

# The European Commission's science and knowledge service

## Joint Research Centre



# The Global Conflict Risk Index

Week on Composite Indicators and Scoreboards  
8<sup>th</sup> November 2018

EC-Joint Research Centre  
Peace & Stability

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And its contribution to policy
2. Variables and data providers
3. GCRI Projections
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5. Dissemination: Science4Peace Portal
6. Future developments
7. Challenges and discussion topics

# 1. The Global Conflict Risk Index

## GCRI:

Annual country index of the statistical risk of violent conflict in the next 1-4 years

- Exclusively based on quantitative indicators from open sources
  - **24** variables in **5** dimensions: social, economic, security, political, geographical/environmental
- **assumption** that **structural conditions** in a country are linked to the occurrence of violent **conflict**:
  - statistical regression models to calculate **probability** and **intensity** of violent conflict.

url: <http://conflictrisk.jrc.ec.europa.eu/>



# 1. GCRI's Contribution to Policy

Starting point in the **EU Conflict Early Warning System (EWS)**

- Annual exercise with EU External Action Service (EEAS)
- Identify and rank countries at high risk of violent conflict
- Followed by qualitative in-depth studies by country experts at EEAS

Contribute to

- Design of external policy for the EU as global actor
- Conflict risk prevention

## 2. GCRI variables and data providers

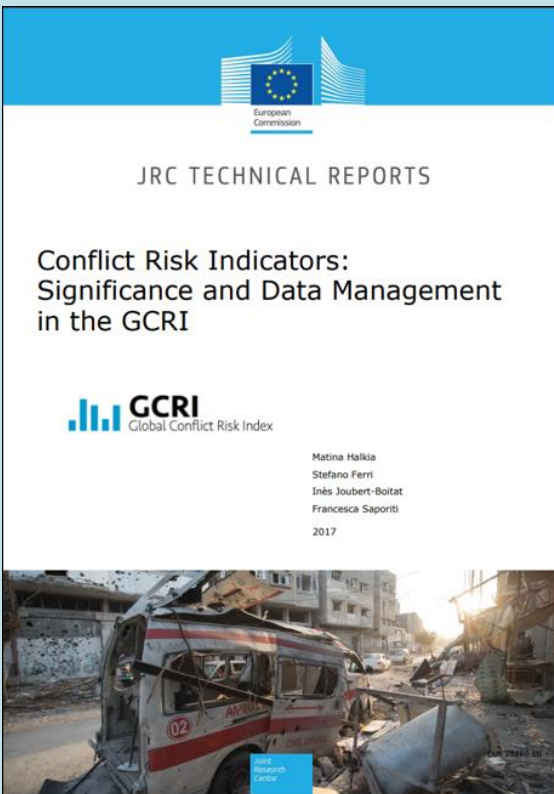
Risk area	Concept	Indicator	Updated	Source
Political	Regime type	Regime Type	2016	<a href="#">Center for Systemic Peace</a>
		Lack of democracy	2016	<a href="#">Center for Systemic Peace</a>
	Regime performance	Government Effectiveness	2016	<a href="#">World Bank</a>
		Level of Repression	2016	<a href="#">PTS</a>
		Empowerment Rights	2011	<a href="#">CIRI</a>
Security	Current conflict situation	Recent internal conflict	2017	<a href="#">HIIK</a> ; <a href="#">UCDP/PRIO</a>
		Neighbors with HVC	2017	<a href="#">HIIK</a> ; <a href="#">UCDP/PRIO</a>
	History of conflict	Years since HVC	2017	<a href="#">HIIK</a> ; <a href="#">UCDP/PRIO</a>
Social	Social cohesion and diversity	Corruption	2016	<a href="#">World Bank</a>
		Ethnic Power Change	2015	<a href="#">ETH Zurich</a>
		Ethnic compilation	2015	<a href="#">ETH Zurich</a>
		Transnational Ethnic Bonds	2009	<a href="#">CIDCM</a>
	Public security and health	Homicide Rate	2015	<a href="#">World Bank</a>
		Infant Mortality	2016	<a href="#">World Bank</a>
Economy	Development and distribution	GDP per capita	2016	<a href="#">World Bank</a>
		Income inequality	2017	<a href="#">Harvard Dataverse Network</a>
		Openness	2016	<a href="#">World Bank</a>
	Provisions and employment	Food security	2016	<a href="#">FAO</a>
		Unemployment	2017	<a href="#">World Bank</a>
Geography - Environment	Geographic challenge	Water Stress	2013	<a href="#">WRI</a>
		Oil Production	2016	<a href="#">World Bank</a>
		Structural constraints	2016	<a href="#">BTI</a>
	Demographics	Population size	2016	<a href="#">UNDESA</a>
		Youth bulge	2016	<a href="#">UNDESA</a>

