

Theme 3: Data Science

Use data to help us better understand the impact of conflicts on children.

Conflict on children

We estimate 400 million children live in countries where there is war or violent conflicts.

Yet it is difficult to keep a relevant, granular and up-to-date view on how and where children are affected by conflict and how this adds to other vulnerabilities.

New data sets like high resolution population estimates and semi real-time recording of conflict events based on news offer unprecedented tools to make sure we put additional light in this critical problem.

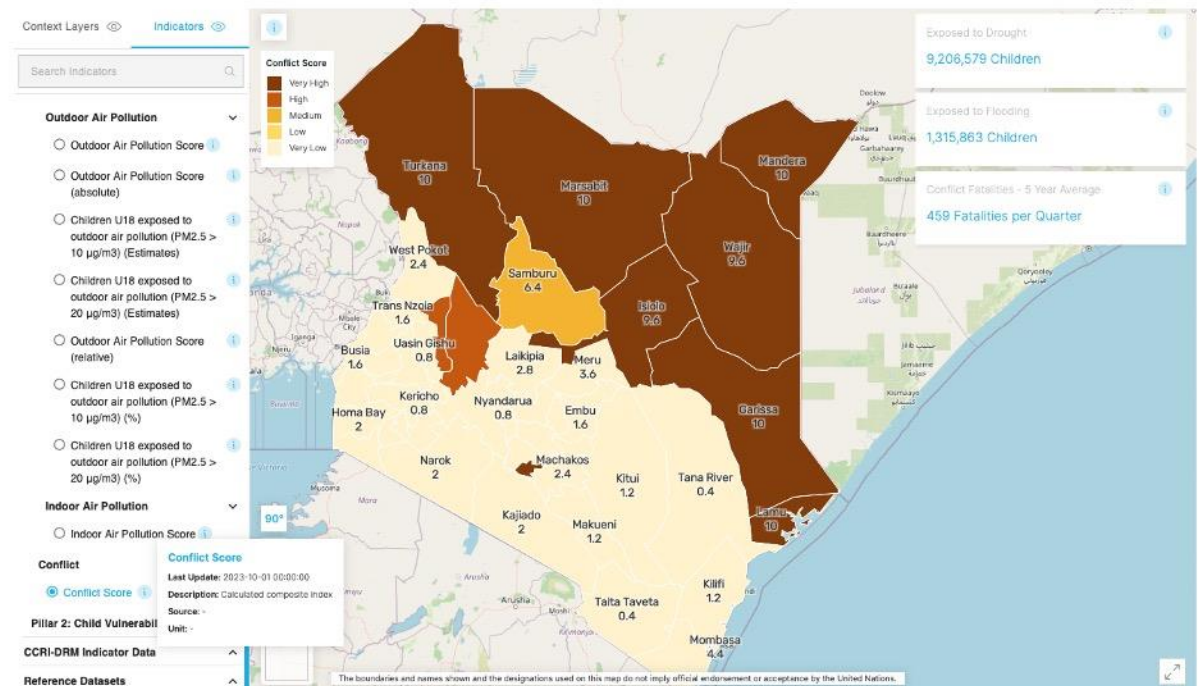
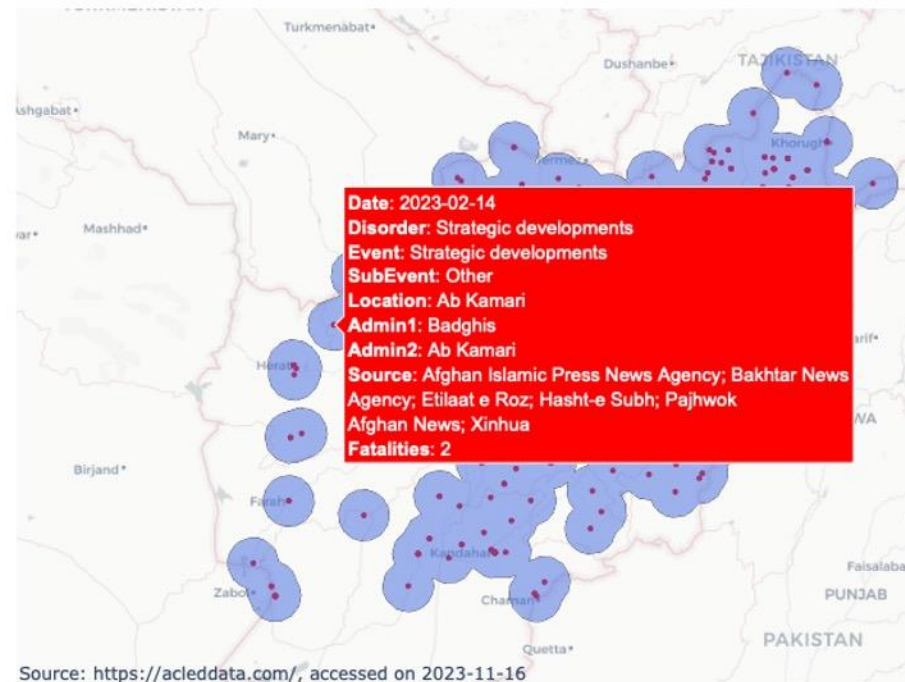
But they also brings new challenges for which we need help, hands and brains to ensure we correctly transform this data in relevant insights



