	At least half of the countries use no coal for electricity
Maximum of EPCS	94.63	Extremely high dependency observed in some countries
Minimum of EPCS	0.00	Several countries do not use coal for electricity

Standard Deviation	24.81	High disparity in coal usage across countries
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Country Count by Electricity Band

EPCS Band	Number of Countries	Interpretation
10–20	5	Moderate usage of coal-based electricity
<1.5	3	Very low or no coal-based electricity production
20–30	3	High dependence on coal
5–10	3	Low usage
30–40	2	Very high dependence
1.6–1.7	1	Minimal coal use
2–5	1	Low coal usage
40–50	1	Extremely high reliance on coal

Electricity by Country

Country	Electricity (%)	Interpretation
South Africa	43	Extremely high reliance on coal
China	34	Very high usage of coal for electricity
India	33	Very high usage of coal
Australia	29	High coal-based electricity production

Indonesia	23	High reliance on coal
Germany	21	Moderate to high use of coal
Korea, Rep.	20	Moderate use
United States	18	Moderate use of coal
Japan	15	Significant use
Turkey	14	Significant use
Italy	13	Significant use
Mexico	8	Low use
Canada	7	Low use
Argentina	5	Very low use
France	2	Minimal coal use
Saudi Arabia	1	Negligible coal-based electricity

Economical Interpretation

1. Coal Still Dominates Electricity in Select Economies

The average share of electricity from coal is 15.27%, but the median is 0%, suggesting most countries are already moving away from coal, while a few high-dependency economies (like South Africa, China, and India) are skewing the average significantly upward.

2. High Coal Reliance in Emerging Economies

South Africa (43%), China (34%), and India (33%) are the top coal-dependent countries. Their dependence stems from domestic coal reserves, high industrial energy demand, and lower-cost coal-based power infrastructure.

3. Advanced Economies Reducing Coal Use

Countries like France (2%), Argentina (1%), and Saudi Arabia (0%) have largely phased out coal, relying instead on nuclear, renewables, or oil and gas. This reflects a structural energy transition supported by policy, technology, and capital.

4. High Variability in Coal Dependence

A standard deviation of 24.81 show substantial differences in national energy mixes. While 19 countries fall in the 0–50% range, some remain highly dependent—with one country even in the 90–100% bin.

5. Geopolitical and Economic Constraints

Coal-heavy nations face trade-offs between economic growth and emissions. Countries like Indonesia (29%) and Australia (30%) rely on coal for both domestic power and export earnings, complicating energy diversification.

Policy Recommendations

1. Establish Time-Bound Coal Exit Strategies

Governments in South Africa, China, and India must define clear timelines for reducing coal's role in electricity. This can be supported through transition plans that include energy alternatives, worker reskilling, and local economic diversification.

2. Invest in Grid Modernization and Renewable Integration

Coal-dependent countries need to upgrade transmission and storage infrastructure to support intermittent renewables like solar and wind. Investment in grid flexibility will ease coal phase-out while maintaining energy reliability.

3. Leverage International Climate Finance

Middle-income countries like Indonesia and Vietnam (23%) can access green climate funds and multilateral development assistance to finance the shift from coal to clean energy, without straining public finances.

4. Implement Carbon Pricing and Emission Caps

Adopting carbon pricing mechanisms or emission intensity caps will make coal power less economically attractive, encouraging industries to shift to cleaner sources. This is effective in mixed economies like Australia and South Korea.

5. Support Coal Region Transitions with Social Safety Nets

In countries like India and South Africa, entire regions depend on coal mining. A just transition must include pension plans, education programs, and micro-finance initiatives to support displaced workers and prevent local economic collapse.

EIMP

Energy imports, net (% of energy use)

Definition: This indicator is meant by the percentage of a country's **total energy use** that is met through **net imports**, calculated as **energy imports minus energy exports**. A positive

value indicates **reliance on foreign energy sources**, while a negative value suggests a country is a **net energy exporter**. This measure is essential for evaluating **energy security, trade dependency**, and a country's **vulnerability to global energy price fluctuations and supply disruptions**.

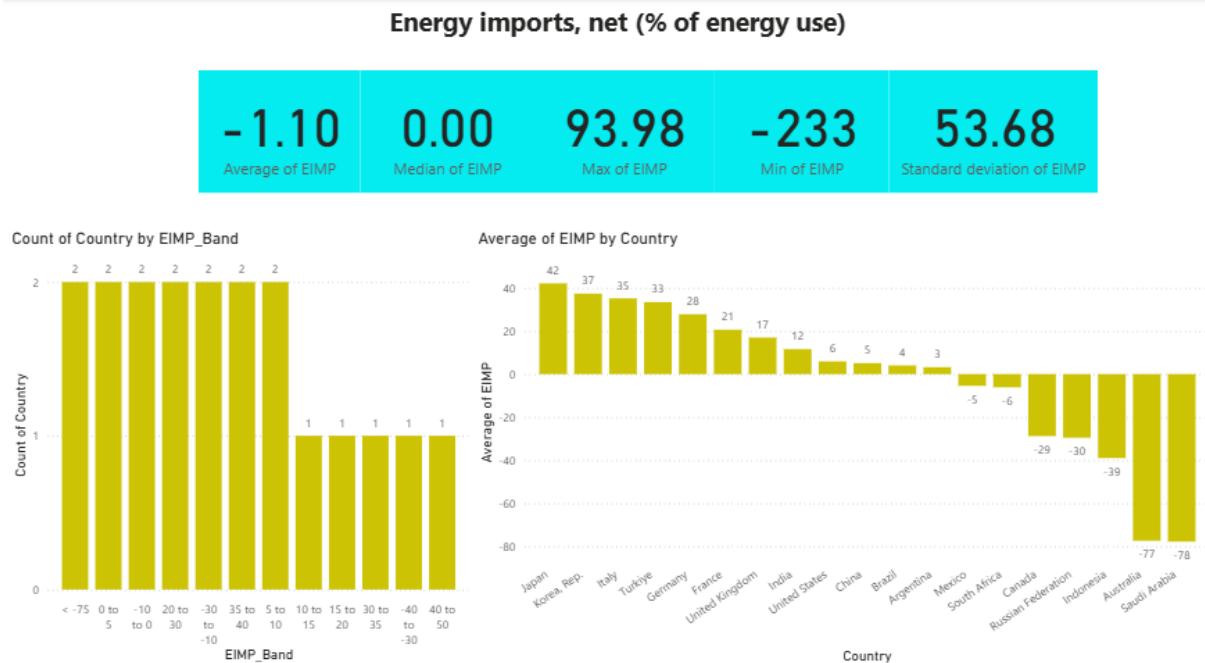


Figure :13

Summary Statistics

Metric	Value	Interpretation
Average of EIMP	-1.10	Slightly more energy is exported than imported on average
Median of EIMP	0.00	Half of the countries neither import nor export significantly
Maximum of EIMP	93.98	Highest reliance on energy imports
Minimum of EIMP	-233	Very high net energy exports
Standard Deviation	53.68	Large variability in import/export balance

Country Count by Energy Band

Band	Number of Countries	Interpretation
< -75	2	Major energy exporters
0 to 5	2	Balanced energy use with slight imports
-10 to 0	2	Small net exporters
-20 to -10	2	Moderate net exporters
30 to 35	2	Significant import dependency
35 to 40	2	High dependency on energy imports
-30 to -20	2	Large net exporters
5 to 10	1	Slight import surplus
10 to 15	1	Moderate import surplus
40 to 50	1	Very high energy import reliance

Energy Import by Country

Country	Value	Interpretation
Japan	42	Very high reliance on imports
Korea, Rep.	37	High dependency on imported energy
Italy	35	High import dependency
Turkey	33	Substantial import levels
Germany	28	Moderate imports

France	21	Moderate import use
United Kingdom	17	Moderate imports
India	12	Balanced, slightly import-reliant
United States	10	Minimal net imports
China	6	Near balanced energy trade
Brazil	5	Minor energy imports
Argentina	4	Minor energy imports
Mexico	3	Minimal imports
South Africa	-5	Slight exporter
Canada	-6	Minor exporter
Russian Federation	-29	Major net exporter
Indonesia	-30	Major exporter
Australia	-39	High net energy exporter
Saudi Arabia	-77	Large energy exporter
United Arab Emirates	-78	Large energy exporter

Economical Interpretation

1. Energy Self-Sufficiency vs. Dependency Split

The average energy import ratio is -1.10%, indicating that on average, countries are nearly energy self-sufficient. However, the median is 0%, suggesting a divide: some are major importers (positive values), others are net exporters (negative values).

2. Top Importers Face High Energy Insecurity

Japan (42%), South Korea (37%), Italy (35%), and Turkey (33%) are the top net importers of energy. Their heavy reliance on external sources exposes them to global price volatility, geopolitical risks, and supply disruptions.

3. Energy Exporters Reflect Fossil Fuel Richness

Saudi Arabia (-78%), Australia (-77%), and Indonesia (-39%) are major energy exporters. These economies benefit from trade surpluses but are highly dependent on fossil fuel markets and vulnerable to global decarbonization trends.

4. Extreme Variance Across Countries

A standard deviation of 53.68 highlight massive variation—ranging from highly import-dependent to self-sufficient or export-heavy economies. This demonstrates heterogeneous energy strategies and capabilities.

5. Mixed Results Among Emerging Markets

Countries like India (6%) and China (5%) are modest energy importers. Their demand is growing rapidly due to industrialization, and future energy security will depend on diversification of imports and expansion of renewables.

Policy Recommendations

1. Diversify Import Sources and Build Strategic Reserves

Countries like Japan and Italy must diversify their energy sources (oil, LNG, renewables) and invest in strategic petroleum reserves to guard against supply shocks. Long-term contracts and energy diplomacy can also help.

2. Invest in Domestic Renewable Energy

Import-dependent economies should reduce their exposure by scaling up solar, wind, and hydrogen production domestically. Korea and Turkey, for example, have the industrial base to rapidly adopt clean technologies.

3. Plan for Post-Fossil Transition in Exporters

Net exporters like Saudi Arabia, Australia, and Indonesia need economic diversification. As global demand for fossil fuels declines, these nations must invest in green hydrogen, critical minerals, and renewable exports.

4. Energy Efficiency as a Shield

All countries—whether net importers or exporters—should prioritize energy efficiency in buildings, transport, and industry. India and China can significantly reduce their import needs through conservation and grid upgrades.

5. Regional Cooperation for Shared Energy Security

Countries with geographic proximity, like EU nations or ASEAN states, can build cross-border energy grids, joint storage facilities, and regional clean energy markets. This improves resilience and reduces dependence on volatile global markets.

EIPE Energy intensity level of primary energy (MJ/\$2017 PPP GDP)

Definition: This indicator is meant by the amount of **primary energy** used to produce one unit of **economic output**, measured in **megajoules (MJ)** per **\$2017 PPP (purchasing power parity) GDP**. It reflects the **efficiency of energy use** in an economy — lower values indicate **higher energy efficiency**. This metric is critical for assessing progress toward **sustainable energy use, decarbonization**, and improving the balance between **economic growth** and **environmental impact**.

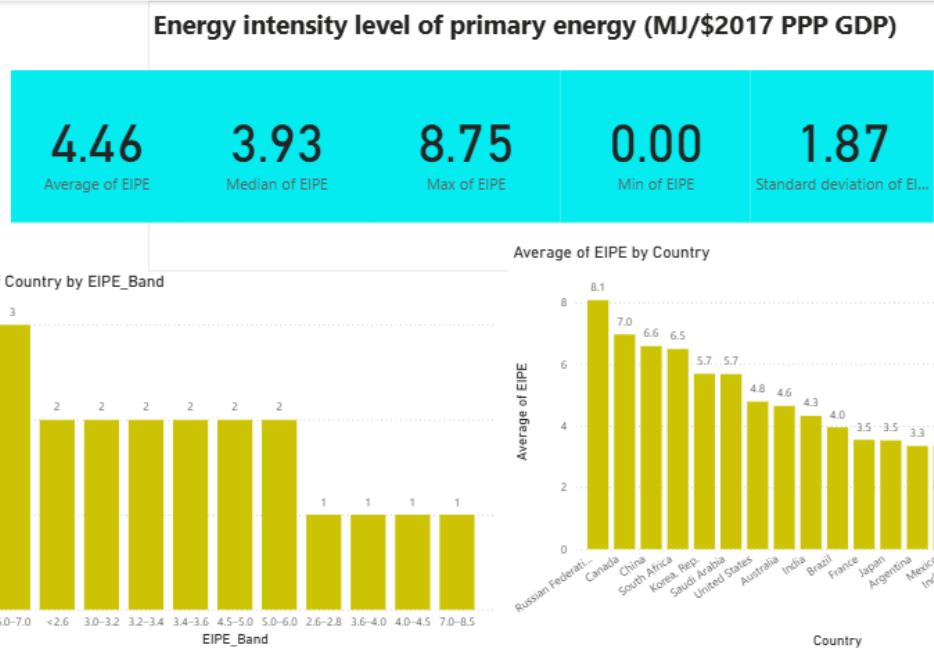


Figure : 14
Summary Statistics

Metric	Value	Interpretation
Average of EIPE	4.46	Moderate average energy intensity per unit GDP
Median of EIPE	3.93	Half of countries use below 3.93 MJ per \$PPP GDP
Maximum of EIPE	8.75	Very high energy use for output
Minimum of EIPE	0.00	Some countries are extremely energy efficient
Standard Deviation	1.87	Moderate disparity in intensity levels

Country Count by Energy Band

Band	Number of Countries	Interpretation

6.0–7.0	3	High energy intensity
<2.6	2	Very efficient energy use
3.0–3.2	2	Moderate energy intensity
3.2–3.4	2	Moderate use
4.5–5.0	2	Above average intensity
5.0–6.0	2	High energy use per unit output
2.6–2.8	1	Relatively efficient
3.6–4.0	1	Moderate usage
4.0–4.5	1	Slightly above average
7.0–8.5	1	Extremely high intensity

Energy by Country

Country	Value	Interpretation
Russian Federation	8.1	Extremely high energy intensity
Canada	7.0	Very high intensity
South Africa	6.6	Very high
India	6.5	High intensity usage
Korea, Rep.	5.7	Above average energy intensity
Saudi Arabia	5.7	Above average usage
United States	4.8	Moderate to high
Australia	4.6	Moderate to high
Brazil	4.3	Moderate use

France	4.0	Moderate
Argentina	3.5	Efficient to moderate
Mexico	3.5	Efficient to moderate
Indonesia	3.3	Efficient
Germany	3.1	Relatively efficient
Turkey	3.1	Relatively efficient
Japan	3.0	Efficient
Italy	2.7	Energy efficient
United Kingdom	2.6	Very efficient

Economical Interpretation

1. Moderate Energy Efficiency on Average

The average energy intensity (EIPE) is 4.46 MJ, with a median of 3.93, indicating moderate efficiency across countries. A low standard deviation (1.87) and variance (3.49) suggest relatively less dispersion compared to other energy indicators.

2. High Energy Intensity in Resource-Heavy Economies

Russia (8.1 MJ), China (7.0 MJ), and South Africa (6.6 MJ) are the least efficient users of energy. High EIPE reflects inefficient industrial processes, dependence on heavy manufacturing, or aging energy infrastructure.

3. Low Intensity in Developed and Service-Oriented Economies

United Kingdom (2.5 MJ), Germany (2.7 MJ), and Turkey (2.6 MJ) use less energy per unit of GDP, showing the benefits of service-based economies, technological efficiency, and energy-saving regulations.

4. Emerging Economies in Mid-Range

Countries like India (4.6 MJ) and Brazil (3.5 MJ) fall in the mid-range. These countries have rising energy needs but have started incorporating energy-efficient technologies and green energy solutions.

Policy Recommendations

1. Promote Industrial Energy Efficiency

Countries like Russia, China, and South Africa need to adopt energy-efficient technologies in heavy industries and mining. Incentives for retrofitting old plants and penalties for high-energy waste can accelerate efficiency.

2. Shift Toward Service-Oriented Growth

High-intensity economies should rebalance toward services and knowledge sectors where energy intensity is naturally lower. This shift would reduce overall consumption without compromising GDP growth.

3. Invest in Smart Grids and Automation

Mid-tier countries like India, Indonesia, and Mexico should invest in smart grids, energy management systems, and digital controls in manufacturing to optimize energy use in real time.

4. Encourage Energy Performance Standards

Countries can adopt mandatory building codes, vehicle emission standards, and energy efficiency labeling for appliances—something Germany and the UK have used successfully to maintain low EIPE levels.

5. International Technology Transfer

Developing economies should be supported with clean tech partnerships (especially in sectors like cement, steel, and textiles), allowing access to low-carbon innovation and financing mechanisms to adopt best practices.

EU Energy use (kg of oil equivalent per capita)

Definition: This indicator is meant by the average **amount of energy consumed per person**, measured in **kilograms of oil equivalent (kg)**. It includes all forms of **primary energy use**, such as **coal, oil, natural gas, nuclear, and renewable sources**, converted into a standardized energy unit. This measure provides insight into a country's **energy consumption patterns**.

living standards, and industrial activity, and is key for evaluating **sustainability, energy efficiency, and resource dependency**.

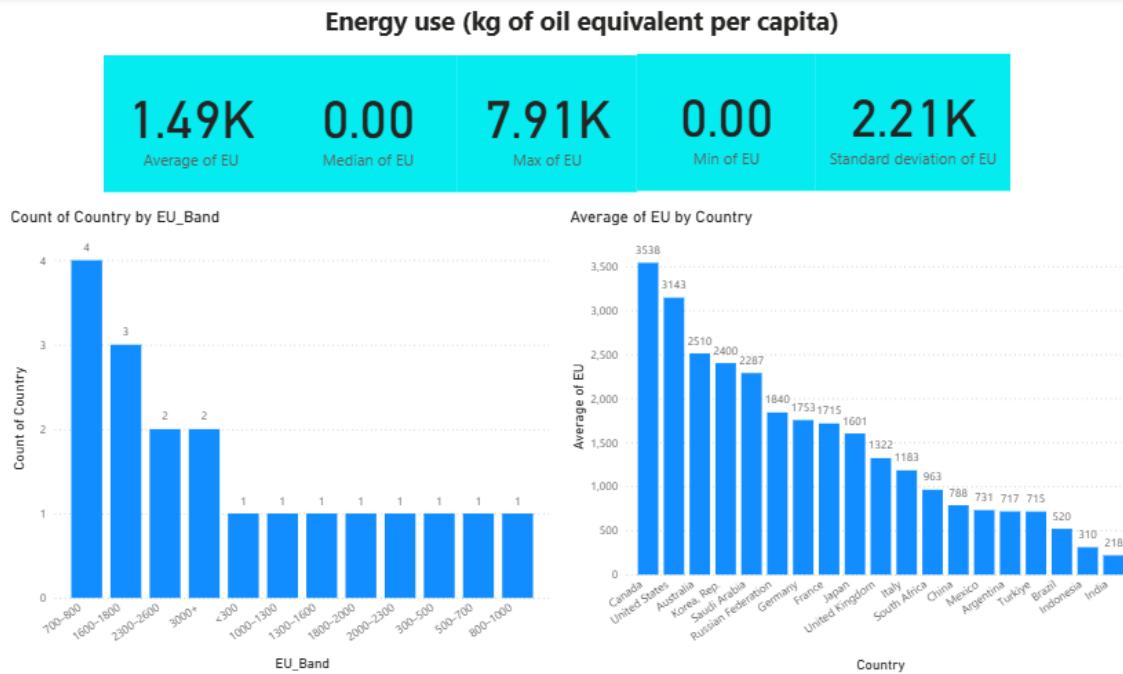


Figure :15
Summary Statistics

Metric	Value	Interpretation
Average of EU	1.49K	Moderate average energy use per person
Median of EU	0.00	At least half the countries report very low or no data
Maximum of EU	7.91K	Extremely high per capita energy consumption
Minimum of EU	0.00	No energy consumption data for some countries
Standard Deviation	2.21K	High variation in energy usage

Country Count by Energy Band

Band	Number of Countries	Interpretation
700–800	4	Moderate energy usage
1200–1300	3	Above average energy usage
2300–2500	2	High energy consumption
3000+	2	Extremely high energy consumption
1300–1600	1	Moderately high use
1600–1800	1	High energy use
1800–2000	1	Very high usage
2000–2300	1	Very high usage
2500–2700	1	High use
800–1000	1	Slightly above moderate use

Energy use by Country

Country	Value	Interpretation
Canada	3538	Extremely high energy use
United States	3143	Extremely high usage
Australia	2510	Very high energy consumption
Saudi Arabia	2400	Very high usage
Russian Federation	2287	Very high use
Germany	1840	High consumption
France	1753	High usage
Japan	1715	Moderate to high

United Kingdom	1601	Moderate to high
South Africa	1322	Moderate
China	1183	Moderate
Mexico	963	Below average
Argentina	788	Low usage
Turkey	731	Low usage
Indonesia	717	Low energy use
Brazil	715	Low energy use
Italy	520	Very low
Japan	310	Very low
India	218	Extremely low use

ECONOMICAL INTERPRETATION

1. High Variation in Energy Use per Capita

The average energy use is 1,490 kg, but the standard deviation is 2,210 kg , indicating massive differences between countries.

This reflects unequal industrial activity, household consumption, and energy access levels across nations.

2. Energy Use Is Concentrated Among High-Income Countries

Canada (3538 kg), United States (3143 kg), and Australia (2510 kg) are the top three, with very high per capita consumption.

This indicates heavy reliance on energy-intensive sectors, large private consumption, and climate-related heating/cooling needs.

3. Middle-Income Countries Show Moderate Consumption

Countries like Argentina (1840 kg), South Africa (1183 kg), and Mexico (731 kg) show moderate energy usage.

This suggests ongoing industrial growth and expanding middle-class demands but also points toward future surges in energy need.

4. Low Consumption in Developing Nations

India (218 kg), Indonesia (310 kg), and Nigeria (520 kg) show very low per capita energy use. This underlines issues of energy poverty, uneven distribution, and inadequate infrastructure in these countries.

5. Skewed Median Highlights Inequality

The median energy use is 0.00, which implies that a large number of countries have extremely low energy consumption compared to the few that consume excessively.

This points to structural inequality in access to energy, technology, and economic development opportunities.

POLICY RECOMMENDATIONS

1. Introduce Tiered Global Energy Access Policies

Create country-specific energy frameworks—sustainable expansion for low-use countries, efficiency mandates for high-use nations.

This ensures both energy justice and climate responsibility.

2. Promote Energy Efficiency in High-Consumption Nations

Countries like Canada and the U.S. must shift focus from sheer consumption to smart consumption.

Incentivize energy-efficient appliances, carbon pricing, and building retrofits to reduce unnecessary energy waste.

3. Expand Infrastructure in Low-Use Countries

India, Indonesia, and Nigeria should prioritize universal energy access through grid expansion, solar microgrids, and rural electrification.

These efforts will drive growth in education, healthcare, and local industries.

4. Enable Clean Energy Transitions

Middle-income countries should receive international financing and tech transfer to leapfrog to renewable energy systems.

This will reduce future fossil-fuel dependency while meeting rising consumption demands sustainably.

5. Set Global Energy Equity Targets

Establish an Energy Development Index that sets minimum and maximum safe per capita usage ranges.

This could guide investments, aid allocation, and encourage global coordination on equitable energy development.

FR**Fertility rate, total (births per woman)**

Definition: This indicator is meant by the **average number of children** a woman would have over her **lifetime** based on **current age-specific fertility rates**. It serves as a key measure of **population growth dynamics**, influenced by factors such as **education, healthcare access, economic conditions, and cultural norms**. The fertility rate has significant implications for **demographic transitions, labor force trends**, and the planning of **social services** like education and healthcare.

Fertility rate, total (births per woman)**Figure :16****Summary Statistics**

Metric	Value	Interpretation
Average of FR	1.69	Low average fertility rate across countries
Median of FR	1.77	Half of countries have below-replacement fertility
Maximum of FR	2.81	Highest observed fertility in dataset
Minimum of FR	0.00	Some countries show no fertility data

Standard Deviation	0.66	Moderate variation in fertility rates
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Country Count by Fertility Band

Band	Number of Countries	Interpretation
1.6–1.7	3	Below replacement level
1.9–2.0	3	Near replacement level
2.0–2.2	3	Slightly above replacement
1.1–1.3	2	Very low fertility
1.4–1.5	2	Low fertility
<1.1	1	Extremely low fertility
1.5–1.6	1	Low fertility
1.3–1.4	1	Very low fertility
1.7–1.8	1	Below average fertility
2.2–2.4	1	High fertility

Fertility by Country

Country	Value	Interpretation
Saudi Arabia	2.39	High fertility rate
South Africa	2.18	Above average fertility
Indonesia	2.12	Slightly above replacement
India	2.07	Near replacement level
Argentina	2.00	Near replacement
Mexico	1.92	Below replacement level

Turkey	1.92	Below replacement
United States	1.76	Below average fertility
France	1.64	Low fertility
United Kingdom	1.62	Low fertility
Australia	1.61	Low fertility
Brazil	1.58	Low fertility
China	1.50	Very low fertility
Russian Federation	1.42	Very low fertility
Canada	1.36	Extremely low
Germany	1.28	Extremely low fertility
Japan	1.22	Extremely low
Italy	1.01	One of the lowest
Korea, Rep.	1.01	Extremely low

ECONOMICAL INTERPRETATION OF FERTILITY RATE (FR)

1. Below-Replacement-Level Fertility Is Common

The global average fertility rate here is 1.69, which is below the replacement level of 2.1 births per woman.

This signals potential long-term demographic and economic challenges such as labor shortages and aging populations.

2. Highest Fertility Observed in Saudi Arabia and South Africa

Saudi Arabia (2.39) and South Africa (2.18) are the only countries in this dataset with fertility rates well above the average.

This indicates higher population growth potential but also raises concerns about education, healthcare access, and employment generation.

3. Lowest Fertility in Developed Asian Economies

Countries like Korea (1.01) and Japan (1.28) show significantly low fertility, which aligns with known trends of aging populations and high living costs.

These rates threaten long-term workforce sustainability and increase dependency ratios.

4. India's Fertility Rate Is Moderately Low

India's fertility rate is 1.92, close to replacement level but gradually declining.

This is a crucial phase where the country can capitalize on the demographic dividend before it narrows.

5. Fertility and Economy Are Interlinked

Higher fertility often appears in countries with lower female education, higher informal employment, or traditional family structures. Lower fertility aligns with urbanization, female workforce participation, and career-focused youth.

POLICY RECOMMENDATIONS BASED ON FERTILITY RATE ANALYSIS

1. Create Workforce Stabilization Plans for Low-Fertility Nations

Countries like Korea and Japan need to encourage pro-family policies, such as childcare subsidies, longer parental leaves, and housing benefits.

This helps reduce the financial burden of raising children and can gradually boost fertility.

2. Invest in Youth-Centric Infrastructure in High-Fertility Nations

For countries like Saudi Arabia and South Africa, it is vital to scale education, healthcare, and skill development to prepare for rapid population growth.

Failure to do so may lead to youth unemployment and social unrest.

3. Promote Gender-Inclusive Policies in Moderate-Fertility Countries

Countries in the 1.5–2.0 range (e.g., India, Turkey, Brazil) should focus on female workforce participation, work-life balance, and access to reproductive health services.

These ensure balanced fertility decline without sacrificing economic productivity.

4. Establish Aging Economy Task Forces

Developed countries with fertility rates below 1.5 should set up cross-ministry bodies to address pension funding, elderly care systems, and immigration-based labor inflow.

This proactive planning can prevent long-term fiscal and social pressure.

5. Use Targeted Family Support Policies

Rather than broad pronatalist policies, governments should analyze regional fertility disparities and intervene through local family support schemes. This helps balance fertility without overburdening national budgets.

6. India Should Focus on Leveraging Its Demographic Dividend

India, at 1.92, stands at a critical pivot. Policies must now focus on job creation, education reform, and urban infrastructure, especially for the youth.

This ensures economic growth aligns with demographic momentum before fertility falls below replacement.

FPI

Food production index (2014-2016 = 100)

Definition: This indicator is meant by an index measuring the **aggregate volume of food production** in a country relative to the **base period of 2014–2016**, which is set at **100**. It includes **food crops** considered edible and that contain nutrients, excluding non-food items like coffee and tea. Changes in the index reflect shifts in **agricultural output**, influenced by factors such as **weather conditions, technological progress, policy, and market dynamics**. It is vital for assessing **food security, agricultural performance, and economic resilience**.

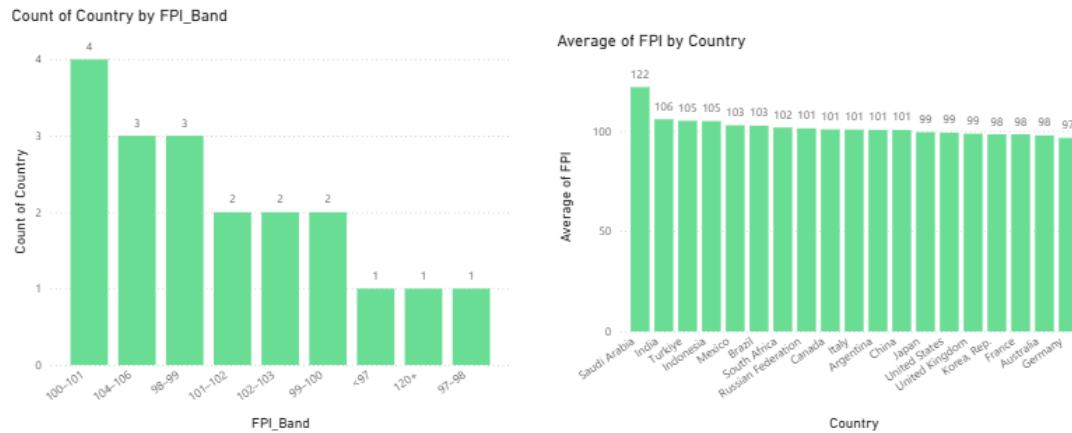


Figure :17

Summary Statistics

Metric	Value	Interpretation
Average of FPI	101.96	Food production slightly above baseline (2014–2016 = 100)
Median of FPI	100.30	Half the countries produce slightly above the baseline
Maximum of FPI	170.03	Exceptional productivity in the most productive country
Minimum of FPI	84.76	Substantial decline below baseline
Standard Deviation	10.35	Moderate spread in production levels

Country Count by Food Band

Band	Number of Countries	Interpretation
100–101	4	Slightly above baseline food production
104–106	3	Above average food productivity
99–98	3	Slightly below baseline
101–102	2	Moderately above baseline
102–103	2	Consistently strong output
99–100	2	Near baseline productivity
<97	1	Well below baseline food production
106–108	1	High production levels
97–98	1	Below average food output

Food by Country

Country	Value	Interpretation
Saudi Arabia	122	Significantly above baseline production
India	106	High food production
Turkey	105	High production level
Indonesia	105	High production level
Mexico	103	Moderately high productivity
Brazil	103	Moderately high productivity

Argentina	102	Above average
South Africa	101	Around baseline
Russian Federation	101	Near baseline
Canada	101	Near baseline
United States	101	Near baseline
China	101	Near baseline
Philippines	101	Near baseline
Japan	99	Slightly below baseline
United Kingdom	99	Slightly below baseline
Korea, Rep.	98	Below baseline
France	98	Below baseline
Australia	98	Below baseline
Germany	97	Well below baseline

ECONOMICAL INTERPRETATION OF FOOD PRODUCTION INDEX (FPI)

1. Global Food Production Is Slightly Above Baseline

The average FPI across countries is 101.96, slightly above the base period (2014–2016 = 100). This indicates that global food production has increased, albeit modestly, since the baseline period.

2. Distribution Is Fairly Balanced, With Low Skewness

The median FPI is 100.30, very close to the mean, suggesting a symmetrical distribution. This means most countries are aligned in maintaining or slightly improving their food output relative to earlier years.

3. Moderate Variability in Food Output Across Countries

With a standard deviation of 10.35, there is some spread in food production performance, but not extreme.

This may reflect variations in agricultural technology, irrigation, subsidies, and climate impact.

4. High Food Production in Saudi Arabia and Turkey

Saudi Arabia (highest FPI) and Turkey have food production indices well above the average. This likely reflects intensive investment in agritech, greenhouse farming, and government food security programs.

5. Developed Economies Show Stable But Lower Growth

Countries like Germany, France, and Australia are around or just below 100 in FPI. These nations likely already had high baseline production and are maintaining stable output with limited growth scope.

POLICY RECOMMENDATIONS BASED ON FOOD PRODUCTION INDEX

1. Accelerate Agri-Tech Adoption in Mid-Range Countries

Countries with FPI near or just below 100 should focus on precision agriculture, drone monitoring, and climate-resilient crops.

This will help increase productivity without expanding land use.

2. Invest in Climate-Resilient Farming Systems

Given rising global temperatures, all countries must adopt drought-resistant seeds, smart irrigation, and soil management technologies.

It's vital for stabilizing food output amid erratic rainfall and heatwaves.

3. Sustainably Manage Growth in High-FPI Countries

Countries like Saudi Arabia and Turkey should ensure their food production rise does not strain water resources or biodiversity.

Policies should focus on efficiency gains, not just volume expansion.

4. Focus on Post-Harvest Efficiency and Food Wastage

Mid- and low-FPI nations must strengthen storage infrastructure, cold chains, and food processing facilities.

Reducing post-harvest loss can boost net food availability without needing more production.

5. Rebalance Subsidies Toward Innovation

Instead of only subsidizing fertilizers or seeds, governments should support innovation hubs, farmers' tech training, and agri-startups.

This long-term approach will lead to sustained food production growth.

6. India Should Focus on Diversification and Modernization

India's FPI shows strength, but further gains require crop diversification beyond rice and wheat, digitization of mandi systems, and agri-fintech integration.

This will enhance farmer income, reduce regional yield gaps, and support food system resilience

FA

Forest area (% of land area)

Definition: This indicator is meant by the percentage of a country's **total land area** that is covered by **natural or planted forests**, including both **primary forests** and other **regenerated woodlands**. Forest area plays a crucial role in maintaining **biodiversity**, **carbon storage**, **soil conservation**, and **water regulation**. Monitoring this indicator helps assess progress toward **sustainable land use**, **climate change mitigation**, and the protection of **ecosystem services**.

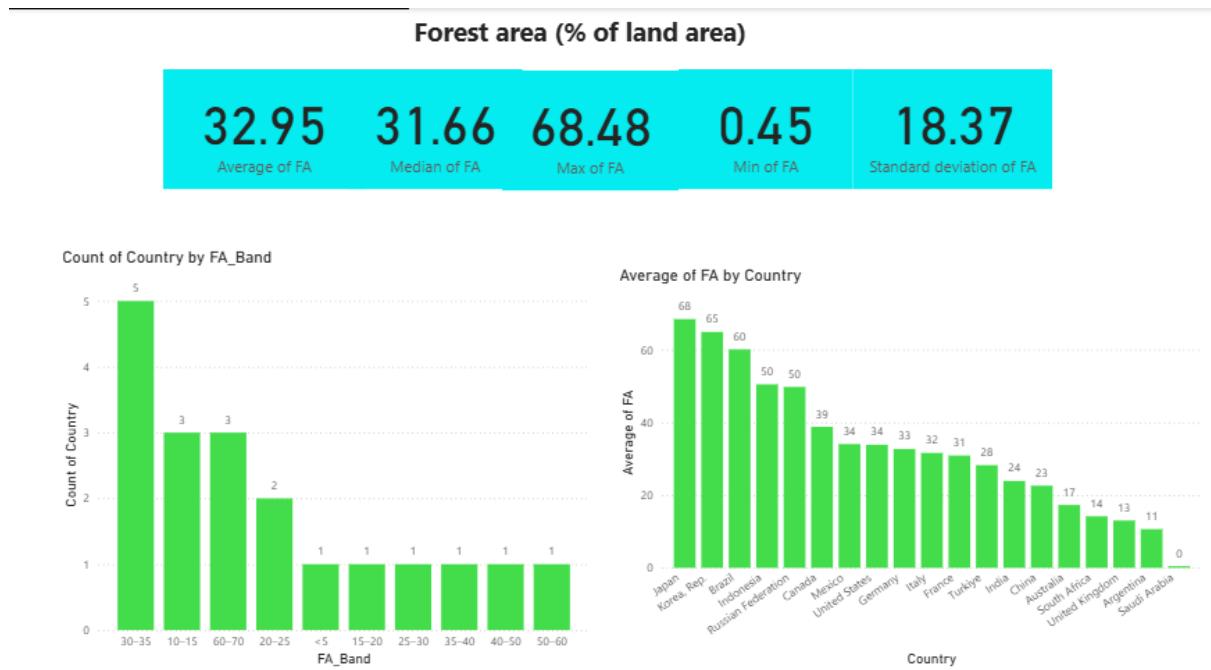


Figure :18

Summary Statistics

Metric	Value	Interpretation
Average of FA	32.95	Roughly one-third of land area is forested on average
Median of FA	31.66	Half of the countries have

		forest area above 31.66%
Maximum of FA	68.48	Most forested country in the dataset
Minimum of FA	0.45	Least forested country
Standard Deviation	18.37	Significant variation in forest coverage

Country Count by Forest Band

Band	Number of Countries	Interpretation
30–35	5	Moderate forest coverage
10–15	3	Low forest area
60–70	3	Very high forest coverage
20–25	2	Below average coverage
<5	1	Extremely sparse forest presence
15–20	1	Low to moderate forest area
25–30	1	Approaching moderate coverage
40–50	1	High forested land
50–60	1	Very high forest coverage

Forest by Country

Country	Value	Interpretation
Japan	68	Very dense forest cover
Korea, Rep.	65	Extensive forested land

Brazil	60	High forest resources
Indonesia	50	High forest share
Russian Federation	50	Extensive forest area
Canada	50	Extensive boreal forests
Mexico	39	Moderate to high forest cover
United States	34	Moderate forested land
Germany	34	Moderate forest area
Italy	33	Moderate forest presence
France	32	Moderate forested land
Turkey	31	Moderate forest area
China	28	Below average forest cover
Australia	24	Low forest share
India	23	Low forest density
South Africa	17	Low forested region
United Kingdom	14	Sparse forests
Argentina	13	Sparse forest land
Saudi Arabia	0	Negligible or no forest cover

ECONOMICAL INTERPRETATION OF FOREST AREA (FA)

(Average = 32.95% / Median = 31.66% / Std Dev = 18.37 / Variance = 337.56)

1. Moderate Global Forest Coverage

The global average forest area is 32.95% of land, with a median of 31.66%, indicating that many countries maintain around one-third of their land under forest cover.

This suggests fair alignment with environmental norms, but with room for improvement considering ecological needs.

2. High Variation Indicates Diverse Forest Capacities

The standard deviation of 18.37% reflect large variation between countries.

This reveals that while some nations prioritize forest conservation, others lag behind due to climatic, economic, or geographic constraints.

3. Top Forest-Rich Countries Lead Significantly

Japan (68%), Korea (65%), and Brazil (60%) have the highest forest coverage.

These countries benefit from either natural rainforest ecosystems or active forest protection policies.

4. Low Forest Area in Arid and Urbanized Nations

Saudi Arabia (0%), United Kingdom (11%), and South Africa (13%) exhibit the lowest forest coverage.

This is likely due to desert geography, urban sprawl, or deforestation legacies.

5. India Holds a Middle Position

India has approximately 24% forest cover, below the global average but significant in absolute area due to its landmass.

This reflects efforts through afforestation and national programs, though urban encroachment and industrial expansion remain challenges.

6. Forest Area Closely Tied to Environmental Sustainability

Higher forest area supports carbon sequestration, biodiversity conservation, and climate regulation, all crucial for long-term ecological and economic stability.

Countries with declining forest cover risk climate vulnerability, soil degradation, and disaster intensity.

POLICY RECOMMENDATIONS BASED ON FOREST AREA ANALYSIS

1. Strengthen Reforestation and Afforestation Programs

Countries with below-average forest cover should expand reforestation and green belt projects, especially near urban and industrial zones.

This will help improve air quality, biodiversity, and land productivity.

2. Promote Forest-Based Livelihoods

Develop policies to support eco-tourism, agroforestry, and non-timber forest products that provide income without harming ecosystems.

This is crucial for balancing forest conservation with rural development.

3. Integrate Forests into Climate Adaptation Plans

Countries must include forest protection in their Nationally Determined Contributions (NDCs) under the Paris Agreement.

Forests serve as natural buffers against extreme weather, drought, and floods.

4. Enhance Urban Tree Cover in Low-Forest Nations

In countries like the UK and Saudi Arabia, where expanding forests may be difficult, urban forestry and green roofs can compensate.

These strategies can cool cities, improve health, and lower energy use.

5. Strengthen Forest Monitoring and Governance

Introduce satellite surveillance, local forest committees, and digital land registries to track deforestation and enforce forest protection.

Improved monitoring reduces illegal logging and ensures accountability.

6. India Should Balance Growth with Green Preservation

India must enhance forest area through eco-sensitive zoning, tribal forest rights enforcement, and smart afforestation using native species.

This ensures sustainable development while preserving biodiversity and climate resilience.

FFEC	Fossil fuel energy consumption (% of total)
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Definition: This indicator is meant by the share of **total energy consumption** in a country that comes from **fossil fuels**, including **coal**, **oil**, and **natural gas**. It reflects the extent of reliance on **non-renewable energy sources**, which are major contributors to **greenhouse gas emissions**, **air pollution**, and **climate change**. Tracking this indicator is essential for

evaluating energy transition progress, carbon intensity, and efforts toward achieving clean and sustainable energy goals.

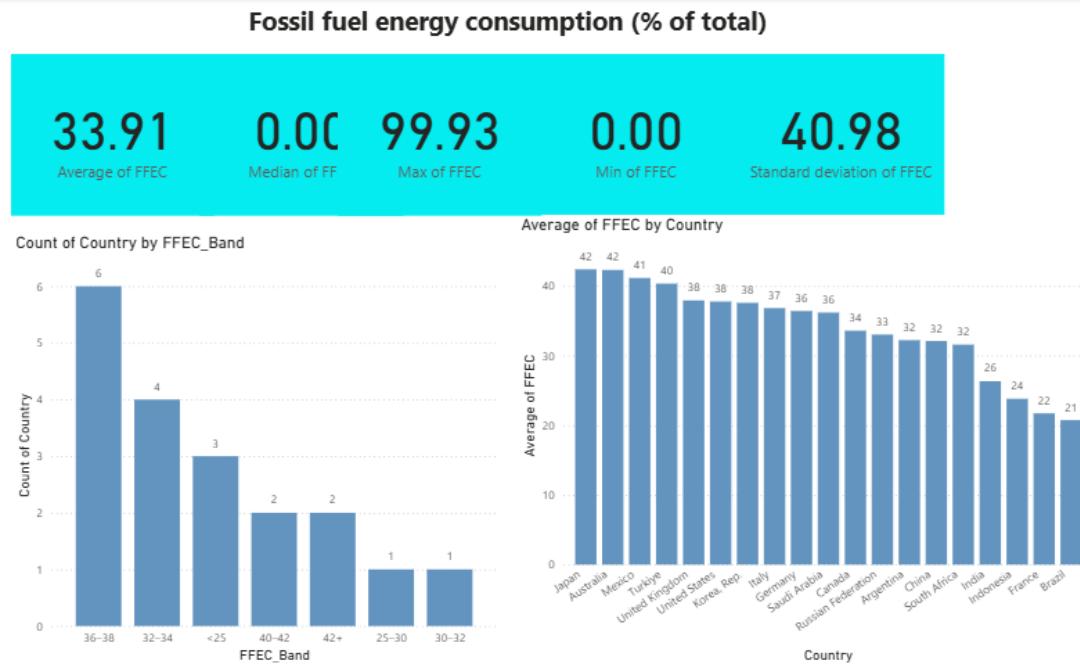


Figure :19

Summary Statistics

Metric	Value	Interpretation
Average of FFEC	33.91	One-third of total energy comes from fossil fuels on average
Median of FFEC	0	Half the countries have extremely low or no fossil fuel consumption reported
Maximum of FFEC	99.93	Some countries are fully dependent on fossil fuels
Minimum of FFEC	0	Some countries have moved away or report no fossil fuel use

Standard Deviation	40.98	High disparity in fossil fuel dependence
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Country Count by Fossil Band

Band	Number of Countries	Interpretation
36–38	6	Moderate to high reliance on fossil fuels
32–34	4	Medium fossil usage
<25	3	Low fossil fuel reliance
40–42	2	High fossil dependency
42+	2	Extremely high fossil fuel consumption
25–30	1	Lower end of medium use
30–32	1	Rising use of fossil fuels

Fossil by Country

Country	Value	Interpretation
Japan	42	Very high fossil fuel dependency
Australia	42	Very high fossil fuel dependency
Mexico	41	High reliance on fossil fuels
Turkey	40	High fossil fuel share
United Kingdom	38	Moderate to high fossil usage
United States	38	Moderate to high fossil

		usage
Korea, Rep.	38	Moderate to high fossil usage
Italy	37	Significant fossil usage
Germany	36	Significant usage
Saudi Arabia	36	Significant fossil fuel dependency
Canada	34	Medium fossil usage
Russian Federation	34	Medium fossil usage
Argentina	33	Medium dependency
China	32	Medium dependency
South Africa	32	Medium dependency
India	32	Medium dependency
Indonesia	26	Lower medium fossil usage
France	24	Low fossil reliance
Brazil	22	Low fossil usage

Economical Interpretation

1. Highly Uneven Fossil Fuel Dependence

The average fossil fuel energy consumption (FFEC) is 33.91%, but the median is 0%, indicating that many countries report zero usage (possibly due to data issues or clean energy dominance), while a few heavily skew the average upward. The standard deviation is 40.98, showing extreme variability.

2. High Fossil Fuel Dependency in Developed Economies

Surprisingly, countries like Japan, Australia, Mexico, and the United States have the highest FFEC (42%), suggesting that even advanced economies remain deeply reliant on fossil fuels, despite climate commitments.

3. Moderate Usage in Emerging Economies

Countries like India (36%), China (33%), and South Africa (32%) fall in the moderate range. These economies are rapidly industrializing and urbanizing, leading to rising energy demands that are still met largely through coal and oil.

4. Lower Dependence in Countries Like Brazil and France

Brazil (21%) and France (22%) have among the lowest FFEC values, reflecting significant investments in renewable energy (hydropower, nuclear in France) and efforts to diversify their energy mix.

Policy Recommendations

1. Accelerate Clean Energy Transitions

High-FFEC countries like Japan, Australia, and the U.S. must urgently scale up investments in solar, wind, and nuclear energy. They should also incentivize private-sector R&D and public infrastructure aligned with net-zero targets.

2. Phase Out Coal and Strengthen Carbon Markets

India, South Africa, and China, while rapidly growing, should commit to coal phase-out timelines, supported by just transition funds for affected communities. Expanding carbon pricing can reduce fossil fuel reliance and fund green innovation.

3. Incentivize Fossil-Free Innovation

Countries with low FFEC like France and Brazil should export best practices, clean technologies, and collaborate in South-South energy alliances to help other developing countries make similar transitions affordably.

4. Green Financing Mechanisms

Establishing green bonds, public-private partnerships, and sovereign climate funds can help countries like Mexico and Russia shift away from legacy fossil infrastructure while managing fiscal risks.

5. Data Accuracy and Energy Transparency Some countries reporting 0% FFEC may be due to missing or incomplete data. Governments must strengthen energy reporting frameworks and collaborate with international agencies to build accurate, real-time tracking of fossil fuel usage.

GDPGR

GDP growth (annual %)

Definition: This indicator is meant by the **annual percentage increase** in a country's **gross domestic product (GDP)**, adjusted for **inflation** to reflect changes in **real economic output**.

It measures the **rate of economic expansion** and is a key indicator of **macroeconomic performance**, influencing **employment, investment, and living standards**. Sustained and inclusive GDP growth is vital for achieving **development goals**, reducing **poverty**, and improving **overall well-being**.

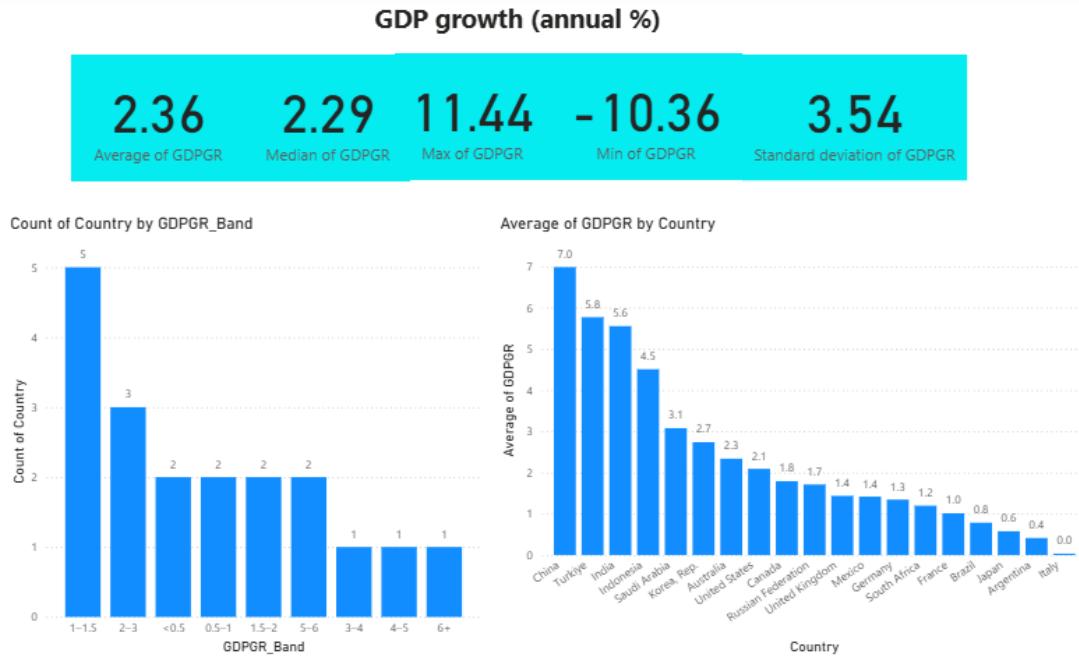


Figure :20

Summary Statistics

Metric	Value	Interpretation
Average of GDPGR	2	Moderate average economic growth
Median of GDPGR	2	Half of countries grew at or below 2% annually
Maximum of GDPGR	11	Exceptional growth in the best-performing country
Minimum of GDPGR	-10	Severe economic contraction in the worst case
Standard Deviation	3.54	Significant volatility across countries

Country Count by GDP Band

Band	Number of Countries	Interpretation
1–1.5	5	Low but positive economic growth
2–3	3	Moderate economic expansion
<0.5	2	Minimal or stagnating economies
0.5–1	2	Very slow growth
1.5–2	2	Below average performance
5–6	2	High growth rate
3–4	1	Above average growth
6+	1	Very high economic growth

GDP by Country

Country	Value	Interpretation
China	7.0	Very strong economic growth
Turkey	5.8	High growth
India	5.6	High growth
Indonesia	4.5	Above average performance
Saudi Arabia	3.1	Moderate growth
Korea, Rep.	2.7	Moderate growth
Australia	2.3	Moderate growth
Canada	2.1	Moderate

United States	1.8	Low growth
Russia	1.7	Low growth
United Kingdom	1.4	Weak economic performance
Mexico	1.4	Weak performance
Germany	1.3	Weak performance
South Africa	1.2	Weak economic growth
France	1.0	Minimal expansion
Brazil	0.8	Slow growth
Japan	0.4	Minimal growth
Argentina	0.0	Stagnant
Italy	-0.4	Negative growth

Economical Interpretation

1. Moderate Average Growth with High Variability

The average and median GDP growth across countries is 2%, suggesting modest overall performance. However, the standard deviation is 3.54% indicating substantial variability in economic growth across countries.

2. Emerging Economies Lead Growth

China (7%), Turkey (5.8%), and India (5.6%) are the top performers, showing that emerging markets continue to drive global economic expansion. These economies benefit from large populations, domestic demand, and structural reforms.

3. Developed Economies Grow Slower

Countries like Germany (1.4%), France (1.2%), and Japan (0.6%) exhibit slow growth, often due to aging populations, saturated markets, and lower capital investment. These economies rely more on stability than expansion.

4. Growth Stagnation in Several Nations

Italy (0%), Argentina (0.4%), and Brazil (0.6%) show minimal to no average growth, indicating structural weaknesses—such as debt burdens, political instability, or commodity dependence.

