



2024 Atlas of Impunity: Methodology

Summary

This document provides a more technical overview of the methodology used in constructing the Atlas of Impunity and describes some of the statistical characteristics of the Atlas scores. A non-technical summary of the methodology, as well as a full list of sources and indicators, can be found in the 2024 Atlas report, in the sections titled “Impunity and its dimensions” and “Appendix A: Methodological changes to the Atlas since 2023.”

As noted in the report, for 2024, we made a series of revisions to the data to sharpen their focus on impunity as it is experienced by the people of a country. We also made a number of technical changes to improve the comparability of the Atlas scores over time. These revisions built upon work done with the Atlas of Impunity’s advisory board in 2021-2022 to define the most important dimensions of impunity, select relevant measures of each dimension, and devise a scoring and ranking system for the data. They also complement efforts in 2023 to expand the Atlas data into a historical series and make the scores suitable for comparison over time. Most of the Atlas’s indicators and sources, and the logic of the scoring and ranking system, remain unchanged since the 2022 edition.

In devising the Atlas scoring system, the process of measuring impunity around the world proceeded in four phases. First, we reviewed existing literature from academics and civil society groups, assembled a range of quantitative data on impunity, and worked with an independent advisory board of experts in the field of human rights to refine our definition. Second, we selected indicators in consultation with the advisory board with an eye toward utilizing reputable and high-quality data while also maximizing country coverage. Third, we normalized and combined the data into dimension scores and headline impunity scores, imputing missing data, and assigning rankings where the actual data were sufficiently complete. Fourth, we reviewed the data with the advisory board and Eurasia Group’s research platform to ensure a high level of quality.

In 2024, as in previous editions of the Atlas, the scoring allows for no qualitative score adjustments by Eurasia Group analysts, the project’s sponsors, or the advisory board. Any implicit value judgments solely stem from indicator selection and subjective criteria embedded in the source data series, some of which incorporate expert assessments from NGOs, academic research projects, or other organizations.

Methodological changes to the Atlas data

All methodological changes to the Atlas in 2024 are outlined below. Following the document’s publication, we plan to reconvene the advisory board to reassess our methodology on an ongoing basis.

Reduction in the number of indicators

The 2023 Atlas incorporated 66 indicators from 28 public data sources. These indicators were selected to represent the key components of five dimensions: unaccountable governance (UG), abuse of human rights (AHR), economic exploitation (EE), conflict and violence (CV), and environmental degradation (ED).

In 2024, in consultation with our advisory board, the Eurasia Group analytic team decided to remove a total of six indicators from the index for conceptual or technical reasons. The indicators removed include the State of Tax Justice Corporate Tax Haven Index, the external battles variable of the Armed Conflict Location and Event Data Project (ACLED), the State of Tax Justice total tax loss and harm done to other countries, and the arms trade imports and exports components produced by the Stockholm International Peace Research Institute (SIPRI). The specific reasoning for striking each of them can be found in “Appendix A: Methodological changes since 2023” of the 2024 report.

The number of indicators in the 2024 Atlas, therefore, falls to 60 from 24 public data sources. For a comprehensive list of sources and indicators, please refer to the “Impunity and its dimensions” section of the report.

Changes to the treatment of the Yale EPI indicators

The Yale Environmental Protection Index (EPI), the source of five of the nine indicators in the environmental degradation dimension of the Atlas, is subject to a high degree of volatility throughout our time series because of frequent updates to its methodology. In the 2023 edition of the Atlas, this resulted in year-to-year fluctuations in environmental degradation scores that were often more the result of methodological changes in the EPI than actual differences in states’ environmental performance.