Conflict on children

We are starting to explore new datasets and to incorporate conflict indicators in our dashboards and data tools.

There is plenty of room for improvement



Conflict on children

Data-Sources Overview

CONFLICT: The Armed Conflict Location & Event Data Project (ACLED) provides real-time data on the locations, dates, actors, fatalities, and types of all reported political violence and protest events around the world.

POPULATION: WorldPop provides high-resolution geospatial data on population distributions, demographics, and dynamics, focusing on low and middle-income countries.

CONTEXT:

UNICEF Indicator Data Warehouse that comprises children relevant data and indicators in all sorts of categories at country level.

The **WorldRiskIndex** data set contains multiple indicators at the country level ranging from hazard exposition to vulnerability by those events.

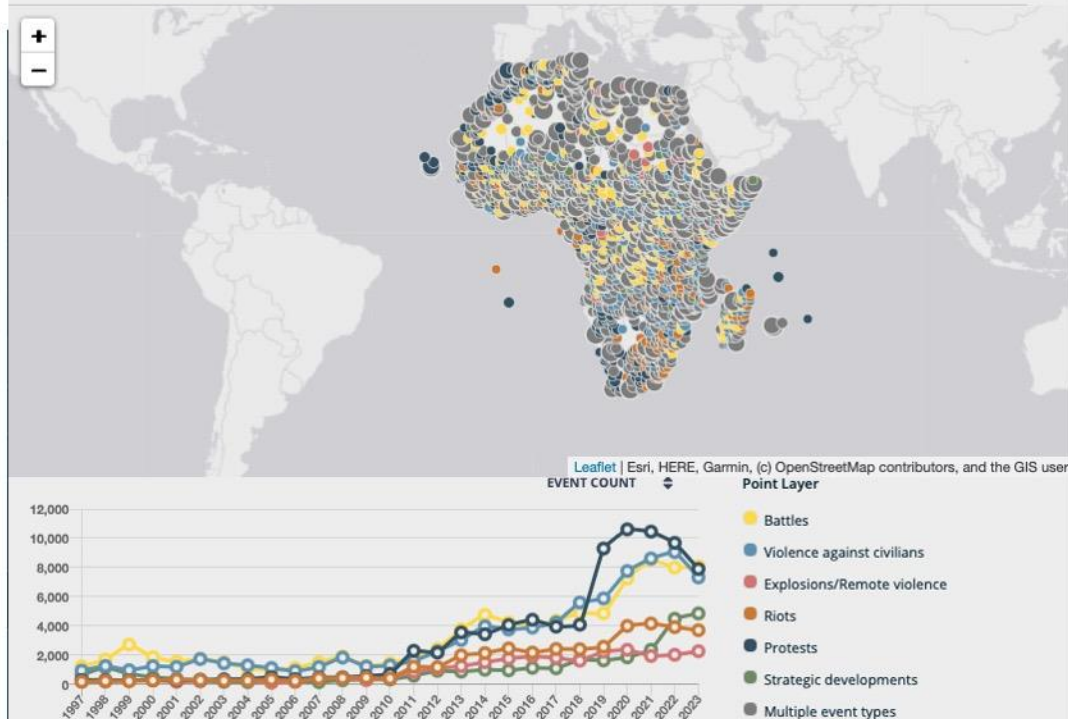


WorldPop



CONFLICT: ACLED Data

TIME PERIOD: 01/01/1997 - 10/11/2023 | EVENTS: 342,138 ▲24.1% ▲280.3% | FATALITIES: 909,565 ▲11.7% ▲93.2%



Country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Algeria	141	46	66	170	250	268	208	142	103	182	308	214	234	127	115	350	346	281	156	117	140	201	214	216	1817	268	403
Angola	264	520	1386	342	525	28	0	7	0	15	13	0	20	14	22	6	34	45	82	71	45	150	165	165	200	200	
Bosnia	1	2	2	1	2	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Burkina Faso	1	1	1	1	0	0	1	6	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Burundi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cameroon	217	236	165	500	620	442	223	77	75	133	29	103	75	101	27	15	12	74	1570	1223	843	952	800	654	607	460	275
Central African Republic	14	6	2	0	5	2	4	14	18	0	20	23	10	13	11	10	121	215	218	410	823	180	1832	1313	1070	1070	
Chad	16	16	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Cote d'Ivoire	19	22	18	16	43	70	77	36	21	57	101	80	97	171	73	147	113	1047	352	300	446	611	306	565	548	380	