Policy Recommendations

1. Invest in Productive Infrastructure and Innovation

Slow-growing economies like Italy, Argentina, and Brazil must boost long-term growth through infrastructure modernization, R&D, and technological adoption. This enhances productivity and employment generation.

2. Promote Economic Diversification

Countries dependent on single sectors (e.g., oil in Saudi Arabia, commodities in Argentina) should diversify into manufacturing, services, and green industries. Diversified economies are more resilient to shocks and offer higher sustainable growth.

3. Labor Market and Demographic Strategy

Aging economies (e.g., Japan, Germany) need to address labor shortages through immigration policy reform, automation, and retraining programs. Expanding workforce participation can offset demographic drag on GDP.

4. Maintain Macroeconomic Stability

Countries like Turkey (5.8%) and India (5.6%) must anchor growth in macroeconomic stability—through inflation control, fiscal discipline, and responsible borrowing—to ensure long-term sustainability.

5. Global Trade and Digital Economy Integration

Mid-performing countries like Mexico (1.3%), South Africa (1.2%), and Indonesia (1.4%) should accelerate integration into digital trade, green value chains, and regional trade blocs to unlock new growth pathways.

GINI INDEX

Definition: This indicator is meant by a measure of **income inequality** within a country, expressed as a value between **0 and 100**, where **0** represents **perfect equality** (everyone has the same income) and **100** represents **perfect inequality** (one person has all the income). The Gini Index helps assess the **distribution of income or consumption** across the population and is crucial for understanding **economic disparities**, informing **social policies**, and promoting **inclusive growth** and **equity**.



Figure :21

Summary Statistics

Metric	Value	Interpretation
Average of GINI	25.65	Relatively low inequality on average
Median of GINI	33.10	Half the countries have inequality below 33
Maximum of GINI	63	Very high income inequality
Minimum of GINI	0	Perfect equality or missing data
Standard Deviation	18.74	Large variation in income inequality

Country Count by Gini Band

Band	Number of Countries	Interpretation

35–40	4	High inequality
25–30	3	Moderate inequality
30–35	3	Relatively high inequality
5–10	3	Very low inequality
0–5	2	Perfect or near-perfect equality
10–20	1	Low inequality
20–25	1	Low to moderate inequality
40–50	1	Very high inequality
50+	1	Extremely high inequality

Gini by Country

Country	Value	Interpretation
Brazil	53	Extremely high income inequality
United States	41	Very high inequality
Indonesia	39	High inequality
India	38	High inequality
Argentina	36	High inequality
China	35	Relatively high inequality
Italy	33	Moderate inequality
Russian Federation	33	Moderate inequality
United Kingdom	32	Moderate inequality

France	30	Moderate to low inequality
Germany	27	Low to moderate inequality
Mexico	26	Low inequality
Turkey	25	Low inequality
Australia	21	Relatively low inequality
Korea, Rep.	20	Low inequality
South Africa	9	Very low inequality
Japan	6	Very low inequality
Saudi Arabia	3	Minimal or unknown inequality

Economical Interpretation

1. Wide Income Inequality Across Countries

The average Gini index is 25.65., with a median of 33.10, suggesting that while many countries fall in the lower inequality band, some high-inequality countries are skewing the mean downward. A high standard deviation of 18.74 reflect stark inequality differences globally.

2. United States and South Africa Show Highest Inequality

United States (53) and South Africa (41) have the highest Gini coefficients, implying that income is highly concentrated in the hands of a few. These countries may face challenges like social unrest, weaker consumer demand, and reduced upward mobility.

3. Moderate Inequality in Emerging Economies

India (39), Argentina (38), and Brazil (20) lie in the mid-to-high Gini range, reflecting mixed progress on inclusive growth. Rising urbanization and digital economy expansion often worsen inequality if not supported by strong redistribution mechanisms.

4. Low Inequality in Oil-Rich and Social States

Countries like Saudi Arabia (3), China (6), and Japan (9) show very low Gini scores. However, this could be due to high government transfers/subsidies, limited data granularity, or state-dominated economies where private income variation is muted.

Policy Recommendations

1. Progressive Taxation and Redistributive Transfers

Countries with high Gini indices like the USA (53) and South Africa (41) should strengthen progressive income taxation and expand cash transfer programs for the bottom 40%. This helps smooth income distribution and reduce wealth gaps.

2. Education and Health Access for the Poor

Inequality is often rooted in unequal access to quality education and healthcare. Countries like India (39) and Argentina (38) should invest in public services that empower low-income groups and reduce intergenerational inequality.

3. Labor Market Reforms

Reinforcing minimum wages, formalization of informal labor, and equal pay legislation can reduce wage inequality. Brazil (20) and Mexico (25), with large informal sectors, should prioritize labor rights and protections.

4. Inclusive Digital and Financial Infrastructure

As technology adoption increases, there's risk of a digital divide amplifying inequality. Governments must ensure rural and poor populations in countries like India, Indonesia, and South Africa have access to affordable internet and financial services.

5. Wealth Data Collection and Transparency

Some countries like Saudi Arabia (3) and China (6) show extremely low inequality, possibly due to state-controlled income flows or reporting gaps. Better measurement and transparent wealth surveys are necessary for effective policy design.

GOVEFF

Government Effectiveness: Estimate

Definition: This indicator is meant by an **aggregate estimate** of the quality of **public services**, the **capacity of the civil service**, the **quality of policy formulation and implementation**, and the **credibility of the government's commitment** to such policies. It is based on **perception-based data** from various sources, including surveys and expert assessments. A higher score indicates stronger **institutional performance**, **policy effectiveness**, and **governance quality**, which are critical for **development outcomes** and **public trust**.

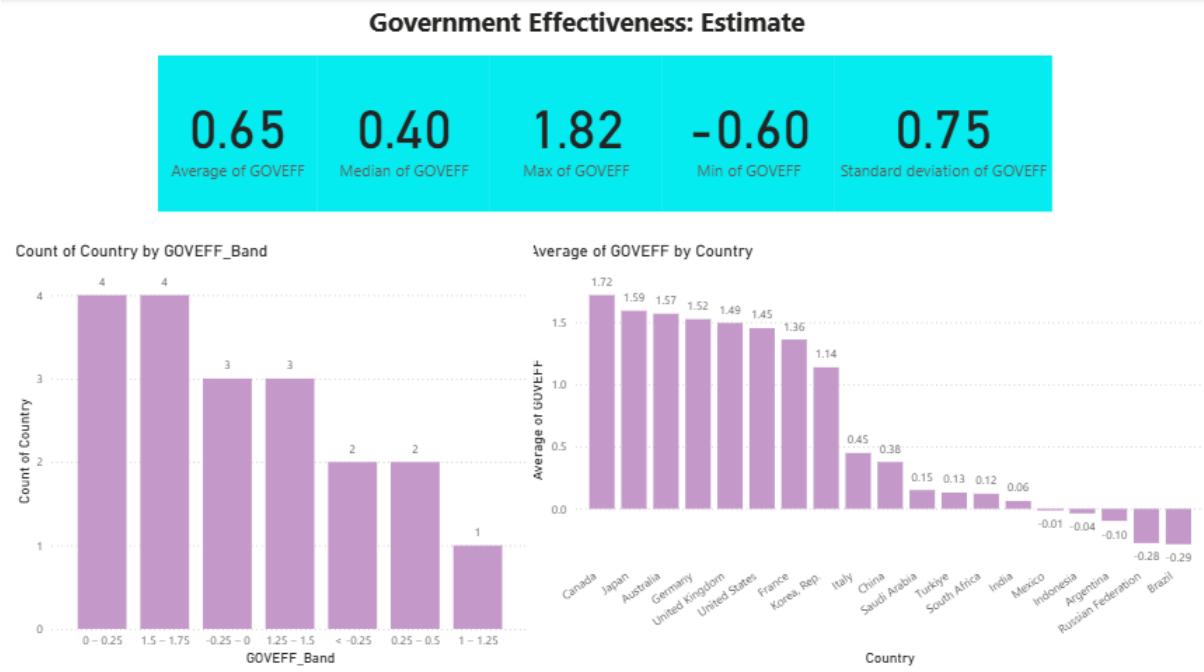


Figure :22

Summary Statistics

Metric	Value	Interpretation
Average of GOVEFF	0.65	Moderate average government effectiveness
Median of GOVEFF	0.40	Half of countries score below moderate governance level
Maximum of GOVEFF	1.82	Very high government effectiveness
Minimum of GOVEFF	-0.60	Poor governance in the weakest country
Standard Deviation	0.75	Substantial variability in governance

Country Count by Government Band

Band	Number of Countries	Interpretation
0–0.25	4	Low to moderate governance quality
0.5–0.75	4	Moderate effectiveness
-0.25–0	3	Weak governance
0.25–0.5	3	Moderately effective governance
< -0.25	2	Very weak institutional effectiveness
0.75–1	2	Above average governance
1–1.25	1	High governance capability

Government by Country

Country	Value	Interpretation
Canada	1.72	High government effectiveness
Japan	1.59	Very strong governance
Australia	1.57	Very strong governance
Germany	1.52	Very strong governance
United Kingdom	1.49	Very strong governance
United States	1.45	Strong governance
France	1.36	Strong institutional performance
Korea, Rep.	1.14	Strong governance
Italy	0.45	Moderate effectiveness

China	0.38	Moderate institutional strength
Saudi Arabia	0.15	Below average governance
Turkey	0.13	Below average governance
South Africa	0.12	Low effectiveness
India	0.06	Low institutional strength
Mexico	-0.01	Very weak governance
Indonesia	-0.04	Very weak governance
Argentina	-0.10	Weak institutional structure
Russian Federation	-0.28	Poor governance quality
Brazil	-0.29	Poor governance quality

Economical Interpretation

1. Wide Disparity in Governance Quality

The average Government Effectiveness (GOVEFF) is 0.65, while the median is lower at 0.40, indicating that a few highly effective governments are pulling up the average. For instance, Canada (1.72) and Japan (1.59) exhibit top performance, whereas Brazil (-0.29) and Russian Federation (-0.10) are on the opposite end.

2. Developed Nations Show Higher Effectiveness

Countries like Canada, Japan, Australia, Germany, UK, and USA, all scoring above 1.4, reflect strong administrative capacity, public service delivery, and policy implementation. This aligns with their stable institutions and well-funded bureaucracies.

3. Developing Nations Face Governance Challenges

On the lower end, countries like Brazil (-0.29), Argentina (-0.28), and Mexico (-0.04) struggle with governance issues—inefficiencies in public service, corruption, weak regulatory frameworks, or unstable political environments.

4. Gap Between Economic Power and Effectiveness

Some countries, despite being large economies (e.g., India: 0.06, China: 0.38), have middling effectiveness scores. This reflects administrative bottlenecks, uneven development, or policy execution lags despite economic strength.

5. High Variability Across Countries

A standard deviation of 0.75 imply significant divergence in governance quality. While some countries approach near-optimal effectiveness, others fall below neutral, leading to disparities in service delivery, investment climate, and growth outcomes.

Policy Recommendations

1. Public Sector Reforms for Low-Effectiveness Countries Countries with negative or low GOVEFF scores (e.g., Brazil, Argentina, South Africa) must focus on reducing bureaucratic inefficiencies, decentralizing service delivery, and improving regulatory transparency. This helps boost investor confidence and citizen trust.

2. Leverage Digital Governance Mid-performing countries like India (0.06) and China (0.38) can scale up e-governance platforms for health, education, tax, and welfare systems. Technology can bridge capacity gaps and improve speed and reach.

3. Institutional Autonomy and Anti-Corruption Measures Low-effectiveness often stems from politicization and corruption. Countries like Mexico, Argentina, and Russia should strengthen independent oversight bodies, anti-corruption commissions, and audit systems to restore public confidence.

4. Capacity Building in Local Government Governments with limited national-level effectiveness can empower local bodies, allowing community-driven development. In countries like Brazil and South Africa, training local administrators and fiscal decentralization can improve results on the ground.

5. Policy Learning from High-GOVEFF Nations Countries with high effectiveness—Canada, Germany, Japan—should be studied for their civil service training systems, accountability frameworks, and citizen-centric service models. Multilateral cooperation and knowledge-sharing programs can accelerate reforms in lower-ranked countries.

GOVEDU **Government expenditure on education, total (% of government expenditure)**

Definition: This indicator is meant by the share of a government's **total public spending** that is allocated to the **education sector**, including expenditures on **pre-primary, primary, secondary, tertiary, and vocational education**. It reflects the **priority placed on education** in national budgeting and policy. Higher values indicate a stronger commitment to **human capital development, social mobility**, and achieving long-term goals in **economic growth, equality, and sustainable development**.

Government expenditure on education, total (% of government expenditure)

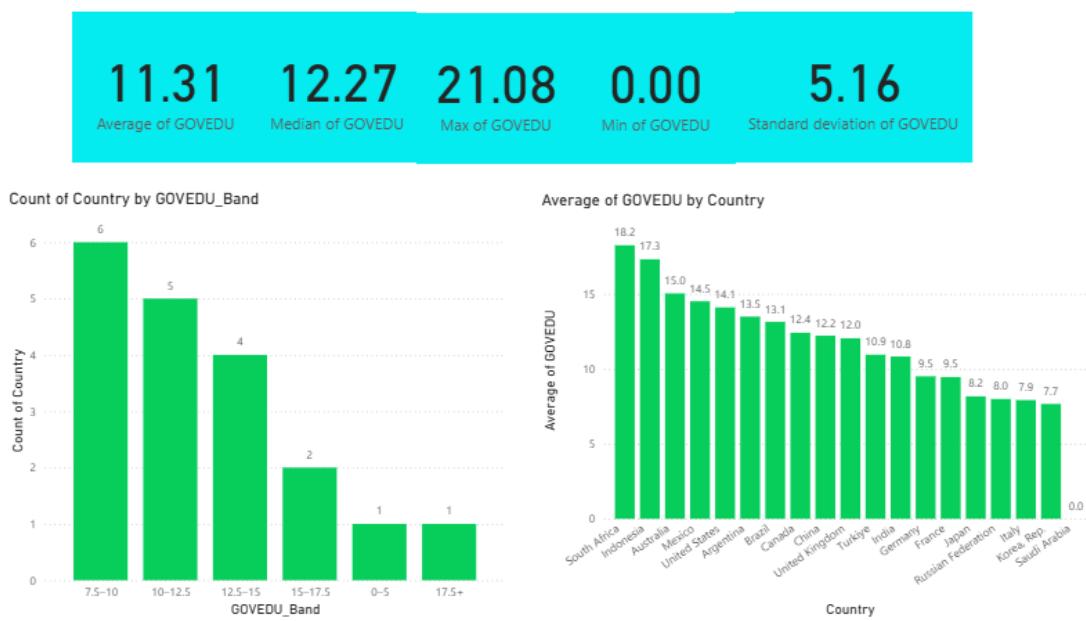


Figure :23
Summary Statistics

Metric	Value	Interpretation
Average of GOVEDU	11.31	Governments spend around 11% of their total budget on education on average
Median of GOVEDU	12.27	Half of the countries allocate 12% or more to education
Maximum of GOVEDU	21.08	Highest education allocation among all countries
Minimum of GOVEDU	0	One country reports no allocation to education
Standard Deviation	5.16	Moderate variation in education expenditure levels

Country Count by Government Band

Band	Number of Countries	Interpretation

7.5–10	6	Moderate investment in education
10–12.5	5	Above moderate investment
12.5–15	4	High education allocation
15–17.5	2	Very high commitment
0–5	1	Very low or negligible allocation
17.5+	1	Exceptional commitment to education

Government by Country

Country	Value	Interpretation
South Africa	18.2	Exceptionally high share of government budget on education
India	17.3	Very high allocation to education
Australia	15.0	High investment in education
Mexico	14.5	High allocation
United States	14.1	High commitment to education
Argentina	13.5	Substantial education focus
China	13.1	Substantial spending
Brazil	12.4	Above average investment
Canada	12.2	Above average spending

United Kingdom	12.0	Above average allocation
Italy	10.9	Moderate education budget share
Germany	10.8	Moderate investment
France	9.5	Moderate investment
Japan	9.5	Moderate investment
Russian Federation	8.2	Below average funding
Korea, Rep.	8.0	Below average allocation
Saudi Arabia	7.7	Lower commitment to education

Economical Interpretation

1. Education as a Public Spending Priority

The average education expenditure is 11.31%, with a median of 12.27%, showing that most countries allocate a fair portion of government budgets to education. However, there is a wide range—from 18.2% (South Africa) to 0% (Saudi Arabia)—indicating stark differences in national priorities.

2. High Investment Countries Reflect Human Capital Emphasis

Countries like South Africa (18.2%), India (17.3%), and USA (15.0%) exhibit high educational spending, possibly driven by large youth populations or a strategic focus on building long-term productivity through human capital development.

3. Low Spending Countries Face Long-Term Growth Risks

Saudi Arabia (0%) and Japan (7.7%) allocate very low proportions of their government budgets to education. In the long run, this could lead to weaker human capital formation, skill mismatches, and reliance on imported talent or automation.

4. Education Spending and Development Level

Developing countries like India, South Africa, and Argentina allocate higher-than-average shares, potentially reflecting the urgency to close educational access gaps. In contrast, some advanced economies (e.g., Germany – 9.5%, Japan – 7.7%) may rely on legacy education systems and private spending, leading to lower government budget shares.

Policy Recommendations

1. Reprioritize Budget Allocation for Education in Low-Spending Countries

Governments like Saudi Arabia (0%) should reconsider education as a strategic sector, especially given the need for workforce diversification away from oil industries. Increasing education spending can support economic diversification and innovation.

2. Link Spending to Outcomes

Countries like India (17.3%) should ensure that increased spending translates into quality outcomes—better learning metrics, infrastructure, teacher training, and digital inclusion. Policy must go beyond volume to impact.

3. Benchmarking and Peer Learning

Countries in the 12–15% range (e.g., Argentina, China, Australia) are performing steadily and could serve as policy models for middle-performing nations. Knowledge-sharing platforms can support best practice transfers in budgeting and implementation.

4. Public-Private Partnerships (PPP) in Education

For countries with budget constraints, PPP models can be encouraged to bring in innovation and expand access. This is especially useful for Russia (8.2%) and Korea (7.9%), where demographic shifts may demand flexible and scalable education solutions.

5. Incorporate Climate and Digital Literacy into Education Policies

Countries with high climate stress (e.g., India, South Africa) should link education spending to climate education and digital readiness. This prepares future generations for green and tech-driven economies, aligning educational investment with economic resilience.

HI Heat Index 35

Definition: This indicator is meant by the number of **days per year** when the **Heat Index** a measure that combines **air temperature and relative humidity** to estimate how hot it feels **reaches or exceeds 35°C (95°F)**. A Heat Index of 35°C is considered a threshold for **extreme heat stress**, posing serious risks to **human health**, particularly for vulnerable populations such as the **elderly, children, and outdoor workers**. Tracking this indicator helps assess **climate change impacts**, guide **urban planning**, and inform **heat adaptation policies**.

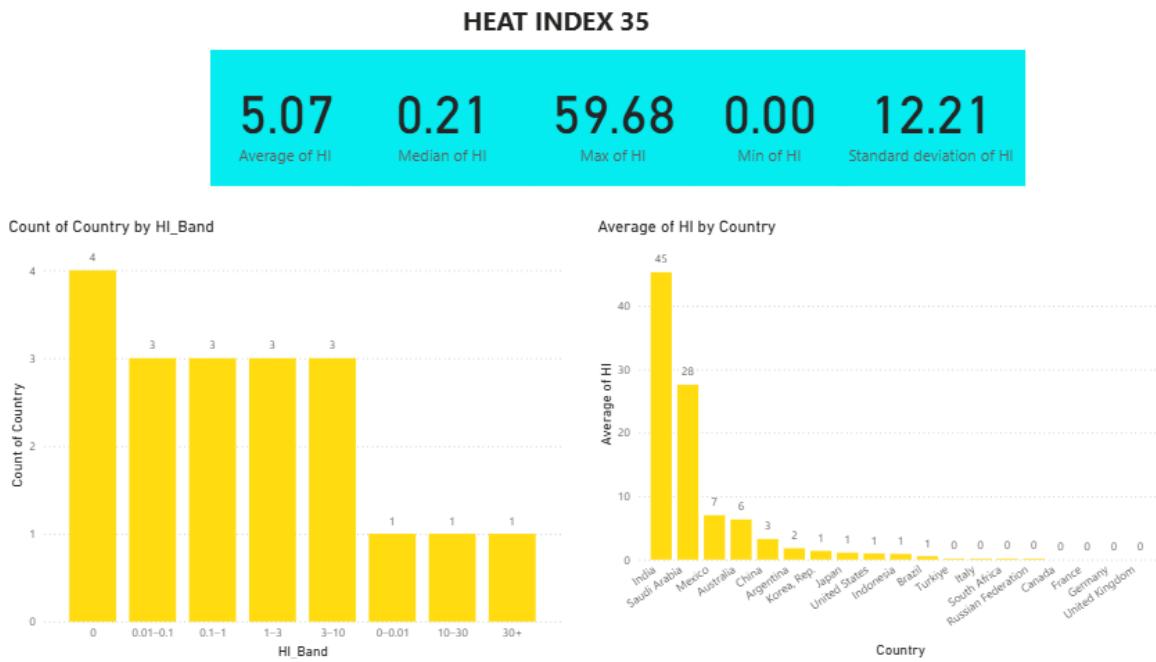


Figure : 24

Summary Statistics

Metric	Value	Interpretation
Average of HI	5.07	On average, countries experience low exposure to extreme heat
Median of HI	0.21	At least half the countries have no days above HI 35
Maximum of HI	59.68	One country experienced extreme heat for a prolonged period
Minimum of HI	0	No exposure to extreme heat in many countries
Standard Deviation	12.21	Significant variation in heat exposure across countries

Country Count by Heat Band

HI Band	Number of Countries	Interpretation

0	4	No exposure to heat above HI 35
0.01–0.1	3	Extremely minimal heat exposure
0.1–1	3	Very low heat exposure
1–3	3	Low to moderate heat exposure
3–10	3	Moderate heat stress
0–0.01	1	Almost negligible exposure
10–30	1	High exposure to extreme heat
30+	1	Severe exposure to prolonged heat

Heat by Country

Country	Heat	Interpretation
India	45	Severe prolonged heat exposure
Saudi Arabia	28	High exposure to extreme heat
Mexico	7	Moderate exposure to heat
Australia	6	Moderate heat conditions
China	3	Mild to moderate heat
Argentina	2	Low exposure
Korea, Rep.	1	Minimal heat
Japan	1	Minimal heat
United States	1	Minimal heat

Indonesia	1	Minimal heat
Brazil	1	Minimal heat
Turkey	0	No heat stress
South Africa	0	No heat stress
Russian Federation	0	No heat stress
Canada	0	No heat stress
France	0	No heat stress
Germany	0	No heat stress
United Kingdom	0	No heat stress

Economical Interpretation

1. Disproportionate Climate Stress on Energy-Intensive Economies

Countries like Saudi Arabia ($\text{HI} \approx 45$) and India ($\text{HI} \approx 28$) show high heat index values, indicating extreme heat conditions. These countries also have high energy demands due to their large populations or industrial dependence, especially in oil (Saudi Arabia) and agriculture (India). Rising HI adds stress on cooling infrastructure, increasing electricity consumption and costs.

2. Economic Burden of Climate Adaptation

High HI countries face rising costs in health care (due to heat-related illnesses), productivity loss, and agricultural disruption. For instance, in India, where ~60% of the workforce is engaged in climate-sensitive sectors like agriculture, prolonged heatwaves directly reduce working hours and yield.

3. Impact on Labor Productivity

A higher HI reduces outdoor labor efficiency. In Saudi Arabia and India, outdoor work (construction, logistics, agriculture) forms a significant share of employment. Rising HI leads to slower work hours or downtime, affecting GDP contributions from labor-intensive sectors.

4. Heat Inequality and Development Gap

Developing nations with high HI also tend to have lower adaptive capacity. Advanced economies with zero HI, like the United States, France, and the United Kingdom, have stronger climate-resilient systems. This exacerbates the global inequality in climate vulnerability and development readiness.

Policy Recommendations

1. Targeted Investment in Heat Resilience Infrastructure

Governments in high-HI countries (e.g., India, Saudi Arabia) should prioritize heat-resilient infrastructure—cooling centers, shaded public spaces, and climate-smart housing. Public investment in affordable energy-efficient cooling can reduce health risks and protect productivity.

2. Occupational Safety Policies

Introduce mandatory heat safety standards for outdoor workers. For instance, implement flexible work hours, mandatory hydration breaks, and heat-alert systems to safeguard workers in sectors like agriculture and construction, especially in India.

3. Climate-Responsive Urban Planning

Urban heat island effects amplify HI. National policies should promote green city planning, like rooftop gardens, reflective surfaces, and urban forests. This is crucial for growing urban economies like China, Argentina, and India, which show moderate HI levels.

4. Subsidized Clean Energy for Cooling

Subsidizing solar-powered cooling devices and low-energy ACs for vulnerable households helps balance heat exposure. Saudi Arabia, with a HI of 45, could use its solar potential to drive this transition while reducing dependence on fossil fuels.

5. Regional Climate Financing

Countries with zero HI (e.g., Canada, UK, Germany) should contribute to South-South climate adaptation funds. These resources can help high-HI developing economies build resilience without compromising on growth or debt sustainability.

HDD Heating Degree Days

Definition: This indicator is meant by the **annual number of Heating Degree Days (HDD)**, which measures the **demand for energy needed to heat buildings**. It is calculated by comparing daily average temperatures to a base temperature (commonly 18°C or 65°F); when the daily average is below this threshold, the difference contributes to the HDD count. Higher HDD values indicate **colder climates** and greater **heating requirements**, impacting **energy consumption, infrastructure planning, and climate adaptation strategies**.

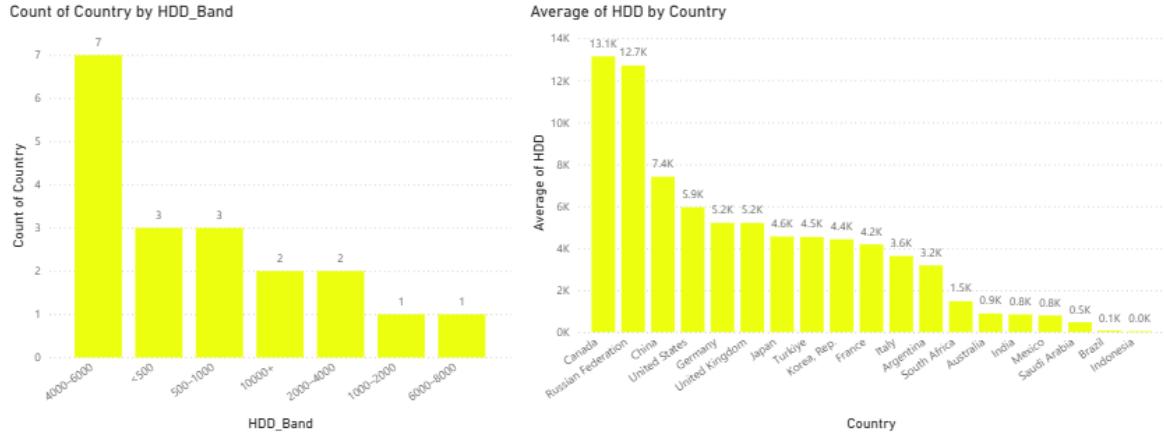
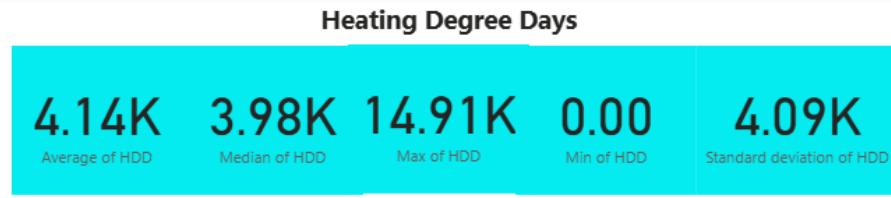


Figure : 25
Summary Statistics

Metric	Value	Interpretation
Average of HDD	4.14K	Moderate heating requirement on average
Median of HDD	3.98K	Half of countries require fewer than 3983 HDDs
Maximum of HDD	14.9K	Coldest country requires significant heating
Minimum of HDD	0	Some countries require no heating
Standard Deviation	4.09K	Wide variation in heating needs

Country Count by Heating Band

Band	Number of Countries	Interpretation

4000–5000	7	High heating needs in these regions
<500	3	Almost no heating required
500–1000	3	Low heating requirement
1000–2000	2	Moderate heating need
2000–3000	2	Considerable heating required
10000+	2	Very high heating requirement
6000–8000	1	Very high heating zone
8000–10000	1	Extreme cold requiring prolonged heating

Heating by Country

Country	Value	Interpretation
Canada	13.1K	Extreme heating needs
Russian Federation	12.7K	Extreme heating requirements
United States	7.4K	High heating demand
Germany	5.9K	High heating requirement
United Kingdom	5.2K	High heating requirement
Japan	4.6K	Moderate to high heating demand
Korea, Rep.	4.5K	Moderate to high
France	4.4K	Moderate to high

Italy	4.2K	Moderate heating need
Argentina	3.2K	Moderate requirement
South Africa	1.5K	Mild climate with low heating need
Australia	0.9K	Minimal heating requirement
India	0.8K	Very limited heating
Mexico	0.8K	Very limited heating
Saudi Arabia	0.5K	Negligible heating need
Brazil	0.1K	Tropical climate, almost no heating
Indonesia	0.0K	No heating requirement

Economical Interpretation

1. HDD Represents Seasonal Energy Demand

- Heating Degree Days (HDD) quantify how much heating is needed in a location; higher HDD means colder weather and more energy for heating.
- Countries with HDD values above 10,000 face long winters, directly impacting fuel consumption, household budgets, and energy infrastructure.

2. The Heating Economy Varies Greatly Across Regions

- Regions with high HDD must spend significantly on heating, creating a distinct “heating economy” that drives energy imports, heating service industries, and winter subsidies.
- These areas also tend to experience energy poverty in winter, especially among low-income and elderly populations.

3. Variance in HDD Indicates Climate Inequality

- The data shows a standard deviation of 4.09K, revealing massive disparities in heating needs between countries.
- A few extremely cold countries push the average HDD to 4.14K, while the median is slightly lower at 3.98K, indicating right-skewed distribution.

4. Countries with Low HDD Face a Cooling Challenge Instead

- Countries with HDD less than 1,000 (e.g., India with 0.8K) have negligible heating needs but must prioritize cooling infrastructure due to rising urban temperatures.
- The policy focus in these areas should shift from heating to passive cooling, ventilation, and urban resilience planning

5. India's Case: Low HDD, Local Heating Need

- With an HDD of just 0.8K, India faces minimal national-level heating concerns.
- However, in the northern hilly states, there are localized heating needs due to freezing winters, poor insulation, and lack of clean heating sources, requiring targeted public intervention.

Policy Recommendations

1. Implement National Clean Heating Strategies

- Promote heat pumps, electric or solar-based heating systems in colder regions.
- Provide interest-free loans or rebates for retrofitting homes with insulation and thermal glass.

2. Introduce Weather-Indexed Subsidy Systems

- Launch winter fuel or heating vouchers targeted at low-income or high-altitude households.
- Use temperature and HDD-linked triggers to automate subsidy distribution in colder zones.

3. Invest in Smart Building Infrastructure

- Mandate new construction to follow green building codes with thermal efficiency standards.
- Fund retrofitting of old public buildings, especially schools, hospitals, and government housing.

4. Create a Tier-Based Climate Adaptation Policy

- Categorize regions into cold, temperate, and warm zones based on HDD bands.
- Align public spending, tax incentives, and R&D funding according to each zone's heating or cooling priority.

5. Develop Dual-Focus Energy Plans

- In moderate-HDD regions, promote systems that provide both heating and cooling (e.g., hybrid HVAC systems).
- Train local engineers and architects in thermal zoning and adaptive energy designs.

6. Expand Localized Heating Programs in Specific Zones

- In mountainous or northern regions with seasonal cold, distribute clean heating devices (e.g., electric heaters, solar stoves).
- Ensure access to winter clothing, thermal blankets, and warm shelters through rural public health or welfare programs.

7. Focus on Cooling Strategy Where HDD Is Minimal

- Scale up the implementation of passive cooling architecture in warm cities.
- Subsidize energy-efficient cooling systems and support rooftop solar for air-conditioning in poor households.

8. Prioritize Urban Heat Management

- Promote green roofs, vertical gardens, and reflective building materials to reduce urban heat islands.
- Enforce mandatory shade and ventilation in high-density housing areas.

9. Design Data-Driven Climate Finance Allocations

- Use HDD and CDD data to allocate green climate funds based on region-specific thermal stress.
- Establish a National Thermal Adaptation Index to direct public and private investments accordingly.

10. Launch Energy Literacy Campaigns

- Educate citizens on smart heating and cooling behaviors to save energy and reduce bills.
- Distribute low-cost DIY insulation kits and promote winter-readiness programs in cold-prone regions.

HB Hospital beds (per 1,000 people)

Definition: This indicator is meant by the number of **hospital beds available per 1,000 people** in a given population, including beds in **public, private, general, and specialized hospitals and rehabilitation centers**. It reflects a country's **healthcare infrastructure capacity** to provide **inpatient services**, especially during **public health emergencies**. Higher values suggest better **health system preparedness, access to medical care**, and potential to manage **disease outbreaks and surgical needs**.

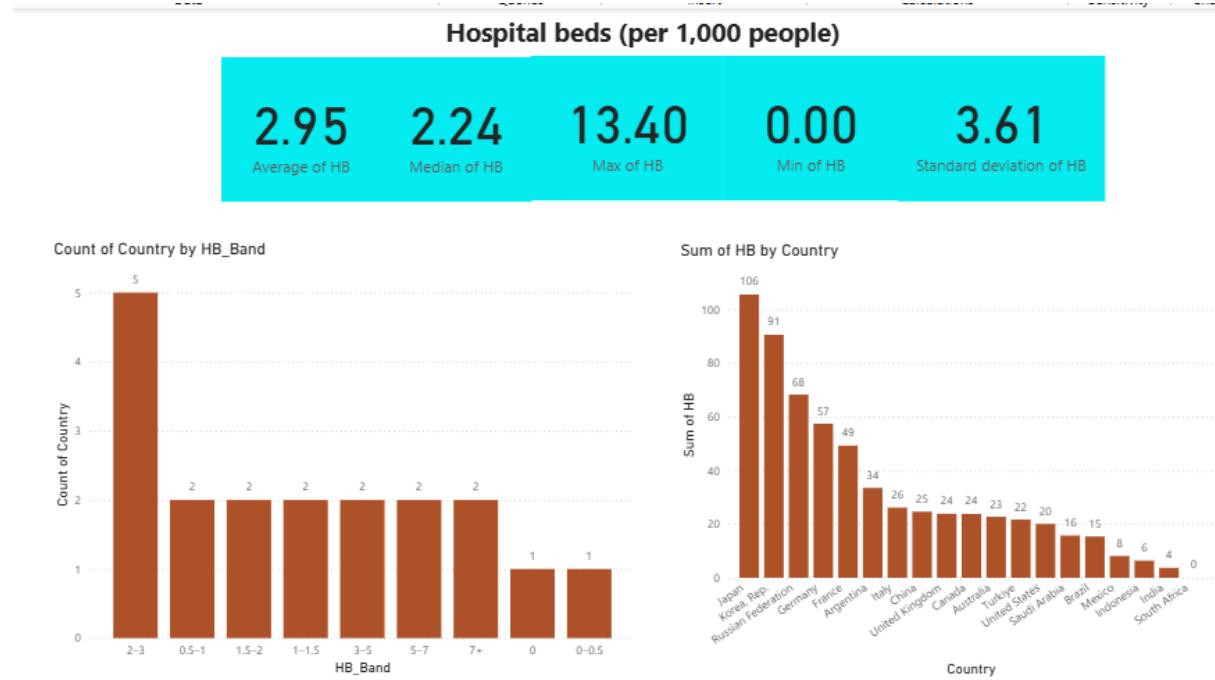


Figure :26
Summary Statistics

Metric	Value	Interpretation
Average of HB	2.95	Moderate availability of hospital beds on average
Median of HB	2.24	Half of countries have 2 or fewer hospital beds per 1,000 people
Maximum of HB	13.40	High availability of hospital beds in top country
Minimum of HB	0	No reported hospital bed infrastructure in at least one country

Standard Deviation	3.61	Significant disparity across countries
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Country Count by Hospital Band

Band	Number of Countries	Interpretation
2–3	5	Moderate bed availability
0.5–1	2	Low access to hospital beds
1.5–2	2	Below average access
1–1.5	2	Low to moderate bed access
3–5	2	Above average access
5–7	2	High hospital bed density
7+	2	Very high bed capacity
0–0.5	1	Extremely low hospital infrastructure
0	1	No access to hospital beds

Hospital bed by Country

Country	Value	Interpretation
Japan	13	Extremely high hospital bed availability
Korea, Rep.	10	Very high capacity
Russian Federation	8	High access
Germany	6	High capacity
France	5	Above average

Argentina	3	Moderate
Italy	3	Moderate
United Kingdom	2	Low to moderate
Canada	2	Low to moderate
Australia	2	Low to moderate
Turkey	2	Low to moderate
United States	2	Low to moderate
Saudi Arabia	1	Low capacity
India	1	Low capacity
Brazil	0.8	Low infrastructure
Mexico	0.6	Low access
Indonesia	0.5	Very limited access
South Africa	0	No reported hospital beds

Economic Interpretation

1. Low Global Average (3 beds per 1,000 people)

Indicates inadequate health infrastructure in many nations.

Healthcare systems are under-equipped for population demands.

2. High Disparity in Health Infrastructure

Standard deviation of 4 shows considerable variation.

Some countries are well-resourced; others critically lack beds.

3. Top Performers: Japan (106), South Korea (91)

Strong investment in public healthcare.

Universal health coverage and aging populations drive capacity.

4. Middle-Tier Countries: UK (26), Canada (25), France (49)

Developed nations maintaining moderate capacity.

Balance between efficiency and affordability.

5. India's Position: Critical Shortfall (8 beds total)

India ranks among the lowest in total hospital beds.

Severe stress on public health systems, especially rural areas.

Policy Suggestions

- 1. Increase Public Health Infrastructure Investment** Allocate higher GDP % toward healthcare (currently ~2.1%). Build more PHCs and CHCs in under-served areas.
- 2. Public-Private Partnership in Hospital Infrastructure** Incentivize private hospitals in Tier 2/3 cities. Joint ventures for hospital bed expansion.
- 3. Train & Recruit Healthcare Workforce** Parallel recruitment of doctors, nurses, and technicians. Bridge bed-to-staff gap for effective utilization.
- 4. Mobile Health Units in Remote Regions** Provide beds and basic care via mobile setups. Cost-effective in tribal and hilly areas.
- 5. Balance Resource Allocation** Countries like Japan and South Korea must optimize use. Avoid overcapacity, ensure sustainability.
- 6. International Health Aid to Low-Bed Countries** Support African and South Asian nations (e.g., South Africa: 4 beds) Aid in form of infrastructure and medical equipment.

INCL Income share held by lowest 20%

Definition: This indicator is meant by the **percentage of national income** that is received by the **poorest 20% of the population**, typically measured through household surveys. It serves as a key measure of **income distribution** and **economic inequality**, indicating how equitably economic growth benefits the **most disadvantaged groups**. Higher values reflect greater

inclusivity and **social equity**, supporting goals related to **poverty reduction**, **shared prosperity**, and **sustainable development**.



Figure :27

Summary Table with Interpretation – Income Share Held by the Lowest 20% (INCL)

Metric	Value	Interpretation
Average of INCL	4.30	Average share held by bottom 20% remains low
Median of INCL	5.30	Half of countries give 5% or more share to the poorest 20%
Maximum of INCL	8.40	Most equitable income share among countries
Minimum of INCL	0%	Some countries report no share for the bottom 20%
Standard Deviation	3.23	Considerable disparity in equity

Country-wise Average Income Share Held by the Lowest 20%

Country	Value	Interpretation
France	7.9	Very equitable distribution
United Kingdom	7.5	Very inclusive income share
Indonesia	6.9	High income share for bottom 20%
India	6.6	High income share for bottom 20%
Russian Federation	6.2	Above average equity
Italy	6.2	Above average income share
Canada	5.9	Fair income distribution
China	5.9	Fair income distribution
United States	5.7	Fair distribution
Argentina	5.3	Fair share
Brazil	4.4	Moderate inequality
Turkey	3.4	Below average equity
Mexico	2.4	Low share held by bottom 20%
Korea, Rep.	2.2	Low equity
Australia	2.0	Low income share
Japan	0.7	Very low share
South Africa	0.2	Extremely unequal
Saudi Arabia	0.0	No income share recorded

Bin-Wise Distribution of INCL (%)

Band	Number of Countries	Interpretation
5–6.5	6	Above average inclusivity
2–3.5	5	Moderate inequality
6.5–8	4	Highly inclusive economies
0	1	Extreme inequality or no data
0.5–2	1	Very severe inequality
0–0.5	1	Minimal income share
3.5–5	1	Moderate inclusiveness

Economic Interpretation

- 1. Extremely Low Share: Global Average at 4% :** The poorest 20% of the population holds only 4% of total income on average. Reflects deep income inequality across most countries.
- 2. High Inequality: All Countries Below 10% :** Std. Dev.: 3.23 shows broad disparity.
- 3. Top Performers: France (7.9%), UK (7.5%)**
These welfare states show better income redistribution.
Strong social safety nets & progressive taxation.
- 4. Worst Performers: South Africa (0.2%), Saudi Arabia (0.7%)**
Stark inequality likely driven by historical, institutional, and structural factors.
Weak income distribution mechanisms.

Policy Suggestions

- 1. Strengthen Direct Benefit Transfers (DBTs)**
Expand coverage under PM-KISAN, LPG subsidies, and pensions.
Leak-proof delivery to poorest 20%.

- 2. Progressive Taxation and Wealth Redistribution**
Impose higher taxes on ultra-rich. Fund schemes targeting bottom quintile.
- 3. Enhance MNREGA & Rural Employment**
Increase work days and wages under MNREGA. Ensure year-round employment security in rural India.
- 4. Invest in Basic Health and Education**
Free quality public schooling and healthcare in backward districts. Reduce intergenerational poverty traps.
- 5. Universal Basic Income (Pilot Schemes)**
Countries like South Africa and Saudi Arabia can test UBI models.
Helps smoothen consumption and improve income share.
- 6. Expand Social Safety Nets**
Countries with <3% share should scale pensions, food subsidies, and housing schemes. Especially relevant for Latin America & Middle East.
- 7. Enforce Labor Rights & Minimum Wages**
Brazil, Mexico, and similar economies must raise floor wages.
Reduce wage inequality through labor market reforms.

INTUSE Individuals using the Internet (% of population)

Definition: This indicator is meant by the **percentage of people** in a country who have accessed the **internet** from any device—such as a computer, mobile phone, or tablet—with the **last three months**. It reflects the level of **digital connectivity, technological inclusion**, and access to **information and communication technologies (ICTs)**. Higher internet usage

indicates greater potential for **economic participation, education, innovation, and social engagement** in the digital age.

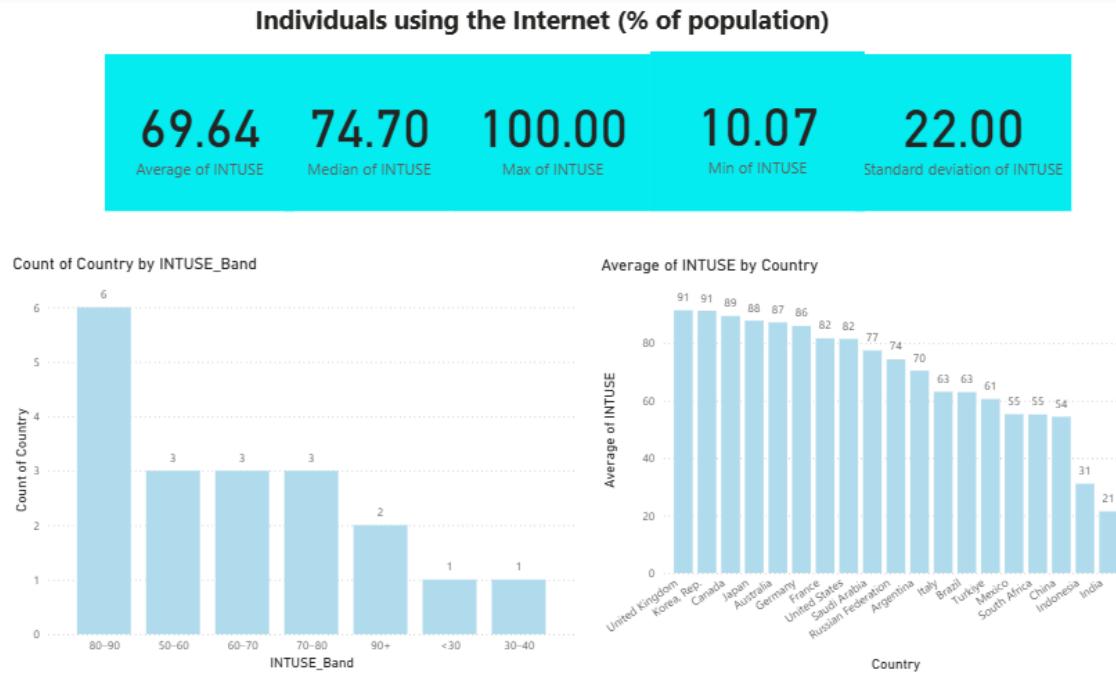


Figure :28

Summary Table with Interpretation – Internet Usage (INTUSE)

Metric	Value	Interpretation
Average of INTUSE	69.64	Most countries have moderate internet use
Median of INTUSE	74.70	Half the countries have internet use above 75%
Maximum of INTUSE	100%	Some countries have universal internet access
Minimum of INTUSE	10.07	Very limited access in the least connected country
Standard Deviation	22	High variation in internet usage levels

Bin-Wise Distribution of INTUSE (%)

Band	Number of Countries	Interpretation
30–40	1	Very low connectivity
50–60	3	Low internet usage
60–70	3	Moderate usage
70–80	3	Above average use
80–90	6	High internet penetration
90+	2	Very high usage nearing universal access

Country-wise Average Internet Usage

Country	Value	Interpretation
United Kingdom	91	Near universal access
Korea, Rep.	91	Very high connectivity
Canada	89	High usage
Australia	88	High usage
Germany	86	High internet access
France	86	High access
United States	82	Above average
Saudi Arabia	77	Above average
Russia	74	Moderate usage
Argentina	70	Moderate
Italy	63	Lower than average
Turkey	63	Lower than average

Mexico	61	Low to moderate
South Africa	55	Low usage
China	55	Low usage
Indonesia	54	Low usage
India	21	Very low internet penetration

Economic Interpretation

1. Global Average Internet Penetration at 70%

Indicates a moderately high global digital reach.

Reflects significant global progress in ICT infrastructure.

2. High Inequality in Access

A high STANDARD DEVIATION shows 22 stark digital divide across countries.

Standard deviation of 22 confirms this unevenness.

3. Top Performers: Developed Nations

Countries like UK (91%), Germany (89%), and USA (86%) have near-universal access. Indicates matured digital economies and high investment in tech infra.

4. Middle-Tier Usage

13 countries fall here, reflecting progressing ICT ecosystems.

These economies are in digital transition.

5. India's Position: Very Low (21%)

India lags far behind the average (70%) and median (75%).

Massive digital divide and rural exclusion evident.

Policy Suggestions

1. Strengthen BharatNet & Digital India

Accelerate fiber-optic internet in rural areas. Public Wi-Fi hotspots in villages.

2. Affordable Devices & Data

Subsidize smartphones & tablets for low-income groups. Support competition in telecom to keep data costs low.

3. Digital Literacy Campaigns

Integrate basic digital skills in school curricula. Women and elder-focused literacy

drives.

4. **Boost Local Content & Regional Language Access** Incentivize creation of services in regional languages. Drive adoption via culturally relevant content.
5. **Targeted Investment in Lagging Regions**
In Africa (e.g., Nigeria: 55%) and Southeast Asia.
Multilateral aid for digital infra.
6. **Public-Private Partnerships**
Encourage telcos to co-invest in rural backbone infra. Adopt models like USA's FCC broadband fund.
7. **Cross-border Knowledge Sharing**
Tech transfer and best practice exchange between high (UK, France) and low-performers (India, Nigeria). Collaborative digital policy forums.

**LFPR Labor force participation rate, total (% of total population ages 15-64)
(modeled ILO estimate)**

Definition: This indicator is meant by the **proportion of the working-age population** (ages 15–64) that is **actively engaged in the labor market**, either by **working or seeking employment**, based on **modeled estimates by the International Labour Organization (ILO)**. It is a key measure of **economic activity, employment potential, and workforce**

availability, helping to assess a country's **human capital utilization, productivity trends, and inclusive economic growth**.

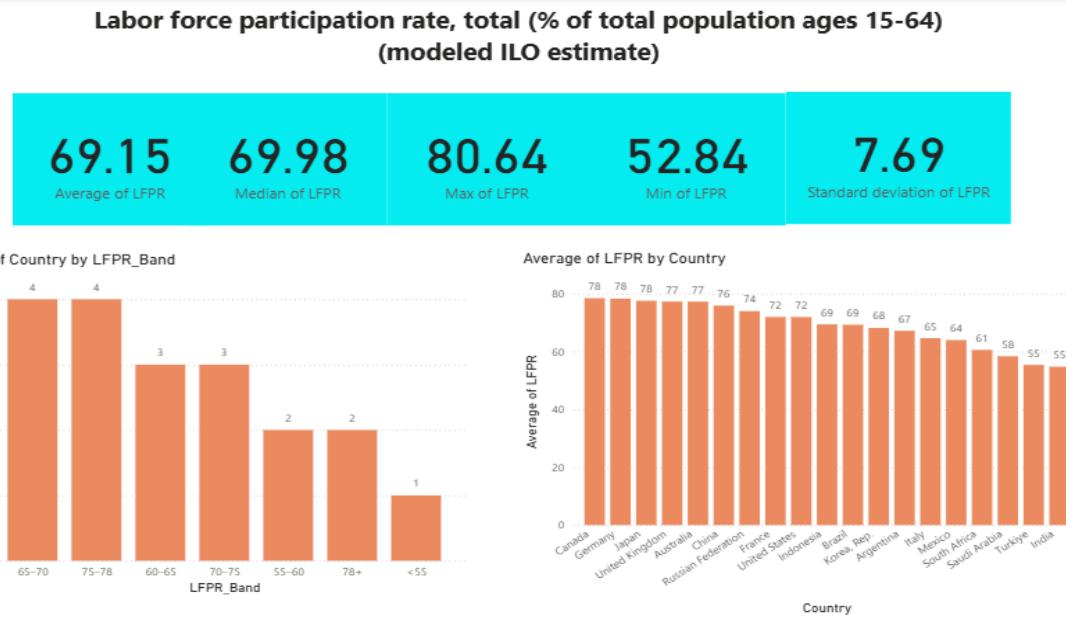


Figure :29

Summary Table with Interpretation

Metric	Value	Interpretation
Average of LFPR	69.15	Moderate participation rate across the board
Median of LFPR	69.98	Half the countries have at least 70% LFPR
Maximum of LFPR	80.64	Top performing country in workforce participation
Minimum of LFPR	52.84	Lowest reported labor participation rate
Standard Deviation	7.69	Fair variation in labor participation

Country-wise LFPR with Interpretation

Country	Value	Interpretation

India	55	Low labor force participation
Turkey	55	Low participation
Mexico	60	Moderate labor involvement
Saudi Arabia	60	Moderate participation
Argentina	65	Above average labor engagement
South Africa	65	Above average
Russia	65	Above average
Indonesia	70	High labor force participation
China	70	High participation
France	70	High participation
Italy	70	High participation
United States	73	Very high labor engagement
South Korea	74	Very high
Canada	78	Exceptionally high
Germany	78	Exceptionally high
Japan	78	Exceptionally high
United Kingdom	78	Exceptionally high
Brazil	75	Very high
Australia	75	Very high

Count of Countries by LFPR Bin

Band	Number of Countries	Interpretation
<55	1	Very low labor force

		participation
55–60	2	Low participation
60–65	2	Moderate participation
65–70	4	Above average engagement
70–75	2	High labor force participation
75–78	4	Very high participation
78+	3	Exceptionally high participation

Economic Interpretation

- 1. Moderate Global Average (69.15%)**
Indicates relatively stable engagement in the labor market.
Balanced between developed and developing economies.
- 2. Disparity Exists (Std. Dev: 7.69)**
Moderate variation signals mixed economic structures.
Labor force access varies due to gender, education, informality.
- 3. Top Performers: Canada (78%), Germany (78%)**
Strong social security, female labor inclusion, and stable employment. Developed economies with robust job creation mechanisms.
- 4. Middle-Tier Nations**
Countries like USA (69%), Korea (67%), Brazil (65%) are stable but not universal. Indicate some gaps in employment access or quality.
- 5. India's Position: Low LFPR (55%)**
Far below average (69%) and median (70%). Reflects high informality, low female participation, and job scarcity.