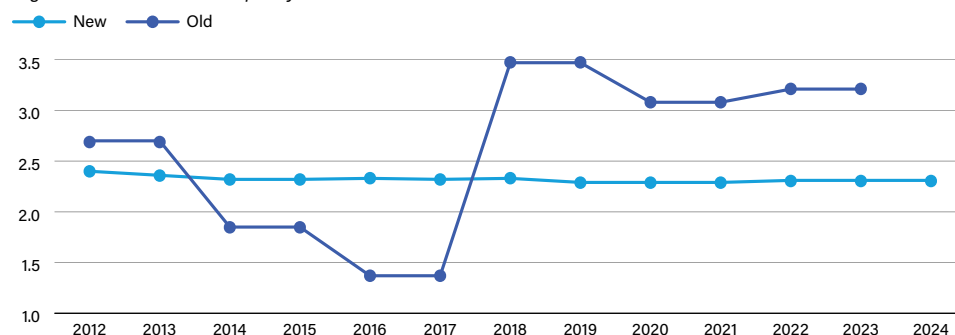
Environmental protection is inherently complex, as governments continually adapt their approaches to interconnected issues such as climate change, pollution, and emerging technologies. In addition, the scientific understanding of how best to measure environmental performance is evolving rapidly, which largely explains the EPI’s methodological changes over time. In this regard, the EPI can be considered a dynamic index.

To produce harmonized scores for the five indicators drawn from the Yale EPI, we used the EPI dataset’s normalized time series data for each of its individual indicators to recalculate the variables that we selected for the Atlas according to the 2024 EPI’s latest weights and methodology. In practice, this means we apply the latest thinking on how to measure environmental performance consistently throughout the time series, going back to 2012. Methodological changes in the EPI should no longer be the reason for any of the variation in EPI indicator scores year-on-year.

We also removed all observations with less than 60% of sub-indicators available, in line with the Atlas’s methodology for imputing missing data. The result is a much less volatile set of EPI indicators in the environmental degradation dimension throughout the historical period covered by the Atlas, as shown in the charts below. Moreover, we have also been able to construct longer time series for some EPI indicators where previously only a few years of data were available.

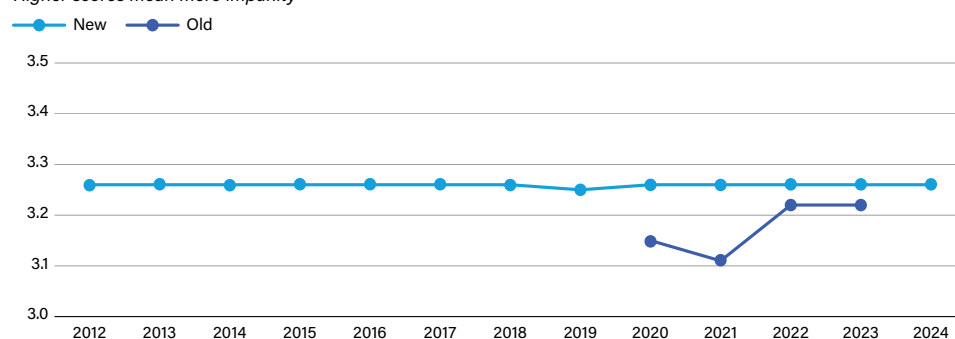
EPI Agriculture global average score

Higher scores mean more impunity



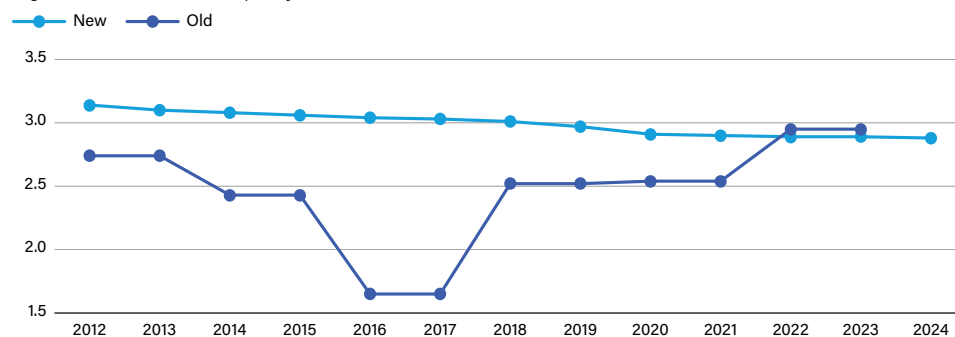
EPI Waste global average score

Higher scores mean more impunity



EPI Climate global average score

Higher scores mean more impunity



Changes to calculations on Amnesty International executions and death penalty data

Amnesty International's annual data on death sentences and executions comprises one indicator in the abuse of human rights dimension. Previously, this indicator summed the number of people on death row, annual executions, and new death sentences handed down by a country's courts. However, data on the number of people on death row are available only from 2016, limiting the time series. The dataset is also highly skewed, with 10% of countries accounting for nearly 70% of global executions and death penalties.