DRC	14	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Egypt	223	111	106	207	551	586	284	232	294	330	258	438	628	803	839	1033	813	1051	819	948	1064	1801	2423	1502	1484	4000	2647
Ethiopia	3	1	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Guinea	41	18	21	40	26	31	5	3	36	10	11	81	47	122	1496	414	2445	1480	1225	717	188	407	704	844	313	240	221
Guinea-Bissau	1	2	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Kenya	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Libya	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Mali	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Mozambique	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Niger	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Nigeria	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Rwanda	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Senegal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Sierra Leone	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Somalia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
South Sudan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Tanzania	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Togo	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Tunisia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Uganda	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Zambia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Zimbabwe	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Conflicts from 1997 to now. The types of conflict recorded might differ.

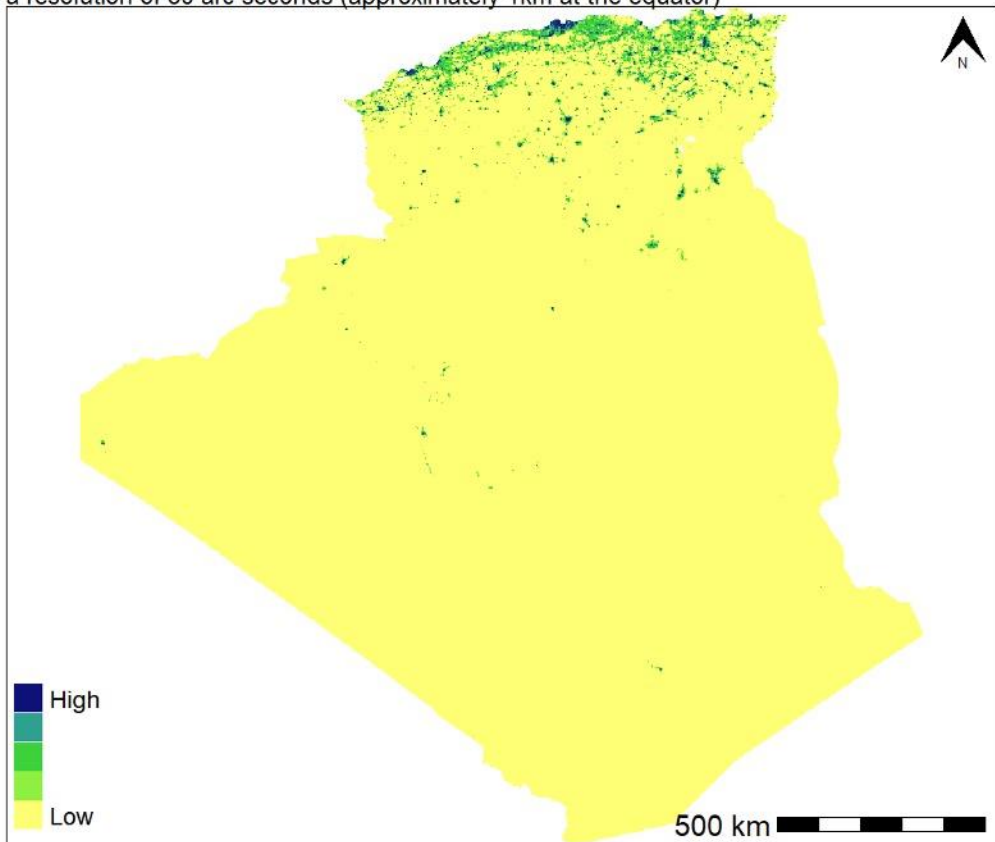
Data on different types of conflicts, e.g., Battles, Violence against civilians, Explosions/Remote violence, Riots, Protests, Strategic developments. Contains latitude and longitude values and additional information like number of fatalities.