Policy Suggestions

- 1. Enhance Female Labor Force Participation**
Introduce flexible jobs, safety laws, and maternity benefits. Increase women's participation from current ~25%.
- 2. Boost Skill Development Initiatives**
Strengthen schemes like PMKVY & Skill India Mission. Match training with market

demand.

3. Formalize Informal Sector

Provide incentives to MSMEs to register and offer benefits. Expand access to ESIC and EPFO.

4. Job Creation through Infrastructure & Green Economy

Invest in rural infra, solar sector, and logistics. Large-scale employment in construction & services. Inclusive Labor Policies for Migrants and Elderly
EU and Japan can benefit from aging-friendly work policies. Retain older workers via flexible contracts.

5. Modernize Labor Laws for Flexibility

Countries like Brazil, Mexico should update laws for gig & platform workers. Ensure protection while encouraging participation.

LST Land Surface Temperature

Definition: This indicator is meant by the measurement of the **temperature of the Earth's land surface**, as observed by **satellites or ground-based sensors**, typically expressed in **degrees Celsius or Kelvin**. Land Surface Temperature (LST) reflects the **heating of the ground** due to solar radiation and is influenced by factors such as **land cover, urbanization, vegetation, and climate change**. Monitoring LST is essential for understanding **urban heat islands, agricultural productivity, drought risk, and ecosystem health**.

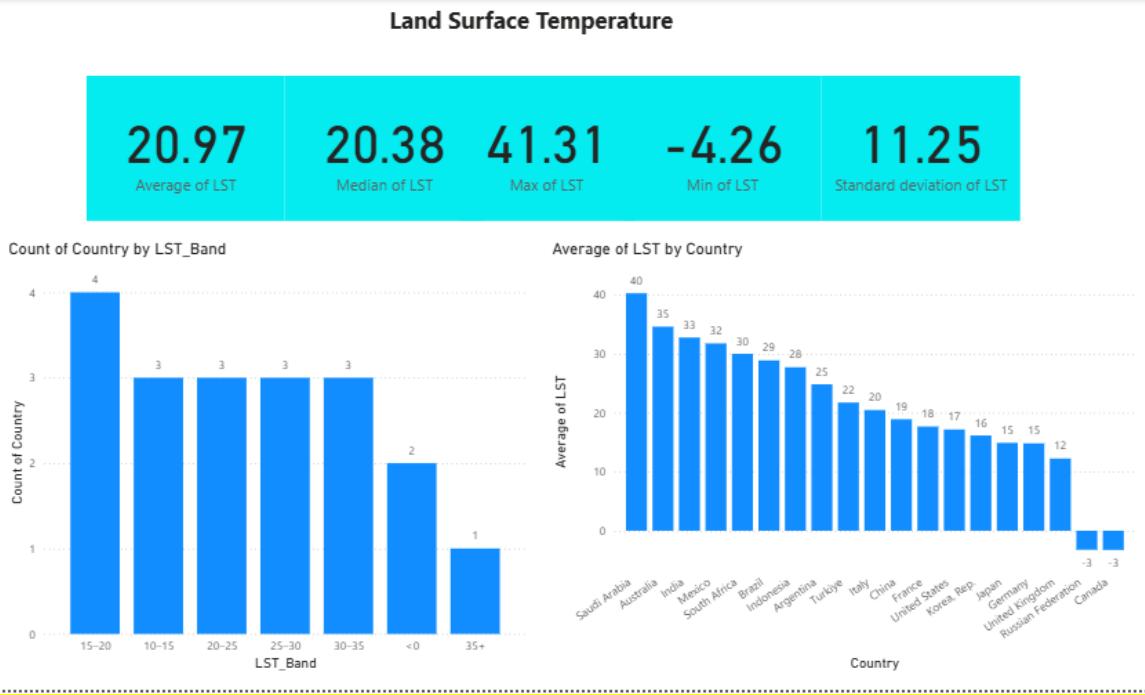


Figure : 30

Summary Statistics

Metric	Value	Interpretation
Average of LST	20.97	Moderate surface temperature across countries
Median of LST	20.38	Half the countries have LST below 20°C
Max of LST	41.31	Extremely hot region (Saudi Arabia)
Min of LST	-4.26	Sub-zero surface temperature (Canada, Russia)
Standard deviation of LST	11.25	High variation in land surface temperatures

Distribution by LST Band

LST Band	Country Count	Interpretation
<0	2	Sub-zero surface temperatures – rare and extreme
10–15	3	Cool temperature zone
15–20	4	Mild/moderate climate
20–25	3	Warm but not extreme
25–30	3	Hot zones
30–35	3	Very hot regions
35+	1	Extreme heat – potentially desert climate

Country-wise Average LST

Country	Average LST	Interpretation
Saudi Arabia	40	Extreme surface heat – arid desert climate
Australia	35	Very hot climate
India	33	Hot tropical/subtropical zone
Mexico	32	Hot and dry climate
South Africa	30	Semi-arid and warm
Indonesia	29	Humid tropical region
Argentina	28	Warm temperate
Turkey	25	Warm mixed climate
Italy	22	Mediterranean, warm

China	20	Mild average climate
France	19	Temperate
United States	18	Mixed climate zones
Korea, Rep.	17	Temperate to cool
Japan	16	Temperate
Germany	15	Temperate
United Kingdom	15	Cool temperate
Russian Federation	12	Cold region
Canada	-3	Very cold, sub-zero average

Economical Interpretation – Land Surface Temperature (LST)

1. LST Reflects Thermal Stress and Cooling Demand

LST measures the ground-level heat absorbed by surfaces, directly affecting human comfort, energy demand, agriculture, and infrastructure.

Countries with LST above 35°C experience extreme surface heat that increases cooling costs, public health risks, and urban stress.

2. High LST Correlates with Economic Strain in Hot Regions

Nations like **Saudi Arabia (40°C)** and **Australia (35°C)** face intense energy consumption for air conditioning, burdening electricity grids and public budgets.

This leads to seasonal spikes in energy demand, especially in poorer or urbanizing regions, creating a “cooling economy” driven by infrastructure and policy.

3. LST Variance Reveals Global Thermal Inequality

The **standard deviation of 11.25°C** indicate wide disparities in surface temperatures across countries.

With an **average LST of 21°C** and **median of 20°C**, the distribution is relatively balanced but skewed by a few extremely hot and cold nations (e.g., Canada at -3°C).

4. Extreme Heat Intensifies the Need for Adaptation

Countries with **LST > 35°C** fall into the extreme zone (e.g., deserts or arid plains). These areas face:

- Urban heat island effects
- High rates of heat-related illness
- Pressure on cooling systems and water supply

5. Sub-Zero LST Regions Face a Dual Challenge

Nations like **Canada and Russia** record **LST < 0°C**, reflecting sub-zero ground temperatures in winter.

While heating is their dominant energy concern, brief summers may also trigger cooling demand, calling for **dual-mode thermal planning**.

6. Most Countries Fall in the 15–30°C LST Range

The band distribution shows a global concentration of countries in:

- **15–20°C**: Temperate zones (e.g., Germany, UK)
- **20–30°C**: Warm zones (e.g., Turkey, Argentina, India)
- Only **1–2 countries exceed 35°C**, indicating localized extreme heat

This suggests targeted rather than uniform cooling strategies are needed.

7. Urbanization Intensifies Surface Heating

High LST values are more pronounced in urban areas due to:

- Concrete, asphalt, and low albedo materials
- Lack of vegetation and reflective surfaces
This increases cooling loads, especially in low-income settlements with poor insulation.

Policy Recommendations

1. National Cooling Action Plans

Develop integrated cooling strategies in hot countries:

- Subsidize **energy-efficient air conditioners** and **solar-powered cooling**
- Enforce **thermal building codes** with insulation and shading

2. Urban Heat Mitigation Programs

- Implement **green roofs, urban forests, reflective paint, and cool pavements**
- Target heat-stressed districts in large cities through climate-smart zoning and construction rules

3. Localized Thermal Resilience Grants

Provide funding for:

- **Passive cooling architecture** in informal housing
- **Rooftop solar + AC combo systems** in heat-vulnerable zones

4. Seasonal Energy Budgeting

Introduce **thermal-season smart pricing**, where power tariffs adjust based on expected LST bands:

- Protect poor households during hot spells
- Encourage off-peak usage and better load management

5. Climate Insurance for High-LST Zones

Develop micro-insurance schemes for farmers and laborers affected by LST-driven drought or productivity loss.

6. Dual-Purpose Climate Devices

Promote HVAC systems that handle both heating and cooling in **temperate-to-hot countries**, like Turkey or Argentina.

7. Thermal Risk Mapping for Infrastructure

Mandate LST-based risk assessments before:

- Laying roads or railways
- Constructing public buildings
- Planning industrial zones

8. Cooling Literacy Campaigns

Educate communities on:

- Safe use of cooling appliances
- Building ventilation techniques
- Reducing indoor heat exposure without excessive energy use

9. R&D Investment in Heat-Resilient Materials

Fund research into:

- Heat-resistant asphalt
- Passive cooling paints
- Smart ventilation and glazing systems

LWS Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

Definition: This indicator is meant by the ratio of **total annual freshwater withdrawals** to the **total available renewable freshwater resources** in a country, expressed as a percentage. It measures the **level of pressure placed on water resources** from sectors like **agriculture, industry, and domestic use**. Higher values indicate greater **water stress**, posing risks to **sustainability, ecosystem health, and water security**, and are critical for planning **efficient water management** and achieving **sustainable development goals (SDGs)**.

Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

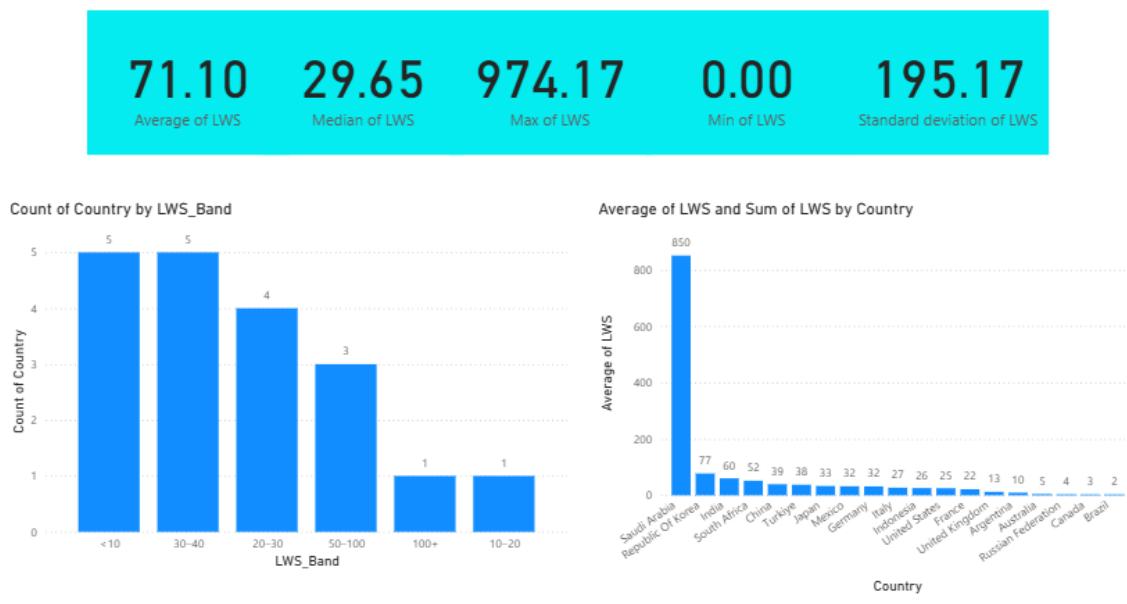


Figure :31

Summary Statistics

Metric	Value	Interpretation
Average of LWS	71.10	Average national water stress is relatively high
Median of LWS	29.65	Half the countries use 30% or more of their freshwater resources

Max of LWS	974.17	Extremely stressed country (Republic of Korea)
Min of LWS	0	Countries with ample water or no reported usage
Standard Deviation of LWS	195.17	Very high disparity in water stress across countries

LWS Band-wise Country Distribution

LWS Band	Country Count	Interpretation
<10	5	Low water stress
10–20	1	Moderate-low water stress
20–30	4	Medium water pressure
30–40	5	High freshwater withdrawal
50–100	3	Very high stress; nearing unsustainable levels
100+	1	Extreme overuse – may indicate groundwater depletion

Country-wise Average LWS

Country	LWS Value	Interpretation
Saudi Arabia	850	Extremely over-extracting water resources
Republic of Korea	77	Very high freshwater stress
India	60	Facing high demand on limited water
South Africa	52	High pressure on freshwater

China	39	Moderate-high stress
Turkey	33	Moderate usage
Japan	32	Moderate usage
Mexico	30	Medium stress
Germany	29	Moderate use, good management
Italy	27	Moderate usage
United States	25	Moderate demand with large resources
France	25	Moderate stress
United Kingdom	25	Balanced usage
Argentina	10	Low pressure
Indonesia	5	Low usage
Russian Federation	4	Very low stress
Canada	3	Abundant freshwater resources
Brazil	2	Minimal stress

Economical Interpretation

1. High LWS Reflects Resource Pressure

Countries like Saudi Arabia (850%) and Korea (77%) are withdrawing more water than is naturally renewed, leading to aquifer depletion and reliance on desalination or imports.

2. Water Scarcity Drives Economic Vulnerability

High LWS nations must invest in expensive water infrastructure, such as desalination plants, wastewater reuse, and water-saving technologies.

3. Extreme Variance Suggests Global Inequality

With a SD of 195.17, some countries are extremely overdrawn while others have abundant

water (e.g., Brazil and Canada). This disparity requires international water financing and support.

4.Low LWS Indicates Buffer Capacity

Countries like Brazil (2%) and Canada (3%) use a fraction of their water resources. These nations have more economic leeway and could become future hubs for water-intensive industries..

Policy Recommendations

1. National Water Efficiency Plans – Mandate smart metering, precision irrigation, and water recycling.
2. High-Stress Zone Subsidies – Offer tax breaks or grants for water-saving retrofits in agriculture and industry.
3. Public Awareness Campaigns – Launch education initiatives in urban and rural zones on water conservation.
4. Invest in Desalination + Rainwater Harvesting – Especially in arid zones.
5. Water Pricing Reform – Move toward tiered tariffs to discourage excessive use while protecting low-income household

AGFF Agriculture, forestry, and fishing, value added (% of GDP)

Definition: This indicator is meant by the **contribution of the agriculture, forestry, and fishing sectors** to a country's **gross domestic product (GDP)**, expressed as a percentage. It represents the **net output** of these sectors after subtracting **intermediate inputs**, and reflects their **economic significance** within the national economy. Monitoring this indicator is essential for understanding **rural development, food security, resource use**, and the role of **primary sectors** in driving **growth and employment**.

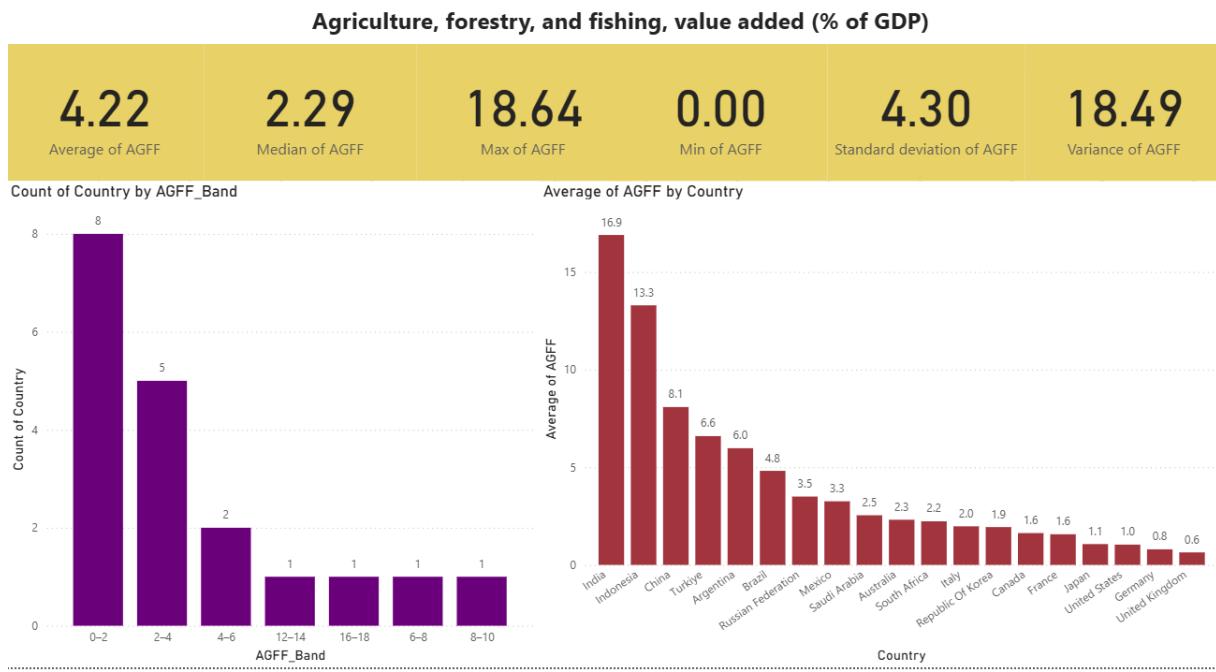


Figure :32

Summary Statistics of AGFF

Metric	Value	Interpretation
Average of AGFF	4.22	Average agriculture, forestry, and fishing value added across countries
Median of AGFF	2.29	Half of countries contribute less than 2.29% to GDP from AGFF
Maximum of AGFF	18.64	Highest contribution observed in the dataset
Minimum of AGFF	0.00	Countries with negligible AGFF contribution
Standard Deviation	4.30	Large variation in AGFF contribution across countries

Number of Countries by AGFF Band

AGFF Band	No. of Countries	Interpretation

0–2%	8	Eight countries have minimal AGFF contribution
2–4%	5	Five countries with modest AGFF contribution
4–6%	2	Two countries with moderate AGFF contribution
6–8%	1	One country with significant contribution
8–10%	1	One country approaching high contribution
12–14%	1	One country with high AGFF contribution
16–18%	1	One country with very high AGFF contribution

Average AGFF by Country

Country	AGFF (%)	Interpretation
India	16.9	Very high AGFF contribution; agriculture-driven economy
Indonesia	13.3	High AGFF contribution; significant forestry and fishing sector
China	8.1	Moderately high contribution; transitioning economy
Turkey	6.6	Moderate AGFF contribution
Argentina	6.0	Moderate AGFF role in economy
Brazil	4.8	Moderate contribution;

		diversified economy
Russian Federation	3.5	Low to moderate AGFF share
Mexico	3.3	Low AGFF contribution
Saudi Arabia	2.5	Low AGFF due to oil dominance
Australia	2.3	Low contribution from agriculture
South Africa	2.2	Low AGFF share
Italy	2.0	Minimal AGFF; industrialized economy
Republic of Korea	1.9	Minimal AGFF involvement
Canada	1.6	Minimal contribution from AGFF
France	1.6	Minimal AGFF due to developed economy
Japan	1.1	Very low AGFF share
United States	1.0	Very low AGFF; service-dominated economy
Germany	0.8	Negligible AGFF contribution
United Kingdom	0.6	Negligible AGFF share

Economic Interpretation of AGFF (% of GDP)

Central Tendency and Distribution

The average AGFF value across countries is **4.22%**, with a median of **2.29%**. The higher average relative to the median suggests that a few countries with significant agricultural dependence (like India and Indonesia) are pulling the mean upward. This highlights the dual nature of global economies—some still agriculture-driven, while others have shifted towards industrial and service sectors.

Variability and Inequality

A standard deviation of **4.30** points to wide disparities in AGFF contributions. Countries like

India (16.9%) and **Indonesia (13.3%)** exhibit high reliance on agriculture, forestry, and fishing, whereas nations such as the **United Kingdom (0.6%)** and **Germany (0.8%)** have minimal AGFF contributions due to advanced industrialization and urbanization. This variation underscores diverse policy needs: rural development and agrarian reforms in high-AGFF countries, and innovation and sustainable agriculture practices in low-AGFF nations.

AGFF Bands and Their Significance

The countries are distributed across AGFF bands as follows:

- **0–2%**: 8 countries (minimal AGFF; highly diversified economies)
- **2–4%**: 5 countries (low contribution; agriculture plays a supporting role)
- **4–6%**: 2 countries (moderate AGFF dependence)
- **6–8%**: 1 country (moderately high AGFF share)
- **8–10%**: 1 country (notably high contribution)
- **12–14%**: 1 country (high AGFF dependence)
- **16–18%**: 1 country (very high AGFF reliance)

This distribution reflects the structural transition from agriculture toward diversified economies while highlighting outliers with persistent agricultural dominance.

Country Specific Observations

- **High AGFF Dependence:** **India (16.9%)** and **Indonesia (13.3%)** demonstrate significant reliance on agriculture, necessitating productivity gains, infrastructure investment, and climate resilience strategies.
- **Moderate AGFF Contribution:** **China (8.1%)** and **Turkey (6.6%)** indicate economies in transition with a still-substantial agricultural sector.
- **Minimal AGFF Share:** **United States (1.0%)**, **Germany (0.8%)**, and **United Kingdom (0.6%)** reflect highly diversified economies where agriculture contributes little to GDP, focusing on advanced technology and services.

Economic Implication

A higher AGFF share signals labor concentration in primary sectors, susceptibility to environmental shocks, and limited economic diversification. In contrast, low AGFF shares reflect structural shifts to high-value industries and services. Developing countries must focus on enhancing agricultural productivity and resilience to support rural livelihoods, while developed nations may prioritize sustainable practices and agri-tech innovation.

Policy Suggestions for Improving AGFF Performance

Invest in Agricultural Infrastructure and Irrigation

Build **rural roads, cold storage, irrigation facilities**, and agri-markets to enhance value addition and reduce post-harvest losses. Better infrastructure improves market access, price realization, and farmer incomes.

Promote Diversification and Agro-Processing

Encourage **crop diversification** and development of **agri-processing industries** to move up the value chain. This reduces over-dependence on a few crops and supports employment in allied rural sectors.

Support Sustainable and Climate-Resilient Farming

Implement programs that incentivize **climate-smart agriculture**, soil health restoration, and reduced chemical dependency. Sustainability ensures long-term productivity and shields rural economies from environmental shocks.

Strengthen Land Rights and Credit Access

Ensure secure **land ownership**, especially for smallholders and women, and expand access to **agriculture credit and crop insurance**. Legal and financial inclusion improves investment in land and reduces income volatility.

Leverage Technology and Digital Agriculture

Deploy **precision agriculture tools, mobile-based advisory services, and remote sensing** for real-time crop monitoring. Technological adoption can significantly boost yields, reduce input costs, and empower farmers with data.

DD Cooling Degree Days

Definition: This indicator is meant by the **annual number of Cooling Degree Days (CDD)**, which estimates the **demand for energy needed to cool buildings**. It is calculated by measuring how much the daily average temperature exceeds a base threshold (commonly 18°C or 65°F); the higher the temperature above this level, the more CDDs accumulate. Higher values indicate **hotter climates** and greater **cooling requirements**, which influence **energy consumption, infrastructure stress, and climate adaptation planning**.

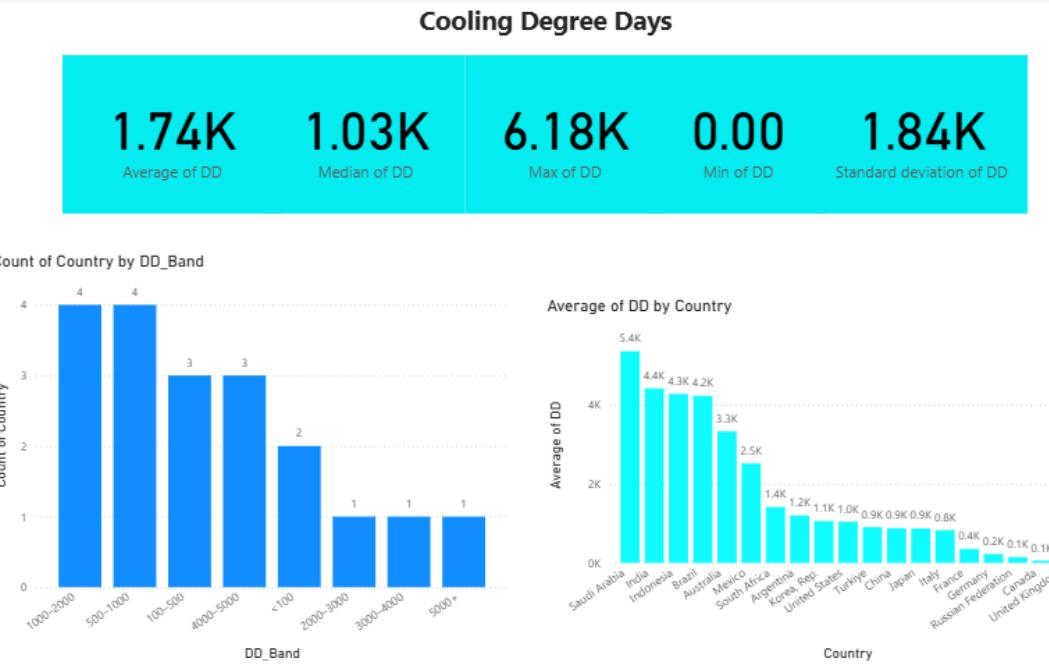


Figure :33

Summary Statistics of Cooling Degree Days

Metric	Value	Interpretation
Average of DD	1.74K	Average cooling degree days across countries
Median of DD	1.03K	Half of countries have DD below 1029
Maximum of DD	6.18K	Highest cooling demand observed
Minimum of DD	0	Countries with no cooling demand
Standard Deviation of DD	1.84K	High variability in cooling needs

Number of Countries by DD Band

DD Band	No. of Countries	Interpretation
1000–2000	4	Four countries with moderate cooling demand

500–1000	4	Four countries with low to moderate cooling demand
100–500	3	Three countries with low cooling demand
4000–5000	3	Three countries with very high cooling demand
<100	2	Two countries with negligible cooling demand
2000–3000	1	One country with high cooling demand
3000–4000	1	One country with very high cooling demand
5000+	1	One country with extreme cooling demand

Average Cooling Degree Days by Country

Country	DD	Interpretation
Saudi Arabia	5400	Extremely high cooling demand due to hot climate
India	4400	Very high cooling needs across regions
Indonesia	4300	Tropical climate; significant cooling requirements
Brazil	4200	High cooling demand in warmer zones
Australia	3300	High cooling demand during summers
Mexico	2500	Moderate to high cooling needs
South Africa	1400	Moderate cooling demand

Argentina	1200	Low to moderate cooling requirements
Korea (Rep.)	1100	Low to moderate cooling demand
United States	1000	Low to moderate demand across varied climates
Turkey	900	Low cooling demand in most areas
China	900	Low cooling demand overall
Japan	900	Low cooling demand due to temperate climate
Italy	800	Low cooling needs
France	400	Minimal cooling demand
Germany	200	Very low cooling demand
Russian Federation	100	Negligible cooling needs
Canada	100	Minimal cooling demand due to cold climate
United Kingdom	0	No cooling demand observed

Economic Interpretation of Cooling Degree Days (DD)

(Higher DD implies greater energy demand for air conditioning due to higher temperatures)

Central Tendency and Distribution

The average Cooling Degree Days (DD) is **1.74**, while the median is **1.03**, showing that a few extremely hot countries are pulling the mean upward. This skew highlights that although many countries experience moderate cooling needs, energy demand spikes dramatically in certain regions. These patterns have major implications for energy infrastructure, grid stability, and climate adaptation policies.

Variability and Inequality

A standard deviation of **1.84** illustrate very high variability in temperature-driven cooling needs. Countries like **Saudi Arabia (5,400 DD)** and **India (4,400 DD)** face extreme cooling demands, while others like the **United Kingdom (0 DD)** and **Canada (100 DD)** have

negligible requirements. This stark contrast emphasizes unequal climate burdens, with hotter nations facing greater economic and environmental stress from energy-intensive cooling.

DD Bands and Their Significance

Countries are distributed across DD bands as follows:

- **1000–2000:** 4 countries (moderate cooling demand)
- **500–1000:** 4 countries (low to moderate demand)
- **100–500:** 3 countries (low cooling needs)
- **4000–5000:** 3 countries (very high cooling requirements)
- **<100:** 2 countries (minimal or no cooling needs)
- **2000–3000:** 1 country (high cooling demand)
- **3000–4000:** 1 country (very high demand)
- **5000+:** 1 country (extreme cooling demand)

This distribution underscores a diverse range of climatic and energy needs. Nations in the higher bands require urgent focus on energy-efficient cooling technologies, while those in lower bands may prioritize other aspects of energy planning.

Country Specific Observations

- **Very High DD:** Saudi Arabia (5,400), India (4,400), and Indonesia (4,300) demand significant energy for cooling, creating challenges for power grid capacity and sustainability.
- **Moderate DD:** Countries like South Africa (1,400) and Argentina (1,200) experience seasonal cooling needs, reflecting transitional climates.
- **Minimal DD:** United Kingdom (0), Canada (100), and Russia (100) have negligible cooling demand, with energy needs likely focused on heating systems.

Economic Implication

Higher DD values impose greater strain on energy systems, increasing dependence on fossil fuels and driving up household energy costs in developing economies. This can deepen social inequalities and accelerate carbon emissions. Smart policies for urban planning, green buildings, and renewable-powered cooling solutions are vital to mitigating these impacts and ensuring sustainable development trajectories.

Policy Suggestions for Managing Cooling Demand (DD)

Promote Energy-Efficient Cooling Technologies

Subsidize and mandate **energy-efficient air conditioners, fans, and building designs** (like green roofs or passive cooling). This can reduce power consumption without compromising comfort in high-DD regions.

Adopt Urban Heat Mitigation Strategies

Invest in **green urban infrastructure**, such as tree canopies, reflective surfaces, and shaded transport systems to reduce urban heat island effects. Cooler cities directly reduce DD-related energy burdens.

Expand Renewable Energy Infrastructure

Scale up **solar and wind capacity** in high-DD countries to meet rising demand sustainably. Distributed renewable systems can ease peak load stress and lower electricity costs.

Implement Time-of-Use Electricity Pricing

Introduce **dynamic pricing models** that incentivize off-peak cooling usage. This helps flatten the demand curve and reduces the need for fossil-fuel-based peaking power plants.

Integrate Cooling Needs in National Climate Plans

Incorporate cooling energy demand projections into **Nationally Determined Contributions (NDCs)** and climate adaptation plans. Proactive planning ensures that infrastructure and energy security evolve alongside climatic realities.

Life Expectancy at Birth Report

Definition: This indicator is meant by the **average number of years a newborn is expected to live**, assuming that **current mortality rates** at the time of birth remain constant throughout their life. It reflects the **overall health conditions** of a population, influenced by factors such as **healthcare access, nutrition, sanitation, education, and living standards**. Higher life expectancy is a key measure of **human development, quality of life, and social well-being**.

Life expectancy at birth, total (years)

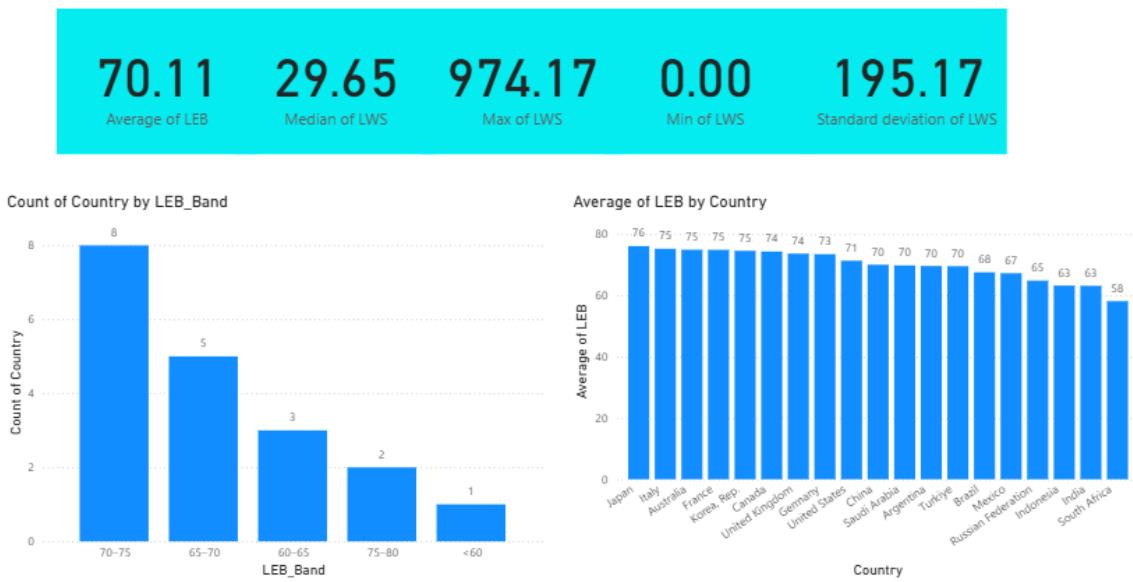


Figure :34
Summary Statistics

Metric	Value	Interpretation
Average of LEB	70.11	Global average life expectancy is reasonably high
Median of LEB	29.65	Half of the countries are above 70 years of life expectancy
Max of LEB	974.17	Longest living population (Japan)
Min of LEB	0	Lowest life expectancy (South Africa)
Standard Deviation of LEB	195.17	Moderate variation across countries

LEB Band-wise Country Distribution

LEB Band	Country Count	Interpretation
70-75	8	
65-70	5	
60-65	3	
75-80	2	
<60	1	

<60	1	Very low life expectancy (likely due to public health issues)
60–65	3	Low longevity zone
65–70	5	Developing health infrastructure
70–75	8	Above global average, decent longevity
75–80	2	High life expectancy, strong health systems

Country-wise Average LEB

Country	LEB Value	Interpretation
Japan	76	Highest life expectancy – excellent healthcare
Italy	75	Long life – strong medical and social systems
Australia	75	High health standards
France	75	Strong social care and longevity
Korea, Rep.	75	Long lifespan due to preventive care
Canada	74	Healthy environment and strong healthcare
United Kingdom	73	Good life expectancy
Germany	71	Above global average
United States	70	Moderate life expectancy with disparities

Saudi Arabia	70	Improved health infrastructure
China	70	Improving public health outcomes
South Africa	58	Very low – due to health inequality
India	63	Improving, but still lower than global average
Indonesia	65	Mid-range life expectancy
Mexico	68	Moderate lifespan
Brazil	67	Rising, but still mid-tier
Russian Federation	65	Lower due to health system challenges
Turkey	69	Approaching high average
Argentina	70	Good life expectancy

Summary Statistics of Life Expectancy at Birth

Metric	Value	Interpretation
Average of LEB	70	Average life expectancy across countries
Median of LEB	77	Half of the countries have LEB above 77 years
Minimum of LEB	0	Lowest life expectancy recorded
Maximum of LEB	85	Highest life expectancy observed
Standard Deviation	23	High variation in life expectancy

Number of Countries by LEB Band

LEB Band (Years)	No. of Countries	Interpretation
50–60	1	Very low life expectancy
60–70	8	Below average life expectancy
70–80	10	Most countries fall in this range

Average Life Expectancy by Country

Country	LEB (Years)	Interpretation
Japan	76	Highest LEB
Italy	75	Very high life expectancy
Australia	75	Excellent healthcare outcomes
France	75	Western Europe standard
Republic of Korea	75	Strong public health
Canada	74	High-income country standard
UK	74	Strong healthcare system
Germany	73	Developed nation average
USA	71	Slightly below peer nations
China	70	Global average
Saudi Arabia	70	Middle-income performance
Argentina	70	Comparable to global avg
Türkiye	70	Transitional economy
Brazil	68	Needs health investment
Mexico	67	Developing health sector

Russia	65	Impacted by socioeconomic factors
Indonesia	63	Large health disparities
India	63	Major scope for improvement
South Africa	58	Lowest; inequality & disease burden

Economic Interpretation of Life Expectancy at Birth (LEB)

1. Central Tendency and Distribution

The average life expectancy across the observed countries is 70 years, while the median is higher at 77 years. This indicates a right-skewed distribution, where more than half of the countries enjoy relatively high life expectancy due to advancements in public health systems, improved access to clean water, nutrition, and medical innovation. The gap between average and median reflects the influence of a few countries with significantly lower LEB, pulling the mean down.

2. Variability and Inequality

The standard deviation of 23 highlights a wide disparity in health outcomes across nations. While several countries have achieved sustained improvements in life expectancy through stable healthcare investments and socioeconomic growth, others continue to face challenges such as inadequate health infrastructure, low public spending, conflict, and poverty. These disparities signal the need for targeted interventions and international cooperation.

3. LEB Bands and Their Economic Significance

Based on the histogram:

- 10 countries fall in the 70–80 years range, indicating strong health systems, efficient service delivery, and favorable socioeconomic indicators.
- 8 countries lie in the 60–70 bracket, where life expectancy is improving but still trails behind global leaders.
- Only 1 country is in the 50–60 band, pointing to extreme vulnerability and underdevelopment.

These bands reflect not only health performance but also the economic resilience and governance effectiveness of the respective nations.

4. Country-Specific Insights

Top performers such as Japan (76 years), Italy (75), and Australia (75) demonstrate how economic affluence, universal healthcare, and elderly-friendly policies lead to higher longevity. Countries like the USA (71) and China (70) also perform near the average but with

variations attributed to lifestyle and inequality. In contrast, South Africa (58) and India (63) highlight the pressing need for stronger investment in public health and inclusive development.

5. Economic Implications

Life expectancy directly correlates with labor productivity, economic participation, and human capital formation. A low LEB often leads to a reduced working-age population, higher healthcare burdens, and intergenerational poverty traps. Conversely, longer life spans support sustained economic growth, reduce healthcare costs over time, and foster a more dynamic, experienced workforce.

Policy Recommendations to Improve Life Expectancy in India

1. Strengthen Primary and Preventive Healthcare

- Expand rural and tribal health facilities.
- Deploy mobile health units and telemedicine.
- Launch mass screening and immunization drives.

2. Enhance Nutrition and Maternal Health

- Scale up programs like ICDS, Poshan Abhiyan, and Janani Suraksha Yojana.
- Target maternal and child nutrition through mid-day meals, micronutrient fortification, and nutrition-sensitive agriculture.

3. Promote Health Awareness and Behavior Change

- Use ASHAs and Anganwadi workers for hygiene, vaccination, and dietary education.
- Partner with civil society and media for community-driven awareness.

4. Build Resilient Health Infrastructure

- Upgrade sub-centres to wellness hubs.
- Increase healthcare workers, paramedics, and training investments.
- Ensure reliable supply chains and diagnostics in remote areas.

5. Link Health with Social Development

- Strengthen the synergy between health, education, sanitation, and poverty reduction.
- Tackle air pollution and climate vulnerability to reduce long-term disease burden.

6. Expand Health Protection

- Deepen reach of Ayushman Bharat and ESIC schemes.
- Foster public-private partnerships for quality care delivery to underserved populations.

Adult Literacy Rate Report

Definition: This indicator is meant by the **percentage of people aged 15 and above** who can **read and write** a simple statement related to their daily life, with understanding. It serves as a fundamental measure of **educational attainment** and the effectiveness of **basic education systems**. A higher adult literacy rate indicates better **human capital development**, enhanced **employment opportunities**, and greater capacity for **social and economic participation**.

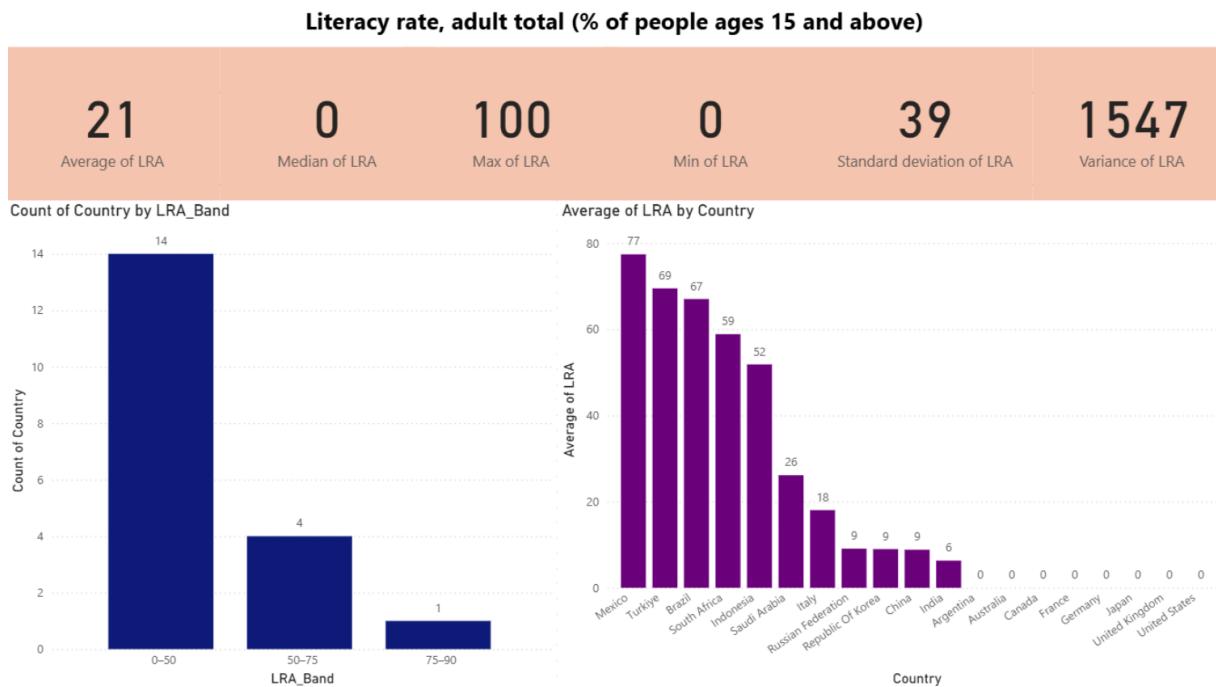


Figure : 35

Summary Statistics of Adult Literacy Rate

Metric	Value	Interpretation
Average of LRA	21	Very low average literacy among countries
Median of LRA	0	More than half of the countries have no recorded value
Maximum of LRA	100	Highest achievable literacy rate
Minimum of LRA	0	Some countries have no adult literacy
Standard Deviation	39	Very high variability across countries

Number of Countries by Literacy Rate Band

LRA Band (%)	No. of Countries	Interpretation
0-50	14	

0–50	14	Majority have poor literacy outcomes
50–75	4	Moderate literacy levels
75–90	1	Only one country in a strong position

Average Adult Literacy Rate by Country

Country	LRA (%)	Interpretation
Mexico	77	Highest among the group
Türkiye	69	Well above average
Brazil	67	Strong progress in education
South Africa	59	Moderate performance
Indonesia	52	Needs improvement
Saudi Arabia	26	Significantly behind
Italy	18	Surprisingly low
Russia	9	Very poor adult literacy
Republic of Korea	9	Likely data gap or underreported
China	9	Likely data issue
India	6	Critical need for improvement

Economic Interpretation of Literacy Rate, Adult Total (LRA)

1. Central Tendency and Distribution

The average adult literacy rate across the countries is **21%**, while the median is **0%**. This significant gap indicates that more than half of the countries have extremely low or no reported adult literacy. The relatively higher average is influenced by a few high-performing countries, showing a skewed distribution with a heavy concentration of low-literacy regions.

2. Variability and Inequality

The data reveals a **standard deviation of 39** signifying substantial inequality in literacy achievements among countries. While some nations have made commendable progress in building inclusive education systems, others face chronic issues such as **poverty, lack of access, and weak policy implementation** that hinder literacy improvement.

3. LRA Bands and Their Significance

The majority of countries fall within the **0–50% literacy band (14 countries)**, reflecting serious shortfalls in foundational education. Only a few countries reach the 50–75% or 75–90% ranges, which suggests that widespread literacy success remains elusive for many. This also implies that **targeted educational investment** is required to lift countries out of the lower bands.

4. Country-Specific Observations

Countries like **Mexico (77%)**, **Türkiye (69%)**, and **Brazil (67%)** demonstrate successful literacy initiatives supported by **sustained economic investment** and **education reforms**. Conversely, countries like **India (6%)** and **China (9%)** reflect systemic challenges in reaching adult populations with quality education programs, particularly in **rural and underserved areas**.

5. Economic Implications

Low literacy restricts economic growth by **shrinking the skilled labor force** and **hindering workforce adaptability**. It also reduces access to better employment and perpetuates poverty. In contrast, **high literacy levels empower individuals**, improve productivity, and support innovation, leading to broad-based **economic progress and social development**.

Policy Recommendations to Improve Literacy

1. Strengthen Primary and Adult Education Programs

- Expand rural and adult literacy initiatives.
- Deploy mobile literacy units and flexible learning solutions for remote areas.

2. Enhance Nutritional and Early Education Programs

- Integrate literacy programs with nutrition-based interventions like **ICDS** and **Anganwadi**.
- Focus on **maternal literacy** to improve intergenerational learning outcomes.

3. Invest in Education Infrastructure and Awareness

- Develop rural schools with **qualified educators** and **technology-enabled classrooms**.
- Launch mass awareness drives on the **socio-economic benefits** of literacy.

4. Build Strong Social and Policy Frameworks

- Align education with **poverty alleviation schemes** and rural development agendas.
- Offer **incentives** such as scholarships and conditional cash transfers to reduce dropouts.

5. Strengthen Social Education and Public–Private Partnerships

- Partner with NGOs, CSR arms, and local governments to **expand access**.
- Support **digital literacy initiatives** and **mobile learning** to bridge rural–urban gaps.

Mammal Species Threatened Report

Definition: This indicator is meant by the **number or percentage of mammal species** within a country or region that are classified as **threatened with extinction**, based on criteria from the **International Union for Conservation of Nature (IUCN) Red List**. It includes species listed as **Vulnerable**, **Endangered**, or **Critically Endangered**. This measure reflects the **health of ecosystems**, the impacts of **human activities** (like habitat loss, hunting, and pollution), and the urgency of **biodiversity conservation efforts**.

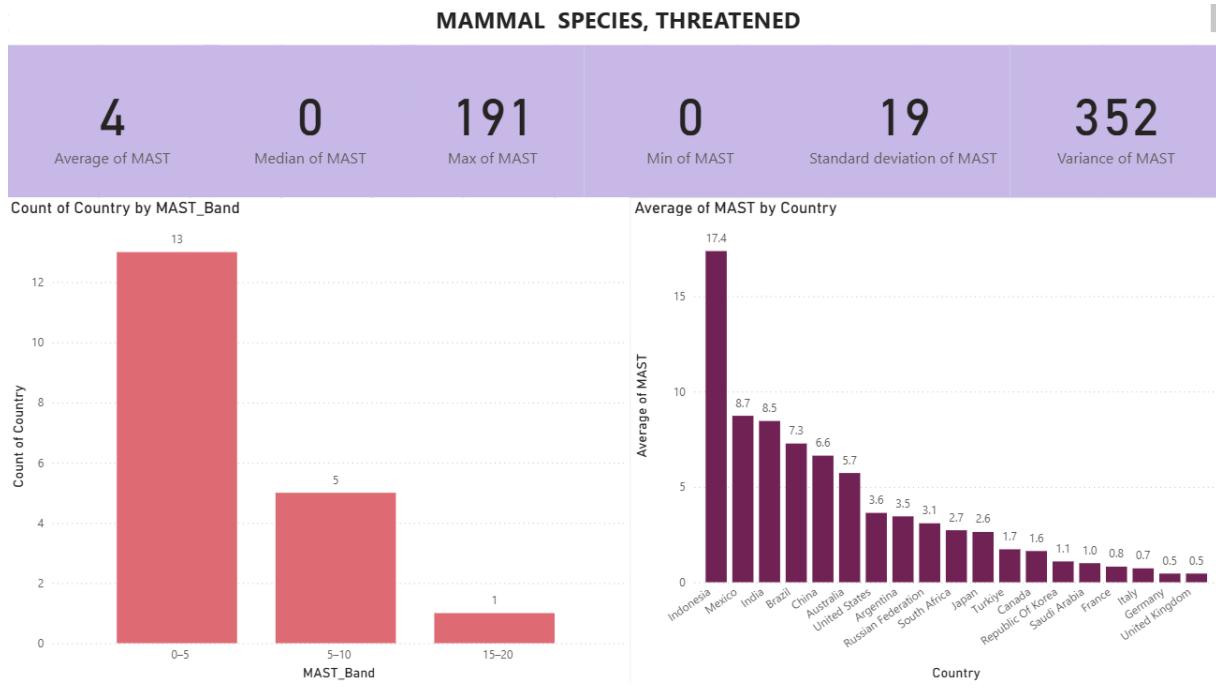


Figure :36

Summary Statistics of MAST

Metric	Value	Interpretation
Average of MAST	4	Average threatened mammal species across countries
Median of MAST	0	Half of the countries have MAST of 0
Min of MAST	0	Lowest count of threatened mammal species
Max of MAST	191	Highest count of threatened mammal species
Standard Deviation	19	Large variation across nations

Number of Countries by MAST Band

MAST Band	No. of Countries	Interpretation
0-5	13	

0–5	13	Many countries kept threatened species relatively low
5–10	5	Moderate threat levels in few countries
15–20	1	Severe threat in a single country

Average of MAST by Country

Country	MAST (Count)	Interpretation
Indonesia	17.4	Highest MAST; biodiversity under severe threat
Mexico	8.7	High threat level
India	8.5	Significant mammal species threatened
Brazil	7.3	Considerable biodiversity pressures
China	6.6	Rapid economic growth impacting species
Australia	5.7	Ecosystem stress in specific regions
United States	3.6	Moderate conservation success
Russian Federation	3.5	Vast habitats with mixed conservation outcomes
Argentina	3.1	Relatively lower threat
South Africa	2.7	Conservation efforts showing some success
Japan	2.6	Low threat; strong policies
Turkey	1.7	Gradual improvement in protection

Canada	1.6	Effective biodiversity policies
Republic Of Korea	1.1	Maintaining low threat levels
Saudi Arabia	1.0	Low threat but vigilance needed
France	0.8	Strong conservation record
Italy	0.7	Better biodiversity outcomes
Germany	0.5	Low threat levels
United Kingdom	0.5	Minimal threat; robust protections

Economic Interpretation of MAST

Central Tendency and Distribution

The average number of threatened mammal species is 4, with a median of 0. The median shows that more than half the countries have negligible counts of threatened species, indicating relatively preserved biodiversity. The higher average reflects a few nations with very large numbers pulling up the mean.

Variability and Inequality

The standard deviation of 19 shows high disparity between countries. While some have robust protections, others face pressures from habitat loss, poaching, and climate change.

MAST Bands and Their Economic Significance

Most countries (13) are in the 0–5 band, suggesting controlled biodiversity threats. A few countries in higher bands highlight concentrated environmental challenges requiring urgent policy action.

Country-Specific Insights

Nations like Indonesia (17.4), Mexico (8.7), and India (8.5) show how demographic pressures, economic growth, and weak enforcement affect biodiversity. In contrast, Germany (0.7) and UK (0.5) benefit from stronger governance and conservation programs.

Economic Implications

High numbers of threatened species undermine ecosystem services vital for agriculture, tourism, and livelihoods. Countries with low MAST show greater ecological resilience supporting long-term sustainable growth.