Selection of variables based on:

- scientific literature
- yearly expert workshops

2 New Variables:

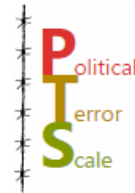
- Drought (Source: **Standardized Precipitation Evaporation Index SPEI**)
- Displaced people (Source: **Internal Displacement Monitoring Centre IDMC**)



URL: [http://publications.jrc.ec.europa.eu/repository/bitstream/JRC107996/gcri\\_technialreport\\_composit emodel\\_final\\_version.pdf](http://publications.jrc.ec.europa.eu/repository/bitstream/JRC107996/gcri_technialreport_composit emodel_final_version.pdf)



## 2. International data providers for the GCRI variables



### 3. GCRI Projections (1-4 Years)

Based on **economic, social, environmental and political data**, the **regression** models used for the GCRI gives an insight into the **probability** and **intensity** of conflict at **country level annually**.

- Logistic regression model → probability of conflict
- Linear regression model → intensity (1 – 10)
- Subnational conflict risk
- National conflict risk

<http://publications.jrc.ec.europa.eu/repository/handle/JRC108767>





# 4. Country risk profiles: Composite Score

Snapshot of a country's structural risk at a given year

- Score on 10
- for all 24 structural indicators
- Averaged over
  - 10 concepts
  - 5 risk areas
  - Overall country score

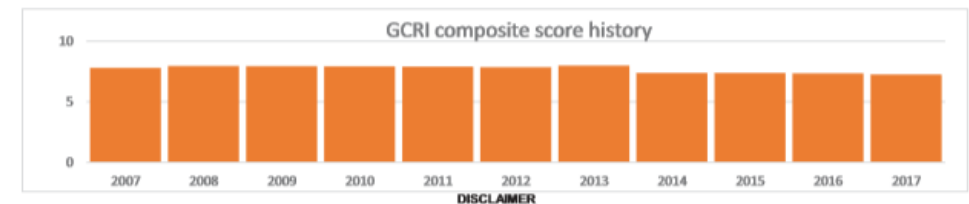
## Country X

Asia and the Pacific

Composite score

7.3

Risk area	Concept	Indicator	Score	Raw data	Updated
Political 5.7	Regime type	3.3	Regime Type	1.1	Anocracy
			Lack of democracy	5.5	
	Regime performance	8.2	Government Effectiveness	7.5	2016
			Level of Repression	10.0	2016
			Empowerment Rights	7.1	2011
Security 9.5	Current conflict situation	9.0	Recent internal conflict	10.0	Intensity previous year
			Neighbors with HVC	8.0	Highest intensity neighbours
	History of conflict	10.0	Years since HVC	10.0	10 = ongoing, reduced by 1 for each peaceful year
Social 7.3	Social cohesion and diversity	8.7	Corruption	9.2	2016
			Ethnic Power Change	0.0	2015*
			Ethnic compilation	7.0	2015*
			Transnational Ethnic Bonds	10.0	2009*
	Public security and health	5.9	Homicide Rate	4.8	6.6 per 100,000 people
			Infant Mortality	6.9	70.4 per 1,000 live births
Economy 5.9	Development and distribution	6.2	GDP per capita	6.8	1803 PPP USD 2011
			Income inequality	3.3	2017
			Openness	8.6	2016
	Provisions and employment	5.7	Food security	6.5	2016*
			Unemployment	4.9	8.5 %
Geography - Environment 7.8	Geographic challenge	7.4	Water Stress	8.1	2013*
			Oil Production	4.2	6.8 % of merch. exports
			Structural constraints	10.0	2016
	Demographics	8.1	Population size	6.9	35.5 million
			Youth bulge	9.3	0.38 Less than 24 years



# 4. From Composite Score to Composite Graphic

Composite score depends on:

- Categorization of indicators into risk concepts and areas
- Weights for averaging over risk indicators, concepts and areas
  - Based on expert opinions

Give a of a country's prevailing **structural conditions** related to violent conflict, organized in an **conceptually clear** way:

- indicates to policy-makers where advisable to intervene
- Follow yearly developments

## Country X

Asia and the Pacific

Composite score

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					2016



# 4. Country risk profiles: Composite Graphic

Visualizes a snapshot of a country's structural profile at a given year.

