

# The Global Conflict Risk Index (GCRI)

## A quantitative tool for conflict early warning

### HIGHLIGHTS

- The Global Conflict Risk Index (GCRI) is a core component of the EU's conflict Early Warning System (EWS).
- Using open source data on 22 structural variables, the GCRI provides quantitative estimates of conflict risk in 138 countries over the next 1-4 years.
- The GCRI draws on insights from the scientific literature and input from regional experts, and has been validated through rigorous empirical testing.
- The EU conflict EWS combines GCRI risk estimates with qualitative analysis to identify priority countries for conflict prevention efforts.
- The GCRI is funded by the Service for Foreign Policy Instruments (FPI), and is developed and maintained by the Joint Research Centre (JRC), in close collaboration with the European External Action Service (EEAS).

### THE EU CONFLICT EARLY WARNING SYSTEM

#### Data for upstream conflict prevention

The Treaty of the European Union and the revised Global Strategy from 2019 have highlighted conflict prevention as a clear priority, emphasizing the need to stabilize conflict-prone areas *before* violence has a chance to erupt. **Anticipation and early warning** are essential capabilities required to fulfil that mission.

The EU conflict Early Warning System (EU conflict EWS)<sup>1</sup> was developed as a key component of the EU's Comprehensive

Approach to External Conflict and Crises. It serves as an evidence-based risk management tool coordinated by the European External Action Service (EEAS), which helps the EU and its Member States' decision-makers develop strategies to mitigate conflict risks.

The EU conflict EWS relies on both quantitative and qualitative analysis. The Global Conflict Risk Index (GCRI) serves as the starting point of the system, providing an assessment of internal conflict risk in 138 countries over the next 1-4 years. The GCRI defines risk as the combination of the probability of conflict and its potential severity (impact). Its probability and intensity estimates are based on statistical

models that use open-source data on known drivers of conflict.

### The GCRI: Development and use

The GCRI was first developed in 2014, and has since been updated and revised on a yearly basis, following the latest developments in the scientific literature. The current version of the model uses 22 variables in 6 risk areas: **Political, security, social, economy, geography/environment, and demographics**. The variables represent structural conditions associated with conflict risk, and were selected following an extensive review of the scientific literature and consultations with experts and practitioners at the EEAS. The criteria used for variable selection include theoretical support, empirical evidence, data availability and predictive performance.<sup>2</sup>

The GCRI uses historical data from 1991 up to the present to train a statistical model that can estimate conflict risk in the near future. The model distinguishes between the following 3 types of conflict: **State-based conflict, Non-state conflict, and One-sided violence**. For each conflict type, as well as for all conflicts combined (**Any conflict**), the GCRI estimates the average probability of conflict as well as the likely intensity of violence over the next 1-4 years.

The GCRI does not attempt to precisely predict the outbreak of individual conflicts. Instead, the goal is to assess each country's underlying risk based on recent historical patterns and current structural conditions. These risk assessments are by definition probabilistic, meaning that high conflict risk does not inevitably result in conflict, while some low-risk countries may still experience violence in the near term.

While the GCRI aims to estimate conflict risk as accurately as possible, there are of course certain limitations in its ability to do so. Violent conflicts are often complex and contingent, and previous forecasts may be invalidated by systemic shocks and other “black swan” events that do not follow statistical regularities. Despite these limitations, the GCRI puts the EU's conflict EWS on a solid empirical basis by providing systematic conflict risk assessments that are comparable over time and between countries.

#### GCRI conflict types

The GCRI distinguishes between **3 types of conflict**, as defined by the Uppsala Conflict Data Program (UCDP):

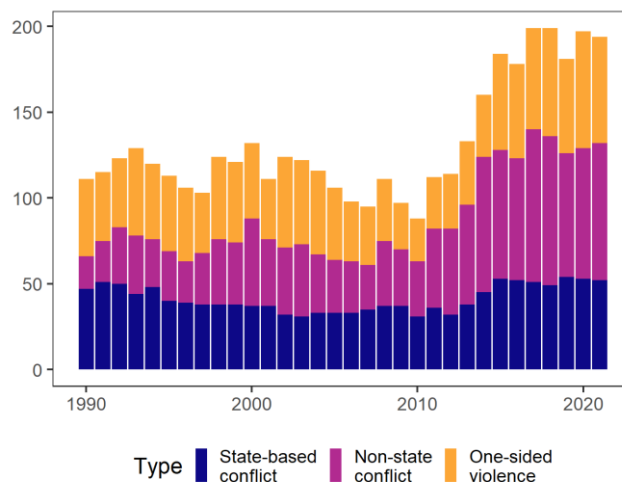
- **State-based conflict:** Armed conflict between two or more organized groups, one of which represents a state government.
- **Non-state conflict:** Armed conflict between two or more groups, neither of which is the state.
- **One-sided violence:** Direct and deliberate killing of civilians, perpetrated by a government or armed group.

In addition, the GCRI estimates the risk of all three categories combined. Note that UCDP data only covers conflicts with **more than 25 fatalities** and that the GCRI focuses exclusively on **internal conflict**.