To improve the indicator’s accuracy, improve its responsiveness to changes in policy such as execution moratoriums, and extend the historical series, the 2024 Atlas excludes the stock of people on death row from the score, focusing solely on annual executions and new death sentences. Moreover, the Atlas lacks precise data on executions in countries such as China and North Korea, despite Amnesty International acknowledging high execution rates in both countries. To address this issue, for top ranking countries with missing data, a maximum score of 5.0 is assigned to reflect their frequent use of the death penalty (please see table below).

Year	Rank #1	Rank #2	Rank #3	Rank #4	Rank #5
2012	China	Iran	Iraq	Saudi Arabia	US
2013	China	Iran	Iraq	Saudi Arabia	US
2014	China	Iran	Saudi Arabia	Iraq	US
2015	China	Iran	Pakistan	US	Iraq
2016	China	Iran	Saudi Arabia	Iraq	Pakistan
2017	China	Iran	Saudi Arabia	Iraq	Somalia
2018	China	Iran	Saudi Arabia	Vietnam	Iraq
2019	China	Iran	Saudi Arabia	Iraq	Egypt
2020	China	Iran	Egypt	Saudi Arabia	US
2021	China	Iran	Egypt	Saudi Arabia	Syria
2022	China	Iran	Saudi Arabia	Egypt	US
2023	China	Iran	Saudi Arabia	Somalia	US

Elimination of lag in ACLED indicator scores

The 2024 Atlas includes five indicators from the ACLED dataset, which are based on conflict events—one fewer than in 2023 given the elimination of the external battles variable. Four of the ACLED figures are in the conflict and violence dimension, and one is in the abuse of human rights dimension.

In the 2023 Atlas, the ACLED indicators counted events that occurred in a country or territory between 1 January and 31 December of the year preceding the observation year. For instance, a country’s 2023 score on the ACLED battles indicator was based on the number of battles that occurred there between 1 January 2022 and 31 December 2022.

This approach was chosen to ensure that scores for each observation year included exactly 12 months of data, as our 30 September closing date meant that full data-year numbers would not be available for 2023 at the time of the report’s production. However, the lag introduced by this method was also found to pose serious interpretive challenges, as conflict events were not reflected in a country’s score until a year after they occurred.

In the 2024 Atlas, we addressed this issue by aligning each ACLED score to the calendar year in which the violent events occurred. ACLED scores for 2022 now reflect battles or other violent events that occurred between 1 January and 31 December 2022, and 2023 scores reflect those recorded in January-December 2023.

For 2024, the most recent year covered by the data, we retained our cutoff of 30 September, in keeping with the closing date applied to indicators in other dimensions. To estimate an annual value for the ACLED indicators, rather than

referring to events in the previous year, we instead annualized event counts for the first nine months. The ACLED scores for 2024, therefore, correspond to the trend in violence observed from January to September. These figures should be regarded as provisional, however, as they will be revised in the next edition to include actual data for the full calendar year.

Indicator weightings and headline impunity scores

As in previous editions of the Atlas, to determine country-specific impunity scores, each of the 60 indicators was normalized on a 0-to-5 scale. Countries where citizens faced the highest level of impunity were assigned a score of 5, while those with the greatest degree of accountability received a score of 0.

Following normalization, the individual indicator scores were averaged within their respective dimension, with each indicator contributing equally to the dimension score. The five dimension scores were averaged to formulate an overall impunity score. Each dimension carries a weight of 20%, underscoring the equal conceptual importance of each dimension in the Atlas. Viewed differently, the overall impunity score can also be described as a weighted average of each of the individual indicators where the weighting is determined by the number of other variables in its dimension.