- 5 risk areas
- 24 structural risk indicators
- Statistically projected risk for violent conflict  
→ Probability and intensity

Possibility of presenting indicators development over time

 Country X

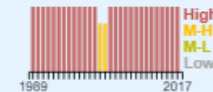
> Country overview

Conflict probability

2017 data

99%

Historical risk trend

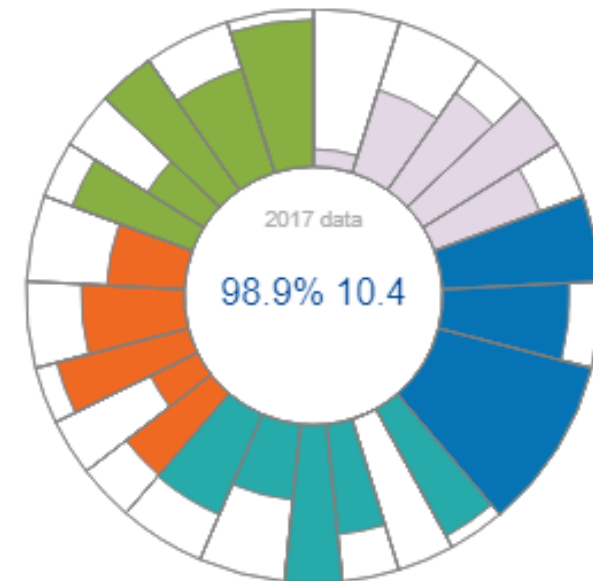


Major risk factors

Based on the data in the Global Conflict Risk Index, the major risk areas for Country X are Transnational Ethnic Bonds, Level of Repression, Structural constraints, Recent internal conflict, Years since HVC and Youth bulge

In particular concerns over SECURITY across the region and GEOGRAPHY AND ENVIRONMENT continue to threaten the stability of the Country X government

Overall, Country X is at High risk.



# 5. Dissemination: Science4Peace Portal

<http://science4peace.jrc.ec.europa.eu>

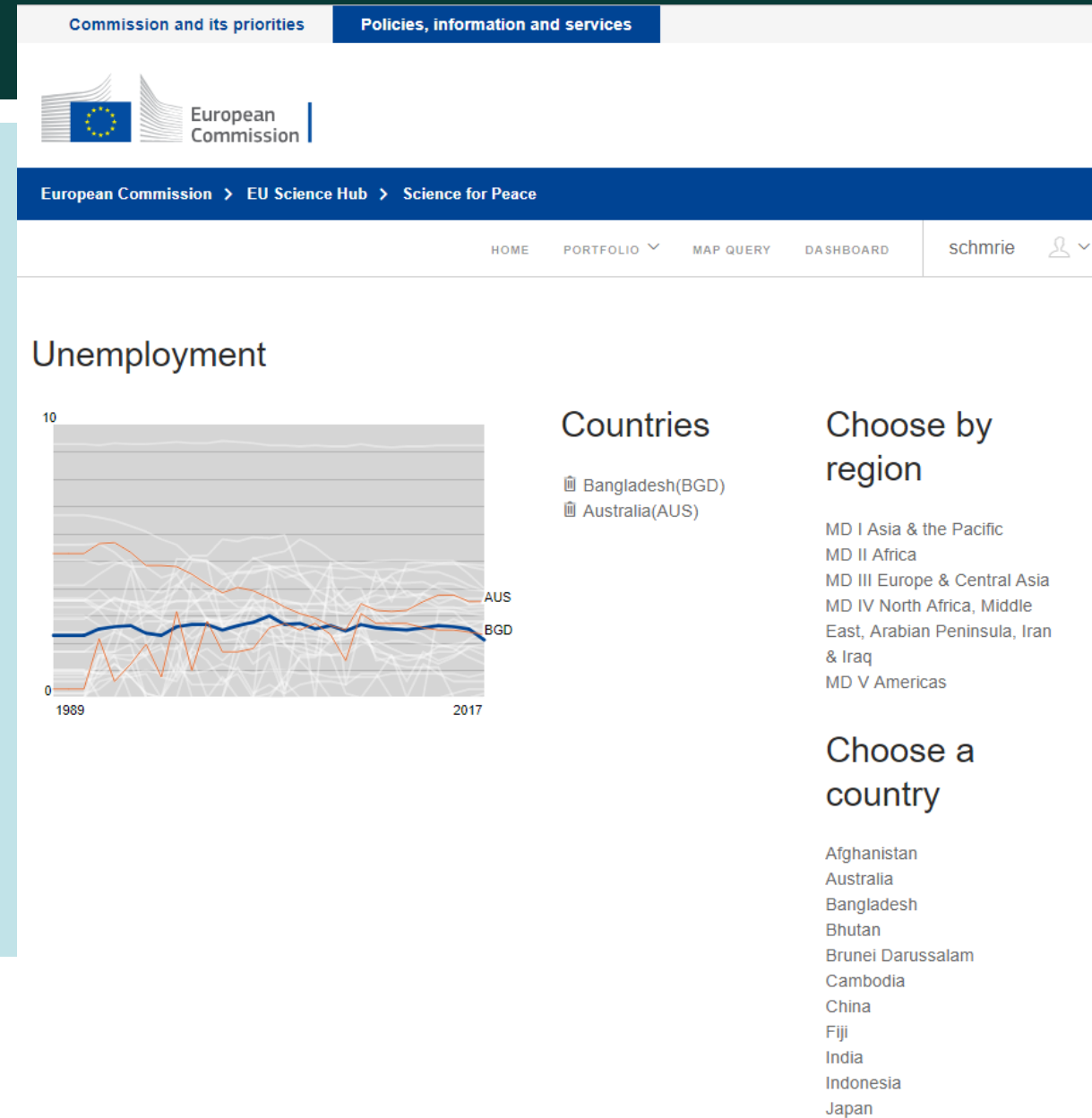
- Web interface in secured environment for EC staff (EEAS) and accredited partners
- Interactive, non-technical communication of conflict risk information