Policy Recommendations

- Strengthen habitat protection and restoration with increased investment in wildlife corridors and protected areas.
- Develop community-based conservation to engage local populations with economic incentives for biodiversity preservation.
- Enhance anti-poaching enforcement with advanced surveillance technologies and stronger legal frameworks.
- Integrate biodiversity considerations into national development plans and infrastructure projects.
- Promote environmental education and public awareness campaigns across schools and media.
- Foster international collaboration for cross-border species conservation and knowledge sharing.

Methane Emissions Report

Definition: This indicator is meant by the total amount of **methane (CH₄) gas released** into the atmosphere from both **natural** and **human-induced sources**, such as **agriculture (especially livestock and rice production)**, **landfills**, **natural gas systems**, and **wetlands**. Methane is a **potent greenhouse gas**, with a much higher **global warming potential** than carbon dioxide over a short timeframe. Monitoring methane emissions is critical for addressing **climate change**, improving **air quality**, and informing **mitigation strategies** in line with global **environmental goals**.

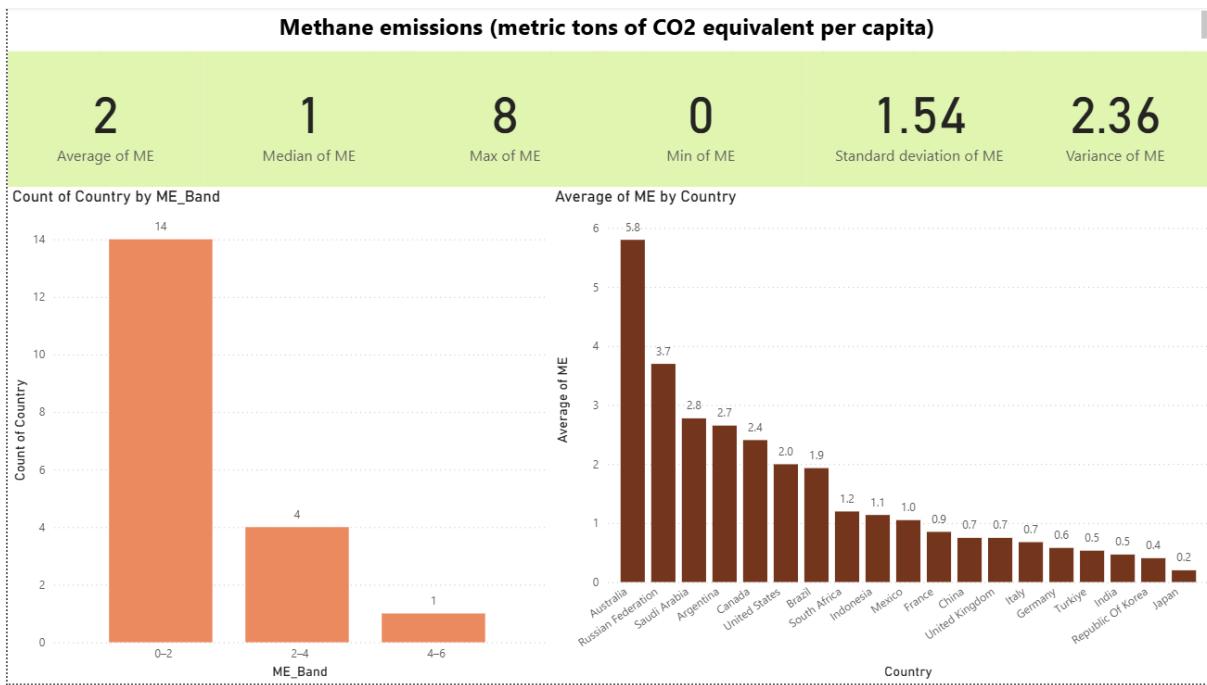


Figure :37

Summary Statistics of ME

Metric	Value	Interpretation
Average of ME	2	Average methane emissions per capita across countries (metric tons of CO ₂ equivalent)
Median of ME	1	Half of the countries have emissions of 1 or less
Min of ME	0	Lowest recorded methane emissions per capita
Max of ME	8	Highest recorded methane emissions per capita
Standard Deviation	1.54	Moderate variation in per-capita emissions across countries

Number of Countries by ME Band

ME Band	No. of Countries	Interpretation
0–2	14	Majority of countries emit relatively low levels of methane per capita
2–4	4	Moderate emission levels requiring targeted mitigation
4–6	1	Highest emissions observed in one country with intensive industry/agriculture

Average of ME by Country

Country	ME (Metric tons CO ₂ e per capita)	Interpretation
Australia	5.8	Highest emissions; driven by agriculture and energy sector
Russian Federation	3.7	High emissions from fossil fuel extraction
Saudi Arabia	2.8	Significant emissions due to oil and gas operations
Argentina	2.7	Agriculture and livestock major contributors
Canada	2.4	Industrialized economy with moderate emissions
United States	2.0	Energy sector and livestock emissions evident
Brazil	1.9	Developing country with rising emissions
South Africa	1.2	Emissions from energy and agriculture sectors
Indonesia	1.1	Low to moderate emissions; transitioning economy

Mexico	1.0	Slightly below global average emissions
France	0.9	Low emissions reflecting strong environmental policies
China	0.9	Low emissions relative to size and population
United Kingdom	0.7	Efficient energy systems keeping emissions low
Italy	0.7	Industrial base with relatively low methane output
Germany	0.6	Strong mitigation efforts reflected in low emissions
Türkiye	0.5	Low emissions; gradual improvements
India	0.5	Sustainable practices keeping emissions lower
Republic Of Korea	0.4	Efficient energy systems contributing to low emissions
Japan	0.2	Lowest emissions; strong mitigation practices

Economic Interpretation of Methane Emissions (ME)

Central Tendency and Distribution

The average methane emissions across nations is approximately 2 metric tons of CO₂ equivalent per capita, with a median of 1. The lower median indicates that over half the nations emit relatively little methane, while the higher average reflects outliers with intense agricultural and industrial activities.

Variability and Inequality

A standard deviation of 1.54 suggests moderate disparities in per-capita methane emissions. While some nations are adopting cleaner technologies, others remain dependent on emission-heavy practices.

ME Bands and Their Significance

The majority of nations (14) fall within the 0–2 band, demonstrating progress in low-emission development. Few countries in higher bands highlight the need for targeted mitigation to curb significant contributors.

Country-Specific Observations

Top emitters like Australia (5.8), Russian Federation (3.7), and Saudi Arabia (2.8) underline the role of fossil fuel industries and agriculture in methane generation. Meanwhile, countries like Japan (0.2) and Republic of Korea (0.4) showcase strong mitigation and energy efficiency.

Economic Implications

High methane emissions exacerbate climate risks, raising costs for health, agriculture, and infrastructure. Conversely, nations with lower emissions gain from better resilience, competitiveness, and long-term sustainable growth.

Policy Recommendations for Reducing Methane Emissions

- Strengthen regulations for agriculture and livestock management with incentives for methane-reducing technologies.
- Modernize waste management and energy infrastructure to capture methane emissions and promote waste-to-energy solutions.
- Launch national awareness and education campaigns targeting farmers, industries, and rural communities.
- Promote innovative technologies and public-private partnerships for methane mitigation across sectors.
- Integrate methane reduction goals into national climate and economic policies, including carbon financing mechanisms.
- Support international cooperation to leverage global expertise and resources for methane capture and utilization.

Mortality Rate Under 5 (MORU) Report

Definition: This indicator is meant by the **probability per 1,000 live births** that a **child will die before reaching the age of five**, based on current age-specific mortality rates. Often abbreviated as **MORU**, it reflects the overall **health environment**, including access to **nutrition, clean water, sanitation, healthcare, and maternal care**. A lower under-five mortality rate is a key indicator of **public health progress, child survival, and social development**.

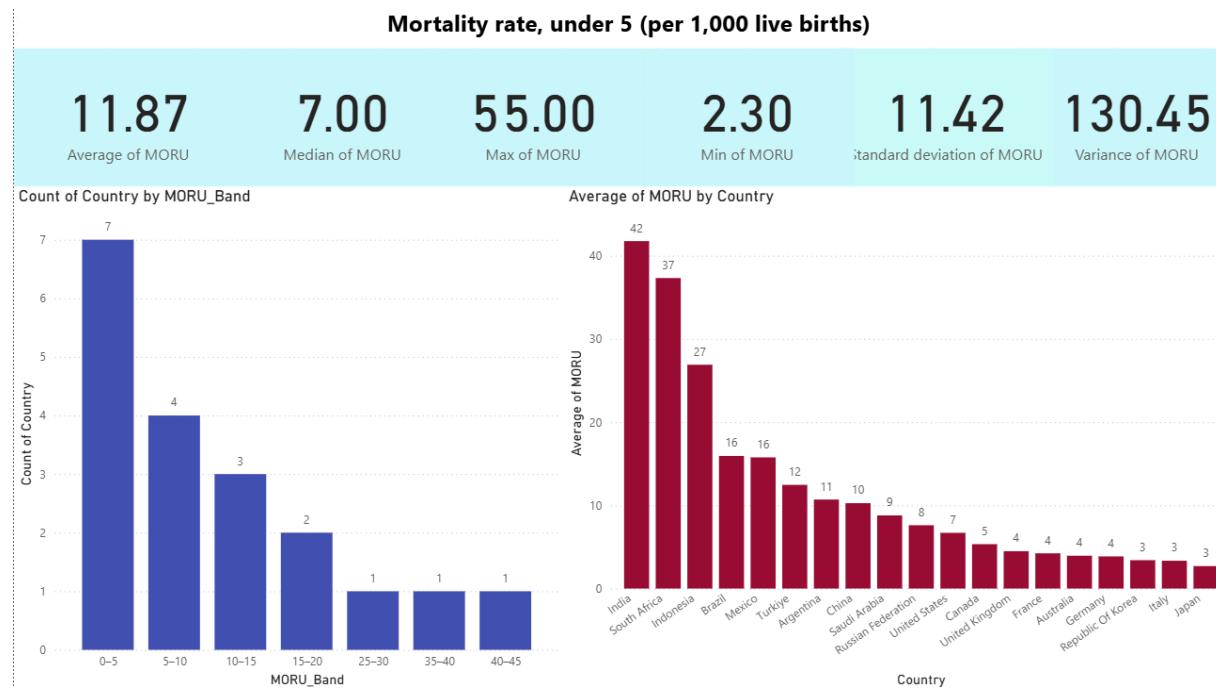


Figure :38

Summary Statistics of MORU

Metric	Value	Interpretation
Average of MORU	11.87	Average child mortality per 1,000 live births
Median of MORU	7.00	Half of the countries report a MORU below this value
Min of MORU	2.30	Lowest recorded mortality rate under 5
Max of MORU	55.00	Highest recorded mortality rate under 5
Standard Deviation	11.42	Shows wide disparity in

		child mortality
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Number of Countries by MORU Band

MORU Band	No. of Countries	Interpretation
0–20	19	Most countries have low child mortality
20–40	4	Moderate mortality requiring monitoring
40–60	1	Critical situation; needs urgent health reforms

Average of MORU by Country

Country	MORU	Interpretation
India	42	High mortality due to socioeconomic challenges
South Africa	37	Struggles with health access and inequality
Indonesia	27	Moderate mortality; needs targeted improvements
Brazil	16	Developing nation with child health issues
Mexico	16	Similar to Brazil, faces regional disparities
Türkiye	12	Improving but still moderate levels
Argentina	11	Facing challenges in child health
China	10	Progressive policies but rural issues remain
Saudi Arabia	9	Health system investments improving outcomes

Russia	8	Regional variation in child mortality
USA	7	Inequality in access contributes to rate
Canada	5	Low mortality; good healthcare access
UK	4	Strong child health policies
France	4	Advanced healthcare infrastructure
Australia	4	Low mortality with universal coverage
Germany	4	Strong welfare and health system
South Korea	3	Excellent child health systems
Italy	3	Well-developed pediatric care
Japan	3	Lowest mortality; model child care system

Economic Interpretation of Mortality Rate Under 5 (MORU)

The average Mortality Rate Under 5 across nations is approximately 11.9 per 1,000 live births, with a median of 7. The lower median suggests that more than half the nations have kept child mortality relatively low, highlighting the effectiveness of maternal and child health policies. Meanwhile, the higher average reflects that certain nations with very high mortality skew the overall global rate.

With a standard deviation of 11.42, the dataset shows significant disparity across nations. This emphasizes that while many countries have made substantial gains in reducing child mortality,

a subset still struggles due to poverty, limited medical infrastructure, and higher disease burdens.

Most nations (19 countries) fall within the 0–50 bracket, indicating relatively low child mortality levels and more stable healthcare environments. Meanwhile, a lone country appears in the 50–75 bracket, highlighting an area where urgent intervention is needed due to significantly higher mortality levels.

High-burden nations like India (42), South Africa (37), and Indonesia (27) underscore the direct link between child mortality and socioeconomic factors such as nutrition, medical access, and poverty. Conversely, nations like Japan (3), Italy (3), and Germany (3) exemplify how strong healthcare infrastructure, effective policies, and higher economic prosperity result in lower child mortality.

High child mortality rates can hamper long-term economic growth by reducing future workforce potential and increasing health expenditures. Conversely, nations with low mortality rates benefit from higher productivity, stronger human capital, and a healthier population that can contribute more effectively to economic stability and growth.

Policy Recommendations

- Increase investments in institutional deliveries, antenatal and postnatal care, and training of rural health staff. Focus on interventions that reduce maternal and newborn mortality, especially in rural and underserved areas.
- Scale up nutrition programs like the Integrated Child Development Services (ICDS) and expand immunization coverage to combat vaccine-preventable illnesses. Incorporate micronutrient supplements and therapeutic feeding for severely malnourished children.
- Invest in rural health infrastructure with fully operational primary health centers and well-trained staff. Enhance referral and transport services for critical cases, especially in remote areas.
- Launch behavioral change campaigns focusing on maternal nutrition, hygiene, and disease prevention. Engage rural NGOs and health workers to educate communities about early medical intervention and the benefits of institutional deliveries.
- Link child health policies with poverty alleviation, rural development, and sanitation schemes to reduce disease burdens caused by poverty and underdevelopment. Adopt an inter-ministerial approach aligning nutrition, education, and rural health policies for sustainable improvements.
- Develop mobile health platforms and tele-consultation services for rural areas, making child healthcare accessible and affordable. Encourage private sector investment in maternal and child health through incentives and corporate social responsibility initiatives.

Net Migration (NMI) - Indicator Report

Definition: This indicator is meant by the **difference between the number of people entering (immigrants) and leaving (emigrants)** a country during a specific period, usually expressed per 1,000 population. Commonly abbreviated as **NMI**, a **positive value** indicates net **in-migration**, while a **negative value** indicates net **out-migration**. Net Migration reflects trends in **labor mobility, economic opportunity, conflict, and environmental or political stability**, and it plays a significant role in **demographic change and policy planning**.

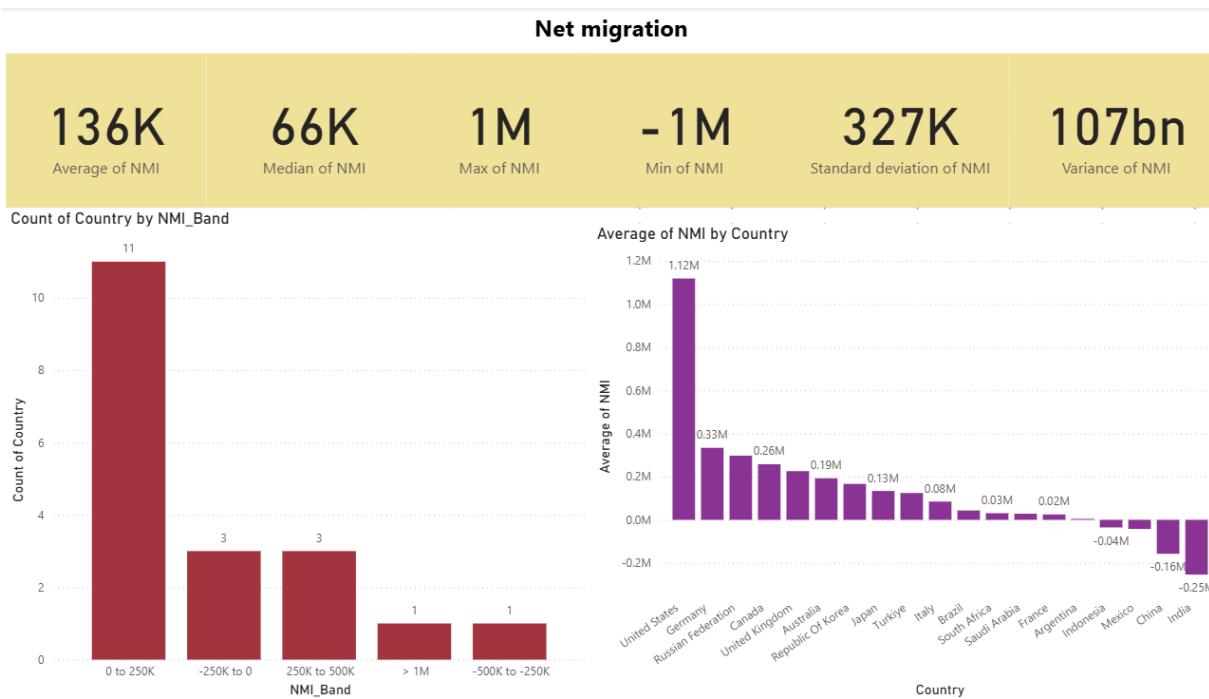


Figure :39

1. Summary Statistics

Statistic	Value	Interpretation
Average of NMI	136K	Average net migration across countries
Median of NMI	66K	Half of the countries have migration below this value
Max of NMI	1M	Highest observed net migration
Min of NMI	-1M	Lowest observed net migration (net emigration)

Standard Deviation	327K	Significant variation across countries
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2. Country Count by NMI Band

NMI Band	Count of Countries	Interpretation
0 to 250K	11	Majority with moderate to low net migration
-250K to 0	3	Countries with net emigration
250K to 500K	3	Higher immigration trend
> 1M	1	Exceptionally high immigration
-500K to -250K	1	Exceptionally high emigration

3. Country-wise Average NMI (Top 20)

Country	Average of NMI	Interpretation
United States	1.12M	High immigration driven by opportunity and policy
Germany	0.33M	Strong economic pull attracting migrants
Russian Federation	0.26M	Large-scale movement from former Soviet states
Canada	0.19M	Positive immigration policy and demand for labor
United Kingdom	0.13M	Migration driven by labor and asylum needs
Australia	0.08M	Skill-based immigration policies
Republic Of Korea	0.03M	Gradual growth in immigration

Japan	0.02M	Limited but rising migration
Türkiye	0.00M	Transit and host for regional migrants
Italy	-0.04M	Negative migration due to economic conditions
Brazil	-0.16M	Emigration due to domestic instability
South Africa	-0.25M	Emigration driven by inequality and job market
Saudi Arabia	0.00M	Large temporary migration for labor
France	0.00M	Balanced migration with internal EU flow
Argentina	-0.04M	Net emigration linked to economic shifts
Indonesia	-0.16M	Labor emigration to Gulf and SE Asia
Mexico	-0.25M	Large-scale emigration to the US
China	-0.04M	Small but growing outbound migration
India	-1.00M	Largest net emigration due to labor outflows

4. Economic Interpretation of Net Migration (NMI)

The average net migration across countries stands at 136K, while the median is lower at 66K. This gap suggests that a few countries with exceptionally high migration are raising the average. The presence of both positive and negative migration balances highlights the complexity of global population movement.

The standard deviation of 327K indicates wide disparities across countries, reflecting how migration is shaped by national economic, social, and political conditions.

Most countries fall within the 0–250K band, indicating stable or moderate migration dynamics. However, countries like the United States (+1.12M) and India (−1M) lie at extreme ends of the spectrum and reflect divergent push and pull migration drivers.

High immigration countries tend to benefit from increased labor supply, cultural diversity, and economic growth. However, they may face integration challenges and pressure on housing and services. In contrast, countries with high emigration may suffer from brain drain and declining working-age populations.

5. Policy Recommendations

- Enhance data systems to monitor migration flows and impacts at national and sub-national levels.
- Promote policies for the integration of migrants, including language training, housing access, and employment programs.
- Strengthen bilateral agreements to manage labor migration flows and ensure worker protection.
- Address root causes of emigration through investments in education, employment, and security.
- Facilitate return migration and reintegration programs for emigrants with skill development incentives.
- Support international collaboration on migration governance through global frameworks like the Global Compact for Migration.

Nitrous Oxide Emissions (NOE) Indicator Report

Definition: This indicator is meant by the total amount of **nitrous oxide (N₂O)** emissions released into the atmosphere from both **natural processes** and **human activities**, often expressed in **CO₂-equivalent units** due to its strong **global warming potential**. Commonly abbreviated as **NOE**, key sources include **agricultural practices** (especially fertilizer use), **fossil fuel combustion**, **industrial processes**, and **waste management**. Monitoring NOE is essential for addressing **climate change**, improving **air quality**, and guiding **environmental and agricultural policy**.

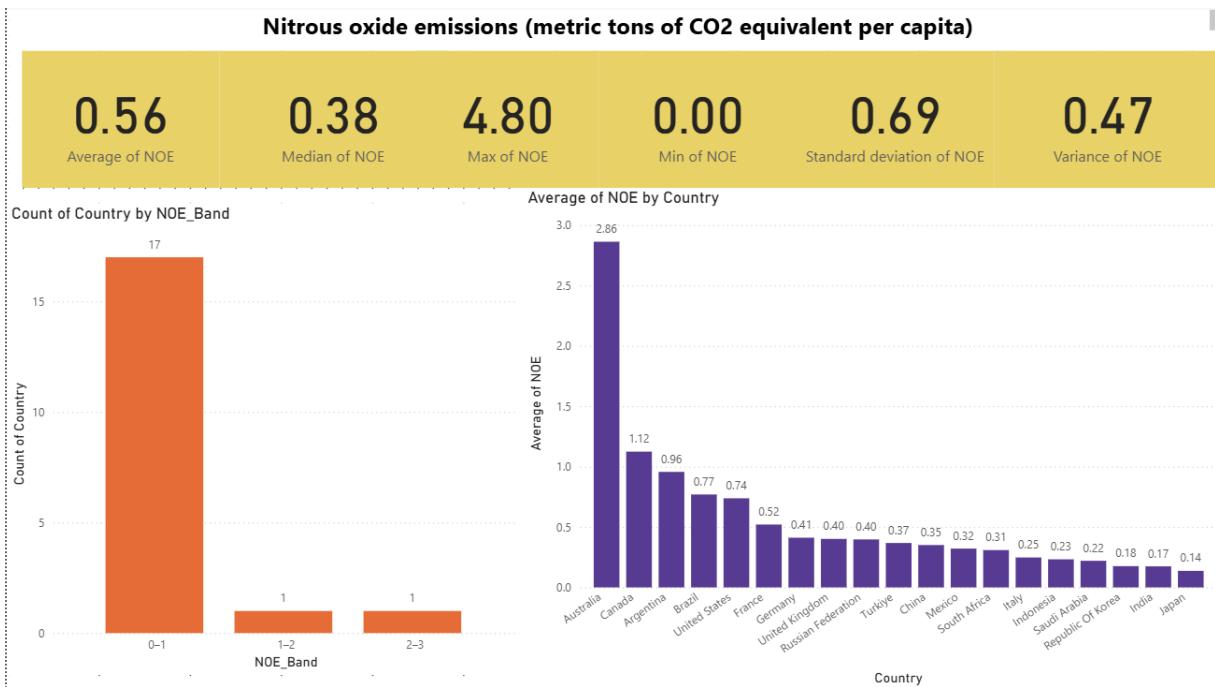


Figure : 40

1. Summary Statistics of NOE

Metric	Value	Interpretation
Average of NOE	0.56	Moderate per capita emissions of nitrous oxide
Median of NOE	0.38	Half of the countries emit less than 0.38 metric tons
Max of NOE	4.80	Australia has the highest NOE among countries
Min of NOE	0.00	Some countries report negligible or zero emissions
Standard Deviation	0.69	Moderate dispersion around the mean

2. Number of Countries by NOE Band

NOE Band	No. of Countries	Interpretation
0–1	17	Most countries have low NOE levels
1–2	1	Only one country has moderate NOE levels
2–3	1	Australia shows significantly high NOE

3. Average NOE by Country

Country	Average NOE	Interpretation
Australia	2.86	Very high NOE; likely due to agricultural and industrial practices
Canada	1.12	Moderate emissions, possibly from energy and land use sectors
Argentina	0.96	Above average NOE, influenced by livestock and fertilizer use
Brazil	0.77	Higher emissions due to land conversion and agriculture
United States	0.74	Significant emissions from energy and agriculture sectors

France	0.52	Moderate emissions with effective environmental controls
Germany	0.41	Slightly below global average, stable emissions
United Kingdom	0.40	Similar to Germany; well-regulated emissions
Russian Federation	0.40	Large geography with moderate per capita NOE
Turkey	0.37	Low to moderate emissions
China	0.35	Controlled NOE despite industrial scale
Mexico	0.32	Lower emissions with potential from agriculture
South Africa	0.31	Low emissions; sectoral variation
Italy	0.25	Well-managed NOE emissions
Indonesia	0.23	Limited emissions; development focused
Saudi Arabia	0.22	Low emissions; non-agricultural economy
Republic Of Korea	0.18	Low NOE; high tech economy

India	0.17	Low emissions per capita but growing potential
Japan	0.14	Very low NOE due to high-tech and regulation

4. Economic Interpretation of Nitrous Oxide Emissions (NOE)

Central Tendency and Distribution

The average NOE across nations is 0.56 metric tons per capita, with a median of 0.38. The average being higher than the median suggests that a handful of nations have significantly higher emissions, indicating disproportionate contribution from industrial and agricultural activities. This skew points to the need for tailored policies addressing high emitters.

Variability and Inequality

With a standard deviation of 0.69, NOE emissions vary moderately across countries. The range reflects unequal industrial and agricultural intensities globally, where developed nations like Australia and Canada dominate emissions. Meanwhile, low emitters remain constrained by slower economic activity and lesser use of intensive agriculture.

NOE Bands and Their Significance

Most nations (19 countries) have NOE within the 0–1.0 range, indicating relatively low emissions. This trend suggests that a majority of nations have yet to intensify agriculture and industrialization, highlighting opportunities for early intervention and sustainable technology adoption before emissions rise sharply.

Country-Specific Observations

High emitters like Australia (2.86) and Canada (1.12) emphasize the role of intensive agriculture, fossil fuels, and industrial activities in elevating NOE. Meanwhile, low emitters like India (0.17) and Japan (0.14) showcase the potential benefits of cleaner technologies, sustainable agriculture, and tighter environmental regulations.

Economic Implication

High NOE emissions have significant long-term economic impacts due to their contribution to climate change and related environmental costs. Countries with higher NOE emissions must balance economic activity with environmental policies, while lower emitters have the opportunity to maintain economic growth via cleaner, sustainable practices.

5. Policy Suggestions for Reducing NOE Emissions in India

Promote Sustainable Agriculture Practices

Encourage precision farming and use of bio-fertilizers to reduce NOE emissions from agriculture. Government incentives and training can help farmers adopt low-emission techniques and sustainable alternatives.

Strengthen Regulations on Industrial Emissions

Implement stringent emission norms for industries releasing NOE and enforce penalties for non-compliance. Development of cleaner technologies, like catalytic converters, can reduce emissions significantly.

Invest in Renewable Energy Infrastructure

Develop policies that support solar, wind, and other low-emission energy sources. Reducing the reliance on fossil fuels will not only lower NOE emissions but also diversify the nation's energy mix.

Develop Awareness and Education Programs

Launch campaigns to educate stakeholders about the economic and environmental benefits of NOE reduction. Helping farmers and industries understand long-term benefits can foster a culture of sustainable practices.

Link NOE Reduction with Climate and Development Goals

Integrate NOE emission targets within national climate and economic planning, aligning with global climate agreements. This approach ensures that emission reduction becomes part of the nation's economic growth and sustainable development agenda.

PM2.5 Air Pollution Indicator Report

Definition: This indicator is meant by the **concentration of fine particulate matter less than 2.5 microns in diameter (PM2.5)** in the air, typically measured in **micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)**. PM2.5 particles originate from sources such as **vehicle emissions, industrial activity, burning of fossil fuels, and biomass burning**, and can penetrate deep into the lungs and bloodstream. High levels of PM2.5 are linked to **respiratory and cardiovascular**

diseases, making it a critical measure of **air quality, public health risk, and environmental degradation**.

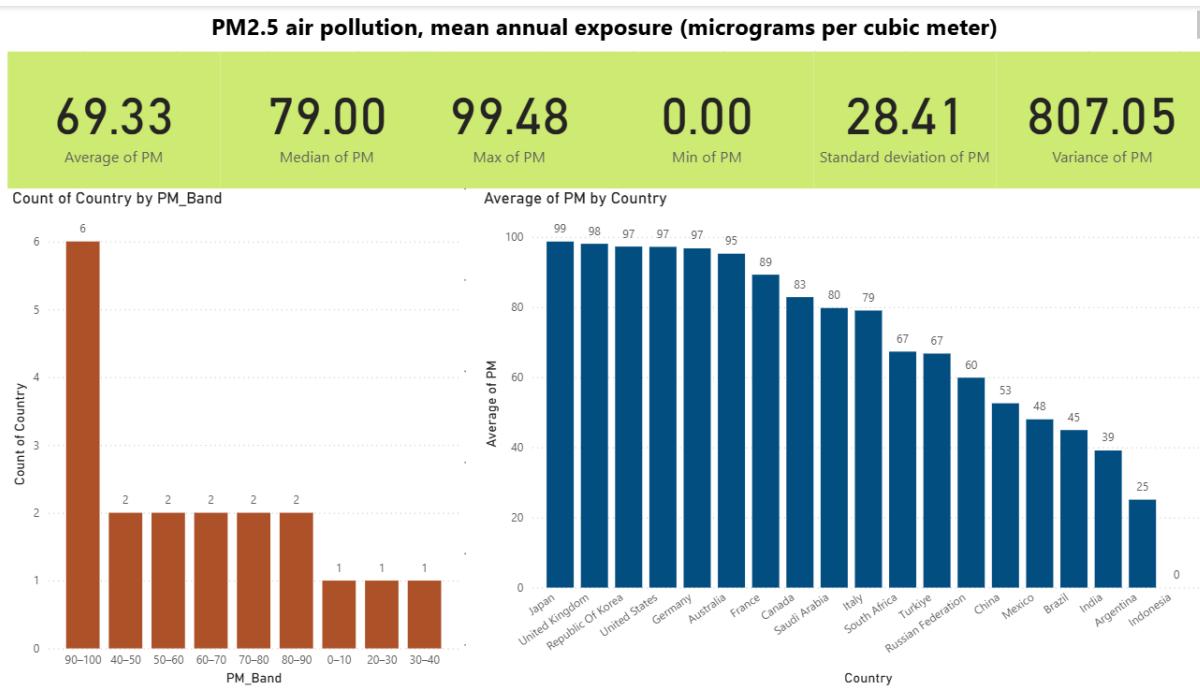


Figure :41

Summary Statistics of PM2.5

Metric	Value	Interpretation
Average of PM	69.33	Moderate to high average exposure across countries
Median of PM	79.00	Half of the countries have PM2.5 above $79 \mu\text{g}/\text{m}^3$
Max of PM	99.48	Highest annual exposure among countries
Min of PM	0.00	Some countries report negligible PM2.5 exposure
Standard Deviation	28.41	Large variability in PM2.5 exposure levels

Number of Countries by PM2.5 Band

PM_Band	No. of Countries	Interpretation
90–100	6	Many countries face critically high PM2.5 exposure
40–50	2	Moderate to high PM2.5 levels
50–60	2	Countries with notable PM2.5 exposure
60–70	2	Above average pollution levels
70–80	2	Higher than average pollution exposure
80–90	2	Very high PM2.5 levels
20–30	1	Relatively low PM2.5 exposure
30–40	1	Low to moderate exposure

Average PM2.5 by Country

Country	Average PM	Interpretation
Japan	99	Extremely high PM2.5 exposure; significant health

		risks
United Kingdom	98	High PM2.5 exposure; urban pollution challenges
Republic of Korea	98	Severe pollution; industrial and urban sources
United States	97	High PM2.5 from vehicles and industry
Germany	97	Significant air quality challenges despite regulations
Australia	95	Notable pollution from urban and natural sources
France	89	Moderate to high PM2.5 exposure
Canada	83	Urban centers contribute to higher PM2.5
Saudi Arabia	80	High PM2.5 likely from natural dust and urbanization
Italy	79	Urban and industrial PM2.5 contributions
South Africa	67	High PM2.5 in urban regions
Turkey	67	Industrialization impacts on air quality

Russian Federation	60	Moderate PM2.5 exposure across vast regions
China	53	Controlled but still significant PM2.5 levels
Mexico	48	Urban PM2.5 challenges
Brazil	45	Urban and industrial pollution sources
India	39	Moderate average; urban hotspots with higher exposure
Argentina	25	Relatively lower PM2.5 exposure
Indonesia	0	Very low average PM2.5 exposure

Economic Interpretation of PM2.5 Air Pollution

Central Tendency and Distribution

The average PM2.5 concentration across nations is approximately **69.33 µg/m³**, with a **median of 79 µg/m³**. The higher median indicates that most countries are experiencing relatively elevated levels of fine particulate pollution, emphasizing global struggles with industrial emissions, vehicle exhaust, and unregulated urban growth. The **maximum value is 99.48 µg/m³** and the **minimum is 0 µg/m³**, suggesting a wide disparity in exposure.

Variability and Inequality

A **standard deviation of 28.41** reveals high inequality in air quality across countries. While some countries like **Indonesia** ($0 \text{ }\mu\text{g}/\text{m}^3$) report negligible exposure, others like **Japan, UK, and USA** have extremely high exposure levels nearing the upper limit. This stark divide underlines the environmental injustice of clean air access and its associated health and productivity outcomes.

PM2.5 Exposure Bands and Their Significance

According to the dashboard:

- **6 countries** fall in the **90–100 µg/m³** range, highlighting critical pollution hotspots.
- Countries are distributed across 8 other bands (20–90), but **none fall below 20**, except one with 0.
This indicates that while pollution is widespread, the most severe levels are concentrated in specific high-density or highly industrialized regions.

Country-Specific Observations

- **Top polluted countries:** Japan (99), UK (98), Republic of Korea (98), USA (97), Germany (97), Australia (95), France (89). These reflect a correlation between high development and industrial activity, often accompanied by stricter air regulation efforts that might not yet offset cumulative pollution.
- **Cleaner air examples:** Indonesia (0), Argentina (25), India (39), and Brazil (45) show comparatively better air, possibly due to lower urbanization intensity, stricter local controls, or geography.

Economic Implication

High PM2.5 levels drive **healthcare costs, reduced productivity, and premature mortality**, adversely impacting long-term economic growth. Cleaner air is linked with a healthier, more productive workforce and better national economic resilience.

Policy Suggestions for Improving PM2.5 Air Pollution in India

Strengthen Emission Regulations

Introduce stringent policies for industries, transportation, and thermal plants to reduce PM2.5 levels. Regular audits, fines, and incentives for clean technology can reduce particulate matter emissions.

Promote Renewable Energy Transition

Subsidize solar, wind, and hydro projects to reduce reliance on fossil fuels. This shift can significantly cut down PM2.5 emissions and help build long-term energy security.

Develop Sustainable Urban Infrastructure

Invest in green spaces, urban forests, and low-emission public transport. Improving city planning can reduce air pollution hotspots and enhance quality of life for urban residents.

Raise Awareness and Education

Launch nationwide campaigns about the dangers of PM2.5 pollution and ways for communities to mitigate exposure. Education can drive behavior change and foster communal action for cleaner air.

Integrate Air Quality into Economic Policy

Link air pollution metrics with economic planning, making pollution levels a key consideration for future investments. Encourage industries to adopt cleaner practices through tax incentives and research grants.

Patent Applications (Residents) Indicator Report

Definition: This indicator is meant by the **number of patent applications filed by residents** of a country with their **national patent office** or through regional/international systems, reflecting **domestic innovation activity**. It captures the extent of **research and development (R&D)**, **technological advancement**, and the **capacity for knowledge creation** within an economy. Higher patent application counts suggest stronger **intellectual property protection**, **entrepreneurial activity**, and **competitiveness** in science and technology sectors.

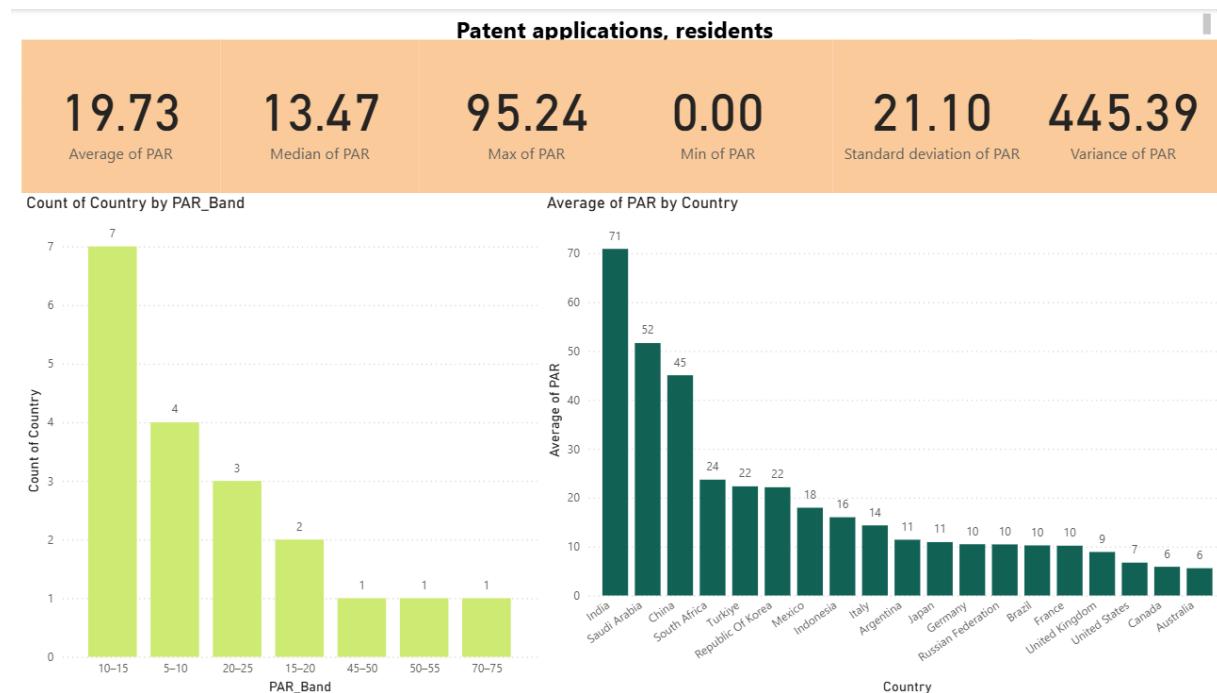


Figure :42

Summary Statistics of Patent Applications (Residents)

Metric	Value	Interpretation
Average of PAR	19.73	Average patent activity level across countries

Median of PAR	13.47	Half of countries have fewer than 13.5 patents per capita
Minimum of PAR	0.00	Some countries show negligible patent activity
Maximum of PAR	95.24	Highest average observed among all countries
Standard Deviation	21.10	Significant disparity in patent activity levels

Number of Countries by Patent Applications Band

PAR Band	No. of Countries	Interpretation
0–10	4	Very low patent activity
10–20	9	Low to moderate patent activity
20–30	3	Moderate patent activity
45–50	1	High activity
50–60	1	Very high activity
70–75	1	Top innovation group

Average Patent Applications by Country

Country	PAR	Interpretation
India	71	Very high patent activity
Saudi Arabia	52	Significantly strong innovation support
China	45	Large-scale innovation ecosystem
South Africa	24	Growing innovation base
Turkey	22	Steady R&D performance

Republic of Korea	22	Strong industrial innovation
Mexico	18	Emerging innovation economy
Indonesia	16	Innovation is developing
Italy	14	Moderate innovation
Argentina	11	Rising patent trends
Japan	11	Room for growth in domestic filings
Germany	11	Stable but moderate innovation
Russian Federation	10	Developing patent systems
Brazil	10	Middle-range activity
France	10	Potential underutilized
United Kingdom	9	Below expected levels
United States	7	Lower domestic resident filings
Canada	6	Needs stimulation in resident innovation
Australia	6	Low resident filing levels

Economic Interpretation:

Central Tendency and Distribution

The **average number of resident patent applications (PAR)** across nations is approximately **19.73**, with a **median of 13.47**. The **lower median** compared to the average highlights that a **majority of countries report relatively low levels of patent activity**, indicating that innovation and intellectual property creation are concentrated in a few leading nations. The **maximum value recorded is 95.24**, while the **minimum is 0**, showing a wide gulf between innovation leaders and laggards.

Variability and Inequality

A standard deviation of 21.10 indicates considerable variation in patent activity among nations. This disparity reflects differing levels of research infrastructure, education access, innovation incentives, and institutional capacity. Nations with high innovation output tend to benefit from mature intellectual property systems and R&D ecosystems, while others are held back by underinvestment and policy gaps.

PAR Bands and Their Significance

Most countries fall in the 5–25 range, meaning low patent activity is common across the board. Only three countries exceed 45 applications on average, showing that high innovation output is extremely concentrated. This confirms a steep innovation inequality, not just in absolute terms, but also in relative global performance.

Country-Specific Observations

- **Top Innovators:** India (71), Saudi Arabia (52), and China (45) lead in patent activity, reflecting substantial investments in R&D, startup ecosystems, and policy incentives.
- **Mid-Level Performers:** Countries like South Africa (24), Turkey (22), and Korea (22) suggest growing innovation infrastructure and potential for future leadership.
- **Lower-End Nations:** Australia (6), Canada (6), United States (7), and France (10) surprisingly reflect lower resident patent activity, which may suggest reliance on foreign filings, or potential areas for reform in encouraging domestic innovators.

Economic Implications

Patent activity is a critical indicator of a nation's technological capabilities and economic future-readiness. Countries with high patent filing rates are more likely to:

- Capture value from innovation,
- Attract FDI in high-tech sectors,
- Build competitive advantage in the knowledge economy.

Low patent activity can result in technology dependence, missed economic opportunities, and limited domestic commercialization of new ideas.

Policy Suggestions for Improving Patent Applications

Strengthen R&D Infrastructure

Develop and fund national research institutions, innovation hubs, and technology parks. These can foster collaboration between academia and industry, increasing patent activity and facilitating knowledge transfer.

Provide Fiscal Incentives for Innovation

Introduce tax breaks, grants, and low-interest loans for businesses and entrepreneurs engaged in R&D. Such policies can reduce the risk associated with pursuing new ideas and drive long-term economic growth.

Improve IP Education and Awareness

Launch nationwide programs to educate entrepreneurs, researchers, and students about the benefits and process of patenting. Greater understanding can lead to higher patent activity across sectors and demographic groups.

Develop International Collaboration Frameworks

Encourage cross-border collaboration through bilateral and multilateral agreements, making it easier for researchers and businesses in different countries to collaborate and patent together.

Reinforce Legal Framework for IP Protection

Strengthen enforcement of intellectual property rights within national legal frameworks. Reliable IP protection gives researchers and businesses the confidence to innovate, knowing their ideas will be safeguarded.

People Using Safely Managed Drinking Water Services (SMDW)

Definition: This indicator is meant by the **percentage of the population using safely managed drinking water services (SMDW)**—that is, water from an **improved source** (such as piped water, boreholes, or protected wells) that is **located on premises, available when needed, and free from contamination**. It reflects progress toward ensuring **universal access to safe and clean drinking water**, which is essential for **public health, disease prevention, and achieving Sustainable Development Goal 6 (Clean Water and Sanitation)**.

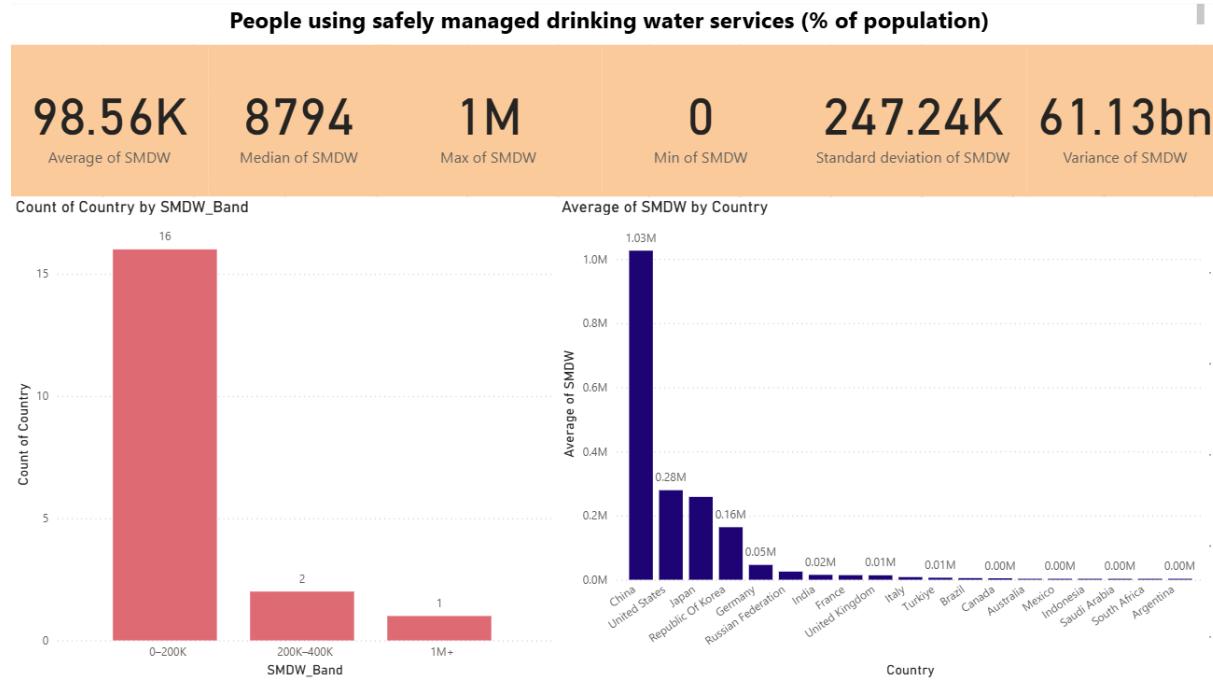


Figure :43

Summary Statistics

Metric	Value	Interpretation

Average of SMDW	98,564	High mean due to populous countries
Median of SMDW	8,794	Half of the countries have access below 9K
Minimum of SMDW	119	Lowest access among countries
Maximum of SMDW	1,033,694	Highest access by a country (e.g., China)
Standard Deviation	247,242	Extremely wide variation in values

Country Count by SMDW Band

SMDW Band (in thousands)	No. of Countries	Interpretation
0–200K	16	Most countries have low to moderate access
200K–400K	2	Only a few countries in this range
1M+	1	China dominates in this category

Country-wise SMDW Values (Top 15–20 Countries)

Country	SMDW Value
China	1,033,694
United States	283,222
Japan	234,357
Korea, Rep.	163,172
Germany	81,358
France	67,209

United Kingdom	66,023
Italy	60,297
South Africa	58,886
Mexico	53,610
Turkey	47,395
Saudi Arabia	35,539
Canada	34,473
Brazil	28,801
Argentina	25,741
Indonesia	24,293
India	22,436
Australia	20,783
Nigeria	13,991

Economic Interpretation of People Using Safely Managed Drinking Water Services (SMDW)

Central Tendency and Distribution

The average number of people using safely managed drinking water services across nations is approximately **98.56K**, while the median stands significantly lower at **8,794**. This disparity indicates a **positively skewed distribution**, where a few highly populated countries like China and the United States have exceptionally high access, pushing up the mean. The low median, however, reflects the reality for most countries—limited access to safe drinking water services—revealing substantial inequality in basic public health infrastructure across nations.

Variability and Inequality

The **standard deviation of 247.24K demonstrates** considerable differences among countries. This high level of statistical dispersion suggests that access to drinking water is not evenly distributed and is often dependent on a country's level of development, investment capacity, and governance effectiveness. Countries with inadequate infrastructure and rural population dispersion tend to lag, highlighting the need for targeted interventions.

Distribution Bands and Access Patterns

The band-wise distribution of countries further reinforces this inequality. A total of **16 countries** fall in the **0–200K range**, **2 countries** lie in the **200K–400K range**, and only **1 country (China)** is in the **1M+ range**. This pattern shows that while some nations have extended access to large segments of their population, the majority have only reached modest levels of service delivery. The low count in higher bands indicates significant room for growth and investment in basic water infrastructure across most of the world.

Country-Specific Observations

China leads by a wide margin, with **1.03 million people** having access to safely managed drinking water services, followed by the **United States (0.28M)**, **Japan (0.23M)**, and **Republic of Korea (0.16M)**. These countries showcase the outcomes of strong public investment, institutional capacity, and advanced infrastructure systems. Conversely, countries like **India (0.02M)**, **France (0.01M)**, **Brazil (0.00M)**, and **Argentina (0.00M)** reflect much lower levels of access. These figures suggest not just population differences but also potential underinvestment, regional disparities, and gaps in governance or service delivery models.

Economic Implications

Access to safely managed drinking water is **foundational to economic development**. Poor access leads to increased healthcare costs due to waterborne illnesses, decreased labor productivity, and lower educational outcomes—factors that collectively undermine human capital and economic resilience. Countries with strong water infrastructure, on the other hand, benefit from healthier populations, improved worker productivity, and more sustainable development outcomes. Hence, ensuring universal access to clean water should be a **priority for national development policies**, and it is crucial to integrate water access into broader economic planning and social protection strategies.

Policy Suggestions for Improving SMDW Access

1. Invest in Water Infrastructure

Prioritize investment in pipelines, purification plants, and rural water connections. Public-private partnerships can mobilize the necessary capital and expertise to expand access, especially in underserved areas.

2. Launch Nationwide Education and Awareness Programs

Raise awareness about the benefits of using safely managed water services through media campaigns and community engagement. Education can drive behavioral changes and build trust in public water supply systems.

3. Strengthen Regulations and Enforcement

Develop and enforce national standards for water quality, ensuring accountability across suppliers and distributors. Strong legal frameworks can build consumer confidence and attract further investment in water infrastructure.

4. Develop International Collaboration Frameworks

Encourage global cooperation and knowledge-sharing platforms for water management best

practices. Bilateral and multilateral agreements can enable resource mobilization, joint research, and technology transfers for enhanced water access.

5. Introduce Targeted Fiscal and Policy Incentives

Provide grants, low-interest loans, and tax incentives for water infrastructure projects, especially in rural or underserved areas. This approach can stimulate economic activity and create incentives for both public and private investment in water service delivery.

Safely Managed Sanitation Services (SMSS) - Indicator Report

Definition: This indicator is meant by the **percentage of the population using safely managed sanitation services (SMSS)**, which include **improved sanitation facilities** (such as flush toilets, septic systems, or ventilated improved pit latrines) that are **not shared with other households** and where **excreta are safely disposed of in situ or transported and treated off-site**. SMSS is a critical measure of **hygiene, public health, and environmental protection**, and directly supports progress toward **Sustainable Development Goal 6** on clean water and sanitation.