Stated more formally, indicators in dimension i^{th} contribute differently to the headline index according to the formula $w^{i,t} = (0.2/n_{i,t})$ which is the individual indicator weight in year t^{th} while $n_{i,t}$ is the number of indicators within the dimension i^{th} in year t^{th} . The overall impunity score for year t^{th} can then be written as follows:

$$\text{impunity}_t = \sum_{i=1}^5 \sum_{j=1}^{n_{i,t}} \left(\frac{0.2}{n_{i,t}} \right) * \text{indicator}_j$$

One important aspect of the time series calculation in the Atlas is the dynamic nature of the number of indicators within each dimension over time. With increasing data availability from multiple sources, the number of indicators expanded over the last decade. For a detailed timeline of data availability by indicator, please consult the table on page 7.

Challenges in integrating data from multiple sources

When integrating time series data from multiple sources, challenges arose owing to varying data availability, ranging from differences in indices among countries to fluctuations within the time series.

Different update frequencies

Source data were published at different frequencies. For instance, indices such as the Economic Freedom Index and the Fragile State Index were updated annually since 2012, while the Open Budget Survey was published biennially.

Incomplete and irregular updates

When data were published, not all covered countries were consistently updated. This discrepancy was observed in indicators such as the Gini index and the intentional homicide data. To address these challenges, when calculating the Atlas score for a specific year, we utilized the most recently available data where possible.

Update frequencies for indicators

Dimension	Index	Indicator	Code	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Notes		
Unaccountable Governance	Economist Intelligence Unit	Electoral process and pluralism	EIU_EP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
		Functioning of government	EIU_GI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Democracy and political culture	EIU_PC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Political participation	EIU_PP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	World Press Freedom	Global score	WPF_Score		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	Fragile State Index	External intervention	FSL_ei		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2012–2020: Israel/ West Bank reported together (discarded) 2021–2023: Israel and Palestine independently	
		State legitimacy	FSL_sl		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Rule of Law Index	Regulatory enforcement	RLI_RE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Constraints on government power	RLI_CP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Criminal justice	RLI_CJ	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Civil justice	RLI_CI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Varieties of Democracy	Freedom from political killings	VOD_kill		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Clientelism Index	VOD_client		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Impartial public administration		VOD_imp		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Freedom in the World	Total score 2023	FIW_score		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Palestine/Gaza and Palestine/ West Bank: reported together (discarded)		
Economic Exploitation	Economic Freedom Index	Property rights	EFI_pr		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	In 2017, the freedom from corruption component was refined, incorporating additional sub-factors and underlying data sources that are significantly more comprehensive than those formerly used, and renamed "Government Integrity"		
		Government Integrity	EFI_gi		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	Freedom in the World	Functioning of government	FIW_C		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	Labor Rights Index	Total score	LRI_score										✓		✓					
	Varieties of Democracy	Social class equality in respect to civil liberties	VOD_social		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Sustainable Development Index	Victims of modern slavery (per 1,000 population)	SDG8_slav		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Has not been updated since 2012 (for most countries) Different countries were updated at different time every ~4-5 years. Major methodology changes in 2020	
		Children involved in child labor (% of population aged five to 14)	SDG16_clabor		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		SDI Goal 1: No Poverty	SDG_g1		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		SDI Goal 2: Zero Hunger	SDG_g2		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Open Budget Survey	Total score	OBS_score	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reports were published every two years covering data from the previous three years	
Global Corruption Index	Total score	GCRI_score		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Gini	Normalized Gini using most recent available from 2007-2022	Gini_Norm		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Countries were updated at different times, used most recent data		
Environmental Degradation	Sustainable Development Index	Climate action goal	SDG_g13		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
		Life below water goal	SDG_g14		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Life on land goal	SDG_g15		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Environmental Protection Index	Climate change	EPI_climate		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	A lot of changes from year to year with addition of new indicators and major categories (be careful when comparing year to year changes)	
		Air quality	EPI_air		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Waste management	EPI_waste											✓	✓	✓	✓	✓		
		Agriculture	EPI_agr		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Acid rain	EPI_acidrain													✓	✓	✓		
Ecological Footprint of Countries	Ecological footprint	EcoF_consumption		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