The screenshot displays the Science4Peace Portal interface. At the top, there are navigation tabs: "Commission and its priorities" and "Policies, information and services". Below these is the European Commission logo. A breadcrumb trail reads "European Commission > EU Science Hub > Science for Peace". The main navigation bar includes links for "HOME", "PORTFOLIO", "MAP QUERY", and "DASHBOARD", along with a user profile "schmrie". The central heading is "Global Conflict Risk Dashboard". Below this, a section titled "Explore by..." contains three filter buttons: "COUNTRY", "RISK AREA" (which is highlighted), and "GLOBAL TRENDS". Under the "RISK AREA" filter, there are five categories with icons: "Political" (crown), "Security" (lock), "Social" (network), "Economy" (bar chart), and "Geography and Environment" (map). Each category has a list of sub-factors: Political includes Regime Type, Lack of democracy, Government Effectiveness, Level of Repression, Empowerment, and Rights; Security includes Recent internal conflict, Neighbors with HVC, and Years since HVC; Social includes Corruption, Ethnic Power Change, Ethnic Compilation, Transnational, Ethnic Bonds, Homicide Rate, and Infant Mortality; Economy includes GDP per capita, Income inequality, Openness, Food security, and Unemployment; Geography and Environment includes Water Stress, Oil Production, Structural constraints, Population size, and Youth bulge.