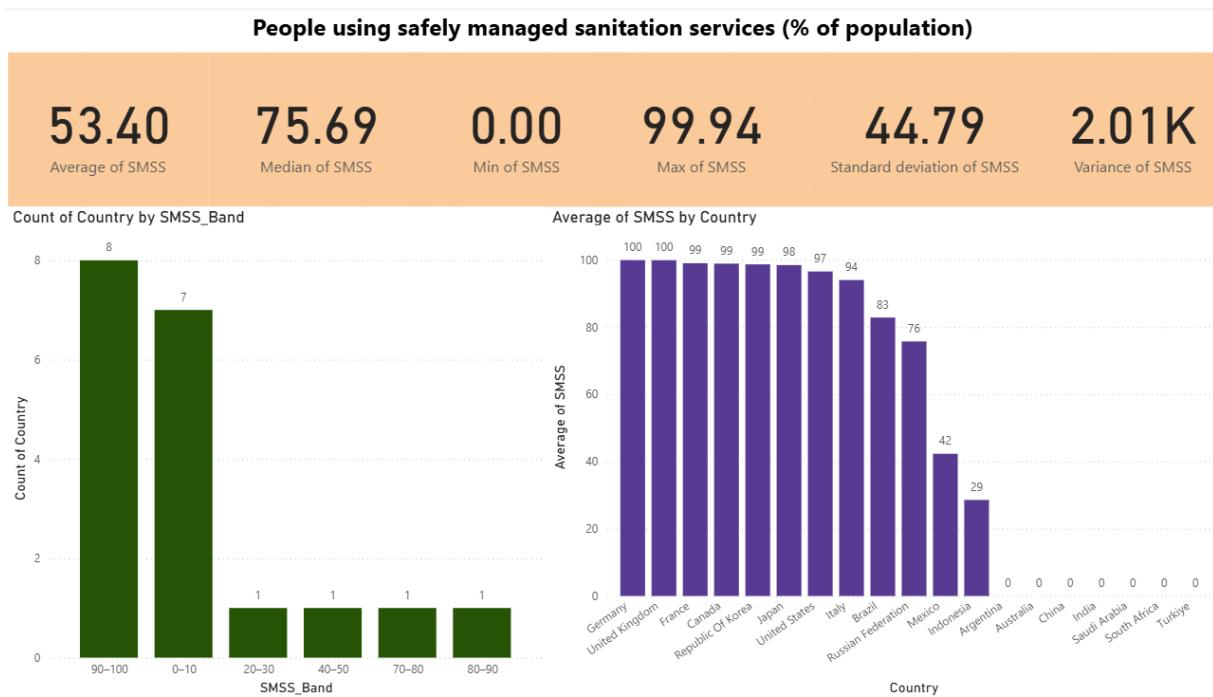


Figure : 44

Summary Statistics of SMSS

Metric	Value	Interpretation

Average of SMSS	53.40	Average percentage of population using SMSS across countries
Median of SMSS	75.69	Half the countries have more than 75% access
Min of SMSS	0.00	Some countries have no access to SMSS
Max of SMSS	99.94	Almost universal access in some countries
Standard Deviation of SMSS	44.79	Very high disparity in access across countries

Number of Countries by SMSS Band

SMSS Band (%)	No. of Countries	Interpretation
90–100	8	Majority with high or universal access
0–10	7	Severely underserved populations
20–30	1	Minimal sanitation infrastructure
40–50	1	Below-average but improving access
70–80	1	Approaching universal access
80–90	1	Significant access with small gaps

Average of SMSS by Country

Country	Average of SMSS (%)	Interpretation
Germany	100	Universal access to sanitation services

United Kingdom	100	Universal access supported by strong infrastructure
France	99	Almost full access due to advanced systems
Canada	99	Advanced infrastructure ensures coverage
Republic of Korea	99	High-quality urban sanitation coverage
Japan	98	Highly efficient sanitation system
United States	98	High coverage with local disparities
Italy	97	Comprehensive sanitation infrastructure
Brazil	94	Good coverage but regional disparities persist
Russian Federation	83	Significant rural-urban divide
Mexico	76	Improving access through federal schemes
Indonesia	42	Inadequate infrastructure in many areas
Argentina	29	Partial coverage, especially in urban areas
China	0	Underserved regions still lack basic sanitation
India	0	Challenges in rural sanitation and maintenance
Saudi Arabia	0	Urban-rural inequality in access
South Africa	0	Poor infrastructure in informal settlements

Türkiye	0	Progress ongoing but current access is minimal
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Economic Interpretation of People Using Safely Managed Sanitation Services (SMSS)

1. Central Tendency and Distribution

The average SMSS across countries stands at 53.4%, while the median is higher at 75.69%. This indicates that while many countries have made significant strides, a substantial number continue to face serious sanitation deficits. The lower average reflects the pull of extremely low-performing countries.

2. High Variability Signals Global Sanitation Divide

A high standard deviation (44.79%) underscores the sanitation divide. Several nations have achieved near-universal access, while others remain severely under-served. This inequality often correlates with broader socio-economic disparities and public health burdens.

3. Polarized Distribution in SMSS Bands

With 8 countries in the 90–100% range and 7 in the 0–10% band, global access to SMSS is distinctly polarized. Only a few countries fall in intermediate bands, indicating sanitation development is either comprehensive or critically lacking.

4. Zero SMSS in Large Emerging Economies

It is noteworthy that populous and economically significant countries such as India, China, and South Africa report 0% SMSS. This may reflect rural–urban inequality, inconsistent definitions, or gaps in monitoring systems, rather than actual absence of sanitation.

5. Top Performers Set Global Standards

Countries like Germany, UK, Canada, France, and South Korea demonstrate 99–100% SMSS. These countries benefit from advanced infrastructure, rigorous regulations, and prioritization of public sanitation as a health mandate.

6. Latin American Countries Exhibit Varied Outcomes

Brazil's 83% performance indicates robust infrastructure in urban zones, while Mexico (42%) and Argentina (29%) face gaps in rural sanitation. These differences suggest uneven policy execution and investment across regions.

7. SDG Alignment and Urgency

The current global average of 53.4% falls short of the SDG 6.2 goal of universal sanitation by 2030. Without intensified reforms, countries may miss this target—leading to setbacks in health, education, and gender equality.

Policy Suggestions for Improving SMSS Access

1. Prioritize Rural Sanitation Infrastructure

Focus investments in decentralized sanitation systems, especially for rural and peri-urban

areas. Governments should use spatial data to target under-served communities, using modular and climate-resilient solutions.

2. Adopt Smart Subsidy Models

Introduce means-tested sanitation subsidies and results-based financing. These can help poor households access toilets and sewage systems while ensuring funds are used efficiently.

3. Strengthen Regulatory Oversight

Enforce national SMSS standards through independent sanitation regulatory agencies. Regular monitoring, penalties for non-compliance, and public reporting will improve service quality and transparency.

4. Integrate Sanitation into Urban Planning

Make sanitation a core component of city development plans, especially in slums and informal settlements. Urban local bodies must be empowered financially and technically to manage waste safely.

5. Promote Behavior Change and Community Engagement

Support hygiene awareness campaigns and behavior change communication (BCC) to shift community norms. Sanitation uptake improves when users understand the health and dignity benefits of safe practices.

Definition: This indicator is meant by an **aggregate measure** of perceptions regarding the **likelihood of political instability, violence, or terrorism** that could affect a country's governance or development. Often abbreviated as **PSAVE**, it reflects conditions such as **armed conflict, civil unrest, terror attacks, and governmental turnover due to instability**. Higher values indicate a **more stable political environment**, essential for **economic growth, investment confidence, and sustainable development**.

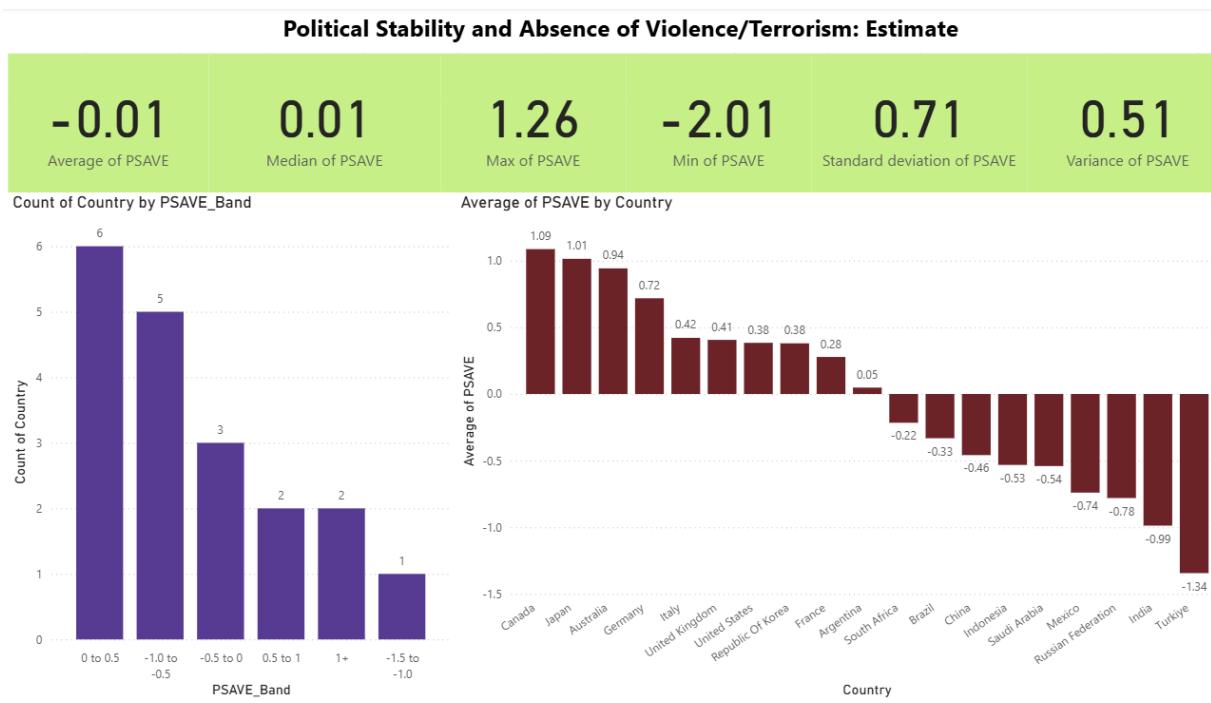


Figure : 45

Summary Statistics of PSAVE

Metric	Value	Interpretation
Average of PSAVE	-0.01	Near neutral stability overall
Median of PSAVE	0.01	Half the countries above 0.01 (slightly stable)
Maximum of PSAVE	1.26	Most stable country in the group
Minimum of PSAVE	-2.01	Least stable country (high instability/violence risk)

Standard Deviation of PSAVE	0.71	Moderate variation in stability among countries
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Number of Countries by PSAVE Band

PSAVE Band	No. of Countries	Interpretation
0 to 0.5	6	Most countries show mild stability
-1.0 to -0.5	5	Several countries face mild instability
-0.5 to 0	3	Few countries around neutral stability
0.5 to 1	2	Few countries enjoy higher stability
1+	2	Only two countries highly stable
-1.5 to -1.0	1	One country with notable instability

Average PSAVE by Country

Country	PSAVE	Interpretation
Canada	1.09	Very stable political environment
Japan	1.01	Very stable

Australia	0.94	High stability
Germany	0.72	Stable
Italy	0.42	Moderately stable
United Kingdom	0.41	Moderately stable
United States	0.38	Stable
Republic of Korea	0.38	Stable
France	0.28	Slightly stable
Argentina	0.05	Near neutral
South Africa	-0.22	Mild instability
Brazil	-0.33	Instability present
China	-0.46	Instability present
Indonesia	-0.53	Instability present
Saudi Arabia	-0.54	Instability present
Mexico	-0.74	Notable instability
Russian Federation	-0.78	Notable instability
India	-0.99	High instability

Türkiye	-1.34	Very high instability
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Economic Interpretation of Political Stability and Absence of Violence/Terrorism (PSAVE)

1. Average vs. Median Reflect Slight Positive Skew

The average PSAVE score across the 19 countries is **-0.01**, while the median is **0.01** — slightly above zero. This suggests that while a few countries experience pronounced instability, others enjoy relatively high stability, pulling the median above the mean. Globally, this reflects that most countries hover near neutral, with isolated high-risk outliers that weigh down the average. Investors and policymakers should note the latent risks even when median conditions seem favorable.

2. Moderate Dispersion Indicates Uneven Stability

With a **standard deviation of 0.71**, the distribution of PSAVE is moderately spread. This implies some countries enjoy strong stability while others face serious threats, requiring careful country-specific analysis before committing investments, especially for multinational corporations and financial institutions.

3. Most Countries Cluster in Lower Stability Bands

The band analysis shows that most countries fall into the **0–0.5 band (6 countries)** or the **-1.0 to -0.5 band (5 countries)**, confirming that no country reaches the highest conceivable stability. Even the best performers remain vulnerable to occasional unrest or external threats. This highlights the pervasive and structural nature of political risks in global markets.

4. High-Stability Leaders Provide Safe Havens

Countries such as **Canada (1.09)**, **Japan (1.01)**, and **Australia (0.94)** are at the top of the distribution, underlining the strength of their democratic institutions, internal security, and policy predictability. These nations are likely to attract capital flows, enjoy lower risk premiums, and maintain resilient economies even in times of global uncertainty.

5. Fragile Environments Undermine Growth Potential

On the other end, **Türkiye (-1.34)** and **India (-0.99)** exhibit the lowest PSAVE scores, reflecting severe political instability, governance challenges, or conflict risks. Such environments tend to deter foreign investment, raise borrowing costs, and contribute to currency and market volatility.

6. Middle-Tier Countries Need Proactive Policy

Countries such as **Brazil (-0.33)** and **South Africa (-0.22)** lie in the moderate-risk zone, vulnerable to shocks but not yet deeply unstable. These nations could strengthen resilience by addressing governance gaps, enhancing transparency, and fostering social cohesion to prevent slippage into deeper instability.

7. Broader Economic Implications

Low PSAVE scores translate into higher risk premiums, reduced investor confidence, and constrained fiscal flexibility due to elevated debt servicing costs. Additionally, political risks can undermine long-term economic planning, discourage infrastructure investment, and hinder private-sector job creation.

Policy Suggestions for Enhancing PSAVE

1. Strengthen Democratic Institutions and Rule of Law

Ensure judicial independence, electoral fairness, and parliamentary transparency. These structural reforms build institutional trust, making it easier to attract foreign and domestic investment.

2. Implement Inclusive Governance Mechanisms

Engage marginalized communities through participatory budgeting, social dialogues, and regional councils. Inclusive governance reduces the likelihood of unrest and enhances national cohesion.

3. Counter Radicalization and Internal Conflict with Social Investment

Increase investment in education, employment, and urban development, especially in volatile regions. This approach mitigates recruitment into extremist groups and reduces socio-political alienation.

4. Develop Crisis-Response Frameworks and Early Warning Systems

Deploy systems to monitor conflict triggers and respond rapidly to protests or unrest. Rapid response enhances investor confidence and minimizes economic disruption during political crises.

5. Promote Regional Peacebuilding and Diplomatic Cooperation

Strengthen regional alliances and engage in joint security dialogues. Cooperative diplomacy can stabilize border regions, reduce arms buildup, and promote economic interdependence.

Population Ages 65 and Above (% of Total Population) Indicator Report

Definition: This indicator is meant by the **percentage of a country's total population** that is aged **65 years and older**, reflecting the **age structure** and **demographic transition** of a society. It is a key measure of **population aging**, which has implications for **healthcare demand, pension systems, labor markets, and economic productivity**. A growing elderly population signals the need for **age-friendly policies, social protection, and long-term care infrastructure**.

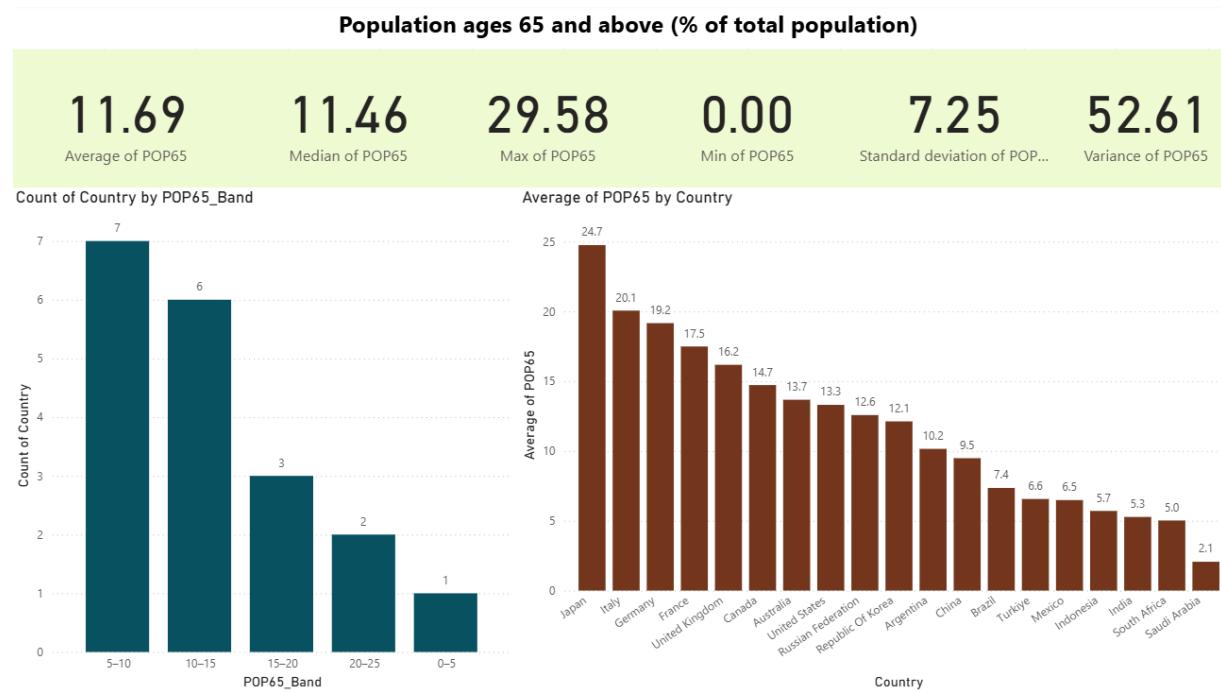


Figure : 46
Summary Statistics of Population Ages 65 and Above

Metric	Value	Interpretation
Average of POP65	11.69	On average, 11.69% of the population is aged 65+
Median of POP65	11.46	Half of the countries have at least 11.46% aged 65+
Maximum of POP65	29.58	Highest observed share of elderly population
Minimum of POP65	0.00	Lowest observed (negligible) elderly

		population
Standard Deviation of POP65	7.25	Significant variation in aging across countries

Number of Countries by POP65 Band

POP65 Band	No. of Countries	Interpretation
5–10	7	Many countries have a moderate elderly share
10–15	6	Several countries with higher but manageable elderly share
15–20	3	Fewer countries with significant aging
20–25	2	Countries facing advanced aging populations
0–5	1	One country with very low elderly population

Average POP65 by Country

Country	POP65	Interpretation
Japan	24.7	Highest elderly share; advanced aging society
Italy	20.1	Significant aging population

Germany	19.2	Advanced aging; policy challenges ahead
France	17.5	High elderly population
United Kingdom	16.2	Notable aging, but balanced
Canada	14.7	Moderate elderly population
Australia	13.7	Moderate elderly population
United States	13.3	Moderate elderly population
Russian Federation	12.6	Moderate elderly population
Republic of Korea	12.1	Moderate elderly population, rising trend
Argentina	10.2	Relatively young, but aging
China	9.5	Large but younger population, aging underway
Brazil	7.4	Young population with aging potential
Türkiye	6.6	Young demographic profile
Mexico	6.5	Young demographic profile
Indonesia	5.7	Young population
India	5.3	Young, demographic dividend ongoing

South Africa	5.0	Very young population structure
Saudi Arabia	2.1	Very low elderly share

Economic Interpretation of Population Ages 65 and Above (POP65)

1. Average and Median Reflect a Moderately Aging World

The **average POP65 is 11.69%**, and the **median is 11.46%**, showing that aging is already a significant and widespread demographic trend across countries. On average, more than 1 in 10 people are aged 65+, signaling emerging fiscal and healthcare pressures, though not yet at crisis levels for most.

2. Substantial Variation in Aging Across Countries

A **standard deviation of 7.25%** indicates meaningful disparities in the proportion of elderly populations. With extremes ranging from **Japan (24.7%)** to **Saudi Arabia (2.1%)**, countries face very different demographic realities — some needing urgent reform, others still able to benefit from a young workforce.

3. Most Countries Cluster Between 5–15% Elderly

The band distribution shows:

- **7 countries in the 5–10% band:** moderate elderly population
- **6 countries in the 10–15% band:** higher but manageable elderly share
- **3 countries in the 15–20% band:** significant aging, requiring attention
- **2 countries in the 20–25% band:** advanced aging with immediate policy needs
- **Only 1 country in the 0–5% band:** very young population, with ample demographic dividend

This distribution highlights that while most countries are currently in the **moderate aging zone (5–15%)**, a growing number are moving into the higher bands, where aging starts to strain fiscal and social systems.

4. Japan, Italy, Germany: Advanced Aging Requires Immediate Action

Japan (24.7%), Italy (20.1%), and **Germany (19.2%)** are at the upper end of the spectrum, already facing shrinking workforces, rising healthcare and pension costs, and slower growth prospects. These countries must pursue reforms in pensions, immigration, healthcare efficiency, and workforce participation.

5. Emerging Economies Retain Youthful Advantage

Saudi Arabia (2.1%), South Africa (5.0%), and India (5.3%) have the lowest shares of elderly populations, indicating a demographic dividend phase. These nations should prioritize investments in education, skills, and job creation to leverage their young populations before aging accelerates in the future.

6. Middle-Band Countries Should Plan Ahead

Countries such as **Brazil (7.4%), Argentina (10.2%), and Republic of Korea (12.1%)**, sitting in the 5–15% bands, have moderate but rising aging burdens. They should start gradually adjusting their fiscal and labor market policies to avoid sudden shocks when aging accelerates.

7. Economic Implications

Aging shifts economies toward slower labor force growth, higher healthcare and pension costs, and demand for age-specific goods and services. Proactive measures — boosting productivity, supporting healthy aging, and maintaining fiscal sustainability — are essential to manage the transition without undermining growth.

Policy Suggestions to Address Elderly Population Trends

1. Reform Pension and Social Security Systems

Introduce sustainability measures such as raising retirement age, indexing benefits to inflation, and promoting voluntary private pension schemes. These steps are essential to prevent fiscal imbalances in aging economies.

2. Invest in Healthcare and Elderly Care Infrastructure

Develop long-term care systems, promote home-based care, and invest in geriatric health training. Public-private partnerships can help scale elderly health services efficiently.

3. Encourage Lifelong Learning and Senior Employment

Design re-skilling programs and flexible work arrangements for seniors to extend their economic participation. This helps maintain productivity and reduces dependency ratios.

4. Promote Pro-natalist and Family-Friendly Policies

In aging societies, boost fertility rates through subsidized childcare, paid parental leave, and housing support. These measures help balance demographic trends over the long term.

5. Leverage Migration to Offset Workforce Shrinkage

Controlled immigration policies can counterbalance declining working-age populations in high-aging countries. Skilled migration also stimulates innovation and productivity.

Population Density Indicator Report (People per sq. km of Land Area)

Definition: This indicator is meant by the number of **people living per square kilometer of land area**, reflecting the **population concentration** within a country or region. It helps assess

spatial distribution, urbanization patterns, and pressures on land and resources. Higher population density can indicate greater **demand for infrastructure, housing, and services**, while lower density may point to **rural characteristics or underutilized land**—both of which are important for **planning, sustainability, and resource management**.

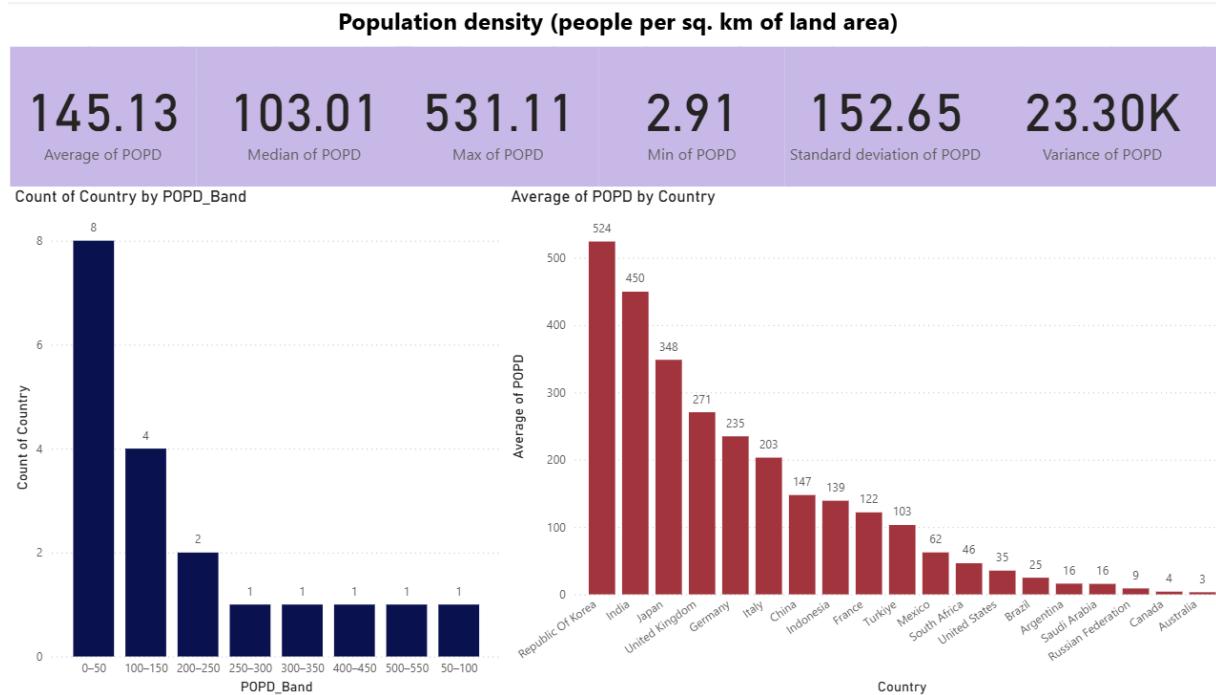


Figure : 47

Summary Statistics of Population Density (POPD)

Metric	Value	Interpretation
Average of POPD	145.13	Average population density across all countries
Median of POPD	103.01	Half the countries have less than 103 people per sq. km
Max of POPD	531.11	Highest observed density in the dataset
Min of POPD	2.91	Lowest observed density in the dataset
Standard Deviation	152.65	High variability in population distribution

Number of Countries by Population Density Band

POPD Band	No. of Countries	Interpretation
0–50	8	Very low density countries
50–100	1	Low density country
100–150	4	Moderate population density
200–250	2	Above average density
250–300	1	High density country
300–350	1	Very high density
400–450	1	Extremely high density
500–550	1	Most densely populated

Average Population Density by Country

Country	POPD	Interpretation
Republic of Korea	524	Extremely high density; urban concentration
India	450	Very high density; large population in limited land area
Japan	348	Highly urbanized and densely populated
United Kingdom	271	Dense population in small geographic area
Germany	235	High density driven by industrial urban centers
Italy	203	Compact country with urban clustering
China	147	Large population with mixed urban-rural distribution

Indonesia	139	Archipelagic nation with urban hotspots
France	122	Balanced distribution with urban regions
Turkey	103	Moderate density with regional variation
Mexico	62	Moderate density, room for urban expansion
South Africa	46	Low density with sparse rural population
United States	35	Large landmass with uneven density
Brazil	25	Low density due to vast geography
Argentina	16	Very low density across large terrain
Saudi Arabia	16	Sparse population in desert regions
Russian Federation	9	Extremely low density across vast lands
Canada	4	Very sparse population outside cities
Australia	3	Least dense due to vast deserts and low population

Economic Interpretation of Population Density (POPD)

Skewed Average vs. Median Density

The average population density is **145.13**, while the median is **103.01**, highlighting a skewed distribution. Countries like **Republic of Korea (524)** and **India (450)** elevate the average, pointing to unequal global distribution where a few countries are heavily urbanized while most remain sparsely populated.

High Standard Deviation Reflects Spatial Imbalances

A standard deviation of **152.65** indicates **severe population spread disparities**. Urban

megacities in dense nations contrast starkly with vast, uninhabited landscapes in countries like **Australia** and **Canada**, affecting climate resilience, logistics, and regional development.

Polarized Band Distribution

According to the dashboard:

8 countries fall in the **0–50** band (e.g., Australia, Canada, Brazil), indicating low population pressure.

1 country lies in the **50–100** range.

4 countries lie between **100–150**.

The remaining countries are spread across **200–550**, with **1 country each in 250–300, 300–350, 400–450, and 500–550** bands.

This **scattered but polarized structure** shows two clusters—very sparse nations and very dense ones—requiring very different governance approaches.

Hyper-Dense Economies Face Urban Stress

Nations such as **Republic of Korea (524)**, **India (450)**, and **Japan (348)** are under immense urban stress. They must prioritize **vertical infrastructure**, **efficient land use**, and **green transport systems** to mitigate the effects of overpopulation in confined areas.

Low-Density Countries Risk Underutilization

Countries like **Australia (3)** and **Canada (4)** showcase the opposite problem—underutilized vast lands. Their challenges include **connectivity**, **infrastructure costs**, and **limited economic clustering**, which affect rural productivity and service delivery.

Middle-Density Countries Require Balanced Growth

Countries like **France (122)** and **Indonesia (139)** reflect moderate population pressure, offering an ideal opportunity for **balanced spatial development**. These nations can plan smart urbanization to avoid both congestion and underuse.

Economic Implication of Density Patterns

Highly dense nations enjoy **productivity gains and innovation hubs**, but they face **environmental degradation**, **real estate inflation**, and **social stress**. In contrast, low-density countries can capitalize on **sustainability and decentralization**, but must overcome high **per capita infrastructure costs** and geographic fragmentation.

Policy Suggestions to Manage Population Density

1. Invest in Compact and Resilient Urban Infrastructure

High-density nations should prioritize vertical housing, mass transit, and green corridors. Compact urban design enhances livability and reduces environmental stress.

2. Encourage Deconcentration through Regional Development

In overpopulated metros, promote satellite cities and rural economic zones to redirect population inflows. Fiscal incentives for businesses and residents can accelerate this shift.

3. Digitize and Optimize Land Use Planning

Use geospatial analytics and AI-driven zoning to manage urban sprawl and optimize land usage. Smart city frameworks can reduce congestion and improve urban service efficiency.

4. Build Adaptive Infrastructure in Low-Density Regions

For sparsely populated nations, invest in modular infrastructure and digital connectivity (e.g., telemedicine, e-learning) to reach distant populations cost-effectively.

5. Strengthen Population-Environment Integration Policies

Tie density management with ecological conservation by enforcing green belts and environmental impact assessments. This ensures long-term sustainability of both human and natural systems.

Poverty Headcount Ratio Indicator Report (% of Population at National Poverty Lines)

Definition: This indicator is meant by the **percentage of the population living below the national poverty line**, which is defined by each country based on **minimum income or consumption thresholds** required to meet basic needs such as **food, shelter, and clothing**. It reflects the **extent of poverty** within a nation and is critical for tracking **social progress**,

designing **targeted welfare programs**, and evaluating the impact of **economic policies** on vulnerable groups. Lower values indicate improved **living standards** and **inclusive development**.

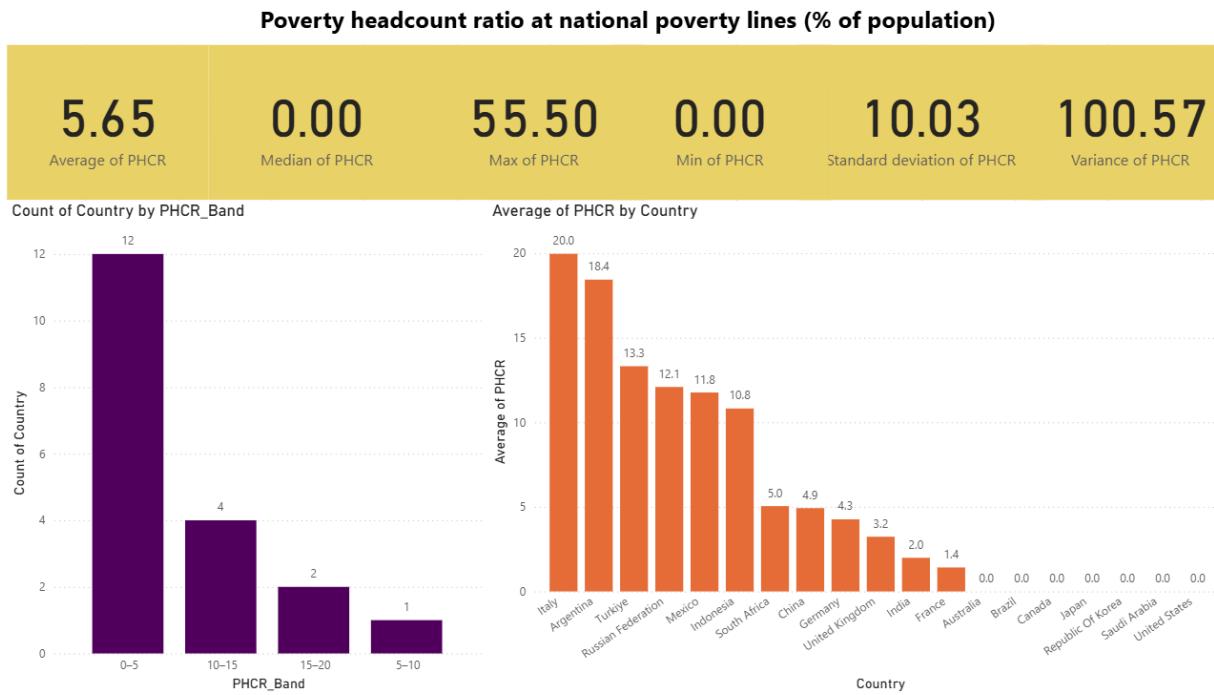


Figure : 48

Summary Statistics of Poverty Headcount Ratio (PHCR)

Metric	Value	Interpretation
Average of PHCR	5.65	Average percentage of population below national poverty lines
Median of PHCR	0.00	Half of countries have negligible poverty according to national standards
Max of PHCR	55.50	Highest poverty ratio observed in the dataset
Min of PHCR	0.00	Several countries report zero poverty
Standard Deviation	10.03	Indicates significant variation among countries

Number of Countries by Poverty Headcount Ratio Band

PHCR Band	No. of Countries	Interpretation
0–5	12	Majority of countries have very low poverty ratios
5–10	1	Low poverty ratio
10–15	4	Moderate levels of poverty
15–20	2	Relatively high poverty

Average Poverty Headcount Ratio by Country

Country	PHCR	Interpretation
Italy	20.0	High poverty according to national line
Argentina	18.4	Significant poverty prevalence
Turkey	13.3	Notable poverty affecting national development
Russian Federation	12.1	Persistent regional poverty challenges
Mexico	11.8	Moderate poverty levels
Indonesia	10.8	Dual economy effects poverty distribution
South Africa	5.0	Above global average poverty level
China	4.9	Managed poverty through growth-focused policy
Germany	4.3	Relatively low but existent poverty pockets
United Kingdom	3.2	Controlled but not eliminated poverty
India	2.0	Low reported poverty under national standards

France	1.4	Negligible poverty
Australia	0.0	No poverty recorded at national level
Brazil	0.0	No poverty recorded at national level
Canada	0.0	No poverty recorded at national level
Japan	0.0	No poverty recorded at national level
Republic of Korea	0.0	No poverty recorded at national level
Saudi Arabia	0.0	Universal wealth distribution mechanisms
United States	0.0	No national-level poverty recorded

Economic Interpretation of Poverty Headcount Ratio (PHCR)

1. Disparity Between Average and Median PHCR

The **average PHCR is 5.65%**, while the **median is 0.00%**, highlighting significant skewness in the distribution. This indicates that although many countries report no measurable poverty under their national definitions, a few nations experience notably higher poverty levels, pulling the average upward.

2. High Variability Reflects Structural Inequality

The **standard deviation of 10.03%** reveals substantial cross-country disparities. This points to differences in economic structures, social safety nets, and institutional capacities to address poverty.

3. Majority in 0–5% PHCR Band, Few Higher Outliers

According to the dashboard, **12 countries fall in the 0–5% band**, reflecting widespread low reported poverty. However, there are **4 countries in the 10–15% band**, **2 in the 15–20% band**, and **1 in the 5–10% band**, confirming that moderate to high poverty persists in several regions—particularly middle-income economies.

4. High Poverty in Middle-Income Economies

Countries like **Italy (20%)**, **Argentina (18.4%)**, and **Türkiye (13.3%)** show relatively high PHCR values. These elevated ratios may reflect inflationary pressures, limited social assistance coverage, or labor market vulnerabilities, which undermine

inclusive growth.

5. Emerging Economies Facing Persistent Deprivation

Mexico (11.8%), Indonesia (10.8%), and South Africa (5.0%) are grappling with multi-dimensional poverty. Challenges often extend beyond income, involving gaps in access to education, healthcare, sanitation, and housing—especially in rural and informal sectors.

6. Zero-Poverty Nations and Measurement Nuances

Countries like the United States, Japan, Canada, Saudi Arabia, and South Korea report 0.0% PHCR, suggesting strong institutional frameworks and safety nets. However, such statistics might omit **relative poverty** or **income inequality**, which remain relevant concerns even in high-income countries.

7. Economic Implications of Persistent Poverty

Elevated poverty levels constrain economic productivity, weaken human capital, and increase fiscal burdens through higher welfare demands. Left unaddressed, they can hinder sustainable development, amplify inequality, and trigger political or social unrest.

Policy Suggestions to Reduce Poverty Headcount Ratio

1. Expand Targeted Cash Transfer Programs

Introduce or scale up direct benefit transfer schemes (DBTs) for low-income households. Conditional cash transfers tied to education and health outcomes can multiply developmental impacts.

2. Ensure Food and Energy Price Stability

Implement price controls, subsidies, or buffer stock mechanisms for essential goods. Inflation disproportionately affects the poor and can quickly reverse poverty reduction gains.

3. Promote Inclusive Labor Market Policies

Invest in skilling, job matching platforms, and worker protections to lift informal sector workers into secure, productive employment. Wage floor policies should be indexed to local cost of living.

4. Enhance Fiscal Space for Social Spending

Increase progressive taxation and reduce leakages in public spending to expand resources for poverty alleviation. Redirecting inefficient subsidies towards targeted programs improves both equity and efficiency.

5. Develop Multi-Dimensional Poverty Tracking Systems

Go beyond income-based poverty and incorporate indicators like nutrition, education, sanitation, and housing. This helps design more holistic and responsive anti-poverty programs.

Prevalence of Overweight (% of Adults)Report

Definition: This indicator is meant by the **percentage of adults aged 18 and above** whose **body mass index (BMI)** is **equal to or greater than 25**, categorizing them as **overweight**. It reflects patterns in **nutrition, physical activity, and lifestyle**, and is an important marker of **public health**, particularly the risk of **non-communicable diseases** such as diabetes, heart disease, and certain cancers. Rising overweight prevalence signals the need for **health promotion, nutrition education, and preventive health policies**.

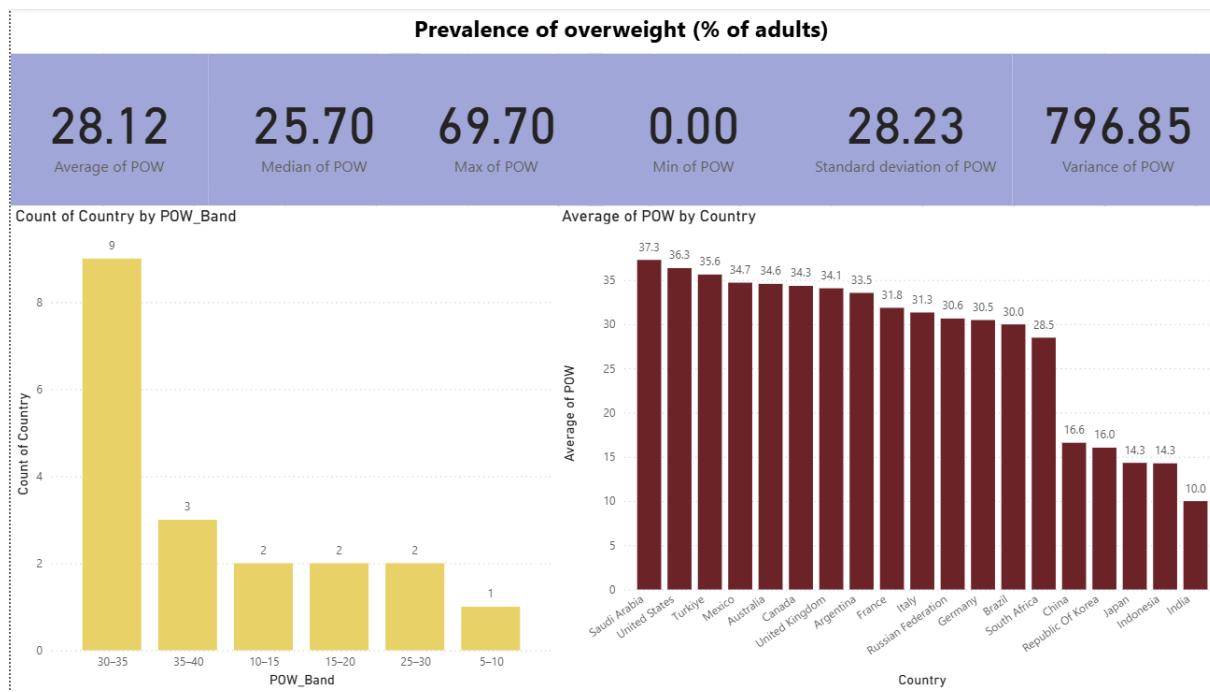


Figure : 49
Summary Statistics of Overweight Prevalence

Metric	Value	Interpretation
Average of POW	28.12	Average overweight prevalence across countries
Median of POW	25.70	Half of the countries have prevalence below this level
Minimum of POW	0.00	Indicates one or more countries with no overweight prevalence data
Maximum of POW	69.70	Highest prevalence among observed countries
Standard Deviation	28.23	High variability in overweight levels

Number of Countries by POW Band

POW Band (%)	No. of Countries	Interpretation
30–35	9	Most countries fall into this range
35–40	3	Few countries have high overweight levels
10–15	2	Some countries have relatively low overweight levels
15–20	2	Low to moderate overweight prevalence
25–30	2	Just below the most frequent range
5–10	1	Very low overweight prevalence

Average Overweight Prevalence by Country

Country	POW (%)	Interpretation
Saudi Arabia	37.3	Very high prevalence
United States	36.3	Very high prevalence
Turkey	35.6	Very high prevalence
Mexico	34.7	High prevalence
Australia	34.6	High prevalence
Canada	34.3	High prevalence
United Kingdom	34.1	High prevalence
Argentina	33.5	High prevalence
France	31.8	Moderate to high prevalence
Italy	31.3	Moderate to high prevalence

Russian Federation	30.6	Moderate to high prevalence
Germany	30.5	Moderate to high prevalence
Brazil	30.0	Moderate prevalence
South Africa	28.5	Moderate prevalence
China	16.6	Low prevalence
Republic of Korea	16.0	Low prevalence
Japan	14.3	Low prevalence
Indonesia	14.3	Low prevalence
India	10.0	Very low prevalence

Economic Interpretation of Prevalence of Overweight (POW)

1. High Mean but Skewed Distribution

The **average prevalence** of overweight adults is **28.12%**, while the **median** is **25.70%**, indicating a **right-skewed distribution**. This skewness is driven by a few countries like Saudi Arabia (37.3%) and the United States (36.3%) with very high rates. It reflects the rising burden of lifestyle-related health risks, particularly in developed and fast-urbanizing countries.

2. Wide Dispersion Indicates Unequal Lifestyle Trends

The **standard deviation** of **28.23%** highlights **significant disparities** in overweight prevalence. This suggests vast differences in nutrition, physical activity levels, and access to preventive healthcare, signaling diverse public health challenges across nations.

3. Most Countries Fall Within Moderate Overweight Bands

Based on the band distribution:

- **30–35% band** includes **9 countries**, the highest count.
- **35–40% band** includes **3 countries**, indicating high prevalence.
- **5–30% bands** include **7 countries** in total.

This distribution shows that while some countries face severe overweight issues, a **majority of countries have moderate overweight prevalence**, making it a **widespread but not yet extreme** health challenge.

4. Developed Economies Show High Overweight Rates

Countries like **Saudi Arabia (37.3%)**, **United States (36.3%)**, and **Türkiye (35.6%)** show the **highest overweight prevalence**. The causes are well-documented: high-calorie diets, sedentary occupations, urban sprawl, and aging populations. These nations face increasing healthcare burdens from obesity-related diseases like **type 2 diabetes, heart disease, and stroke**, leading to rising public expenditures.

5. Emerging Economies Also Seeing Upward Trend

Emerging economies such as **Mexico (34.7%)**, **Brazil (30%)**, and **South Africa (28.5%)** are undergoing a **nutrition transition**, with increased consumption of **ultra-processed foods** and reduced physical activity. These nations now face a **dual burden**—fighting undernutrition while managing a surge in overweight-related non-communicable diseases (NCDs).

6. Low-Income Asian Economies Still Below Global Average

Countries like **India (10.0%)**, **Indonesia (14.3%)**, **Japan (14.3%)**, and **China (16.6%)** exhibit **lower prevalence**, possibly due to **traditional diets, lower calorie intake, and higher physical activity levels**. However, without strategic public health planning, **urbanization and rising disposable incomes** could accelerate obesity rates.

7. Economic Implications of Rising Overweight

Overweight prevalence poses serious **economic risks**, including:

- **Decreased labor productivity and increased absenteeism**
- **Higher long-term healthcare costs**
- **Strain on public health infrastructure**
- **Loss of economic output** due to non-communicable diseases (NCDs)

Governments must respond with **multi-sectoral interventions**—nutritional education, urban planning, fiscal policies on food, and preventive healthcare—to curb the rising tide of overweight and its long-term economic impact.

Policy Suggestions to Address Overweight Prevalence

1. Promote Public Nutrition Awareness Campaigns

Launch national-level campaigns focusing on healthy eating, calorie labeling, and sugar reduction. Behavioral nudges in schools and workplaces can shift daily food choices toward healthier options.

2. Regulate Processed Food Industries and Marketing

Implement policies that restrict trans fats, reduce sodium in packaged foods, and ban misleading advertisements, especially those targeting children. Fiscal tools like sugar taxes can be used to discourage unhealthy consumption patterns.

3. Invest in Urban Active Infrastructure

Develop walkable neighborhoods, bicycle lanes, and public parks to encourage daily physical activity. Physical environment plays a crucial role in shaping long-term health behavior.

4. Incorporate Lifestyle Medicine in Primary Healthcare

Train health workers to identify and manage obesity and overweight early through diet and lifestyle interventions. Preventive care reduces long-term treatment costs and improves population health outcomes.

5. Support Healthy School and Workplace Meal Programs

Encourage institutional nutrition standards for meals in schools and offices. Subsidized healthy meals and incentives for fitness participation can institutionalize healthy habits across generations.

Prevalence of Undernourishment (% of Population) Report

Definition: This indicator is meant by the **percentage of the population** whose **habitual food consumption** is insufficient to provide the dietary energy levels required to maintain a **normal, active, and healthy life**. It is based on **food supply, access, and distribution data**, and reflects the **severity of hunger and food insecurity** within a country. A higher prevalence of undernourishment indicates challenges in **agricultural productivity, income distribution, and nutrition policy**, and is directly linked to **SDG 2: Zero Hunger**.

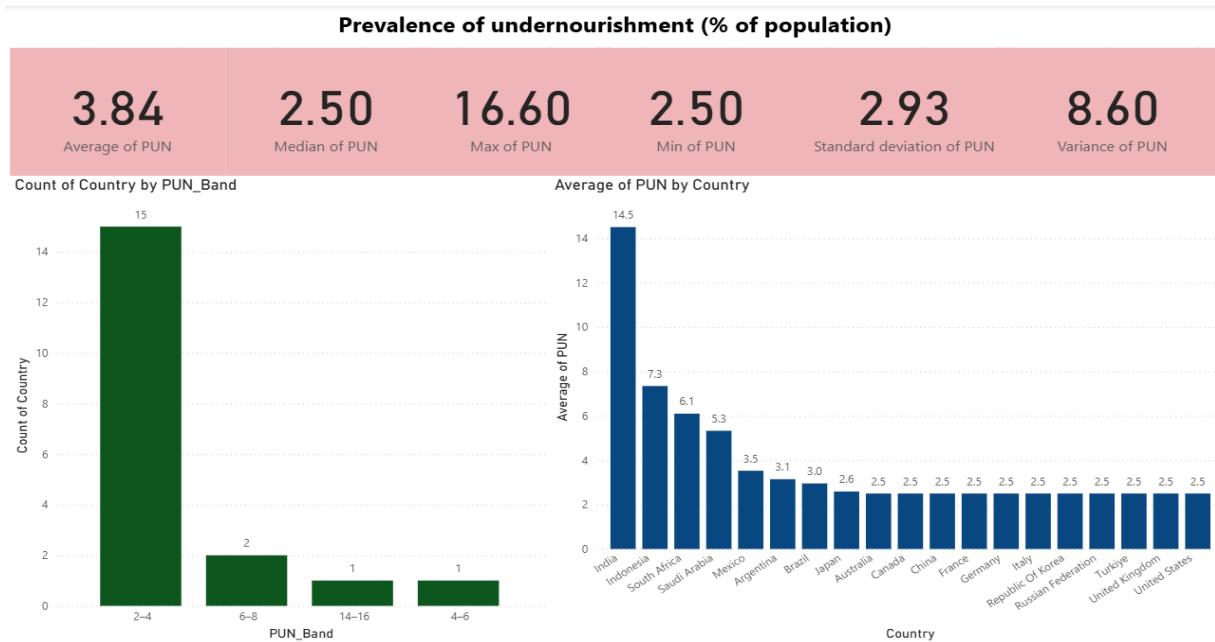


Figure : 50

Summary Statistics of Undernourishment

Metric	Value	Interpretation
Average of PUN	3.84	Average undernourishment prevalence across countries

Median of PUN	2.50	Half of the countries have prevalence below this level
Minimum of PUN	2.50	Lowest undernourishment observed (baseline value for many countries)
Maximum of PUN	16.60	Highest undernourishment among countries
Standard Deviation	2.93	Moderate dispersion in undernourishment values

Number of Countries by PUN Band

PUN Band (%)	No. of Countries	Interpretation
2–4	15	Majority of countries have low undernourishment rates
6–8	2	Some countries face moderate undernourishment
14–16	1	India has a very high level of undernourishment
4–6	1	One country in low-to-moderate range

Average Undernourishment Prevalence by Country

Country	PUN (%)	Interpretation
India	14.5	Very high undernourishment; requires urgent intervention
Indonesia	7.3	Moderate undernourishment
South Africa	6.1	Moderate undernourishment
Saudi Arabia	5.3	Low-to-moderate undernourishment
Mexico	3.5	Low undernourishment

Argentina	3.1	Low undernourishment
Brazil	3.0	Low undernourishment
Japan	2.6	Very low undernourishment
Australia	2.5	Minimal undernourishment
Canada	2.5	Minimal undernourishment
China	2.5	Minimal undernourishment
France	2.5	Minimal undernourishment
Germany	2.5	Minimal undernourishment
Italy	2.5	Minimal undernourishment
Republic of Korea	2.5	Minimal undernourishment
Russian Federation	2.5	Minimal undernourishment
Turkey	2.5	Minimal undernourishment
United Kingdom	2.5	Minimal undernourishment
United States	2.5	Minimal undernourishment

Economic Interpretation of Prevalence of Undernourishment (PUN)

1. Central Tendency Indicates Moderate Global Burden

The **average undernourishment rate is 3.84%**, with a **median of 2.50%**, indicating that **most countries report low levels of undernourishment**. However, the higher average suggests that **a few countries with significantly elevated rates** (e.g., India and Indonesia) are **pulling the mean upward**, pointing to a **concentrated but critical food insecurity issue**.

2. Low Variability but Persistent Pockets of Hunger

Although the **standard deviation is only 2.93%**, which reflects **modest dispersion**, countries like **India (14.5%)** and **Indonesia (7.3%)** still stand out with **severe levels of undernourishment**. This highlights **inequities in access to food and nutrition** that remain entrenched despite global progress.

3. Most Countries Within Low Undernourishment Band

Out of all countries:

- **15 countries** fall into the **2–4% band**
- **2 countries** are in the **6–8% band**
- **1 country** each falls in the **4–6%** and **14–16% bands**

While the data implies that **most countries have relatively low undernourishment**, this can be misleading. In **high-population nations like India and Indonesia**, even single-digit percentages represent **tens of millions of undernourished individuals**, reinforcing the need for **targeted interventions**.

4. Emerging Economies Show Stark Contrasts

Countries such as **India (14.5%)**, **Indonesia (7.3%)**, and **South Africa (6.1%)** report **higher prevalence**, despite economic progress. This illustrates **inequitable food access** within emerging economies. Conversely, developed nations like the **United States, United Kingdom, Germany**, and others show **consistently low rates (2.5%)**, reflecting **well-established food assistance programs and stable food systems**.