**Table 1** – Structural variables in the GCRI

Dimension	Component	Variable
Political	Regime type	Democracy
	Regime performance	State capacity
		Repression
		Corruption
Security	History of conflict	Recent conflict
		Years since conflict
	Current conflict situation	Neighboring conflict
		Homicide rate
Social	Social cohesion and diversity	Female empowerment
		Ethnic exclusion
		Transnational ethnic ties
Economy	Provisions and employment	Food security
		Unemployment
	Development and Distribution	GDP per capita
		Income inequality
		Trade openness
		Oil exports
Geography - Environment	Environment	Droughts
		Temperature change
Demographics	Demographics	Population
		Youth bulge
		Child mortality

**Figure 1** – Number of active conflicts by category, 1990-2021.



Source: Uppsala Conflict Data Program (UCDP)

## CONFLICT PREVENTION AND EARLY WARNING IN THE EU'S FOREIGN POLICY

The goal of the EU conflict EWS is to provide an assessment of conflict risks across the globe to support upstream conflict prevention. With a time horizon of up to four years, the system identifies structural risk factors that frequently correlate with the outburst of violence. It enables policy makers to develop strategic responses to mitigate those risks and identify opportunities for conflict prevention.

The purpose of the tool is to address the warning-response gap by enabling policy-makers to take decisions based on evidence, and on a deeper understanding of the underlying causes and dynamics of national and regional violence. To do so, quantitative data from the GCRI are complemented with qualitative input from intelligence, open source data and thematic and regional experts, who offer additional insights on contemporary risks and dynamics.

Monitoring structural causes helps the EEAS, the European Commission and Member States to identify trends in violence eruption. This allows them to anticipate those developments where possible and to be better prepared to mobilize in a timely manner its political, development and crisis response tools. Intervening early in low-risk countries remains a challenge in a moment where most attention is focused on responding to crises – but data can play a key role in helping to direct political attention also to what is important, and not only urgent.

### SHORT-TERM CONFLICT RISK ASSESSMENT: THE DYNAMIC CONFLICT RISK MODEL (DCRM)

While the GCRI plays an important role in the EU conflict EWS, the current system also has a few shortcomings: First, the GCRI is updated just once every year, whereas policy-makers often need more frequent and up-to-date risk assessments. Second, the model only estimates risk at the country level and therefore does not indicate where within a country the risk of conflict is highest. This represents a challenge as most conflicts do not affect entire countries equally but instead are limited to certain regions. Likewise, conflicts are often the result of specific local conditions that can be difficult to measure at the national level. Thirdly, the GCRI focuses mostly on “slow-moving” structural variables such as population or democracy, which are important to assess a country’s underlying risk, but are less useful to detect short-term changes in conflict dynamics.

To address these limitations, the Joint Research Centre (JRC) is currently developing the **Dynamic Conflict Risk Model (DCRM)**, which aims to complement the GCRI to improve the EU’s early warning capacity. The new model estimates conflict risk at the sub-national level over the next 1-6 months.

The DCRM focuses primarily on dynamic variables that reflect recent developments on the ground, such as the spread of protests and other forms of social unrest, or the incidence of droughts and other extreme weather events. The goal of the DCRM is to provide monthly risk forecasts at the sub-national level and on a global scale.

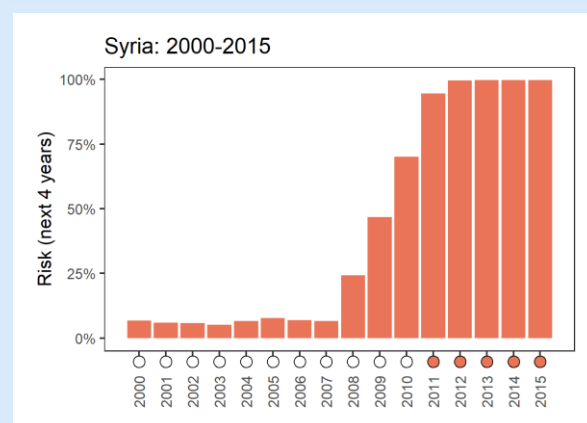
#### Example: Conflict risk in Syria (1999-2015)

To illustrate how the GCRI contributes to the EU conflict EWS, we consider Syria as a historical example, which has experienced large-scale internal conflict since 2011.

The colored bars in Figure 2 show the updated GCRI risk estimates in each year for the next 1-4 years, based on historical data up to that point. The colored dots on the x-axis indicate whether or not a conflict indeed occurred in that year.

From 2008, we see a steady increase in conflict risk, whereas the estimated risk was low in previous years.

**Figure 2** – Estimated conflict risk in Syria vs. actual conflict occurrence, 2000-2015



Source: Global Conflict Risk Index (GCRI)

## ACCESS

More information on the GCRI's output and use can be found at the website of the European Commission's Disaster Risk Management Knowledge Centre (DRMKC), and at the JRC's Science4Peace portal: <https://science4peace.jrc.ec.europa.eu/>.

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## REFERENCES

<sup>1</sup> High Representative of the Union for Foreign Affairs and Security Policy (2021) EU conflict Early Warning System: Objectives, Process and Guidance for Implementation - 2020, *Joint Staff Working Document*, European Commission, [https://knowledge4policy.ec.europa.eu/publication/eu-conflict-early-warning-system-objectives-process-guidance-implementation\\_en](https://knowledge4policy.ec.europa.eu/publication/eu-conflict-early-warning-system-objectives-process-guidance-implementation_en).

<sup>2</sup> For more detailed information on the GCRI's data and methodology, see: Schvitz et al (2022) Global Conflict Risk Index: Methodological Updates and Improvements, *JRC Technical Report*. DOI: [10.2760/041759](https://doi.org/10.2760/041759) (online)

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