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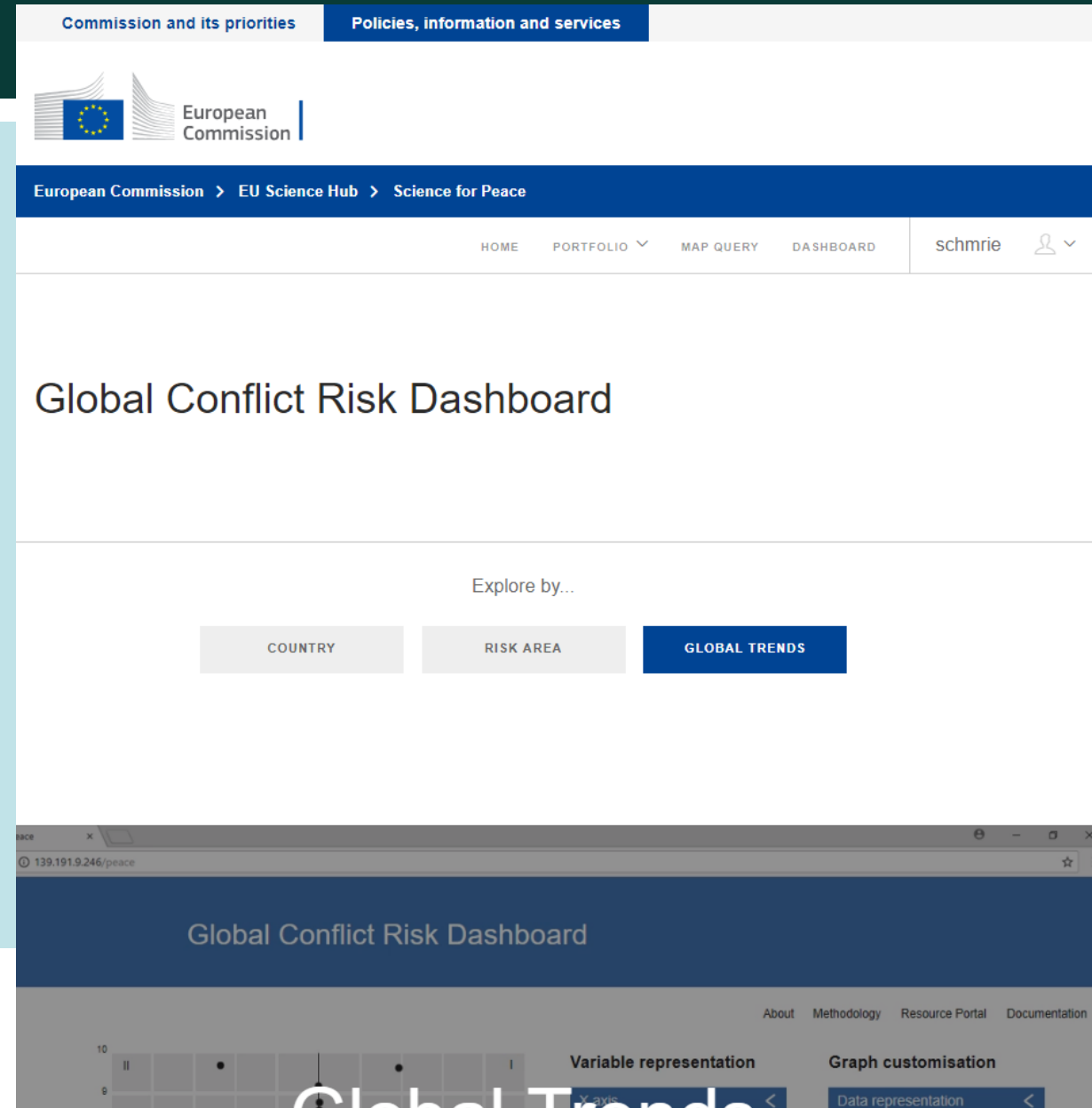
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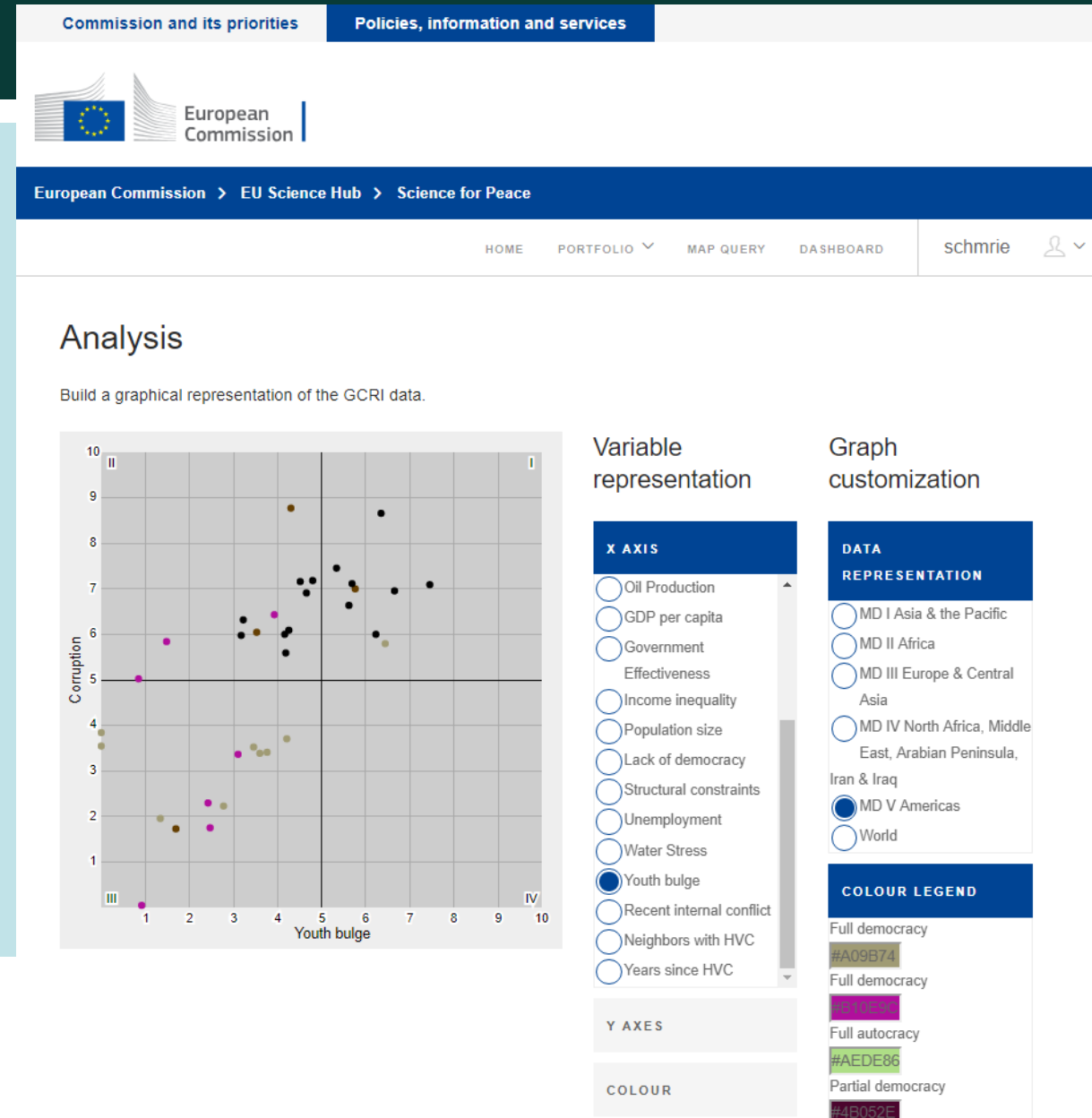