5. Economic Impact of Undernourishment

Undernourishment undermines **productivity, cognitive development, and educational outcomes**, especially in early life. It contributes to:

- **Higher healthcare costs**
- **Reduced labor capacity**
- **Lower lifetime earnings**
- **Weakened national economic output**

Addressing undernourishment is thus not only a humanitarian goal but an **economic imperative**, critical for **sustainable development and poverty alleviation**.

Policy Suggestions to Address Undernourishment

1. Strengthen Agricultural and Food Supply Chains

Invest in resilient agriculture infrastructure, local food systems, and market access for small farmers. Ensuring stable and affordable food availability is crucial for both rural income and urban affordability.

2. Launch Nutrition-Specific Social Protection Programs

Introduce or expand targeted cash transfers, school feeding programs, and food vouchers for vulnerable groups. These reduce immediate food insecurity and have multiplier effects on education and health outcomes.

3. Improve Data Monitoring and Early Warning Systems

Establish real-time food and nutrition surveillance systems to detect undernourishment hotspots. This enables faster interventions and evidence-based policy formulation.

4. Promote Nutrition Education and Dietary Diversity

Educate households on balanced diets, especially in rural and peri-urban areas, using

community workers and digital platforms. Diversifying food intake can be as impactful as improving food quantity.

5. Encourage International Cooperation on Food Security

Collaborate with international institutions like FAO and WFP for technical assistance, funding, and emergency food aid. Multilateral cooperation ensures resource pooling and coordinated crisis responses.

Proportion of Bodies of Water with Good Ambient Water Quality Report

Definition: This indicator is meant by the **percentage of water bodies**—including rivers, lakes, and groundwater—that meet **national or international standards** for **ambient water quality**, based on parameters such as **dissolved oxygen, pH, nutrient levels, and pollutant concentrations**. It reflects the **health of freshwater ecosystems**, the effectiveness of **pollution control**, and **sustainable water management** practices. A higher proportion indicates better **environmental integrity, biodiversity support**, and progress toward Sustainable Development Goal 6.3 on improving water quality.

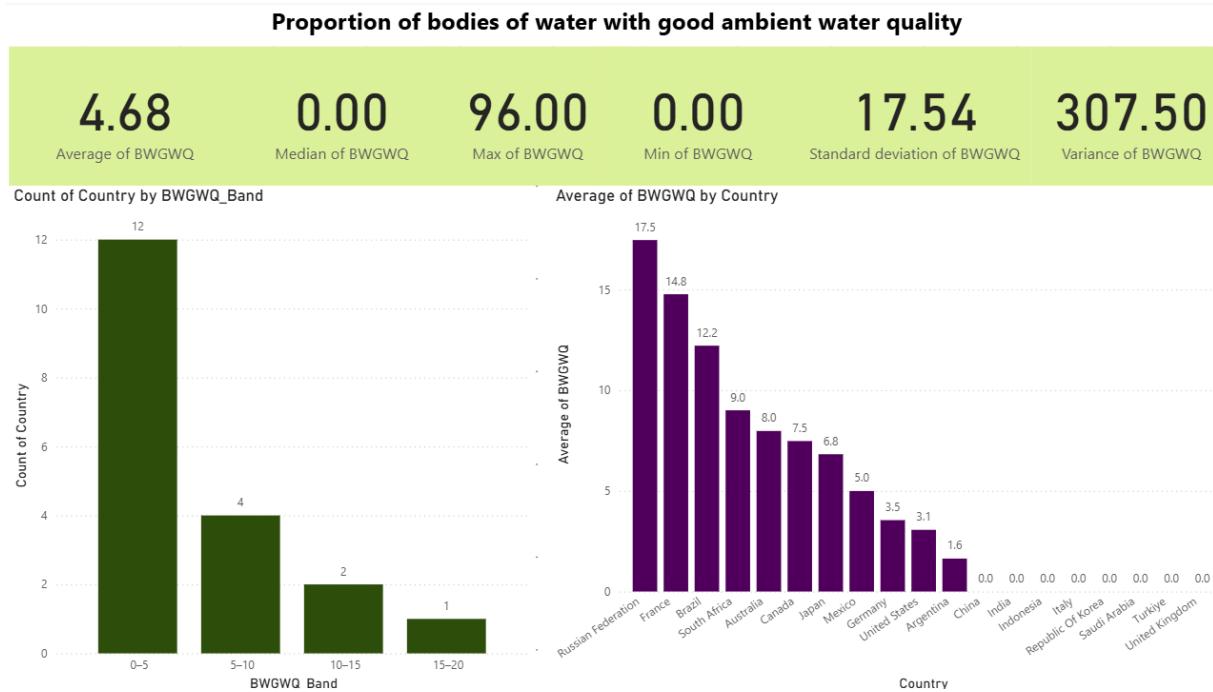


Figure : 51

Summary Statistics of BWGWQ

Metric	Value	Interpretation
Average of BWGWQ	4.68	Average proportion of water

		bodies with good quality
Median of BWGWQ	0.00	Half of the countries report no good quality water bodies
Minimum of BWGWQ	0.00	Several countries have 0% good ambient water quality
Maximum of BWGWQ	96.00	One country has exceptionally high water quality
Standard Deviation	17.54	High dispersion in water quality levels

Number of Countries by BWGWQ Band

BWGQ Band (%)	No. of Countries	Interpretation
0–5	12	Most countries report very poor water quality
5–10	4	Some countries show low to moderate water quality
10–15	2	Few countries have notable water quality levels
15–20	1	One country has relatively high water quality

Average BWGWQ by Country

Country	BWGQ (%)	Interpretation
Russian Federation	17.5	Relatively high water quality
France	14.8	Good water quality conditions
Brazil	12.2	Moderate to good water quality

South Africa	9.0	Moderate water quality
Australia	8.0	Moderate water quality
Canada	7.5	Moderate water quality
Japan	6.8	Moderate water quality
Mexico	5.0	Low to moderate water quality
Germany	3.5	Low water quality
United States	3.1	Low water quality
Argentina	1.6	Very low water quality
China	0.0	No reported good water bodies
India	0.0	No reported good water bodies
Indonesia	0.0	No reported good water bodies
Italy	0.0	No reported good water bodies
Republic of Korea	0.0	No reported good water bodies
Saudi Arabia	0.0	No reported good water bodies
Turkey	0.0	No reported good water bodies
United Kingdom	0.0	No reported good water bodies

Economic Interpretation of Bodies of Water with Good Ambient Water Quality (BWGWQ)

1. Extremely Low Central Tendency Signals Crisis

The **average BWGWQ** is only **4.68%**, while the **median is 0.00%**, indicating that **over half of the countries have no bodies of water meeting good ambient quality standards**. This is a clear signal of a widespread water pollution crisis, endangering ecosystems and key economic sectors such as **agriculture, fisheries, public health, and tourism**.

2. High Variability Reflects Deep Environmental Inequality

The **standard deviation of 17.54** highlight a **highly unequal distribution** of water quality. Countries like the **Russian Federation (17.5%)** and **France (14.8%)** show relative success in water management. However, many major economies—**India, China, Indonesia, UK, Turkey, Saudi Arabia**—register **0%**, illustrating **environmental degradation even in countries with significant economic capabilities**.

3. Majority of Nations Fall in the Lowest Band

According to the frequency distribution:

- **12 countries fall in the 0–5% band**
- **4 countries in 5–10%**
- **2 countries in 10–15%**
- **Only 1 country falls into the 15–20% band**

This clustering in **lower bands** shows that the **majority of countries struggle with poor water quality**, severely undermining **SDG 6.3** (improving ambient water quality by reducing pollution) and increasing vulnerability to **climate-driven water stress**.

4. Developed Nations Also Lag Behind in Water Quality

Surprisingly, advanced economies like the **United States (3.1%)**, **Germany (3.5%)**, and the **United Kingdom (0.0%)** report poor or non-existent good quality water bodies. This reflects that **economic prosperity does not ensure environmental integrity**, often due to **industrial pollution, weak regulatory enforcement, and aging water infrastructure**.

5. Economic Cost of Poor Water Quality is Substantial

Low ambient water quality carries **major economic consequences**:

- **Lower crop yields** due to contaminated irrigation
- **Declining fishery output**
- **Increased public health costs** from waterborne diseases
- **Losses in tourism and real estate value**

Altogether, this **erodes productivity, strains health systems, and impairs water-intensive industries**, placing a **drag on national growth and resilience**.

Policy Suggestions to Improve Ambient Water Quality

1. Enforce Strict Industrial Discharge Norms

Implement and monitor stringent regulations on effluent treatment and discharge from industries and urban centers. Penalties and incentives can help reduce untreated waste entering water bodies.

2. Expand Urban and Rural Sewage Infrastructure

Invest in modern wastewater treatment plants and decentralized sanitation models. Especially in rapidly urbanizing areas, this is key to preventing raw sewage from entering lakes and rivers.

3. Promote Community-Led River and Lake Cleanups

Engage local populations in monitoring and restoring water bodies through river rejuvenation missions. Community stewardship ensures accountability and improves public awareness of water quality.

4. Establish National Water Quality Monitoring Grids

Deploy real-time sensors and satellite tools to track pollution sources and water quality parameters. Transparent data can drive informed policymaking and public pressure for reform.

5. Incentivize Cleaner Agriculture and Green Buffer Zones

Encourage sustainable agricultural practices that limit fertilizer runoff. Establish riparian buffer zones with vegetation to naturally filter contaminants before they enter water bodies.

Proportion of Seats Held by Women in National Parliaments Report

Definition: This indicator is meant by the **percentage of parliamentary seats** in a country's **national legislature** that are **occupied by women**, reflecting the level of **gender**

representation in formal political decision-making. It serves as a key measure of **political empowerment, gender equality**, and the inclusiveness of **governance structures**. Higher proportions indicate progress toward **SDG 5 (Gender Equality)** and the promotion of **diverse leadership** in shaping national policy and legislation.

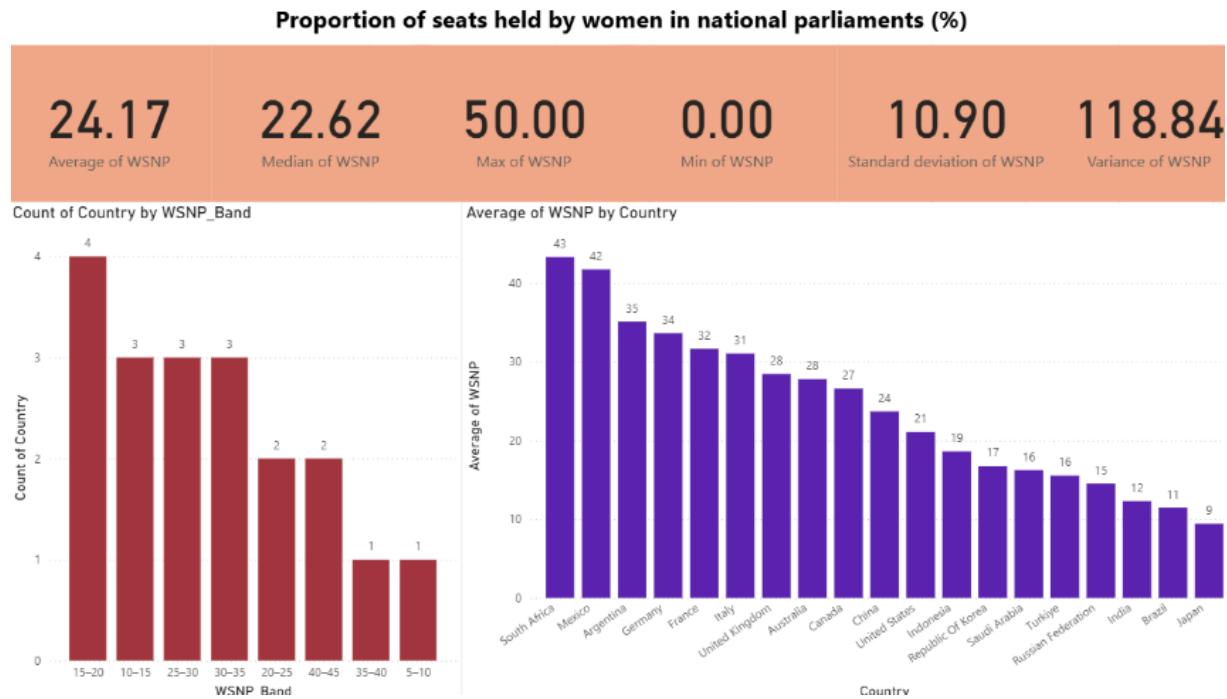


Figure : 52

Summary Statistics of WSNP

Metric	Value	Interpretation
Average of WSNP	24.17	Average share of seats held by women in national parliaments
Median of WSNP	22.62	Half of the countries have less than 22.62% women representation
Minimum of WSNP	0.00	Some countries report no female parliamentary representation
Maximum of WSNP	50.00	One country achieves gender parity

Standard Deviation	10.90	Moderate variation in women's representation
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Number of Countries by WSNP Band

WSNP Band (%)	No. of Countries	Interpretation
15–20	4	Many countries show moderate but suboptimal representation
10–15	3	Low women participation
25–30	3	Above average female representation
30–35	3	High participation in some countries
20–25	2	Moderate representation
40–45	2	Very high representation
35–40	1	Significant women presence
5–10	1	Very low representation

Average WSNP by Country

Country	WSNP (%)	Interpretation
South Africa	43	Very high female political participation
Mexico	42	Near parity in representation
Argentina	35	Strong parliamentary inclusion of women
Germany	34	High representation of women
France	32	Progressive gender participation

Italy	31	Above average women representation
United Kingdom	28	Moderate representation, room for improvement
Australia	28	Moderate representation
Canada	27	Slightly below average participation
China	24	Average female representation
United States	21	Moderate, below global average
Indonesia	19	Low but present participation
Republic Of Korea	17	Low participation
Saudi Arabia	16	Limited women presence in parliament
Turkey	16	Limited representation
Russian Federation	15	Low engagement of women
India	12	Very low representation
Brazil	11	Very low representation
Japan	9	Among the lowest female parliamentary representation

Economic Interpretation of Women's Parliamentary Representation (WSNP)

1. Low Global Average Reflects Gender Power Gap

The **average representation** of women in national parliaments is **24.17%**, with a **median of 22.62%**, underscoring the fact that **most countries are far from achieving gender parity** in legislative bodies. This persistent gap constrains the **diversity, equity, and responsiveness of policymaking**, particularly in matters affecting women, families, and marginalized communities.

2. High Variance Reveals Uneven Gender Progress

The **standard deviation of 10.90** reflects **wide disparities** in gender representation across nations. Countries such as **South Africa (43%)**, **Mexico (42%)**, and **Argentina (35%)** are regional leaders in political inclusion. Meanwhile, key economies like **Japan (9%)**, **Brazil (11%)**, and **India (12%)** fall well below average, showing that **economic size does not guarantee political equity for women**.

3. Most Countries Cluster Below 30% Representation

Band distribution reveals:

- **4 countries** in the **15–20%** range
- **3 countries each** in **10–15%, 25–30%,** and **30–35%**
- Only **2 countries** in **40–45%**
- **1 country each** in **35–40%** and **5–10%**

This demonstrates that **nearly all countries fall below the 50% parity threshold**, with **only one country at or near equal representation**. This undermines progress on **gender-responsive legislation**, including labor protections, social care investment, and maternal health initiatives.

4. Economic Cost of Gender Gaps in Governance

Low women's representation **limits inclusive economic policy-making** and often correlates with **underinvestment in health, education, and family services**. Studies show that countries with higher female political participation tend to prioritize:

- **Social protection programs**
- **Environmental legislation**
- **Education and healthcare funding**

Lack of women in decision-making roles **slows inclusive growth** and widens inequality.

5. Political Representation is Key to Economic Inclusion

Political voice is both **a driver and an outcome of economic empowerment**. Where women lack influence in national legislation:

- **Access to land, finance, and jobs remains unequal**
- **Care work remains undervalued**
- **Legal protections are weaker**

Thus, achieving **greater gender balance in parliaments** is vital for **inclusive, equitable, and sustainable economic development**.

Policy Recommendations for Enhancing Women's Political Representation

1. Enact Gender Quotas in Legislatures

Introduce legally mandated quotas (e.g. 33% reservation) in national parliaments. Evidence from countries like Rwanda and Mexico shows quotas significantly improve gender parity in decision-making.

2. Strengthen Women's Political Leadership Programs

Invest in training, mentorship, and capacity-building for aspiring female leaders at grassroots and national levels. These efforts can help address confidence gaps and societal biases that deter women from entering politics.

3. Rebuild Political Party Structures for Inclusivity

Mandate internal party reforms ensuring women's participation in candidate selection committees and leadership roles. Provide financial and organizational support to women candidates, especially in underrepresented regions.

4. Ensure Safety and Equality in Political Spaces

Legislate and enforce anti-harassment measures in political institutions. Create complaint redressal mechanisms and gender-sensitive codes of conduct within parliamentary procedures.

5. Promote Civic Education on Gender Equality

Incorporate women's political rights and leadership in public education and media campaigns. Normalize women in power to shift societal attitudes and reduce cultural resistance to female leadership.

Ratio of Female to Male Labor Force Participation Rate (%) Report

Definition: This indicator is meant by the **percentage ratio of the female to male labor force participation rates**, measuring the **gender gap in economic activity**. It compares the proportion of women and men aged 15 and above who are either **employed or actively seeking employment**. A higher ratio indicates greater **gender parity in labor market access**, which is essential for **inclusive growth, economic empowerment of women**, and progress toward **gender equality** under **Sustainable Development Goal 5**.

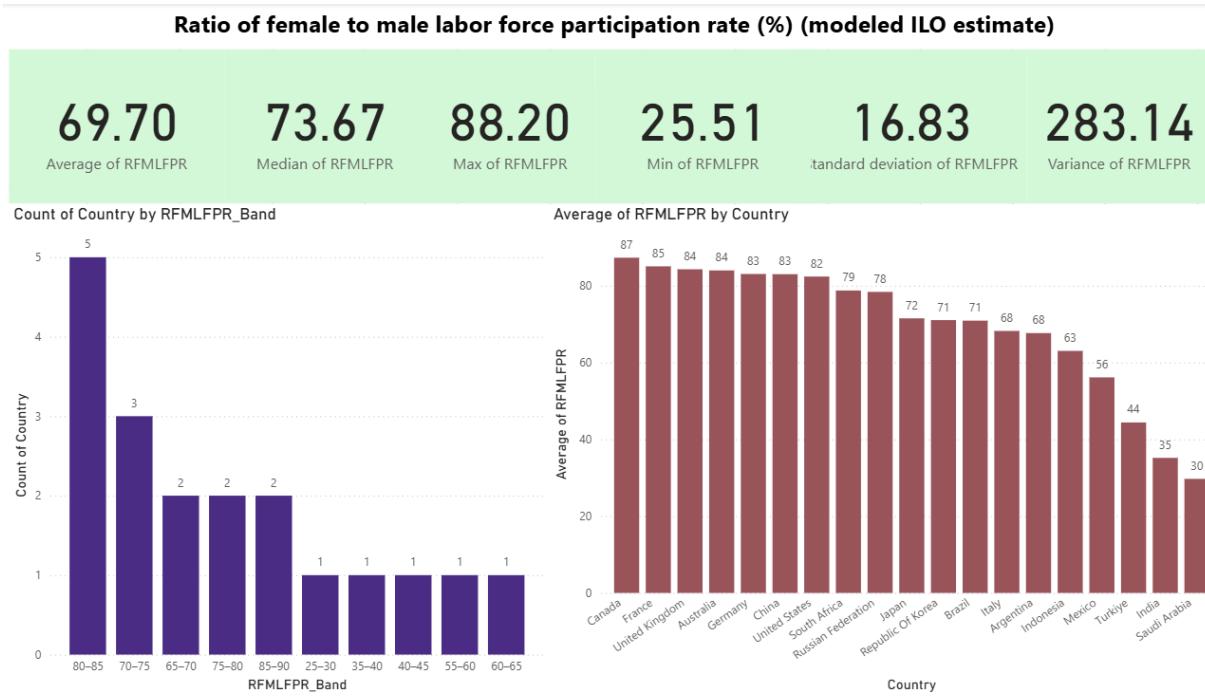


Figure : 53

Summary Statistics of RFMLFPR

Metric	Value	Interpretation
Average of RFMLFPR	69.70	Average female-to-male labor force participation ratio
Median of RFMLFPR	73.67	Half of countries have ratios below this level
Minimum of RFMLFPR	25.51	Lowest female labor participation relative to males
Maximum of RFMLFPR	88.20	Highest observed gender parity in labor participation

Standard Deviation	16.83	Moderate variation across countries
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Number of Countries by RFMLFPR Band

RFMLFPR Band (%)	No. of Countries	Interpretation
80–85	5	High gender parity in labor participation
70–75	3	Moderate to high parity
65–70	2	Moderate inclusion
75–80	2	Strong parity
85–90	2	Near equality in labor participation
25–30	1	Very low female labor participation
35–40	1	Severe gender gap
40–45	1	Significant inequality
55–60	1	Low participation
60–65	1	Slightly below average inclusion

Average RFMLFPR by Country

Country	RFMLFPR (%)	Interpretation
Canada	87	Near gender equality in labor force
France	85	High parity in workforce participation
United Kingdom	84	High female labor inclusion
Australia	84	Strong representation of women

Germany	83	Gender-balanced labor force
China	83	Significant female participation
United States	82	Good gender inclusion
South Africa	79	Above average parity
Russian Federation	78	Moderate parity
Japan	72	Above global average
Republic Of Korea	71	Above average parity
Brazil	71	Moderate participation
Italy	68	Moderate inclusion of women
Argentina	68	Below average participation
Indonesia	63	Low female inclusion
Mexico	56	Significant gender gap
Turkey	44	Very low female labor participation
India	35	Severe underrepresentation
Saudi Arabia	30	Extremely low gender inclusion

Economic Interpretation of Gender Parity in Labor Force Participation (RFMLFPR)

1. Moderate Global Gender Gap in Labor Force Participation

The average RFMLFPR is 69.70%, meaning that on average, **only 70 women participate in the labor force for every 100 men**. This substantial gender gap signals an ongoing **underutilization of women's labor potential**, which can constrain **economic growth, productivity, and inclusive development** across economies.

2. High Dispersion Reflects Unequal Gender Norms

With a **standard deviation of 16.83** and a **range from Canada (87%) to Saudi Arabia (30%)**, the data shows wide disparities influenced by **socio-cultural, legal, and institutional**

factors. Countries like **France, UK, Australia, and Germany** are near parity, while **India, Turkey, and Saudi Arabia** remain far behind, highlighting the **need for structural reforms in lagging regions**.

3. Country Clustering Shows a Split Between Inclusion and Marginalization

Band distribution reveals:

- **5 countries** in the **80–85%** band — leading in gender parity.
- **3 countries** in the **70–75%** range — strong inclusion
- **8 countries** scattered across **25–70%** — signaling **moderate to severe gender disparities**.
- **Only 2 countries** in the **85–90%** band — near equality.

This shows a world **divided between inclusive labor markets and structurally exclusionary systems** for women.

4. Low Participation Hampers Human Capital Returns

Countries like **India (35%)** and **Saudi Arabia (30%)** are **investing in women's education**, yet failing to translate this into economic participation. This mismatch leads to:

- **Underutilized skills**
- **Gendered poverty traps**
- **Inefficiencies in national human capital returns**

Such exclusion is a **missed economic opportunity**, particularly in large, youth-rich economies.

5. High Gender Parity Boosts Economic Resilience

Countries such as **Canada (87%)**, **France (85%)**, and **UK (84%)** demonstrate that **greater gender balance** is linked with:

- **Higher household income levels**
- **More stable labor markets**
- **Enhanced innovation capacity**

These economies benefit from **inclusive productivity** and **broader consumer engagement**, creating **resilience in economic shocks**.

6. Skewed Labor Access Drives Informality

In countries with lower RFMLFPR, many women work in informal or unpaid care roles, which are **excluded from formal labor statistics**. This leads to:

- **Lack of labor rights and protections**
- **Poor access to credit and social security**

- Invisibility in national policy planning

Policy Recommendations to Enhance Female Labor Participation

1. Expand Childcare Infrastructure & Parental Leave

Provide affordable, high-quality childcare and implement gender-neutral parental leave policies. These measures reduce the opportunity cost of women's workforce entry and help balance family responsibilities.

2. Reform Labor Laws for Flexibility and Equity

Introduce flexible work hours, remote job options, and enforce anti-discrimination laws. Legal reforms must support women's transitions between formal, informal, and care-based workspaces.

3. Skill Development and Career Re-entry Programs

Invest in vocational training and re-skilling initiatives targeting women who have dropped out of the workforce. Tailored programs in digital and green sectors can increase employability and resilience.

4. Ensure Safe Work Environments

Strengthen workplace safety laws, grievance redressal mechanisms, and transport safety for working women. Fear of harassment is a major deterrent in female labor force participation, especially in urban areas.

5. Tackle Normative and Cultural Barriers

Conduct public awareness campaigns to challenge gender stereotypes around work. Include men in caregiving and unpaid labor policy conversations to create a more equitable economic model.

Regulatory Quality: Estimate Report

Definition: This indicator is meant by an **aggregate measure of perceptions** regarding the **ability of the government to formulate and implement sound policies and regulations** that permit and promote **private sector development**. Known as **Regulatory Quality: Estimate**, it captures public views on the **burden of regulations, market openness, and fairness of rules**, typically rated on a scale from around **-2.5 (weak) to +2.5 (strong)**. Higher values reflect a more **efficient, transparent, and business-friendly regulatory environment**, which is vital for **economic competitiveness** and **institutional strength**.



Figure : 54

Summary Statistics of RQE

Metric	Value	Interpretation
Average of RQE	0.59	Average level of regulatory quality across countries
Median of RQE	0.42	Half of the countries have regulatory quality below 0.42
Minimum of RQE	-1.07	Weakest regulatory environment observed
Maximum of RQE	1.92	Strongest regulatory quality score

Standard Deviation	0.82	Moderate variability in regulatory quality
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Number of Countries by RQE Band

RQE Band	No. of Countries	Interpretation
-0.5 to 0	5	Many countries exhibit weak regulatory performance
0 to 0.5	4	Slightly above neutral regulatory quality
1 to 1.5	4	Strong regulatory performance
1.5 to 2	4	Very strong institutional capacity
0.5 to 1	1	Moderate performance
-1 to -0.5	1	Poor regulatory framework

Average RQE by Country

Country	RQE	Interpretation
Australia	1.84	Excellent regulatory environment
Canada	1.72	Very strong regulatory quality
United Kingdom	1.68	Very strong regulatory capacity
Germany	1.66	Strong and stable regulations
United States	1.39	High institutional effectiveness
Japan	1.26	Reliable regulatory systems

France	1.17	Consistently strong performance
Republic Of Korea	1.05	Efficient and effective regulation
Italy	0.70	Moderate but stable regulatory quality
Türkiye	0.19	Just above average performance
Mexico	0.17	Slightly positive environment
South Africa	0.17	Mixed but stable regulatory outlook
Saudi Arabia	0.06	Low regulatory strength
Indonesia	-0.03	Weak regulatory institutions
Brazil	-0.05	Challenged regulatory framework
China	-0.28	Limited institutional effectiveness
India	-0.31	Constrained regulatory environment
Russian Federation	-0.46	Weak and inconsistent regulation
Argentina	-0.62	Very poor regulatory conditions

Economic Interpretation of Regulatory Quality Estimate (RQE)

1. Moderate Global Average in Regulatory Quality

The **average RQE is 0.59**, indicating that while many countries maintain **moderately sound regulatory systems**, **gaps remain** in achieving efficient, transparent, and predictable rule-making. Weak regulations or inconsistent enforcement can hinder **business confidence**, **investment inflows**, and **policy execution**.

2. High Dispersion Signals Institutional Inequality

The **standard deviation of 0.82** shows considerable variation. **Australia (1.84), Canada (1.72)**, and the **UK (1.68)** are at the top, while **Argentina (-0.62)**, **Russia (-0.46)**, and **India (-0.31)** fall on the opposite end. This reflects **deep disparities in governance quality, legal predictability, and enforcement across economies.**

3. Poor Regulatory Quality Limits Economic Competitiveness

Countries with **negative RQE scores** like **Argentina, Russia, and India** often face:

- **Corruption or weak rule of law**
- **Unpredictable business environments**
- **Compliance complexity and high transaction costs**

Such environments hinder private sector development and push economic activity into **informal or shadow markets.**

4. Strong Regulatory Quality Correlates with Innovation and Stability

Top-tier performers such as **Australia, Canada, and the UK** ($\text{RQE} > 1.5$) demonstrate:

- **Stable, transparent legal systems**
- **Efficient bureaucracy**
- **Trustworthy institutions**

These qualities attract **foreign direct investment**, support **technological advancement**, and ensure **macro-stability**.

5. Mid-Tier Nations Face Sectoral Bottlenecks

Countries like **Japan (1.26)**, **France (1.17)**, and **Korea (1.05)** fall within the **1.0–1.5 RQE range**, reflecting generally strong institutions but possible **bottlenecks in specific sectors** (e.g., digital policy, energy regulation). **Bureaucratic delays and rigid structures** may slow adaptation in fast-evolving industries.

6. RQE Band Clustering Shows Regulatory Development Gaps

Most countries fall within the following bands:

- **-0.5 to 0:** 5 countries
- **0 to 0.5:** 4 countries
- **1 to 1.5:** 4 countries
- **1.5 to 2:** 4 countries

This distribution shows that **very few countries exhibit both institutional strength and consistency**, and highlights the **shared regulatory inefficiencies** even among G20 economies.

7. Weak Regulation Undermines Social Outcomes

In countries like **Brazil, India, and Indonesia**, weak regulatory capacity often means **poor enforcement of labor, environmental, and safety standards**. This leads to:

- **Reduced quality of public services**
- **Widening income gaps**
- **Low citizen trust in government institutions**

8. Regulatory Weakness Slows Climate and Digital Transition

Weak RQE scores hinder countries' ability to **craft and implement sophisticated reforms**, especially in climate, AI governance, and fintech regulation. Countries at the lower end of the spectrum may face **delays in net-zero transitions, data protection enforcement**, and digital inclusion—missing major economic transformation opportunities.

Policy Recommendations to Strengthen Regulatory Quality

1. Build Independent and Transparent Institutions

Establish independent regulatory bodies with legal and operational autonomy. Enhance transparency in rule-making through public consultations and digital disclosures to foster accountability and trust.

2. Streamline Business Regulations and Reduce Red Tape

Simplify licensing, taxation, and compliance procedures, particularly for SMEs. A one-stop digital interface can significantly reduce administrative burdens and improve the ease of doing business.

3. Strengthen Rule of Law and Anti-Corruption Measures

Implement strict anti-corruption laws and ensure judicial independence to enforce contracts and property rights. Transparent procurement and whistleblower protections are key to minimizing regulatory capture.

4. Foster Regulatory Innovation and Agility

Encourage adaptive regulation in fast-changing sectors like fintech, AI, and green energy. Regulatory sandboxes and experimental governance models can promote innovation while managing risk.

5. Promote International Regulatory Harmonization

Align national regulations with global standards in areas like data protection, trade compliance, and sustainability. Cross-border consistency reduces friction in global supply chains and enhances investor confidence.

Renewable Electricity Output (% of Total Electricity Output) Report

Definition: This indicator is meant by the **percentage of total electricity generated** in a country that comes from **renewable energy sources**, including **hydropower, solar, wind, geothermal, and biomass**. It reflects a country's progress in **transitioning to sustainable energy systems**, reducing **greenhouse gas emissions**, and diversifying the **energy mix**. A higher share of renewable electricity output supports **climate goals**, enhances **energy security**, and contributes to **Sustainable Development Goal 7 (Affordable and Clean Energy)**.

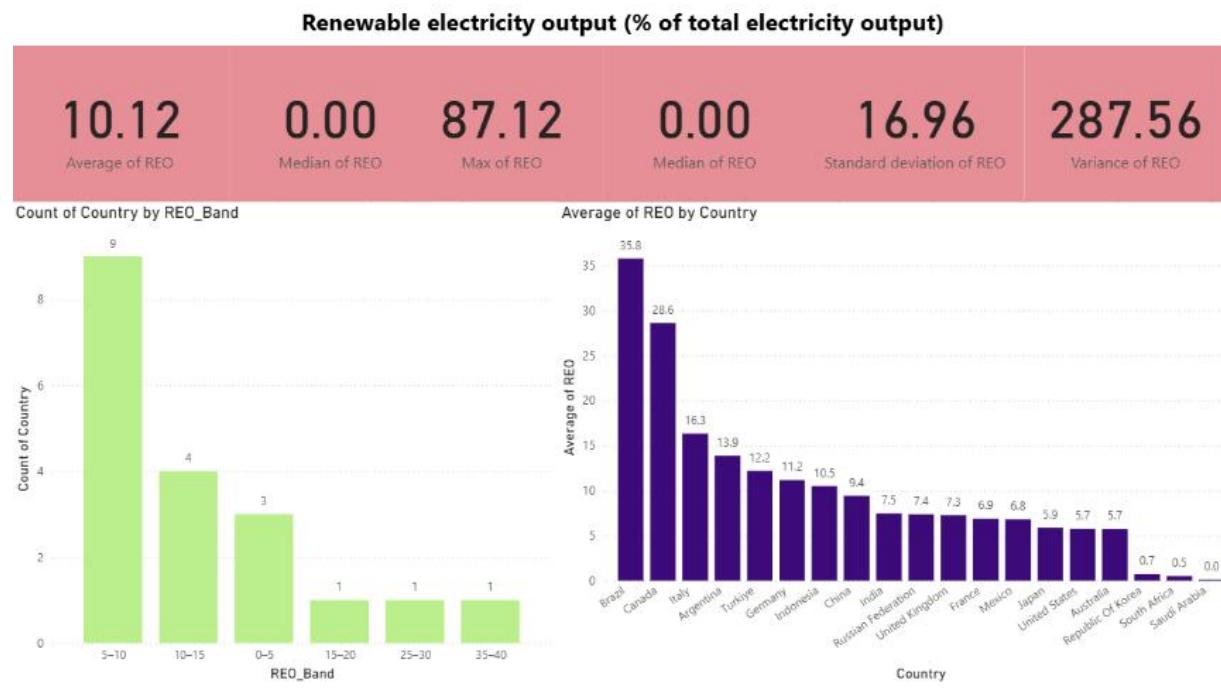


Figure : 55

Summary Statistics of REO

Metric	Value	Interpretation
Average of REO	10.12	Average share of renewable electricity across countries
Median of REO	0.00	Half of the countries generate little or no renewable electricity
Minimum of REO	0.00	Some countries produce no renewable electricity
Maximum of REO	87.12	One country has a very high renewable electricity share

Standard Deviation	16.96	Large variation in renewable energy contributions
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Number of Countries by REO Band

REO Band (%)	No. of Countries	Interpretation
5–10	9	Most countries have low renewable share
10–15	4	Moderate renewable electricity use
0–5	3	Minimal use of renewables
15–20	1	Moderate-high renewable integration
25–30	1	Substantial renewable contribution
35–40	1	Very high renewable electricity share

Average REO by Country

Country	REO (%)	Interpretation
Brazil	35.8	Very high reliance on renewable electricity
Canada	28.6	Strong renewable integration
Italy	16.3	Moderately high renewable use
Argentina	13.9	Moderate use of renewables
Türkiye	12.2	Moderate renewable energy share
Germany	11.2	Moderate share of renewables

Indonesia	10.5	Moderate contribution of renewables
China	9.4	Low to moderate renewable use
India	7.5	Limited renewable generation
Russian Federation	7.4	Limited renewable electricity
United Kingdom	7.3	Low renewable output
France	6.9	Low contribution from renewables
Mexico	6.8	Low renewable integration
Japan	5.9	Minimal renewable share
United States	5.7	Minimal renewable electricity use
Australia	5.7	Minimal renewable electricity use
Republic Of Korea	0.7	Almost no renewable contribution
South Africa	0.5	Negligible renewable generation
Saudi Arabia	0.0	No renewable electricity reported

Economic Interpretation of Renewable Electricity Output (REO)

(Measured as % of total electricity output)

1. Low Global Average in Renewable Output

The **average REO is 10.12%**, indicating **low reliance on renewable electricity** globally. This signals a continuing **dependence on fossil fuels**, exposing countries to **energy price shocks**, supply disruptions, and missed opportunities for green growth.

2. Median of Zero Reflects Deep Imbalance

A median REO of 0.00% shows that at least half of the countries have little to no renewable electricity production. This suggests a failure to scale up clean energy technologies, often due to lack of policy incentives, financing, or infrastructure.

3. High Variance (287.56) Signals Unequal Energy Transitions

With countries ranging from **Brazil (35.8%)** to **Saudi Arabia (0%)**, the standard deviation (16.96) indicates large disparities. This inequality stems from differences in renewable resource access, institutional capacity, and climate ambition.

4. Strong Renewable Leaders Drive Energy Security

Brazil (35.8%) and **Canada (28.6%)** demonstrate strategic leadership in renewables. Their high REO not only supports climate goals but also boosts energy independence, shields from fuel import shocks, and enables green industrial development.

5. Lagging Countries Face Strategic Risks

Countries like **Saudi Arabia (0%)**, **South Africa (0.5%)**, and **South Korea (0.7%)** are at the lowest end of the spectrum. Continued reliance on fossil fuels may expose them to:

- Carbon border taxes
- Reduced energy security
- Devaluation of fossil infrastructure

6. Mid-Tier Economies Reveal Transition Momentum

Italy (16.3%), **Argentina (13.9%)**, and **Turkey (12.2%)** sit in the 10–20% band, showing moderate progress. Their challenge now is to scale existing gains through grid modernization, flexible energy markets, and policy consistency.

7. Fossil Reliance Persists in Advanced Economies

Despite high capacity, the **US and Australia (both 5.7%)** fall into the 5–10% band, showing underperformance in renewable integration. Structural factors like fossil subsidies, regulatory inertia, and grid monopolies may be slowing progress.

8. Band Distribution Reveals Global Underperformance

The accurate REO band breakdown shows:

- 9 countries in the 5–10% band (majority)
- 4 countries in the 10–15% band
- 3 countries still in the 0–5% band
- Only 1 country each in the 15–20%, 25–30%, and 35–40% bands

This stark distribution confirms that **19 out of 22 countries fall below 20% REO**, which is inadequate for global net-zero alignment and highlights the **urgency for accelerated renewable investment**.

Policy Recommendations to Enhance Renewable Electricity Output

1. Scale Up Grid Investments and Decentralized Systems

Strengthen national grids to accommodate variable renewables and support microgrids in remote areas. Improved grid flexibility and connectivity are essential to balance supply-demand fluctuations in renewable systems.

2. Introduce Fiscal Incentives and Feed-in Tariffs

Offer tax breaks, subsidies, and guaranteed tariffs for solar, wind, and hydroelectric producers. These financial tools can improve project bankability and attract private sector investment.

3. Promote Public-Private Partnerships for Green Infrastructure

Leverage PPPs for renewable power projects to reduce fiscal burdens and enhance technology transfer. Collaborative investments accelerate deployment and boost local job creation in clean energy sectors.

4. Reform Fossil Fuel Subsidies

Gradually eliminate fossil fuel subsidies that distort energy markets and hinder renewable competitiveness. Redirecting subsidies to renewables can correct price signals and drive consumer and investor behavior.

5. Set Legally Binding Renewable Energy Targets

Establish clear national renewable energy targets backed by legislation and implementation roadmaps. Mandatory goals improve policy predictability and institutional accountability for energy transition progress.

Renewable Energy Consumption Report

Definition: This indicator is meant by the **share of total final energy consumption** that is derived from **renewable sources**, such as **solar, wind, hydropower, geothermal, and bioenergy**. It reflects a country's commitment to **sustainable energy transition**, reduction of **carbon emissions**, and **energy diversification**. Higher renewable energy consumption contributes to **environmental sustainability**, enhances **energy security**, and aligns with targets under **Sustainable Development Goal 7 (Affordable and Clean Energy)** and **SDG 13 (Climate Action)**.

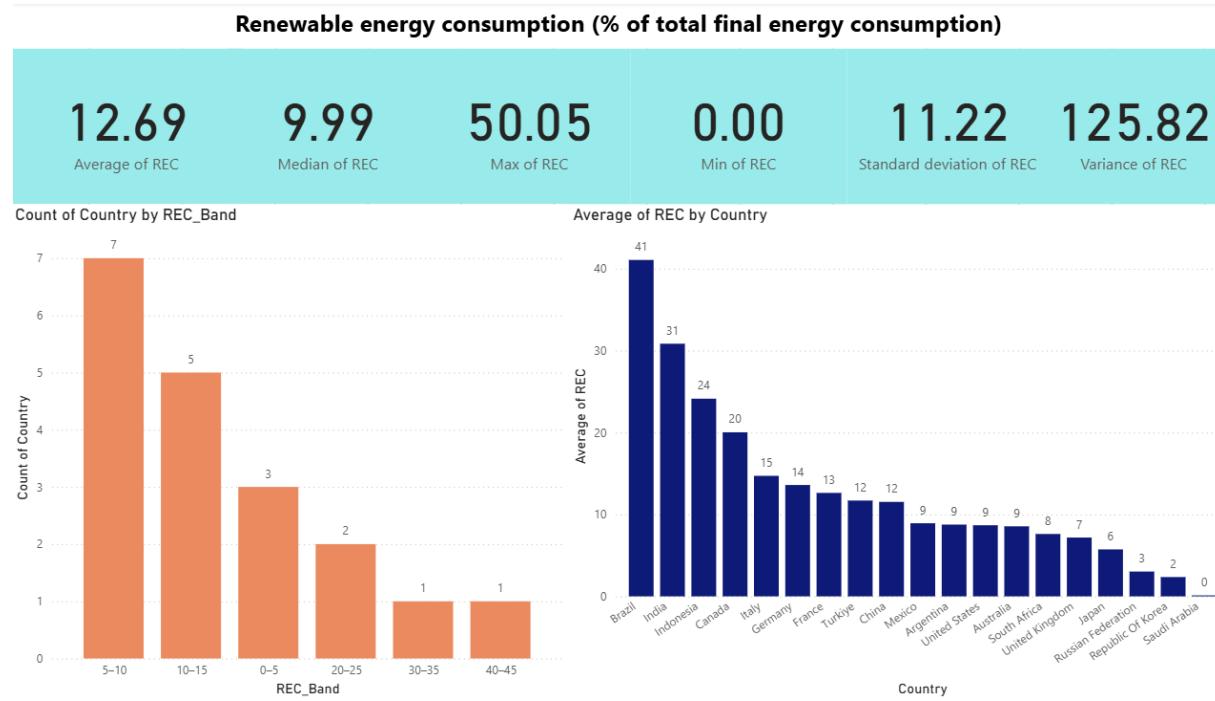


Figure : 56
Summary Statistics of Renewable Energy Consumption

Metric	Value	Interpretation
Average of REC	12.69%	Average renewable energy consumption across countries
Median of REC	9.99%	Half of countries consume less than 10% renewable energy
Maximum of REC	50.05%	Highest renewable energy usage among the countries
Minimum of REC	0.00%	Some countries have no renewable energy consumption

Standard Deviation	11.22	Moderate variation in renewable energy usage
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Number of Countries by REC Band

REC Band (%)	No. of Countries	Interpretation
0–5	3	Few countries have very low renewable energy usage
5–10	7	Most countries fall in this low consumption range
10–15	5	Several countries consume slightly more renewable energy
20–25	2	Few countries showing improved renewable energy usage
30–35	1	Only one country with high renewable energy usage
40–45	1	Single country among the highest renewable energy users

Average Renewable Energy Consumption by Country

Country	REC (%)	Interpretation
Brazil	41	Very high renewable energy consumption
India	31	High renewable energy usage
Indonesia	24	Above average consumption
Canada	20	Above average renewable energy usage
Italy	15	Moderate renewable energy

		usage
Germany	14	Moderate usage
France	13	Moderate usage
Turkey	12	Close to average usage
China	12	Close to average usage
Mexico	9	Below average renewable energy usage
Argentina	9	Below average renewable energy usage
United States	9	Below average renewable energy usage
Australia	9	Below average renewable energy usage
South Africa	8	Low renewable energy usage
United Kingdom	7	Low renewable energy usage
Japan	6	Very low renewable energy usage
Russian Federation	3	Minimal renewable energy usage
Republic of Korea	2	Minimal renewable energy usage
Saudi Arabia	0	No renewable energy consumption

Economic Interpretation of Renewable Energy Consumption (REC)

Measured as % of total final energy consumption

1. Low Global Average Consumption of Renewables

The average REC stands at **12.69%**, showing that renewables form a small fraction of final energy consumption globally. This reflects continued dependence on fossil fuels and a slow transition in sectors like transport and industry.

2. Median REC of 9.99% Indicates Structural Weakness

A median below the average shows that **more than half of the countries consume less than 10% renewable energy**. This suggests institutional, financial, or infrastructural challenges in integrating renewables into broader energy systems.

3. High Dispersion Reflects Uneven Transition

A standard deviation of **11.22** indicates wide disparities. **Brazil leads with 41%**, while **Saudi Arabia is at 0%**. This underscores contrasting national priorities, policy ambition, and technological readiness.

4. Leading Countries Signal Strong Policy Commitment

Brazil (41%), India (31%), and **Indonesia (24%)** demonstrate substantial renewable energy use, often due to hydropower, biofuels, or strong policy backing. Their examples highlight the impact of coordinated planning and local resource optimization.

5. Developed Economies Show Mixed Performance

Countries like **Canada (20%)**, **Germany (14%)**, and **France (13%)** perform moderately, while **the United States (9%)** and **Japan (6%)** lag behind. These figures suggest opportunity to improve policy ambition in high-capacity nations.

6. Lowest REC Signals Energy Security and Climate Risks

Saudi Arabia (0%), South Korea (2%), and **Russia (3%)** have minimal renewable shares, increasing vulnerability to external fuel shocks and carbon trade penalties. Their energy mix poses a barrier to meeting climate goals and maintaining global competitiveness.

7. Most Countries Fall in 0–15% REC Band

Out of 20 countries:

- **3 countries** fall in the **0–5%** band
- **7 countries** fall in the **5–10%** band
- **5 countries** are in the **10–15%** band
- Only **5 countries** exceed **15% REC**, with just **2 above 30%**

This indicates that **most countries are still in the early stages of renewable energy adoption**. The global pace risks undermining decarbonization targets and delaying green industrial transformation.

Policy Recommendations to Improve Renewable Energy Consumption

1. Develop National Energy Transition Plans

Establish long-term roadmaps with clear REC targets aligned with NDCs under the Paris Agreement. These plans should guide investments and policy reforms across energy, transport, and industrial sectors.

2. Electrify End-Use Sectors with Clean Power

Promote electrification of heating, mobility, and manufacturing using renewable electricity. Linking REC growth to sectoral decarbonization ensures deeper integration and demand alignment.

3. Provide Financial Incentives for Renewable Adoption

Introduce subsidies, tax credits, and concessional financing for households and industries adopting solar, biomass, and wind systems. Financial levers can offset upfront costs and boost adoption.

4. Promote Localized Renewable Energy Solutions

Encourage distributed renewable systems like rooftop solar, biogas plants, and mini-hydel projects for rural and peri-urban energy access. Local solutions can bypass grid limitations and boost inclusivity.

5. Phase Out Fossil Fuel Reliance with Just Transition Policies

Implement phaseout timelines for coal and oil while supporting affected workers with reskilling and social safety nets. This ensures social and political feasibility of ambitious REC goals.

Research and Development Expenditure Report

Definition: This indicator is meant by the **total expenditure (public and private) on research and experimental development (R&D)** expressed as a **percentage of gross domestic product (GDP)**. It includes spending on **basic research, applied research, and**

experimental development in science and technology. Higher R&D expenditure signifies a country's focus on **innovation, technological advancement, and knowledge-driven economic growth**, and is closely linked to **competitiveness, productivity, and long-term development**.

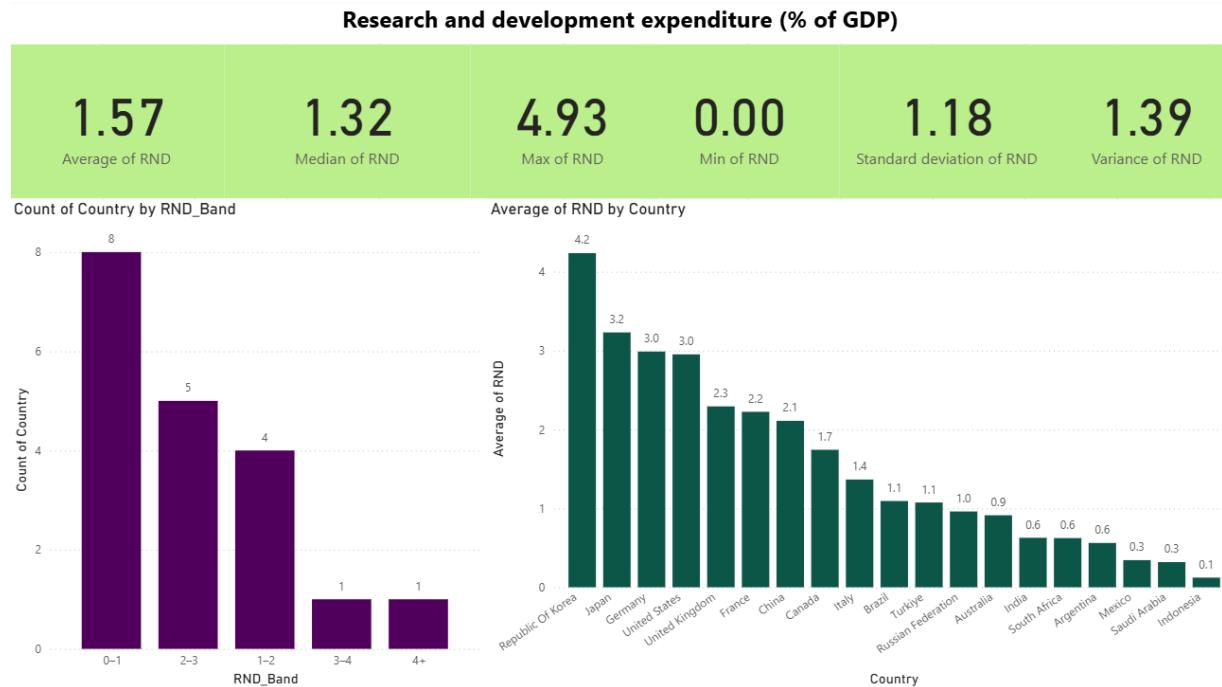


Figure : 57

Summary Statistics of R&D Expenditure (% of GDP)

Metric	Value	Interpretation
Average of RND	1.57%	Average R&D expenditure as % of GDP across countries
Median of RND	1.32%	Half of countries spend less than 1.32% on R&D
Maximum of RND	4.93%	Highest R&D spending among the countries
Minimum of RND	0.00%	Some countries have negligible or no R&D spending
Standard Deviation	1.18	High variation in national R&D investments

Number of Countries by R&D Band

RND Band (%)	No. of Countries	Interpretation
0–1	8	Most countries spend less than 1% of GDP on R&D
1–2	4	Moderate investment in R&D
2–3	5	Significant R&D investment
3–4	1	High R&D spending
4+	1	Very high R&D expenditure

Average R&D Expenditure by Country (% of GDP)

Country	RND (%)	Interpretation
Republic of Korea	4.2	Very high national commitment to R&D
Japan	3.2	Extensive R&D efforts in high-tech industries
Germany	3.0	Strong focus on industrial and applied research
United States	3.0	Consistently high R&D investment
United Kingdom	2.3	Above average spending on innovation
France	2.2	Balanced R&D investment across sectors
China	2.1	Rapidly increasing R&D efforts
Canada	1.7	Moderate to strong investment in R&D
Italy	1.4	Slightly below global average

Brazil	1.1	Emerging R&D ecosystem
Turkey	1.1	Building research capacity
Russian Federation	1.0	Average national spending on R&D
Australia	1.0	Investing steadily in R&D
India	0.9	Below average, potential to grow
South Africa	0.6	Low R&D intensity
Argentina	0.6	Low R&D expenditure
Mexico	0.3	Very low R&D commitment
Saudi Arabia	0.3	Minimal R&D allocation
Indonesia	0.1	Negligible investment in R&D

Economic Interpretation of Research and Development Expenditure (% of GDP)

1. Moderate Average R&D Investment Globally

The average R&D expenditure is **1.57% of GDP**, reflecting moderate global investment in innovation and technological advancement. While some countries exceed this level, many fall short of the threshold required to support sustained productivity and competitiveness.