Update frequencies for indicators

Dimension	Index	Indicator	Code	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Notes	
Conflict and Violence	Armed Conflict Location & Event Data	Number of battles	ACLED_n_battles		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
		Number of riots	ACLED_n_riots		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Total fatalities per capita	ACLED_f_percapita		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Violence against civilians (by nonstate)	ACLED_v_nonstateforces		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Global Peace Index	Total Score	GPI_Score		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Women Peace Security Index	Community Safety Perception	WPS_safety						✓				✓		✓		✓		
		Intimate Partner Violence	WPS_partner						✓				✓		✓		✓		
	Intentional Homicides	No. intentional homicides per 100K people in 2020	HOM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
	Fragile States Index	Group Grievance	FSI_gg		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Rule of Law Index	(Sub) People do not resort to violence to redress personal grievances	RLI_RV				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
UNHCR Refugee Data Finder	Total per capita	UNHCR_percapita	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Abuse of Human Rights	OHCHR	State's consent to be bound by the 18 human rights treaties	OHCHR_RS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Economist Intelligence Unit	Civil Liberties	EIU_CL	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Fragile State Index	Human Rights and Rule of Law	FSI_hr		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Rule of Law Index	Equal Treatment and No Discrimination	RLI_ET				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Right to Life and Security	RLI_LS				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Due Process of the Accused	RLI_DP				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Human Freedom Index	Politically motivated disappearances	HFI_PMD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Reports published two years after data collection
		Freedom from torture	HFI_FT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Political Terror Scale	Average of 3 main scores	PTS_AVG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Amnesty International Executions	Recorded executions and death penalties by year	AI_exec		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Freedom in the World	Ethnic cleansing	FIW_ethnic		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Armed Conflict Location & Event Data	Violence against civilians (by state)	ACLED_v_stateforces		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Women Peace Security Index	Absence of Legal Discrimination	WPS_discrim						✓				✓		✓		✓			

Data skewness and normalization

To facilitate year-to-year comparison of the individual indicator scores, count data were normalized using ranges derived from the aggregate time series data. In cases where the data were significantly skewed, upper truncation was applied, assigning a maximum score of 5 to values above the truncation threshold. This adjustment aimed to mitigate the impact of extreme values, allowing for better observation of changes among the majority of data points. Specific ranges associated with all indicators can be found in the table below.

Indicator	ReverseDirectionality	min	max
AHR_mean	FALSE	0	5
CV_mean	FALSE	0	5
UG_mean	FALSE	0	5
ED_mean	FALSE	0	5
EE_mean	FALSE	0	5
ACLED_f_percapita	FALSE	0 (log-unit)	5.3
ACLED_n_battles	FALSE	0 (log-unit)	6 (log-unit)
ACLED_n_riots	FALSE	0 (log-unit)	6 (log-unit)
ACLED_v_nonstateforces	FALSE	0 (log-unit)	6.2 (log-unit)
ACLED_v_stateforces	FALSE	0 (log-unit)	4.1 (log-unit)
AI_exec	FALSE	0 (log-unit)	4.5 (log-unit)
EcoF_consumption	FALSE	0	8
EFI_gi	TRUE	0	100
EFI_pr	TRUE	0	100
EIU_CL	TRUE	0	10
EIU_EP	TRUE	0	10
EIU_GI	TRUE	0	10
EIU_PC	TRUE	0	10
EIU_PP	TRUE	0	10
EPI_acidrain	TRUE	0	100
EPI_agr	TRUE	0	100
EPI_air	TRUE	0	100
EPI_climate	TRUE	0	100
EPI_waste	TRUE	0	100
FIW_C	TRUE	0	12
FIW_ethnic	FALSE	0	4
FIW_score	TRUE	0	100
FSI_ei	FALSE	0	10
FSI_gg	FALSE	0	10
FSI_hr	FALSE	0	10
FSI_sl	FALSE	0	10
GCI_treaties	TRUE	0	100
GCRI_score	TRUE	0	100
Gini_Norm	FALSE	0	100
GPI_Score	FALSE	1	4
HFI_FT	TRUE	0	10