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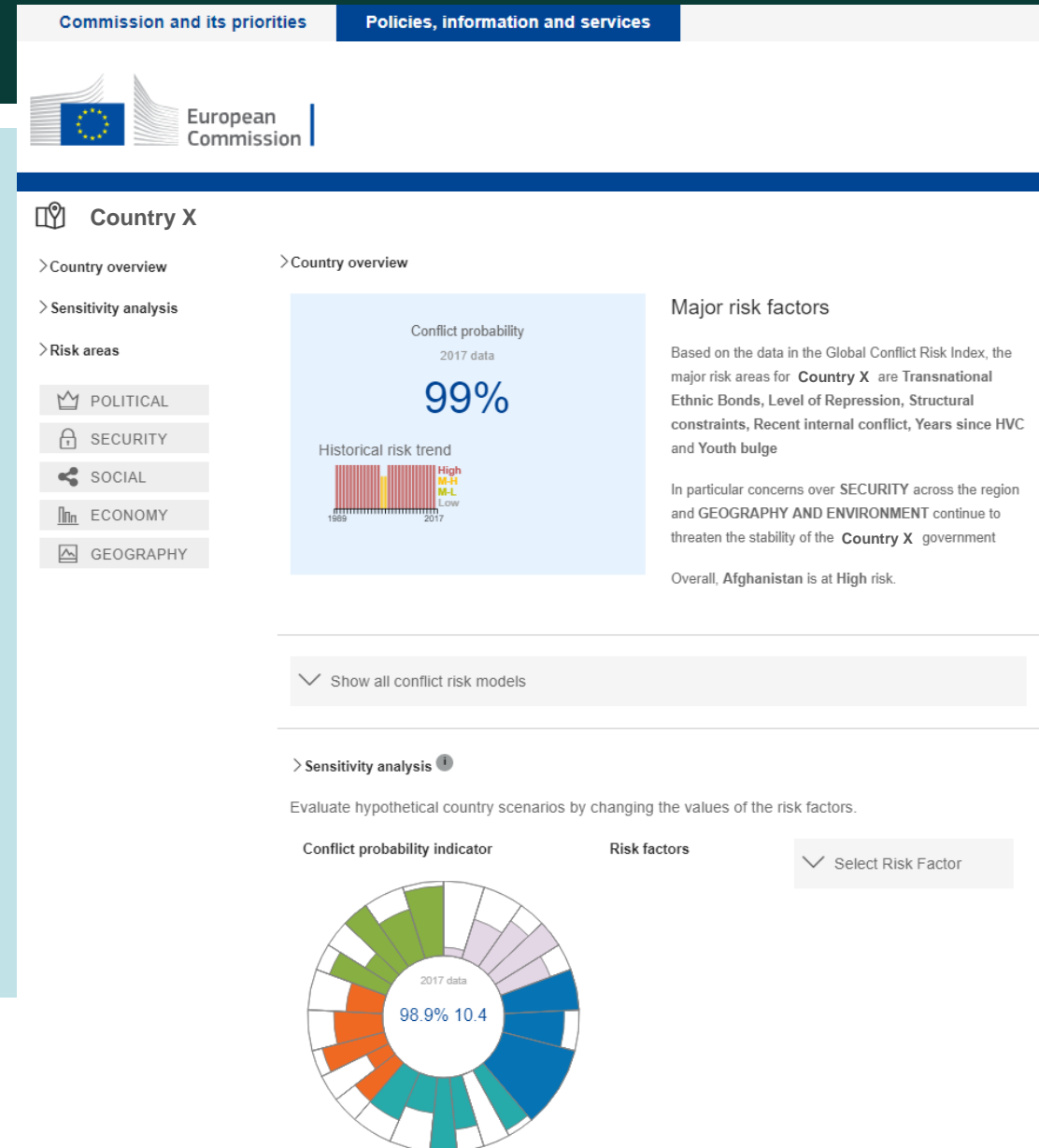
Under the "COUNTRY" button, there are five columns of country names, each corresponding to a Major Disaster (MD) category:

- MD I Asia & the Pacific:** Afghanistan, Australia, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji.
- MD II Africa:** Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African.
- MD III Europe & Central Asia:** Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Iceland.
- MD IV North Africa, Middle East, Arabian Peninsula, Iran & Iraq:** Algeria, Bahrain, Egypt, Iran, Islamic Republic of, Iraq, Israel, Jordan.
- MD V Americas:** Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Plurinational State of.

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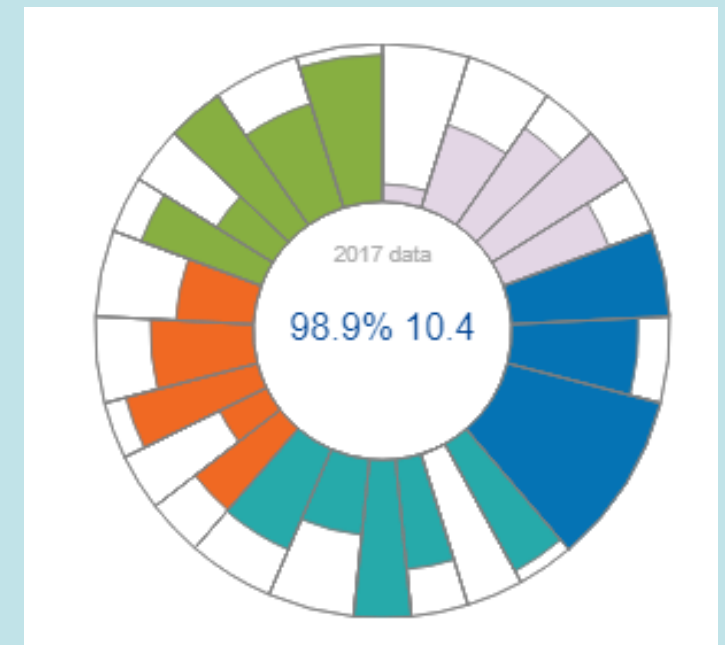


# 6. Future developments

- Conflict resilience:
  - Flagship report on defining Resilience against violent conflict
  - Developing indicator
- Climate change and conflict
- Machine learning for conflict risk projections

# 7. Challenges and discussion topics

- Composite scores and composite graphics
- Indicators and models





# Any questions?

Reach our Peace & Stability team through [matina.halkia@ec.europa.eu](mailto:matina.halkia@ec.europa.eu)