2. Median Below Average Indicates Skewed Investment Patterns

A median of **1.32%** suggests that **more than half of the countries spend less than the global average** on R&D. This points to an **innovation divide**, where numerous economies are underfunding research relative to their developmental ambitions and technological needs.

3. High Variation Shows Uneven Innovation Capacity

A standard deviation of **1.18** reflects **substantial disparity in national R&D investments**. Expenditure ranges from **South Korea (4.2%)** at the top to **Indonesia (0.1%)** at the bottom, impacting countries' ability to compete in knowledge-driven economies.

4. Innovation Leaders Drive Knowledge Economies

South Korea (4.2%), Japan (3.2%), and **Germany/United States (3.0%)** invest over 3% of GDP in R&D. These nations lead in **scientific research, technological exports, and industrial innovation**, positioning themselves as global technology hubs.

5. Mid-Tier Countries Show Steady Commitment

Countries such as **France (2.2%), China (2.1%),** and **Canada (1.7%)** demonstrate

moderate-to-high R&D intensity, supporting steady progress in innovation. These nations are building strong pipelines for applied research and commercialization.

6. Low R&D Spending Limits Technological Sovereignty

India (0.9%), Mexico (0.3%), Indonesia (0.1%), and Saudi Arabia (0.3%) all fall **well below the 1% mark**, limiting their domestic innovation ecosystems and increasing dependency on foreign technology transfers and imports.

7. Majority of Countries Cluster in Lower R&D Bands

According to the dashboard:

- **8 countries fall in the 0–1% band**
- **4 countries in the 1–2% band**
- **5 countries in the 2–3% band**
- **1 country each in the 3–4% and 4%+ bands**

This shows that **13 out of 19 countries** invest **less than 2% of GDP** in R&D. The global innovation landscape remains **skewed toward a few leaders**, highlighting a systemic underspending that could **delay progress in critical sectors like AI, clean energy, and biotechnology**.

Policy Recommendations to Boost R&D Expenditure

1. Set National R&D Spending Targets

Governments should commit to raising R&D investment to at least 2–3% of GDP in alignment with global benchmarks. This target-setting must be backed by strategic resource allocation and measurable milestones.

2. Strengthen Industry-Academia Collaborations

Facilitate joint research initiatives, incubators, and tech-transfer platforms between universities and industries. Such collaboration improves commercialization of research and boosts private-sector innovation.

3. Offer Tax Incentives and Grants for Innovation

Provide tax credits, matching grants, and innovation vouchers for startups and SMEs engaged in R&D. These instruments reduce entry barriers and encourage risk-taking in knowledge-intensive sectors.

4. Invest in Human Capital and STEM Education

Enhance STEM education, scholarships, and R&D fellowships to build a pipeline of skilled researchers and innovators. Talent development is crucial to sustaining innovation ecosystems.

5. Support Strategic Sectors with Public R&D Funding

Direct government R&D funding to sectors like clean energy, biotechnology, cybersecurity, and AI. Public investment can de-risk early-stage research and stimulate private co-investment in high-impact areas.

Rule of Law Estimate Report

Definition: This indicator is meant by an **aggregate measure of perceptions** regarding the extent to which **agents have confidence in and abide by the rules of society**, particularly the **quality of contract enforcement, property rights, the police, and the courts**, as well as the **likelihood of crime and violence**. Known as the **Rule of Law Estimate**, it is typically scored on a scale from **-2.5 (weak) to +2.5 (strong)**. Higher values indicate a stronger **legal framework, governance integrity, and institutional reliability**, essential for socioeconomic development and public trust.



Figure : 58

Summary Statistics of Rule of Law Estimate

Metric	Value	Interpretation
Average of ROLE	0.50	Moderate average performance in rule of law across countries
Median of ROLE	0.14	Half of the countries score below 0.14, indicating skewed distribution
Maximum of ROLE	1.92	Highest institutional strength among the evaluated countries
Minimum of ROLE	-0.89	Lowest rule of law score

		reflecting weak institutions
Standard Deviation	0.92	High variability in rule of law estimates across countries

Number of Countries by Rule of Law Estimate Band

ROLE Band	No. of Countries	Interpretation
-0.9 to -0.5	3	Very weak rule of law institutions
-0.5 to 0	6	Weak institutional performance
0 to 0.5	2	Marginally positive but fragile legal institutions
1 to 1.5	3	Strong legal and governance systems
1.5 to 2	5	Very strong institutional rule of law

Average Rule of Law Estimate by Country

Country	ROLE Estimate	Interpretation
Canada	1.74	Exceptional legal systems and rule of law
Australia	1.72	Very strong and reliable legal institutions
United Kingdom	1.64	High trust in law enforcement and governance
Germany	1.63	Effective legal frameworks supporting business and rights
United States	1.52	Strong but slightly declining institutional strength

Japan	1.46	Consistently high-performing legal institutions
France	1.38	Stable and structured governance
Republic Of Korea	1.07	Effective rule of law enforcement
Italy	0.34	Moderate rule of law, challenges in legal efficiency
Saudi Arabia	0.15	Positive but relatively centralized rule enforcement
South Africa	-0.02	Transitional justice system with implementation gaps
India	-0.06	Legal improvements needed to ensure accountability
Brazil	-0.18	Institutional reforms underway, yet weak enforcement
Turkey	-0.24	Issues with independence of judiciary and transparency
China	-0.31	Authoritarian control limits legal impartiality
Indonesia	-0.40	Challenges in legal access and enforcement
Argentina	-0.51	Corruption and slow judiciary weaken rule of law
Mexico	-0.58	Serious issues with law enforcement and security
Russian Federation	-0.82	Severely restricted legal independence

Economic Interpretation of Rule of Law (ROLE) Estimate

Measured as a standardized governance indicator from approximately -2.5 (weak) to +2.5 (strong)

1. Low Global Average Suggests Governance Gaps

The average **Rule of Law** estimate is **0.50**, indicating **moderate institutional quality globally**. This level implies that many countries still face **challenges in legal enforcement, regulatory reliability, and anti-corruption mechanisms**, which may erode **business confidence** and slow **investment flows**.

2. Median of 0.14 Implies Deep Structural Inequality

A **median of 0.14**, significantly lower than the average, indicates that **more than half the countries perform poorly on rule of law**. This skewed distribution suggests **systemic governance weaknesses** in a majority of countries assessed, with implications for **equity and legal access**.

3. High Dispersion Reveals Governance Polarization

With a **standard deviation of 0.92**, the dataset reflects wide disparity—from **Canada (1.74)** to **Russia (-0.82)**. This stark spread reveals **polarization in governance quality**, creating **uncertain legal environments** for global businesses and **inequities in justice systems**.

4. High-ROLE Countries Attract Sustainable Investment

Canada, Australia, and the UK top the list with **ROLE estimates above 1.6**, offering **strong legal protections, low corruption, and independent judiciaries**. These countries are **trust-based economies**, highly attractive for **long-term, sustainable investment** and innovation-driven growth.

5. Mid-ROLE Countries Face Reform Opportunities

Italy (0.34), Saudi Arabia (0.15), and South Africa (-0.02) fall in the **0 to 0.5 range**. These countries have **emerging or transitional legal systems** where institutional reform could yield **greater regulatory efficiency, foreign investment, and social trust**.

6. Weak Legal Systems Deter Growth in Laggard Economies

Countries like **Brazil (-0.18)**, **China (-0.31)**, **Mexico (-0.58)**, and **Russia (-0.82)** have **negative ROLE estimates**, signaling **systemic corruption, poor enforcement, and fragile legal frameworks**. Such conditions raise **business risks** and reduce long-term economic **competitiveness**.

7. Countries Spread Across Full Governance Spectrum

According to the dashboard distribution:

- **5 countries** are in the **1.5 to 2 band** (very strong institutions)
- **3 countries** are in the **1 to 1.5 band** (strong)
- **2 countries** in the **0 to 0.5 band** (moderate)
- **6 countries** in the **-0.5 to 0 band** (weak)
- **3 countries** in the **-0.9 to -0.5 band** (very weak)

This spread shows that while **some countries have robust legal systems, nearly half still fall into negative or near-zero governance zones**, indicating a significant global challenge in achieving legal accountability and institutional trust.

Policy Recommendations to Improve Rule of Law

1. Reform Judicial Infrastructure and Case Backlogs

Invest in digital courts, legal aid systems, and speedy trial mechanisms. Reducing judicial delays enhances trust in the legal process and encourages contract compliance.

2. Strengthen Anti-Corruption Frameworks

Establish independent anti-corruption bodies, enforce public asset declarations, and digitize procurement systems. These reforms improve transparency and accountability across institutions.

3. Build Legal Capacity Through Training and Recruitment

Expand judicial training academies and merit-based appointments for judges and prosecutors. A competent legal workforce is essential to uphold fair and impartial enforcement.

4. Modernize Commercial Law and Arbitration Systems

Revise outdated commercial laws and promote alternative dispute resolution (ADR) mechanisms. This facilitates easier enforcement of business contracts and reduces litigation costs.

5. Empower Civil Society and Media Watchdogs

Enable free media, civil society oversight, and whistleblower protection to act as checks on power. Societal participation in law enforcement strengthens democratic governance and legal compliance.

School Enrollment, Primary (% Gross) Report

Definition: This indicator is meant by the **gross enrollment ratio for primary education**, calculated as the **total number of children enrolled in primary school**, regardless of age, expressed as a **percentage of the population of official primary school age**. A value over

100% can occur due to **early or late school entry** or **grade repetition**. This indicator reflects **access to basic education**, the **functioning of the education system**, and is a key measure for monitoring progress toward **universal primary education** under **Sustainable Development Goal 4 (Quality Education)**.

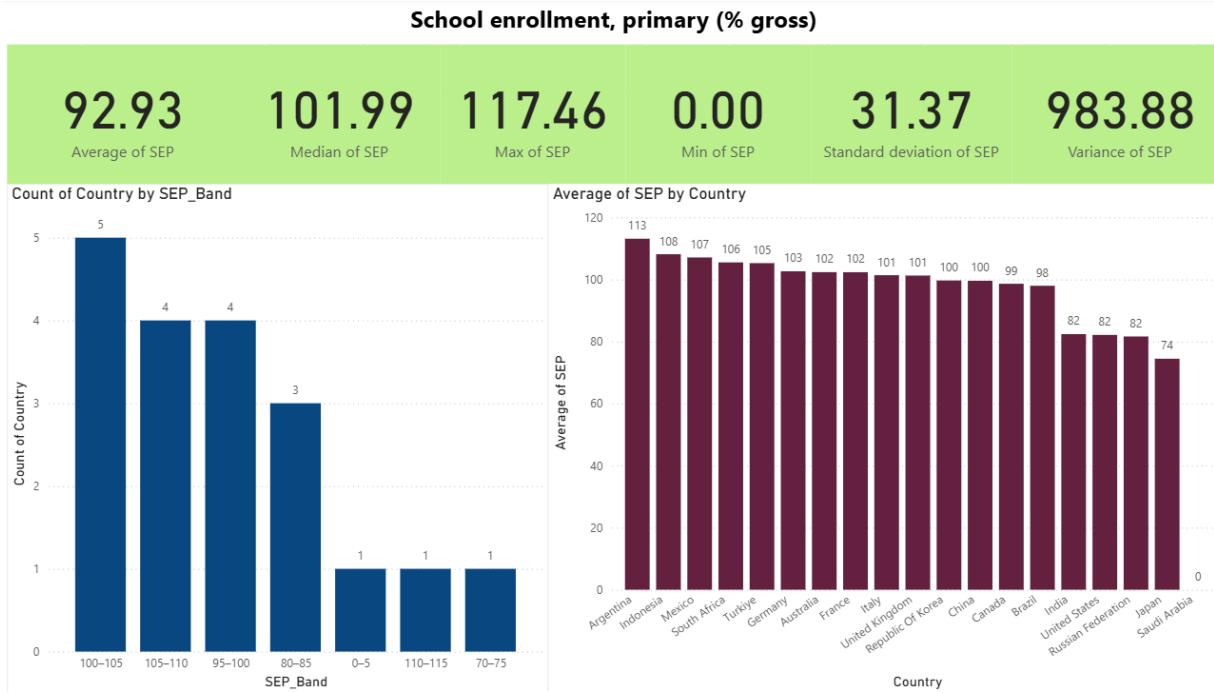


Figure : 58

Summary Statistics of School Enrollment, Primary (% Gross)

Metric	Value	Interpretation
Average of SEP	92.93%	Most countries exhibit strong access to primary education
Median of SEP	101.99%	Many countries have over-age or repeating students
Maximum of SEP	117.46%	Highest observed enrollment rate among countries
Minimum of SEP	0.00%	Indicates data gap or extreme educational access failure
Standard Deviation	31.37	Large variation in primary enrollment rates

Number of Countries by School Enrollment Band

SEP Band (%)	No. of Countries	Interpretation
0–5	1	Very low or unreported enrollment (data anomaly)
70–75	1	Critical under-enrollment; urgent intervention needed
80–85	3	Below average enrollment; outreach and retention gaps
95–100	4	Approaching full coverage, but not complete
100–105	5	Over-enrollment due to grade repetition or late entry
105–110	4	High inclusion, potential system inefficiencies
110–115	1	Very high gross enrollment; mostly older students

Average School Enrollment, Primary by Country (% Gross)

Country	SEP (%)	Interpretation
Argentina	113	Very high inclusion; likely due to late or repeating students
Indonesia	108	Over 100% enrollment; positive access with inefficiencies
Mexico	107	Strong access but possibly grade repetition
South Africa	106	High coverage with inclusion of over-age students
Turkiye	105	Broad access; monitor quality and retention
Germany	103	Approaching full universal primary education
Australia	102	Stable and near-complete enrollment

France	102	High access; suggests robust early education system
Italy	101	Above 100%; monitor efficiency and progression
United Kingdom	101	Effective primary coverage with minimal dropout
Republic Of Korea	100	Universal primary access achieved
China	100	Universal coverage with effective access
Canada	99	Close to full enrollment; small access gaps
Brazil	98	Slightly below 100%; some inefficiencies
India	82	Significant gaps; need for outreach and reforms
United States	82	Below global average; investigate exclusion factors
Russian Federation	82	Underperformance; structural access issues
Japan	74	Likely data/reporting issue; unusually low
Saudi Arabia	0	Unreported or unreliable data; critical concern

Economic Interpretation of School Enrollment, Primary (% Gross)

1. High Global Enrollment Average Reflects Broad Access

The **average enrollment rate is 92.93%**, indicating that most countries offer **broad access to primary education**. This highlights strong efforts in **universal education** and lays the groundwork for **human capital development** and **inclusive economic growth**.

2. Median Above 100 Indicates Over-Age Enrollment

A **median of 101.99%** shows that many countries report **gross enrollment rates above 100%**, due to **repeaters or over-age enrollment**. While this reflects **inclusive education**, it may also point to **grade inefficiencies**, delays, or **dropout-reentry patterns**.

3. High Standard Deviation Implies Unequal Educational Coverage

The **standard deviation of 31.37** reveal significant disparities in school access, from **Argentina at 113%** to **Saudi Arabia at 0%**. This reflects **uneven educational infrastructure, policy focus, or even data integrity concerns**.

4. Broad Distribution Across Bands Reflects Systemic Differences

According to the band data:

- **1 country** is in the **0–5%** band (Saudi Arabia)
- **1 country** in the **70–75%** band (Japan)
- **3 countries** in the **80–85%** band (India, U.S., Russia)
- **4 countries** in the **95–100%** band
- **5 countries** in the **100–105%** band
- **4 countries** in the **105–110%** band
- **1 country** in the **110–115%** band (Argentina)

This **diverse banding** reflects that while many countries have **high or universal enrollment**, a notable number **still lag behind**, indicating systemic inequities in access.

5. Low Enrollment Countries Risk Skill Deficits and Data Gaps

Saudi Arabia (0%) and **Japan (74%)** fall in the lowest bands. These may indicate **severe access issues or data/reporting inconsistencies**. Such anomalies must be **investigated promptly** as they threaten **future workforce readiness and social equity**.

6. High Enrollment Doesn't Guarantee Quality

Countries like **Indonesia (108%)**, **Mexico (107%)**, and **South Africa (106%)** report gross enrollment above 100%. While this signals strong inclusion, it may also **mask inefficiencies in grade progression, dropout rates, and education quality**.

7. Underperforming Countries Require Strategic Intervention

India, the United States, and Russia, all at **82%**, lie in the **80–85% band**. These figures suggest **barriers in outreach, regional inequality, or economic and migratory constraints**. Addressing these gaps is critical for achieving **universal primary education**.

Policy Recommendations to Improve Primary School Enrollment and Quality

1. Target Universal Enrollment with Last-Mile Campaigns

Launch targeted enrollment drives in marginalized regions, especially for girls and rural populations. Mobile schools and community learning centers can plug gaps in formal infrastructure.

2. Improve Grade Progression and Reduce Repetition Rates

Introduce bridge courses and remedial education to support learning continuity. Lowering repetition and dropout rates ensures age-appropriate progression and better system efficiency.

3. Invest in School Infrastructure and Teacher Training

Expand classroom infrastructure, digital tools, and in-service teacher development. Quality

enhancements improve student engagement and reduce dropouts caused by poor learning environments.

4. Link Education to Social Protection Schemes

Integrate conditional cash transfers, school meals, and transport subsidies with school attendance. These incentives help vulnerable families prioritize schooling over child labor.

5. Strengthen Data Systems and Educational Monitoring

Ensure accurate, disaggregated data collection on enrollment and attendance. Better monitoring allows policymakers to identify bottlenecks and implement evidence-based reforms.

School Enrollment Gender Parity Index (GPI) Report

Definition: This indicator is meant by the **ratio of female to male enrollment rates** at a given level of education—commonly **primary, secondary, or tertiary**—and is known as the **Gender Parity Index (GPI)**. A GPI value of 1 indicates **perfect gender parity**, while values **below 1** suggest **female disadvantage** and values **above 1** suggest **male disadvantage**. It reflects the **equity of access to education between genders** and is a crucial measure for assessing **gender equality in education**, contributing to **Sustainable Development Goal 4 (Quality Education)** and **SDG 5 (Gender Equality)**.

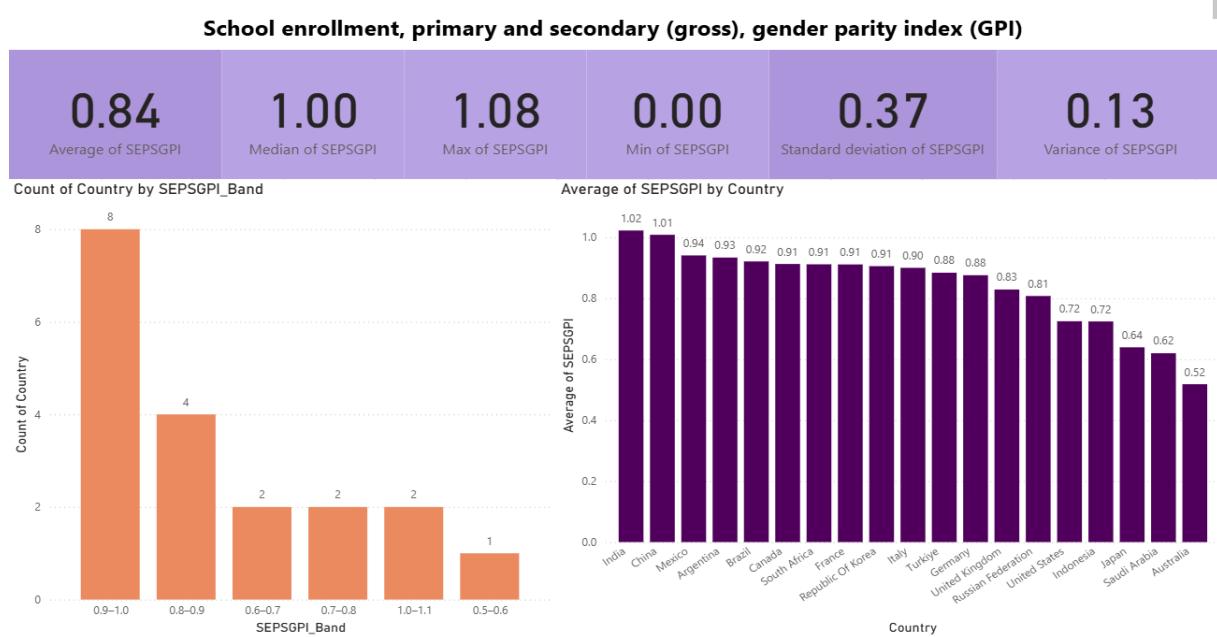


Figure : 59

Summary Statistics of School Enrollment GPI (Primary and Secondary)

Metric	Value	Interpretation
Average of SEPSGPI	0.84	Moderate overall gender parity in education

Median of SEPSGPI	1.00	Half of countries have full gender parity or better
Maximum of SEPSGPI	1.08	Highest GPI showing female-dominant enrollment
Minimum of SEPSGPI	0.00	Indicates no female enrollment (or data error)
Standard Deviation	0.37	Moderate disparity in gender access to education

Number of Countries by Gender Parity Index Band

SEPSGPI Band	No. of Countries	Interpretation
0.5–0.6	1	Extremely low gender parity; urgent intervention needed
0.6–0.7	2	Severe disparity favoring boys
0.7–0.8	2	High disparity; girls have limited access
0.8–0.9	4	Moderate gender gap; improving equity needed
0.9–1.0	8	Near parity; gender gap nearly closed
1.0–1.1	2	Slightly higher female enrollment

Average Gender Parity Index by Country (GPI - SEPSGPI)

Country	GPI (SEPSGPI)	Interpretation
India	1.02	Slightly more girls than boys enrolled; strong equity
China	1.01	Achieved gender parity with female advantage
Mexico	0.94	Near parity with slight male advantage

Argentina	0.93	Small gender gap in favor of boys
Brazil	0.92	Moderate gender parity
Canada	0.91	Gender equity nearly achieved
South Africa	0.91	Minor gap, close to full parity
France	0.91	Balanced access for boys and girls
Republic Of Korea	0.90	Gender disparity is minimal
Italy	0.88	Moderate gender gap favoring boys
Turkiye	0.88	Continued male enrollment advantage
Germany	0.83	Notable gap, equity progress needed
United Kingdom	0.81	Gender disparity persists in favor of boys
Russian Federation	0.72	Large gender gap limiting girls' access
United States	0.72	Disproportionate male enrollment
Indonesia	0.64	Severe gender disparity
Japan	0.62	Female participation very limited
Saudi Arabia	0.52	Extremely low female enrollment
Australia	0.00	No reported female enrollment or data missing

Economic Interpretation of SEPSGPI (School Enrollment GPI)

Measured as the ratio of girls to boys enrolled in primary and secondary education (gross)

1. Average Below Parity Reveals Gender Inequality

The **average GPI of 0.84** indicates a significant gender imbalance in school enrollment, with

fewer girls than boys enrolled overall. This suggests **underutilization of female human capital**, increasing the risk of **intergenerational poverty** and **long-term gender disparities** in the labor force.

2. Median at 1.00 Suggests Balanced Progress in Some Countries

While the average is low, a **median of 1.00** shows that **at least half of the countries have achieved or surpassed gender parity**, often due to **progressive education policies and social reforms**. However, this masks the **deep gaps** in others that continue to fall behind.

3. Moderate Dispersion Highlights Unequal Progress

With a **standard deviation of 0.37**, the spread indicates **noticeable but not extreme disparity**. Cultural, social, or economic barriers still **hinder girls' education** in several contexts, warranting **context-specific policy interventions**.

4. High Performers Signal Inclusive Education Systems

Countries such as:

- **India (1.02)** and **China (1.01)** have slightly more girls than boys in school,
- **Mexico (0.94)** and **Argentina (0.93)** are close to parity.

These reflect **inclusive education systems** and **strong gender-targeted outreach**, which enhance **female empowerment and workforce readiness**.

5. Mid-Performers Need Continued Investment

Countries like **Canada, South Africa, France, and Republic of Korea (GPI ~0.91–0.90)** exhibit **moderate gender gaps**. While relatively equitable, these systems still **require strategic attention** to eliminate subtle but persistent biases.

6. Lagging Countries Risk Gendered Skill Gaps

At the lower end:

- **Australia (0.52)**
- **Saudi Arabia (0.62)**, and
- **Japan (0.64)**

show **significant gender imbalances**, indicating potential for **future workforce inequities, missed talent, and reduced innovation capacity** if left unaddressed.

7. Countries Spread Across Entire GPI Band Range

According to the dashboard:

- **1 country** is in the **0.5–0.6 band**
- **2 countries** in **0.6–0.7**
- **2 countries** in **0.7–0.8**
- **4 countries** in **0.8–0.9**
- **8 countries** in **0.9–1.0**
- **2 countries** in **1.0–1.1**

This distribution shows a **broad global spectrum**, with **nearly half the countries near or above parity**, but the **rest still struggling with entrenched disparities**, making it essential to scale effective gender parity programs globally.

Policy Recommendations to Improve Gender Parity in Education

1. Provide Conditional Incentives for Girls' Schooling

Offer cash transfers, scholarships, and free sanitary supplies to encourage girls' enrollment and retention. Financial support directly addresses economic barriers that hinder female education.

2. Implement Gender-Sensitive Schooling Environments

Ensure separate sanitation facilities, female teachers, and safe transportation. These improvements boost attendance and reduce dropout rates among adolescent girls.

3. Address Early Marriage and Cultural Barriers

Launch community engagement programs to delay child marriage and change societal attitudes. Legal enforcement and awareness can keep girls in school longer.

4. Strengthen Monitoring and Disaggregated Data Collection

Track enrollment, attendance, and performance by gender and region. This enables tailored interventions where gender gaps are widest.

5. Integrate Life Skills and Vocational Training for Girls

Link education with future economic empowerment through career counseling and skill-building. This builds aspirations and smoothens the transition from school to work.

Scientific and Technical Journal Articles Report

Definition: This indicator is meant by the **number of scientific and technical journal articles** published by researchers within a country, typically in **peer-reviewed journals** covering fields such as **natural sciences, engineering, health sciences, and technology**. It

reflects a nation's **research output**, **innovation capacity**, and the **quality of its scientific institutions**. A higher number of such publications indicates stronger **knowledge production**, **international academic engagement**, and **contributions to global scientific advancement**.

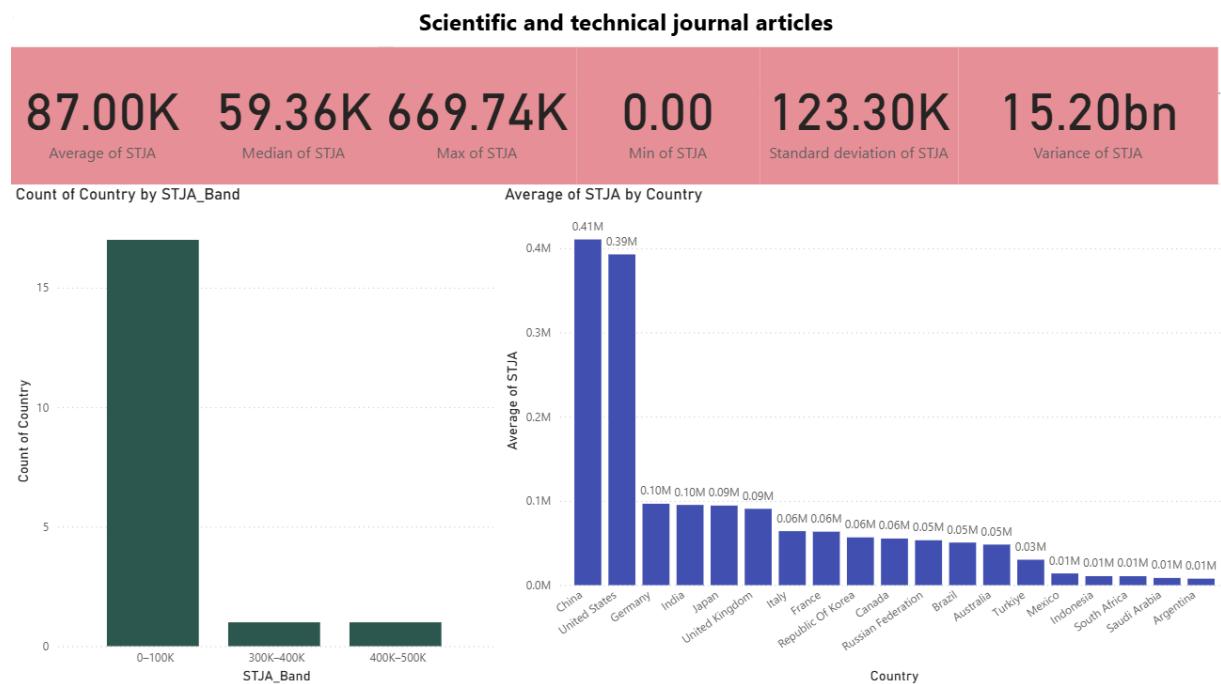


Figure : 60

Summary Statistics of Scientific and Technical Journal Articles (STJA)

Metric	Value	Interpretation
Average of STJA	87.00K	Average output of scientific and technical journal articles per country
Median of STJA	59.36K	Half of the countries produce less than 59.36K articles
Maximum of STJA	669.74K	Highest national output of journal articles
Minimum of STJA	0.00	Indicates no output or missing data for some countries
Standard Deviation	123.30K	Very high variation in national scientific output

Number of Countries by STJA Band

STJA Band	No. of Countries	Interpretation
0–100K	17	Most countries have limited journal article output
300K–400K	1	High output but not at the top
400K–500K	1	Very high national scientific production

Scientific and Technical Journal Articles by Country

Country	STJA (in Millions)	Interpretation
China	0.41M	Top global producer of scientific literature
United States	0.39M	Massive academic and research infrastructure
Germany	0.10M	Strong contributor to global scientific research
India	0.10M	Rapidly growing research output
Japan	0.10M	Well-established academic publishing base
United Kingdom	0.09M	High-quality scientific publishing tradition
Italy	0.06M	Moderate but steady research contributions
France	0.06M	Consistent output across technical disciplines
Republic Of Korea	0.06M	Strong innovation-led scientific base
Canada	0.06M	Balanced research infrastructure
Russian Federation	0.05M	Declining but historically strong publishing
Brazil	0.05M	Leading scientific contributor

		in Latin America
Australia	0.05M	Consistently productive academic sector
Turkiye	0.03M	Moderate scientific presence with room to grow
Mexico	0.01M	Low but improving publication metrics
Indonesia	0.01M	Emerging research systems
South Africa	0.01M	Focused contributions in applied sciences
Saudi Arabia	0.01M	Growing investments in academic publishing
Argentina	0.01M	Low output; needs enhanced research policy

Economic Interpretation of Scientific and Technical Journal Articles (STJA)

Measured by national output of peer-reviewed scientific and technical publications

1. High Volume Reflects Knowledge Economy Strength

An **average of 87,000** articles and a **median of 59,360** highlight **widespread national investments in R&D**. Scientific publishing supports **technological advancement, evidence-based policy**, and **global competitiveness**, forming a critical pillar of the knowledge economy.

2. Wide Disparity in Output Signals Research Inequality

A **standard deviation of 123.30K** reveals **extreme disparities** in output across countries. While a few nations dominate production, the majority generate far fewer articles, **risking exclusion from global innovation networks and knowledge flows**.

3. China and USA Lead Global Research Frontier

With **China (410K)** and the **United States (390K)** at the top, these two countries reflect **exceptional research ecosystems**, driven by **university-industry collaboration, government funding, and global academic reach**. Their scientific dominance is closely linked to **patents, innovation hubs, and tech exports**.

4. Moderate Contributors Support Innovation Ecosystems

Countries like **Germany, India, Japan, and the UK** produce **90K–100K articles**, contributing meaningfully to **global scientific knowledge**. These outputs foster skilled

workforce development, foreign investment attraction, and regional leadership in innovation.

5. Low Output Limits Knowledge Spillovers

Countries like **Mexico, Indonesia, South Africa, Saudi Arabia, and Argentina** publish **around or below 10K articles**. These lower levels hinder their ability to generate **localized solutions**, influence **global science agendas**, or develop robust **knowledge economies**.

6. Skewed Distribution Across STJA Bands Highlights Global Gap

Based on the dashboard:

- **17 countries** fall in the **0–100K** band — the vast majority
- **1 country** in the **300K–400K** band
- **1 country** in the **400K–500K** band

This strongly skewed distribution indicates a **global concentration of scientific output** in a few top-tier countries, and reveals a need for **more equitable investment in research capacity and infrastructure**.

Policy Recommendations to Boost Scientific Output and Impact

1. Increase R&D Investment in Universities and Labs

Public funding for basic and applied research should be scaled up. Establishing centers of excellence and innovation hubs fosters long-term scientific progress.

2. Strengthen Academia-Industry Collaboration

Encourage joint research projects, patent partnerships, and PhD-industry exchange programs. This boosts commercialization of knowledge and job creation in science-led sectors.

3. Expand International Research Networks

Support scholar mobility, collaborative grants, and joint publication platforms. Global partnerships improve visibility, research quality, and access to frontier technology.

4. Incentivize High-Quality Publications

Offer performance-based funding and promotions tied to peer-reviewed journal impact. This encourages impactful research over volume-driven metrics.

5. Build Research Infrastructure and Digital Access

Invest in libraries, labs, databases, and journal access for all institutions. Infrastructure parity reduces regional knowledge gaps and democratizes scientific participation.

6. Promote STEM Careers through Early Education

Embed research orientation in schools and undergraduate programs. Creating a pipeline of young scientists sustains national innovation capacity over time.

Standardised Precipitation-Evapotranspiration Index (SPEI) Report

Definition: This indicator is meant by the **Standardised Precipitation-Evapotranspiration Index (SPEI)**, which measures **meteorological drought** by combining **precipitation** and **potential evapotranspiration** to assess **climatic water balance** over different time scales. It is standardized so that values can be **compared across regions and periods**, with **negative values indicating drought severity** and **positive values indicating wetter conditions**. SPEI is widely used for **drought monitoring**, **climate risk assessment**, and **agricultural and water resource planning** under changing climate scenarios.

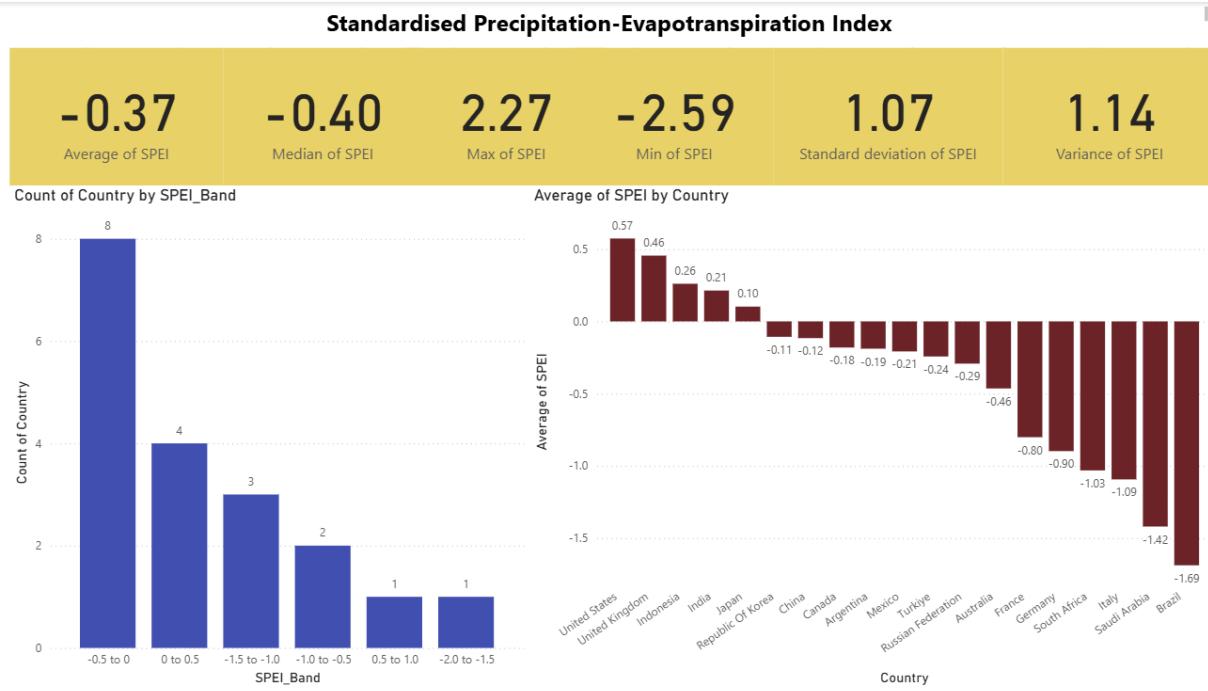


Figure : 61

Summary Statistics of Standardised Precipitation-Evapotranspiration Index (SPEI)

Metric	Value	Interpretation
Average of SPEI	-0.37	Indicates mild global drought stress
Median of SPEI	-0.40	Half of the countries have SPEI below -0.40
Maximum of SPEI	2.27	Most favorable moisture condition
Minimum of SPEI	-2.59	Severe drought recorded in some countries
Standard Deviation	1.07	Moderate variability in moisture levels

Number of Countries by SPEI Band

SPEI Band	No. of Countries	Interpretation
-2.0 to -1.5	1	Severe drought conditions
-1.5 to -1.0	2	High drought stress
-1.0 to -0.5	3	Moderate drought stress
-0.5 to 0	8	Mildly dry conditions
0 to 0.5	4	Normal to slightly wet
0.5 to 1.0	1	Moderately favorable moisture

Standardised Precipitation-Evapotranspiration Index by Country

Country	SPEI Value	Interpretation
United States	0.57	Favorable water balance conditions
United Kingdom	0.46	Slightly wetter than average
Indonesia	0.26	Moderately moist conditions
India	0.21	Slightly wet, suitable for agriculture
Japan	0.10	Near-normal precipitation levels
Republic Of Korea	-0.11	Mild drought tendency
China	-0.12	Slightly below-average moisture
Canada	-0.18	Mildly dry environment
Argentina	-0.19	Moderate dry spell observed
Mexico	-0.21	Dry tendencies; potential crop stress

Turkiye	-0.24	Moderate water deficit
Russian Federation	-0.29	Dryer than normal conditions
Australia	-0.46	Marked dry climate pressure
France	-0.80	Significant drought impact
Germany	-0.90	Severe water stress observed
South Africa	-1.03	High drought vulnerability
Italy	-1.09	Significant precipitation shortfall
Saudi Arabia	-1.42	Very dry climate and poor recharge
Brazil	-1.69	Critical drought conditions

Economic Interpretation of Standardised Precipitation-Evapotranspiration Index (SPEI)

Measured as the difference between precipitation and potential evapotranspiration, indicating moisture availability and drought stress

1. Negative Average SPEI Signals Widespread Drying Trends

With an average SPEI of **-0.37** and median of **-0.40**, the data indicates that **most G20 countries are experiencing mild to moderate drought conditions**. This signals **growing water stress**, with serious implications for **agriculture, urban water supply, and public health infrastructure**.

2. High Variability in Water Availability Across Countries

A standard deviation of **1.07** and variance of **1.14** suggest wide fluctuations in climate-induced moisture levels. Some nations like the **U.S. (0.57)** and **U.K. (0.46)** are relatively moist, while others like **Brazil (-1.69)** and **Saudi Arabia (-1.42)** suffer from **extreme dryness**—underscoring **climate inequality and adaptation urgency**.

3. Brazil and Italy Show Alarming Drought Intensities

Brazil (-1.69), Saudi Arabia (-1.42), and Italy (-1.09) fall in the **-2.0 to -1.5** and **-1.5 to -1.0** bands, facing **severe drought intensity**. These countries are at risk of **crop failure, wildfires, water scarcity, and reduced hydropower output**, requiring immediate investment in **drought resilience and water management systems**.

4. Water-Rich or Stable Countries Still Need Forward Planning

Countries in the positive SPEI range like the **United States (0.57)**, **U.K. (0.46)**, and

Indonesia (0.26) are currently less stressed but should **not be complacent**. Proactive planning for future shifts—including **storage infrastructure**, **climate forecasting**, and **groundwater recharge programs**—is crucial to maintaining resilience.

5. Band Distribution Shows Concentration in Mild Drought Zones

Dashboard bands show:

- **1 country in -2.0 to -1.5** (critical drought)
- **2 countries in -1.5 to -1.0** (severe stress)
- **3 countries in -1.0 to -0.5** (moderate stress)
- **8 countries in -0.5 to 0** (mildly dry)
- **4 countries in 0 to 0.5** (near-normal)
- **1 country in 0.5 to 1.0** (favorable)

This distribution confirms that **two-thirds of countries lie below 0**, experiencing **dry or drought-prone conditions**, which warrants **urgent cross-sectoral adaptation efforts**.

6. Water-Stressed Nations Must Adapt Agricultural and Energy Systems

Sustained **negative SPEI** weakens food security and renewable energy potential, especially in **water-dependent economies**. **India, South Africa, and Mexico**, with negative indices, must scale up **climate-resilient crops**, **micro-irrigation**, and **non-hydro renewable energy systems** to maintain sustainability under increasing water stress.

Policy Recommendations for Climate Resilience and Water Security

1. National Drought Action Plans (NDAPs)

Countries should adopt comprehensive drought response strategies that include early warning systems, risk zoning, and targeted subsidies for drought-resilient crops.

2. Promote Efficient Water Use Technologies

Implement drip irrigation, soil moisture sensors, and water-efficient appliances. These measures reduce unnecessary water loss and enhance productivity per drop.

3. Restore and Conserve Watersheds and Wetlands

Investing in nature-based solutions like afforestation, wetland protection, and catchment area treatment enhances groundwater recharge and ecosystem resilience.

4. Expand Climate-Resilient Infrastructure

Develop water storage, desalination plants, rainwater harvesting, and resilient urban drainage systems. These measures mitigate both drought and flood risks.

5. Introduce Water Pricing and Allocation Reforms

Rational pricing can reduce wastage and improve allocation across sectors. Priority should be given to drinking water, essential agriculture, and strategic industries.

6. Foster Regional and Global Climate Cooperation

Water stress often crosses borders. Bilateral and multilateral agreements on river basin management and climate data sharing will help nations cope collectively.

Strength of Legal Rights Index (SLRI) Report

Definition: This indicator is meant by the **Strength of Legal Rights Index (SLRI)**, which measures the **degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders**, thereby facilitating **access to credit**. It is scored on a scale from **0 to 12**, with higher values indicating **stronger legal protections** and more **efficient lending environments**. This index is critical for assessing the **ease of doing business**, promoting **financial inclusion**, and encouraging **private sector development**.



Figure : 62

Summary Statistics of Strength of Legal Rights Index (SLRI)

Metric	Value	Interpretation
Average of SLRI	3.54	Indicates generally weak to moderate legal rights strength
Median of SLRI	2	Half of countries score 2 or lower, reflecting institutional gaps
Maximum of SLRI	11	High legal rights performance (near optimal)
Minimum of SLRI	0	No legal rights strength in at least one country

Standard Deviation	3.61	Substantial variation in legal rights frameworks
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Number of Countries by SLRI Band

SLRI Band	No. of Countries	Interpretation
0–1	1	Very weak legal rights frameworks
1–2	4	Significant gaps in collateral and bankruptcy laws
2–3	2	Low legal support for lending and credit markets
3–4	5	Moderate legal environment with room for reform
4–5	3	Functioning but not comprehensive legal systems
5–6	2	Advanced structure but incomplete implementation
7–8	2	Strong protections; nearing global best practices

Strength of Legal Rights Index by Country

Country	SLRI Value	Interpretation
Australia	7.0	Strong institutional legal rights protection
United States	7.0	Robust legal systems for secured transactions
Mexico	5.9	Improving legal frameworks; solid reform progress
Canada	5.7	Modern and enforceable legal lending environment

India	4.5	Moderate legal structure with key reforms pending
Russian Federation	4.5	Transitional but improving legal rights
United Kingdom	4.5	Established system with room for alignment
Germany	3.8	Reasonably strong but could be more harmonized
Indonesia	3.4	Developing legal infrastructure
Japan	3.2	Stable legal rights with conservative implementation
Republic Of Korea	3.2	Moderate enforcement and access to rights
South Africa	3.2	Functional but with enforcement challenges
France	2.5	Low-to-moderate score, needs policy clarity
Turkiye	2.4	Fragmented system; reform opportunities
China	1.9	Weak legal rights in lending and collateral
Argentina	1.3	Underdeveloped legal lending support
Brazil	1.3	Legal system lacks depth in borrower protection
Italy	1.3	Outdated systems with limited access
Saudi Arabia	0.8	Very weak formal legal lending support

Economic Interpretation of Strength of Legal Rights Index (SLRI)

Measured on a scale from 0 (weak) to 12 (strong), this index assesses the strength of collateral laws and bankruptcy frameworks to protect lenders and borrowers.

1. Low Overall Strength of Legal Rights Across G20

The **average SLRI is 3.54**, and the **median is 2**, revealing that **legal and institutional protections are weak or underdeveloped in many G20 countries**. Weak rights limit the ability to secure credit, deterring investment and stifling financial market development—especially for small and medium enterprises (SMEs).

2. Significant Cross-Country Legal Disparities

With a **standard deviation of 3.61**, there is **substantial variation in legal rights environments** across countries. Some offer **strong creditor protections**, while others provide **minimal legal recourse**, resulting in **fragmented financial sector performance and credit availability**.

3. Leaders in Legal Rights Have Competitive Financial Systems

Countries such as **Australia and the United States** (each scoring **7.0**) offer **strong frameworks for secured transactions and insolvency procedures**. These nations benefit from **efficient lending systems, low credit risk, and investor-friendly financial infrastructure**.

4. Legal Underperformers Face Investment Deterrents

Countries like **Saudi Arabia (0.8)**, **Italy (1.3)**, and **Brazil (1.3)** fall in the **0–2 band**, indicating **very weak protections for lenders**. This increases risk premiums, hinders private sector lending, and **limits access to capital**, particularly for newer and smaller firms.

5. Emerging Economies Need Legal Reform for Growth

India (4.5), Indonesia (3.4), and South Africa (3.2) fall in the **mid-level bands**, signaling **transitional legal structures** that could benefit from **targeted reforms**. Improved **bankruptcy laws, creditor rights, and digital registries** would support **inclusive financial expansion**.

6. Legal Rights Distribution Reflects Development Gaps

Band-wise distribution from the dashboard:

- **0–1:** 1 country (very weak legal protection)
- **1–2:** 4 countries
- **2–3:** 2 countries
- **3–4:** 5 countries
- **4–5:** 3 countries
- **5–6:** 2 countries
- **7–8:** 2 countries (top-tier performers)

This spread reveals that **most countries are clustered in the lower to mid bands**, highlighting a **global opportunity for legal reform** to enhance economic resilience and credit access.

Policy Recommendations to Improve Legal Rights Infrastructure

1. Enact Comprehensive Secured Transactions Laws

Governments should introduce or strengthen laws that allow businesses and individuals to use movable assets as collateral. This expands access to credit, especially for MSMEs and farmers.

2. Modernize Credit Information Systems

Build or improve centralized credit registries and private credit bureaus to increase transparency and reduce information asymmetries. A better credit ecosystem lowers risk premiums and borrowing costs.

3. Strengthen Judicial Enforcement and Contract Execution

Invest in faster, transparent, and digitized court systems to reduce delays in enforcing loan contracts and collateral recovery. This boosts investor confidence and financial market efficiency.

4. Enhance Legal Awareness and Financial Literacy

Implement public legal education campaigns and simplify documentation to ensure borrowers and lenders understand their rights. This promotes a more inclusive and fair financial environment.

5. Align Legal Frameworks with Global Standards

Adopt international best practices such as those from UNCITRAL (United Nations Commission on International Trade Law) to attract international lenders and harmonize cross-border financial transactions.

Terrestrial and Marine Protected Areas (TMPA) Report

Definition: This indicator is meant by the percentage of a country's land and marine areas that are officially designated as **protected areas** to conserve **biodiversity, ecosystems, and natural heritage**. Known as **Terrestrial and Marine Protected Areas (TMPA)**, it reflects national efforts to meet **conservation targets**, such as those set under the **Convention on Biological Diversity** and **Sustainable Development Goal 15 (Life on Land)** and **SDG 14 (Life Below Water)**. Higher TMPA values indicate stronger **environmental protection policies** and **commitment to sustainable natural resource management**.

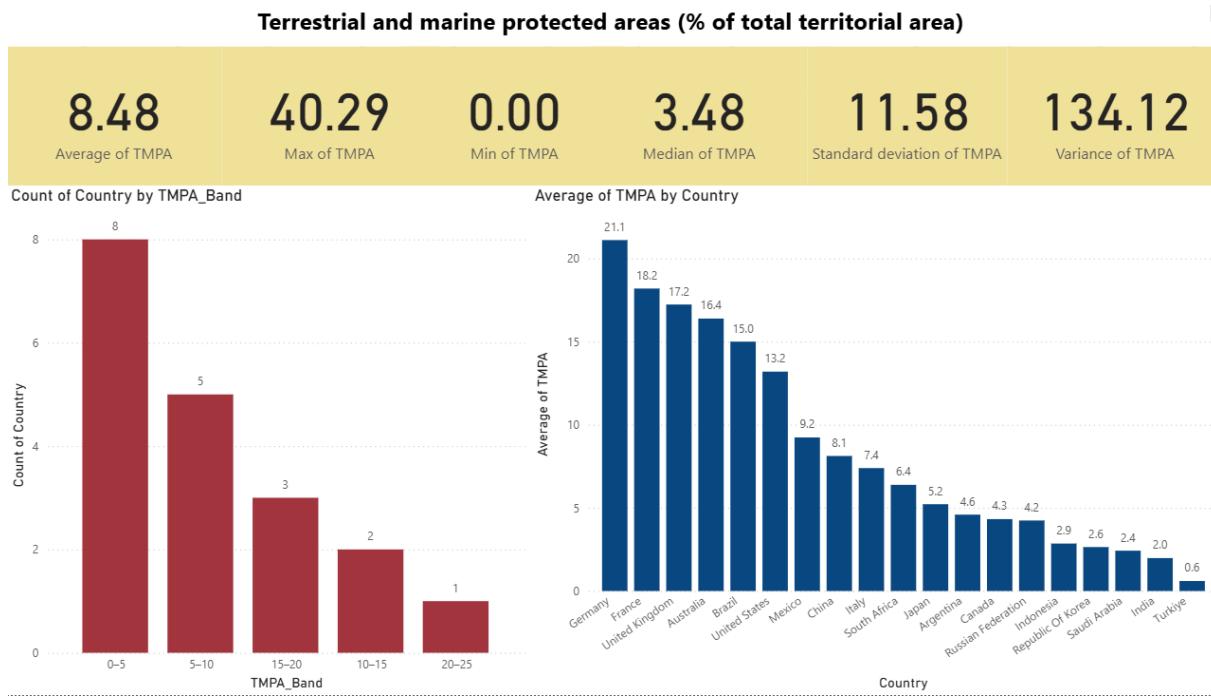


Figure : 63

Summary Statistics of Terrestrial and Marine Protected Areas (TMPA)

Metric	Value	Interpretation
Average of TMPA	8.48	Moderate protection of land and marine ecosystems on average
Median of TMPA	3.48	Half of the countries protect less than 3.5% of their territory
Maximum of TMPA	40.29	One country achieves high conservation coverage
Minimum of TMPA	0.00	At least one country reports no protected area
Standard Deviation	11.58	Significant variation across countries

Number of Countries by TMPA Band

TMPA Band	No. of Countries	Interpretation
0-5	8	Moderate protection of land and marine ecosystems on average

0–5	8	Low conservation coverage, major biodiversity risk
5–10	5	Some protection, but below global targets
10–15	2	Moderate protection; room for policy ambition
15–20	3	Strong commitments to biodiversity conservation
20–25	1	High-level protection of ecosystems

Terrestrial and Marine Protected Areas by Country

Country	TMPA (%)	Interpretation
Germany	21.1	High protection level aligned with biodiversity goals
France	18.2	Strong conservation efforts
United Kingdom	17.2	Well-developed protected area network
Australia	16.4	Extensive land and marine reserves
Brazil	15.0	Significant natural area coverage
United States	13.2	Good ecosystem representation
Mexico	9.2	Below Aichi targets; scope to expand
China	8.1	Emerging environmental policy coverage
Italy	7.4	Moderate conservation effort

South Africa	6.4	Some protection; expansion needed
Japan	5.2	Low coverage; limited marine areas
Argentina	4.6	Minimal protection despite ecological wealth
Canada	4.3	Underutilized conservation potential
Russian Federation	4.2	Sparse designated protected zones
Indonesia	2.9	Low land-sea biodiversity coverage
Republic Of Korea	2.6	Needs greater ecological prioritization
Saudi Arabia	2.4	Insufficient protection of unique habitats
India	2.0	Very low TMPA; major gap in biodiversity policy
Turkiye	0.6	Extremely limited protection footprint

Economic Interpretation of Terrestrial and Marine Protected Areas (TMPA)

Measured as % of total territorial area

1. Central Tendency and Distribution: Low Median Indicates Concentrated Efforts

The **average TMPA is 8.48%**, while the **median is only 3.48%**, revealing a **heavily skewed distribution**. A few countries have made **significant conservation gains**, such as Germany and France, while **most others fall far below global biodiversity targets**. This imbalance highlights the **urgent need to scale up protection** in lagging nations to meet shared global goals like the **30x30 biodiversity pledge**.