Indicator	ReverseDirectionality	min	max
HFI_PMD	TRUE	0	10
HOM	FALSE	0	31
LRI_score	TRUE	0	100
OBS_score	TRUE	0	100
OHCHR_RS	TRUE	0	18
PTS_AVG	FALSE	1	5
RLI_CI	TRUE	0	1
RLI_CJ	TRUE	0	1
RLI_CP	TRUE	0	1
RLI_DP	TRUE	0	1
RLI_ET	TRUE	0	1
RLI_LS	TRUE	0	1
RLI_RE	TRUE	0	1
RLI_RV	TRUE	0	1
SDG_g1	TRUE	0	100
SDG_g13	TRUE	0	100
SDG_g14	TRUE	0	100
SDG_g15	TRUE	0	100
SDG_g2	TRUE	0	100
SDG16_clabor	TRUE	0	100
SDG8_slav	TRUE	0	100
UNHCR_percapita	FALSE	0 (log-unit)	0.1 (log-unit)
VOD_client	FALSE	0	1
VOD_imp	TRUE	0	4
VOD_kill	TRUE	0	4
VOD_social	TRUE	0	4
WPF_Score	TRUE	0	100
WPS_discrim	TRUE	0	100
WPS_partner	FALSE	0	100
WPS_safety	TRUE	0	100
VOD_kill	TRUE	0	4
VOD_social	TRUE	0	4
WPF_Score	TRUE	0	100
WPS_discrim	TRUE	0	100
WPS_partner	FALSE	0	100
WPS_safety	TRUE	0	100

Missing data and data imputation

One of the inevitable challenges when combining data from multiple sources is non-random missing data. Reasons for missing data points may include a lack of UN recognition of a country or territory, disputed borders that lead to attribution difficulties, conflicts impeding data collection, or resource prioritization toward certain countries. For instance, the ACLED dataset prioritized coverage of countries with a greater degree of conflict in the project’s early years; countries with few to no conflict events in a typical year were added only recently, most beginning in 2019.

Time series imputation poses additional complexity because of autocorrelation among data points. Given the limited number of data points for each country, only a few time series were suitable for imputation. To maintain consistency and avoid disparate imputation techniques, no imputation was performed within the time series.

For cross-sectional data imputation, a methodology similar to that used in the 2023 Atlas was adopted. Multiple Imputation by Chained Equations (MICE) was employed to impute missing data for specific countries. MICE involves creating linear regressions for each indicator, replacing missing data points with estimates based on the relationships among observed values of the indicator and others in the dataset. The process was iterated to produce multiple "complete" datasets, and the imputed values were pooled to generate unbiased estimates of missing values. This algorithm proved advantageous given the moderate to strong correlations among indicators in the Atlas dataset.

In our analysis, we imputed missing data only if a country had 60% or more actual Atlas data available. We also included a feature only if it demonstrated moderate to strong correlations with at least two other indicators, aiming to enhance the model's performance.

Data ranking

Overall rankings

As in previous years, impunity rankings were given for countries only if they met the 60% actual data threshold for score imputation. A total of 170 countries received a ranking in the 2024 report. For countries with less than 60% of indicator data available, Atlas scores are calculated only on the basis of data available, and no imputation is performed. These countries receive no overall ranking, and their headline impunity scores should be interpreted as indicative ones, in which we have less confidence than others based on more complete underlying data. Twenty-seven countries and territories were scored but not ranked in the 2024 Atlas.

Dimension rankings

The Atlas also assigns rankings for each of its dimensions. As with the headline score, for countries with less than 60% of actual data in any given dimension, no dimension ranking is assigned.

For various reasons, missing data sometimes cluster in one or more dimensions. A few countries, therefore, fall short of the 60% threshold for ranking and imputation on the full dataset but do have 60% of data in at least one dimension. In these cases, the country does not get an overall ranking, but it does receive one for the dimension or dimensions that meet the 60% cutoff, allowing for partial comparisons to other countries.