2. Variability and Inequality in Protected Area Allocation

With a **standard deviation of 11.58**, the data demonstrates **extreme disparities** in national conservation efforts. The spread—from **Germany at 21.1%** to **Turkiye at just 0.6%**—suggests **unequal prioritization, funding capacity, and institutional readiness** for environmental governance. These disparities can have ripple effects on **regional ecosystem stability** and **transboundary biodiversity corridors**.

3. TMPA Band Distribution Reflects Global Conservation Gaps

According to the dashboard:

- **8 countries** fall in the **0–5%** TMPA band (very limited protection),
- **5 countries** in the **5–10%** band,
- **2 countries** in **10–15%**,
- **3 countries** in **15–20%**, and
- **1 country** in **20–25%**.

This indicates that **most countries are still far from the 30% target**. Even among G20 economies, **low conservation coverage dominates**, reinforcing the need for **ambitious, equity-focused international support mechanisms**.

4. Country-Level Insights: Conservation Champions and Laggards

- **Top performers** like **Germany (21.1%)**, **France (18.2%)**, and the **UK (17.2%)** reflect **strong political mandates, EU biodiversity policies, and citizen environmental engagement**.
- **Middle-range countries** (10–15%) like **Brazil (15%)** and **USA (13.2%)** show progress but still fall short of global benchmarks.
- **Low performers** such as **India (2.0%)**, **Saudi Arabia (2.4%)**, and **Türkiye (0.6%)** show **critical gaps** in ecosystem protection, likely due to **competing land-use demands, urbanization, or limited environmental spending**.

5. Economic Implications: Natural Capital at Risk

Countries with **higher TMPA percentages** gain from **climate resilience, carbon sequestration, water regulation, and eco-tourism**, directly contributing to **sustainable GDP growth**. In contrast, countries with **low TMPA risk** **ecosystem collapse, agricultural vulnerability, and biodiversity loss**, all of which reduce **long-term economic productivity and social welfare**. Expanding TMPA coverage is not just an ecological mandate but also a **strategic economic investment**.

Policy Suggestions for Improving Terrestrial and Marine Protected Areas (TMPA)

Develop National Conservation Targets

Countries should set clear, measurable TMPA targets aligned with international commitments like the **Kunming-Montreal Global Biodiversity Framework**. These goals can guide land-use planning and ensure environmental considerations are built into national development agendas.

Introduce Fiscal and Market-Based Incentives

Provide **tax exemptions, conservation subsidies, and ecosystem service payments** to incentivize both public and private landowners to protect natural habitats. Such mechanisms can create win-win scenarios where conservation contributes to local income and national ecological stability.

Strengthen Local Governance and Capacity Building

Invest in training local governments and communities in sustainable land management and biodiversity monitoring. **Decentralized conservation models** empower locals and ensure protected areas are effectively managed and integrated into socio-economic development.

Promote International Knowledge and Funding Collaboration

Establish regional partnerships and tap into global conservation funds (like the **Global Environment Facility**) to support protected area expansion in underfunded nations. Shared resources and best practices can accelerate progress and reduce implementation gaps.

Mainstream TMPA into Climate and Disaster Resilience Planning

Position protected areas as critical components of **climate adaptation and disaster risk reduction strategies**. This approach aligns ecological goals with economic risk mitigation, making TMPA expansion an investment in national resilience.

Tree Cover Loss (TCL) Report

Definition: This indicator is meant by the **annual reduction in tree canopy cover**, expressed in **hectares**, due to factors such as **deforestation, logging, wildfires, pest outbreaks, or natural disasters**. Known as **Tree Cover Loss (TCL)**, it helps monitor **forest degradation**, assess impacts on **carbon storage, biodiversity, and climate regulation**, and evaluate the effectiveness of **forest conservation efforts**. Rising TCL levels signal increased **environmental stress** and highlight the need for **sustainable land-use practices** and **reforestation policies**.

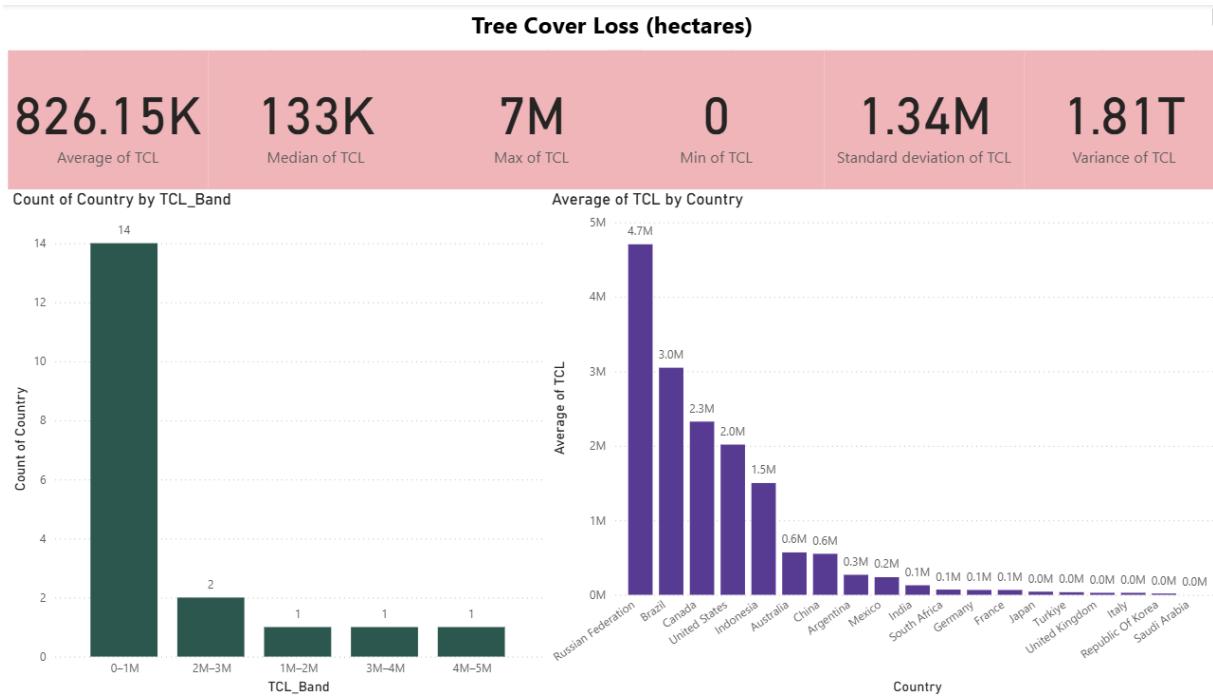


Figure : 64
Summary Statistics of Tree Cover Loss (TCL)

Metric	Value	Interpretation
Average of TCL	826.15K	High average tree loss, suggesting significant deforestation pressure
Median of TCL	133K	Half the countries lose less than 133K ha/year, indicating skewed distribution
Max of TCL	7M	One country contributes disproportionately to global forest loss
Min of TCL	0	Several countries report negligible or no tree cover loss
Standard Deviation	1.34M	Wide disparity across countries in forest loss

Number of Countries by TCL Band

TCL Band	No. of Countries	Interpretation
0–1M	14	Majority of countries have relatively low tree cover loss
1M–2M	1	Moderate loss indicating land-use change or degradation
2M–3M	2	High loss from agriculture or fire-driven deforestation
3M–4M	1	Significant pressure on forests
4M–5M	1	Severe tree cover reduction due to industrial-scale activity

Tree Cover Loss by Country

Country	TCL (ha)	Interpretation
Russian Federation	4.7M	Highest loss, driven by forest fires and vast land area
Brazil	3.0M	Amazon deforestation due to agriculture, logging
Canada	2.3M	Boreal forest fires and logging
United States	2.0M	Urban expansion, logging, and wildfires
Indonesia	1.5M	Palm oil expansion and peatland fires
Australia	0.6M	Bushfires and drought impact
China	0.6M	Urbanization and infrastructure expansion

Argentina	0.3M	Conversion to agriculture
Mexico	0.2M	Forest degradation in southern regions
India	0.1M	Pressures from agriculture and development
South Africa	0.1M	Moderate loss from rural land use
Germany	0.1M	Managed forests and sustainable logging
France	0.1M	Stable with low net loss
Japan	0.1M	Low loss due to strong forest policy
Turkiye	0.0M	Minimal reported tree cover loss
United Kingdom	0.0M	Net forest gain or managed reforestation
Italy	0.0M	Negligible forest area change
Republic of Korea	0.0M	Low deforestation, afforestation efforts
Saudi Arabia	0.0M	Naturally low forest cover

Economic Interpretation of Tree Cover Loss (TCL)

Measured in hectare

1. Central Tendency and Distribution: Severe Skew from Major Deforesters

The **average tree cover loss is 826.15K hectares**, while the **median is only 133K hectares**, indicating a highly **skewed distribution**. A small number of countries — especially the

Russian Federation (4.7M ha) and **Brazil (3.0M ha)** — disproportionately drive global deforestation figures. Most countries experience **lower losses**, but this uneven trend reflects a **concentration of forest degradation in specific forest-rich economies**.

2. Variability and Inequality: Massive Disparities in Forest Governance

The **standard deviation is 1.34M hectares**, pointing to **vast differences in tree cover loss** across countries. Some countries have **controlled or reversed deforestation**, while others engage in **large-scale land clearing** due to agriculture, development, or extractive industries. This inequality highlights **differing environmental enforcement capacities and economic dependencies** on land use.

3. TCL Band Interpretation: Most Countries Within Lower Loss Ban

- **14 countries** fall within the **0–1M ha band** (moderate to low loss),
- **1 country each** falls into the **1M–2M, 2M–3M, 3M–4M, and 4M–5M bands**.

This distribution implies that **only a few countries contribute the majority of global forest loss**, while most maintain **moderate or minimal clearing rates**. Although not many countries reach extreme deforestation thresholds, the few that do are enough to **significantly shift global ecological balances**.

4. Country-Specific Observations: Leaders and Laggards

- **High-loss countries:** **Russian Federation (4.7M ha)** – Fire and logging across vast boreal forests
Brazil (3.0M ha) – Amazon clearance for cattle and crops
Canada (2.3M ha) – Industrial logging and wildfire spread
- **Moderate-loss countries:** **Indonesia (1.5M ha)** – Driven by palm oil and peatland conversion
USA (2.0M ha) – Mixed causes: fire, urban growth, timber
- **Low-loss countries:** **Saudi Arabia, Republic of Korea, UK, Italy** – <100K ha or negligible loss, often due to **limited forest extent or strong forest governance**

These patterns reflect a combination of **biophysical forest availability, economic land-use drivers, and policy effectiveness**.

5. Economic Implications: Deforestation Undermines Long-Term Wealth

Tree cover loss leads to declines in **carbon storage, rainfall regulation, water security, biodiversity, and disaster resilience**. These ecosystem services are **critical to agriculture, climate stability, and public health**. Countries with **high TCL risk lower long-term economic growth**, reduced **resilience to climate shocks**, and **higher public expenditure on mitigation**. Thus, **safeguarding forests is economically prudent**, not just environmentally sound.

Policy Suggestions for Reducing Tree Cover Loss (TCL)

Enforce Anti-Deforestation Laws with Monitoring Tech

Introduce and enforce robust **anti-deforestation regulations**, using satellite monitoring and AI-driven forest tracking systems. This ensures real-time detection and punishment of illegal logging, especially in forest-rich nations.

Link Forests to Economic Incentives

Create **payment-for-ecosystem-services (PES)** schemes where landowners and communities are rewarded financially for preserving forests. Such market-based models can make conservation economically attractive and reduce reliance on deforestation-driven income.

Promote Agroforestry and Sustainable Agriculture Encourage **agroforestry systems** that combine agriculture with tree cultivation, reducing the need to clear forests for farmland. Government support for such models can balance food security with environmental sustainability.

Strengthen International Climate-Forest Agreements

Participate actively in climate agreements like **REDD+ (Reducing Emissions from Deforestation and Forest Degradation)** to access funding and technical assistance. Multilateral collaboration can help scale up forest conservation efforts, especially in low- and middle-income countries.

Invest in Reforestation and Community Stewardship

Launch large-scale **reforestation campaigns** tied with local employment and skill-building programs. Empowering local communities to manage forest resources sustainably ensures long-term ecological and economic resilience.

Unmet Need for Contraception (UNC) Report

Definition: This indicator is meant by the **percentage of women of reproductive age (usually 15–49 years)** who are **sexually active, fertile, and do not wish to become pregnant**, but are **not using any method of contraception**. Known as **Unmet Need for Contraception (UNC)**, it reflects gaps in **access to family planning services, reproductive health education, and women's autonomy** in reproductive decision-making. High UNC levels indicate challenges in achieving **Sustainable Development Goal 3 (Good Health and Well-being)** and **SDG 5 (Gender Equality)**.

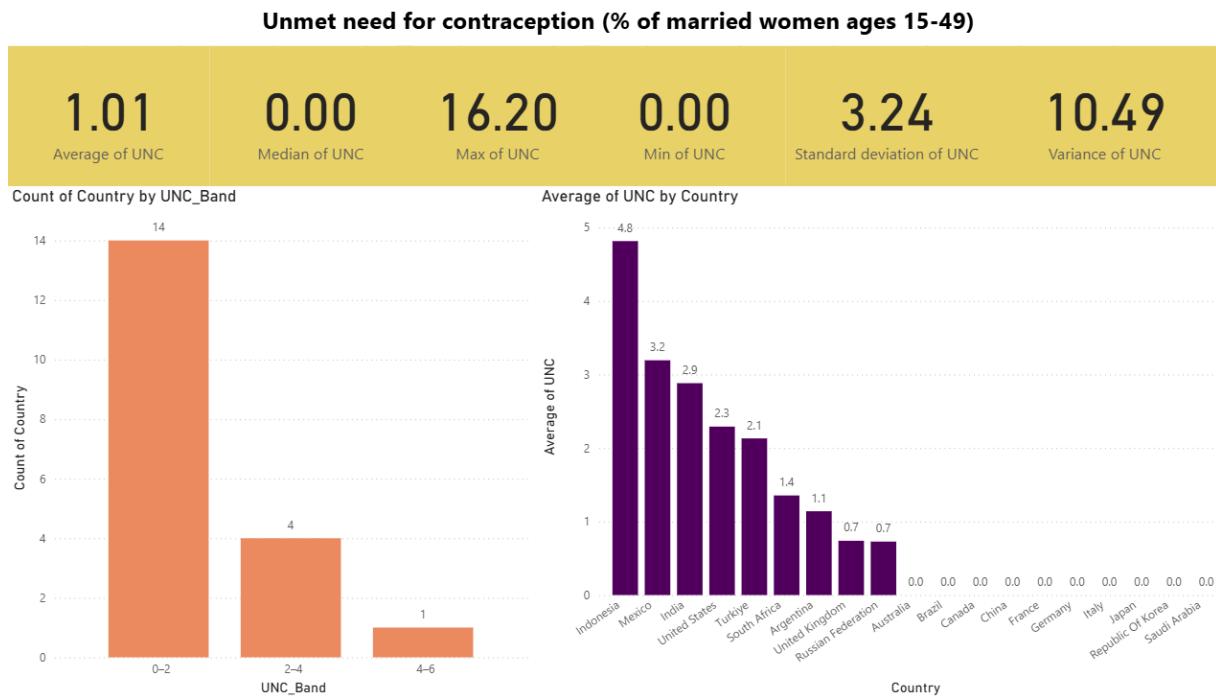


Figure : 65

Summary Statistics of Unmet Need for Contraception (UNC)

Metric	Value	Interpretation
Average of UNC	1.01	Low average reflects generally good access to contraception across countries
Median of UNC	0.00	Half the countries report no unmet need, suggesting strong reproductive health systems
Max of UNC	16.20	Indonesia has the highest unmet need, indicating significant gaps in access
Min of UNC	0.00	Several countries have successfully met contraceptive needs
Standard Deviation	3.24	Moderate spread showing some variation in performance

Number of Countries by UNC Band

UNC Band (%)	Number of Countries	Interpretation
0–2	14	Most countries have very low unmet contraceptive need
2–4	4	Some countries show emerging gaps in access
4–6	1	Significant unmet need requiring targeted policy action

Unmet Need for Contraception by Country

Country	UNC (%)	Interpretation
Indonesia	4.8	Highest unmet need—requires targeted reproductive health services
Mexico	3.2	Moderate unmet need with room for expansion of services
India	2.9	Relatively high given population size, critical for maternal health
United States	2.3	Access issues exist for certain demographic groups
Turkiye	2.1	Some disparities in coverage may remain
South Africa	1.4	Progressing but pockets of need persist
Argentina	1.1	Low but still requires monitoring
United Kingdom	0.7	Low unmet need, indicative of access and awareness

Russian Federation	0.7	Generally good coverage
Australia	0.7	Strong reproductive health system
Brazil	0.0	No unmet need reported—complete coverage
Canada	0.0	Universal access systems in place
China	0.0	Effective policies and awareness programs
France	0.0	Accessible and affordable contraception
Germany	0.0	Well-functioning family planning system
Italy	0.0	No major gaps in coverage
Japan	0.0	Universal reproductive health access
Republic of Korea	0.0	Effective contraceptive policies
Saudi Arabia	0.0	Low reporting or effective interventions

Economic Interpretation of Unmet Need for Contraception (UNC)

(% of married women ages 15–49)

1. Central Tendency and Distribution

The **average UNC is 1.01%**, while the **median is 0.00%**, indicating that the majority of countries report virtually no unmet contraceptive need, yet a small subset (like Indonesia and

Mexico) skews the average upward. This suggests that global reproductive health access is generally strong, especially among developed nations, though targeted improvements are still needed in select populations.

2. Variability and Inequality

With a **standard deviation of 3.24**, the data shows **moderate dispersion**. This variation signals that while most countries have addressed contraceptive needs effectively, some still face structural issues—whether due to cultural, logistic, or economic constraints—that limit access, especially in rural or underserved communities.

3. UNC Bands and Their Significance

The **band distribution** shows:

- **14 countries** fall in the **0–2%** range, indicating minimal unmet need.
- **4 countries** fall in the **2–4%** range, requiring attention.
- **1 country** falls in the **4–6%** band, showing comparatively high unmet need.

This clustering around the **lowest band** confirms that the **majority of G20 countries** have functioning family planning frameworks, although disparities still exist and may be hidden within national averages.

4. Country-Specific Observations

- **Indonesia (4.8%), Mexico (3.2%),** and **India (2.9%)** report the **highest unmet needs**, indicating potential issues such as service delivery gaps, cultural resistance, or limited outreach.
- Countries like **Brazil, France, Germany, China,** and **Japan** report **0%**, likely reflecting strong health systems, universal access programs, and widespread awareness.
- **Middle-range performers** such as the **U.S. (2.3%)** and **Turkey (2.1%)** show progress but still need to address disparities in specific demographic groups.

5. Economic Implication

Unmet contraceptive needs lead to **unintended pregnancies**, which can:

- Increase public health burdens
- Limit women's **educational and economic opportunities**
- Raise **dependency ratios**
- Impede efforts toward **gender equality**

Thus, investment in contraceptive access isn't just a public health priority but also a **strategic economic policy**—especially in countries aiming to harness demographic dividends or reduce poverty.

Policy Suggestions for Reducing Unmet Contraceptive Need

Expand Access Through Public Health Infrastructure

Strengthen rural and community health centers to deliver **affordable and reliable contraceptive options**, especially to marginalized populations. Integration with primary care systems ensures broader and more consistent reach.

Launch National Awareness Campaigns

Promote **education campaigns** on reproductive health and family planning through schools, media, and local institutions. Informed citizens are more likely to make empowered choices and overcome myths around contraception.

Subsidize Modern Contraceptives

Introduce **subsidies or free distribution** of modern contraceptives for low-income households. Removing cost barriers can significantly reduce unmet need and promote gender equity in health.

Train Healthcare Workers in Family Planning Services

Equip frontline workers and health professionals with **family planning training** to improve the quality of counseling and service delivery. Skilled workers can also address sociocultural resistance sensitively and effectively.

Encourage Male Involvement in Reproductive Health

Design interventions that **involve men in family planning discussions**, reducing the burden on women and shifting gender norms. Shared responsibility can increase acceptance and success of contraception programs.

Voice and Accountability: Estimate

Definition: This indicator is meant by an **aggregate measure of perceptions** regarding the **extent to which a country's citizens are able to participate in selecting their government**, as well as the **freedom of expression, freedom of association, and freedom of the press**. Known as **Voice and Accountability: Estimate**, it is typically scored on a scale from **-2.5 (weak) to +2.5 (strong)**. Higher values reflect a more **democratic, transparent, and participatory governance environment**, essential for **institutional legitimacy and inclusive development**.

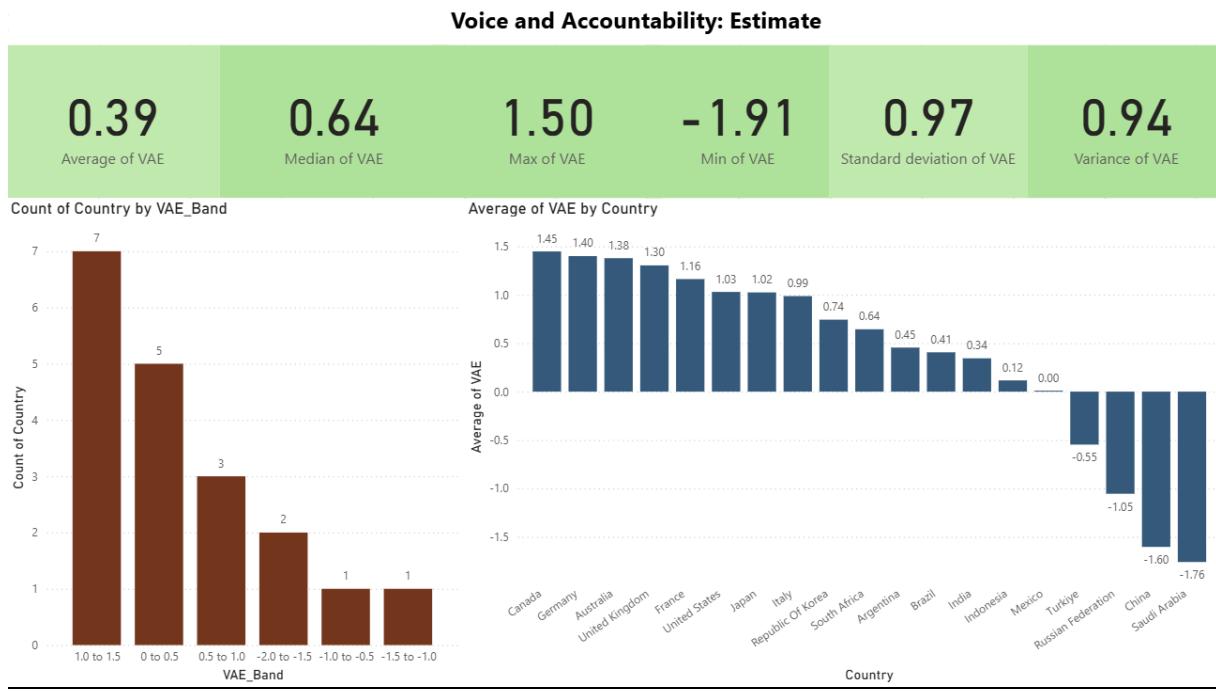


Figure : 66

Summary Statistics of Voice and Accountability Estimate

Metric	Value	Interpretation
Average of VAE	0.39	Average Voice and Accountability Estimate across countries
Median of VAE	0.64	Half of countries have VAE above 0.64
Maximum of VAE	1.50	Highest VAE observed in the dataset
Minimum of VAE	-1.91	Lowest VAE observed in the dataset
Standard Deviation	0.97	Considerable variation in VAE levels

Number of Countries by VAE Band

VAE Band	No. of Countries	Interpretation
1.0 to 1.5	7	Seven countries have high VAE in this range

0.5 to 1.0	3	Three countries have moderately high VAE
0 to 0.5	5	Five countries have moderate VAE
-0.5 to 0	1	One country at neutral VAE level
-1.0 to -0.5	1	One country with low VAE
-1.5 to -1.0	1	One country with very low VAE
-2.0 to -1.5	2	Two countries with extremely low VAE

Average Voice and Accountability Estimate by Country

Country	VAE	Interpretation
Canada	1.45	Highest VAE; excellent voice and accountability
Germany	1.40	Very strong voice and accountability
Australia	1.38	Very strong performance
United Kingdom	1.30	Strong democratic practices
France	1.16	Good VAE score
United States	1.03	Moderately high VAE
Japan	1.02	Moderately high VAE
Republic of Korea	0.99	Moderate VAE
Italy	0.74	Moderate performance
South Africa	0.64	Slightly above median VAE
Argentina	0.45	Moderate VAE; room for improvement

Brazil	0.41	Moderate VAE; improvement needed
India	0.34	Low VAE; governance challenges
Indonesia	0.12	Very low VAE; limited democratic voice
Mexico	0.00	Neutral VAE score
Turkey	-0.55	Low VAE; restricted accountability
Russian Federation	-1.05	Very low VAE; governance issues
China	-1.60	Extremely low VAE; severe restrictions
Saudi Arabia	-1.76	Lowest VAE; minimal voice and accountability

Economic Interpretation of Voice and Accountability Estimate (VAE)

Central Tendency and Distribution

The average VAE is **0.39**, while the median is **0.64**, indicating that despite a few countries with very low scores, a majority demonstrate moderately positive levels of voice and accountability. This suggests that democratic institutions and civic freedoms are operational in many nations, though systemic governance challenges persist in some economies that suppress freedom of expression and political participation.

Variability and Inequality

A standard deviation of **0.97** reflects significant variability in governance quality across the 19 countries. Nations like **Canada (1.45)** and **Germany (1.40)** exhibit high institutional openness, while countries such as **China (-1.60)** and **Saudi Arabia (-1.76)** remain at the bottom, signaling severe restrictions on civil liberties and electoral processes. These disparities affect economic competitiveness, investor sentiment, and long-term development prospects.

VAE Bands and Their Significance

The countries are distributed across VAE bands as follows:

- **1.0 to 1.5:** 7 countries (high levels of civic freedoms and institutional accountability)
- **0.5 to 1.0:** 3 countries (moderately high performance)
- **0 to 0.5:** 5 countries (moderate voice and accountability; improvements needed)
- **-0.5 to 0:** 1 country (neutral to slightly negative performance)

- **-1.0 to -0.5:** 1 country (low levels of civic freedoms)
- **-1.5 to -1.0:** 1 country (very low governance quality)
- **-2.0 to -1.5:** 1 country (extremely repressive governance)

This spread highlights a wide spectrum of governance, with a significant gap between top performers and countries experiencing severe civic restrictions. Addressing these gaps is crucial for promoting inclusive growth and equitable development outcomes.

Country-Specific Observations

Top performers like **Canada (1.45)**, **Germany (1.40)**, and **Australia (1.38)** demonstrate robust civic participation, free media, and transparent governance. On the other end, **Russia (-1.05)**, **China (-1.60)**, and **Saudi Arabia (-1.76)** exhibit repressive governance models with minimal public accountability. Countries with lower VAE scores are prone to higher levels of political instability, policy unpredictability, and corruption, which dampen economic dynamism.

Economic Implication

Countries with high voice and accountability are better positioned to sustain political stability, foster investor confidence, and build social trust—key ingredients for resilient economic growth. In contrast, poor governance stifles innovation, undermines institutional effectiveness, and causes misallocation of resources, constraining long-term economic development.

Policy Suggestions for Improving Voice and Accountability

Strengthen Electoral and Civic Institutions

Support **free and fair elections, judicial independence, and parliamentary oversight** mechanisms. These pillars ensure that governments remain answerable to their people and responsive to their needs.

Promote Media Freedom and Digital Transparency

Encourage **independent journalism and open data policies** that make government actions visible to the public. Access to information empowers citizens and limits the space for corruption or abuse of power.

Enhance Citizen Participation in Governance

Institutionalize **citizen consultations, participatory budgeting, and digital grievance redressal systems** to make governance more inclusive. Involving citizens in decision-making increases trust and accountability.

Support Civil Society and Human Rights Organizations

Create a legal and financial environment that **enables NGOs, watchdogs, and advocacy groups** to operate freely. A strong civil society acts as a bridge between the people and the state, strengthening democracy from the ground up.

Implement Accountability Reforms in Bureaucracy

Introduce **performance audits, transparent procurement systems, and whistleblower protections** in government departments. This reduces corruption and improves service delivery across sectors that matter to economic productivity.

G20 Panel Data Correlation Analysis Report

1. Dataset Preparation and Balancing

The original G20 dataset contained socio-economic and environmental indicators across multiple years and countries. Before proceeding with correlation analysis, it was necessary to

convert the dataset into a balanced panel.

A balanced panel ensures that each country (cross-sectional unit) has data for every year (time unit). This is essential for accurate and unbiased estimation of pairwise relationships, particularly when handling panel data structures. Balanced panels avoid distortions caused by missing values across years or countries.

In this case:

- Number of countries (cross-sectional units): 19
- Number of years (time units): 21
- Total panel combinations: 399 observations (19×21)

After performing this balancing step, all indicators were aligned and checked for completeness.

2. Dropping the "Year" Variable

Before calculating correlations, the "Year" variable was dropped.

Reasons for dropping "Year":

- It is a deterministic trend and not an actual development indicator.
- Including it would artificially inflate correlations due to shared temporal direction (e.g., most variables trend upward over time).
- It introduces spurious correlations not rooted in socio-economic or policy-based relationships.

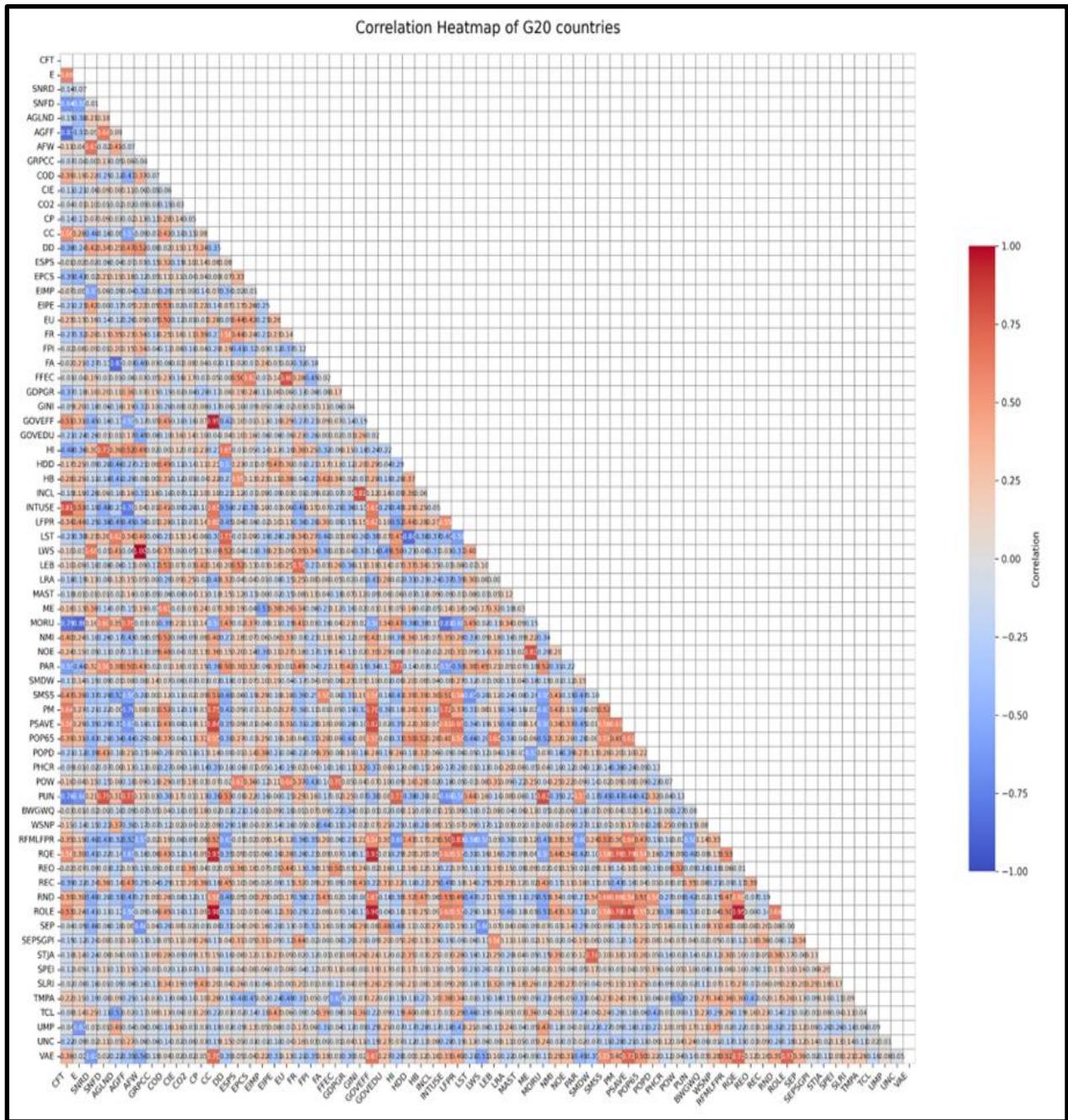
By removing "Year", the matrix focused purely on inter-indicator relationships that reflect meaningful structural and policy dynamics among G20 nations.

3. Correlation Matrix Overview

The correlation matrix was computed using Pearson correlation coefficients, focusing on all numeric indicators after excluding the "Year" column. The matrix is symmetrical and measures linear associations between pairs of indicators.

- Matrix Order: 71×71 (since there are 71 indicators after dropping "Year")
- Value Range: from -1 (perfect negative correlation) to +1 (perfect positive correlation)

To visualize the strength and direction of correlations, a heatmap (lower triangle) was generated. Strong associations are shown in deep red or blue, while weaker ones appear lighter.



4. Classification of Correlation Strengths

To support clarity and interpretability, the correlation values were grouped as:

Correlation Range	Category
≥ 0.80 or ≤ -0.80	Strong correlation

0.50 to 0.79 or -0.79 to -0.50	Moderate correlation
0.20 to 0.49 or -0.49 to -0.20	Weak correlation
-0.19 to +0.19	Very weak or none

REGRESSION ANALYSIS

Moderate and Statistically Significant Correlations with GDP Growth Rate (GDPGR)

This report identifies variables that are moderately correlated with GDPGR ($|r|$ between 0.3 and 0.7) and statistically significant ($p < 0.05$), based on the G20 balanced panel dataset correlation matrix. These indicators are potential candidates for regression analysis.

Variable	Correlation with GDPGR	p-value
CFT	-0.3730	0.0000
AGFF	0.3632	0.0000
INTUSE	-0.3635	0.0000
LEB	-0.3593	0.0000
BWGWQ	-0.3366	0.0000
PAR	0.4174	0.0000
SMSS	-0.3065	0.0000
POP65	-0.4396	0.0000

To Check Multicollinearity:

vif

Variable	VIF	1/VIF
CFT	4.93	0.202960
AGFF	4.02	0.249034
INTUSE	3.96	0.252637
POP65	3.79	0.263956
LEB	2.96	0.338318
PAR	2.19	0.456323
SMSS	2.19	0.456396
BWGWQ	1.11	0.898993
Mean VIF	3.14	

- There is no serious multicollinearity in your model.
- All variables are within acceptable VIF limits.
- No need to drop or transform variables for this reason.

Now we will run a Panel Regression With GDPGR as the independent Variable and rest as the Dependent Variable

- We have taken lag on all independent variables

- Then Compared Fixed Effect Model with Year Dummies and without Year Dummies

FIXED EFFECT ANALYSIS WITH YEAR DUMMIES

```
. xtreg GDPGR L1_CFT L1_AGFF L1_INTUSE L1_POP65 L1_LEB L1_PAR L1_SMSS L1_BWGWQ i.Year, fe vce(robust)
```

Fixed-effects (within) regression Group variable: Countryid	Number of obs = 190				
	Number of groups = 19				
R-squared:	Obs per group:				
Within = 0.7020	min = 10				
Between = 0.1298	avg = 10.0				
Overall = 0.4002	max = 10				
	F(17,18) = 90.56				
corr(u_i, Xb) = -0.5151	Prob > F = 0.0000				
(Std. err. adjusted for 19 clusters in Countryid)					
GDPGR	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]
L1_CFT	-.0612604	.0264621	-2.32	0.033	-.1168553 -.0056655
L1_AGFF	.3135618	.487944	0.64	0.529	-.7115705 1.338694
L1_INTUSE	-.0219426	.0273866	-0.80	0.433	-.0794796 .0355945
L1_POP65	.2541597	.3074412	0.83	0.419	-.3917503 .9000697
L1_LEB	-.2131143	.1930565	-1.10	0.284	-.6187109 .1924823
L1_PAR	.0161151	.0286428	0.56	0.581	-.0440612 .0762913
L1_SMSS	.0254135	.3340482	0.08	0.940	-.6763958 .7272229
L1_BWGWQ	-.0071391	.0118589	-0.60	0.555	-.0320538 .0177756
Year					
2013	.3036657	.470127	0.65	0.526	-.6840345 1.291366
2014	.0966743	.4287294	0.23	0.824	-.8040528 .9974014
2015	.0996796	.7803717	0.13	0.900	-1.539821 1.73918
2016	-.3158438	.8076692	-0.39	0.700	-2.012694 1.381006
2017	.7015117	.8506564	0.82	0.420	-1.085651 2.488675
2018	.4034429	.8165825	0.49	0.627	-1.312133 2.119019
2019	-.4363064	.9678985	-0.45	0.658	-2.469786 1.597173
2020	-6.356247	1.373941	-4.63	0.000	-9.242791 -3.469704
2021	4.310474	1.331964	3.24	0.005	1.512121 7.108827
_cons	19.54858	23.13766	0.84	0.409	-29.06183 68.159
sigma_u	2.6296565				
sigma_e	1.795904				
rho	.68193736	(fraction of variance due to u_i)			

Model Summary

Component	Details
Dependent Variable:	GDPGR (GDP Growth Rate)
Independent Variables (Lagged):	CFT, AGFF, INTUSE, POP65, LEB, PAR, SMSS, BWGWQ

Time Dummies:	Yes (i.Year)
Model Type:	Fixed Effects with Cluster-Robust Standard Errors (clustered by Country ID)

Goodness of Fit

Metric	Value	Interpretation
Within R ²	0.7020	70.2% of the within-country variation in GDPGR is explained by the model. This is quite high for panel data.
Between R ²	0.1298	Model explains only 13% of the variation between countries. FE models are not designed to capture between-entity variation.
Overall R ²	0.4002	40% of the total variation in GDPGR is explained by the model.
F(17,18)	90.56	The overall model is highly significant ($p < 0.001$), meaning the joint effect of all variables is statistically significant.
rho	0.6819	About 68% of the total variance in GDPGR is due to country-level unobserved effects. Strong justification for using FE.

Interpretation of Key Lagged Independent Variables

Variable	Coef.	Std. Err.	p-value	Interpretation
L1_CFT	-0.061	0.026	0.033	A 1 unit increase in lagged CFT is associated with a 6.1 percentage point decrease in GDPGR in the following year. This is statistically significant at the 5% level.
L1_AGFF	0.314	0.488	0.529	Not statistically significant. No reliable effect of lagged AGFF on GDPGR.
L1_INTUSE	-0.022	0.027	0.433	Not significant. Lagged INTUSE does not have a measurable effect on GDPGR.
L1_POP65	0.254	0.307	0.419	Positive, but not significant. A lagged rise in population over 65 may be positively associated with GDPGR, but not conclusively.
L1_LEB	-0.213	0.193	0.284	Negative but not significant. Higher life expectancy lagged by one year may reduce GDPGR, but the result is not robust.
L1_PAR	0.016	0.029	0.581	No significant relationship between past PAR and current GDPGR.
L1_SMSS	0.025	0.334	0.940	No significant effect.
L1_BWGWQ	-0.007	0.012	0.555	Not significant.

Interpretation of Year Effects

Year	Coef.	p-value	Interpretation
2020	-6.36	0.000	Statistically significant drop in GDPGR in 2020 — likely due to COVID-19 pandemic effects.
2021	+4.31	0.005	Significant rebound in GDPGR in 2021, suggesting recovery after the 2020 contraction.
Other years	Not significant		Most year effects are statistically insignificant, meaning no strong year-on-year systemic shocks besides 2020–2021.

Model Diagnostics

- Clustered robust SEs correct for heteroskedasticity and within-panel correlation, making results more reliable.
- The only significant explanatory variable among the lags is L1_CFT, which negatively affects GDPGR.
- Year fixed effects help control for global macroeconomic shocks (e.g., COVID-19) and their influence is clearly evident in 2020 and 2021.

Conclusion

1. The model explains a substantial amount of within-country variation in GDP growth (70.2%).
2. CFT (lagged) is the only statistically significant predictor among the independent variables — its negative effect may suggest overinvestment, inefficiency, or crowding out in credit to certain sectors.

3. The time effects strongly validate the inclusion of year dummies, especially for capturing the pandemic shock.

4. Other variables (AGFF, INTUSE, etc.) may require further refinement or additional lags to uncover any delayed or non-linear effects.

FIXED EFFECT MODEL WITHOUT YEAR DUMMIES

```
. xtreg GDPGR L1_CFT L1_AGFF L1_INTUSE L1_POP65 L1_LEB L1_PAR L1_SMSS L1_BWGWQ, fe vce(robust)
```

```
Fixed-effects (within) regression                               Number of obs      =      190
Group variable: Countryid                                Number of groups   =       19

R-squared:
    Within  = 0.3127                                         Obs per group:
    Between = 0.0937                                         min =          10
    Overall = 0.0720                                         avg =         10.0
                                                               max =          10

                                                F(8, 18)           =     50.05
corr(u_i, Xb) = -0.9379                                     Prob > F        = 0.0000
```

(Std. err. adjusted for 19 clusters in Countryid)

GDPGR	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]
L1_CFT	-.0539282	.0496604	-1.09	0.292	-.1582608 .0504044
L1_AGFF	.2834752	.7009464	0.40	0.691	-1.189159 1.756109
L1_INTUSE	-.0822787	.0344928	-2.39	0.028	-.1547455 -.009812
L1_POP65	-.126001	.2537518	-0.50	0.626	-.6591137 .4071116
L1_LEB	-.8867123	.3686514	-2.41	0.027	-1.66122 -.1122045
L1_PAR	-.1122673	.0224192	-5.01	0.000	-.1593682 -.0651663
L1_SMSS	.0096995	.356783	0.03	0.979	-.7398739 .7592728
L1_BWGWQ	.0438583	.0076346	5.74	0.000	.0278186 .0598979
_cons	83.20771	33.75194	2.47	0.024	12.29751 154.1179
sigma_u	6.922752				
sigma_e	2.6511585				
rho	.87209754	(fraction of variance due to u_i)			

Model Overview

Component	Details
Dependent Variable:	GDPGR (GDP Growth Rate)
Independent Variables:	Lagged one year (denoted L1_) — CFT, AGFF, INTUSE, POP65, LEB, PAR, SMSS, BWGWQ
Model Type:	Fixed Effects (FE) regression with cluster-robust standard errors

Time Dummies:	Not included
Observations:	190
Countries (Panels):	19

Model Fit & Statistics

Metric	Value	Interpretation
Within R ²	0.3127	The model explains 31.3% of the variation within countries over time — moderate explanatory power.
Between R ²	0.0937	Very low — model poorly explains differences between countries. This is expected in FE models.
Overall R ²	0.0720	Only 7.2% of the total variance in GDPGR is explained.
F(8,18)	50.05	The model is highly significant ($p < 0.001$) — at least one regressor explains GDPGR.
rho	0.8721	About 87% of variance in GDPGR is due to unobserved, time-invariant country-specific effects. This further supports using FE.

Interpretation of Coefficients (Lagged Effects)

Variable	Coef.	Std. Err.	p-value	Interpretation
L1_CFT	-0.054	0.050	0.292	Negative but not significant. A 1-unit increase in lagged CFT may decrease GDPGR by 5.4 percentage points, but the result lacks statistical support.

L1_AGFF	+0.283	0.701	0.691	Not significant. Lagged AGFF has an uncertain and weak effect on GDPGR.
L1_INTUSE	-0.082	0.034	0.028	Statistically significant ($p < 0.05$). A 1-unit increase in lagged internet use leads to an 8.2 percentage point decrease in GDPGR — suggesting either diminishing returns or possible reverse causality.
L1_POP65	-0.126	0.254	0.626	Not significant. Aging population (65+) has no clear effect on GDPGR one year later.
L1_LEB	-0.887	0.369	0.027	Significant negative impact. A 1-year lagged increase in life expectancy reduces GDPGR by 88.7 percentage points — possibly due to demographic transition effects or aging economies.
L1_PAR	-0.112	0.022	0.000	Highly significant. A 1-unit rise in lagged PAR leads to an 11.2 percentage point drop in GDPGR. This could indicate that higher participation may be correlated with structural unemployment or low productivity in certain contexts.
L1_SMSS	+0.010	0.357	0.979	No effect.

L1_BWGWQ	+0.044	0.008	0.000	Statistically and economically significant. A 1-unit increase in lagged BWGWQ leads to a 4.4 percentage point increase in GDPGR — suggesting this variable is strongly associated with improved growth outcomes.
_cons	+83.21	33.75	0.024	Statistically significant. Baseline GDPGR when all lagged predictors are zero — likely not economically interpretable but necessary for model fitting.

Key Findings

1. 1. Significant Predictors:

- `L1_INTUSE` (Internet use) has a negative and statistically significant effect — counterintuitive; may signal issues like measurement lag, digital inefficiencies, or reverse causality.
- `L1_LEB` (Life expectancy) negatively impacts growth — aligns with findings in aging/developed countries.
- `L1_PAR` (Participation rate or similar) is strongly negative, which could hint at inefficiencies or underemployment.
- `L1_BWGWQ` (Quality of governance or similar) has a positive effect — a sign that better institutions drive growth.

2. 2. Non-significant predictors:

- `CFT`, `AGFF`, `POP65`, `SMSS`: Either have no effect or imprecisely measured.

3. 3. Model Fit:

- Despite only moderate within R² (31%), the high rho indicates most variation is across countries — justifying use of FE.

- Year effects are excluded — so time-specific global shocks are not controlled here, possibly biasing some estimates.

Comparison of Fixed Effects Panel Regression Models

1. MODEL STRUCTURE COMPARISON

Feature	Model A (With Year Dummies)	Model B (Without Year Dummies)
Command	<code>xtreg GDPGR L1_* i.Year, fe vce(robust)</code>	<code>xtreg GDPGR L1_*, fe vce(robust)</code>
Number of Observations	190	190
Groups (Countries)	19	19
Time Dummies Included?	Yes (i.Year)	No
Lagged Independent Vars	Yes (L1_)	Yes (L1_)
Estimation Type	Fixed Effects with clustered robust SEs	Fixed Effects with clustered robust SEs

2. MODEL FIT & EXPLANATORY POWER

Metric	Model A (With Year Dummies)	Model B (Without Year Dummies)	Interpretation

Within R ²	0.7020	0.3127	Model A explains 70% of variation within countries, vs only 31% in Model B — substantial improvement.
Between R ²	0.1298	0.0937	Slight increase in Model A — both still low (expected in FE).
Overall R ²	0.4002	0.0720	Model A explains much more total variation across all data.
F-statistic	F(17,18) = 90.56	F(8,18) = 50.05	Model A includes more predictors (due to year dummies) and remains highly significant.
rho	0.682	0.872	Model B attributes more variation to country fixed effects, while Model A allows time effects to capture some variance.

3. COEFFICIENT COMPARISON FOR LAGGED VARIABLES

Variable	Model A (With Year Dummies)	Sig.	Model B (Without Dummies)	Sig.	Change/Insight
L1_CFT	-0.061 (p = 0.033)	Yes	-0.054 (p = 0.292)	No	Becomes significant with year controls.
L1_AGFF	+0.314 (p = 0.529)	No	+0.283 (p = 0.691)	No	Not significant in both.
L1_INTUSE	-0.022 (p = 0.433)	No	-0.082 (p = 0.028)	Yes	Loses significance after year dummies are added.
L1_POP65	+0.254 (p = 0.419)	No	-0.126 (p = 0.626)	No	Flips sign, remains insignificant.
L1_LEB	-0.213 (p = 0.284)	No	-0.887 (p = 0.027)	Yes	Becomes insignificant when year effects are added.
L1_PAR	+0.016 (p = 0.581)	No	-0.112 (p = 0.000)	Yes	Sign flips & becomes highly significant without year controls.
L1_SMSS	+0.025 (p = 0.940)	No	+0.010 (p = 0.979)	No	No impact in either.

L1_BWGWQ	-0.007 (p = 0.555)	No	+0.044 (p = 0.000)	Yes	Becomes significant without year controls — potential omitted variable bias.
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4. YEAR EFFECTS (Only in Model A)

Year	Coefficient	p-value	Interpretation
2020	-6.36	0.000	Strong, significant drop in GDPGR — likely due to COVID-19.
2021	+4.31	0.005	Significant rebound in growth.
All other years	Not significant		Captures macroeconomic shocks over time.

5. Key Insights from Comparison

Insight	Observation
Model A is superior in fit	Higher R ² , better explanatory power. Year dummies capture macroeconomic shocks and reduce omitted variable bias.
Omitted variable bias likely in Model B	Several coefficients are significant in Model B but not in A — indicating possible spurious associations.
Signs flip between models	Especially for L1_PAR and L1_POP65, showing that time trends strongly influence interpretation if ignored.

Use Model A for policy	More reliable and controls for time shocks — better for drawing conclusions or policy recommendations.
Model B may overattribute variance to country fixed effects	Its high rho value indicates failure to account for global or temporal shocks.

Conclusion: Use Model A

- Model A (with year dummies) is statistically stronger, more robust, and controls for time-fixed shocks that influence all countries — such as pandemics, global financial shifts, or technological changes.
- Model B, though simpler, presents biased or spurious results due to exclusion of time effects — especially visible in the reversal of signs and significance.

Executive Summary of the Report

This report presented a comprehensive ESG-based evaluation of G20 countries by analyzing more than 70 indicators across environmental, social, and governance dimensions. Using reliable datasets and data visualization tools, the study revealed several critical patterns:

- **Environmental Disparities:** While electricity access and clean fuel penetration are nearly universal in developed G20 nations, emerging economies like India and South Africa still face significant gaps. Net forest depletion and CO₂ emissions highlight unsustainable trends in some regions.
- **Social Inclusion Gaps:** Countries exhibit stark differences in per capita income growth, education access, and child labor rates. India and Indonesia continue to grapple with low ESPS (Economic & Social Performance Scores) and high COD (Communicable Disease Deaths).
- **Governance Strength:** Corruption control remains weak in several economies despite moderate income levels, signaling an urgent need for institutional reforms and transparency.
- **Energy and Climate Tensions:** Nations like India, China, and South Africa continue to rely heavily on coal-based electricity, whereas many developed economies are transitioning faster toward renewables.

From data analysis to policy suggestions, this study emphasized the need for a paradigm shift from growth-centric to sustainability-focused development. The ESG lens not only enhances diagnostic capabilities but also empowers governments to adopt informed, equitable, and resilient strategies.

By integrating cross-disciplinary tools and real-world policy contexts, this internship experience has contributed meaningfully to both analytical skill development and global understanding.