HOW MANY CHILDREN: WorldPop Data

Algeria

Gridded Sex-Disaggregated School-Age Population 2020 per grid-cell (People/Km²) at a resolution of 30 arc seconds (approximately 1km at the equator)

WorldPop



Bondarenko, M., Sorichetta, A., Vargas Mesa, G., Gagnon, A.A., Tatem, A.J. (2022). Gridded Sex-Disaggregated School-Age Population Datasets for Countries and Dependent Territories in Africa in 2020, doi: 10.5258/SOTON/WP00732

Gridded Sex-Disaggregated School-Age Population in 2020 for all African countries at approximately 1km resolution.

File Descriptions:

DZA_M_PRIMARY_2020_1km	Male Primary-School-Age Population in 2020
DZA_F_PRIMARY_2020_1km	Female Primary-School-Age Population in 2020
DZA_F_M_PRIMARY_2020_1km	Female and Male Primary-School-Age Population in 2020
DZA_M_SECONDARY_2020_1km	Male Secondary-School-Age Population in 2020
DZA_F_SECONDARY_2020_1km	Female Secondary-School-Age Population in 2020
DZA_F_M_SECONDARY_2020_1km	Female and Male Secondary-School-Age Population in 2020

CONTEXT: UNICEF Data Warehouse Data

Indicator	Obs Value
Aedes	High
Air pollution	Extremely High
Child health	Extremely High
Child health and nutrition	Extremely High
Child nutrition	Extremely High
Child vulnerability	Extremely High
Children's Climate and Environment Risk Index	Extremely High
Climate and environmental shocks	Extremely High
Coastal floods	Low
Communication assets	Medium-High
Dengue	High
Education	High
Heatwaves	Extremely High
Lead pollution	Extremely High
Malaria	Extremely High
Maternal health	Extremely High
Pesticide pollution	Extremely High
Poverty and Inequality	Extremely High
Poverty, communication assets, and social protection	Extremely High
Riverine floods	High
Social protection and economic empowerment	Extremely High
Soil and water pollution	Extremely High
Tropical cyclones	Low
Vector borne diseases	High
Water scarcity	Extremely High

[UNICEF:CCRI(1.0)] Children's Climate and Environment Risk Index

Time period: 2020
Geographic area: Afghanistan

Indicator: - multiple -
Unit of measure: Index

Export Data Modify Query Chart

UNICEF Indicator Data Warehouse

en Login

Home

Organisations

Data

Items

Metadata

Structure Maps

Web Service

Data

Structure

Schema

Export Structures

Structure References

Activity

Search

REST Web Service

Entry Url: <https://sdmx.data.unicef.org/ws/public/sdmxapi/rest/>

Agency

All

Data Format

Excel

Response Detail

Include Observations

Dataflow

CCRI - Children's Climate an

Revisions

Exclude Revisions

BRAZIL_CO_SELO - Brazil SELO

CAP2030 - CAP 2030

CAUSE_OF_DEATH - Cause of death

CCRI - Children's Climate and Environment Risk Index

CCRI_DRM - Children's Climate and Disaster Risk Subnational Index

CD2030 - Countdown 2030

CDCOV - Countdown - coverage indicators

<https://sdmx.data.unicef.org/ws/public/sdmxapi/rest/data/UNICEF,CCRI,1.0/all?format=excel>

4334 Series match current query

Open Url

Download

View Data

Data for different indicators at the country level for all countries or the subnational level for Kenya.

UNICEF | Frontier Data and Tech Unit, DAPM | ICTD | EMOPS

CONTEXT: WorldRiskIndex Data

E	Exposition
El_01	Earthquakes
El_01a	Annually Averaged Population Exposed To Strong Intensity (Peak Ground Acceleration 0.1 g Or Higher)
El_01b	Annually Averaged Population Exposed To Strong Intensity (Peak Ground Acceleration 0.1 g Or Higher)
El_01c	Annually Averaged Population Exposed To Severe Intensity (Peak Ground Acceleration 0.2 g Or Higher)
El_01d	Annually Averaged Population Exposed To Severe Intensity (Peak Ground Acceleration 0.2 g Or Higher)
El_01e	Annually Averaged Population Exposed To Extreme Intensity (Peak Ground Acceleration 0.4 g Or Higher)
El_01f	Annually Averaged Population Exposed To Extreme Intensity (Peak Ground Acceleration 0.4 g Or Higher)
El_02	Tsunamis
El_02a	Annually Averaged Population Exposed To Strong Intensity (Coastal Run-Up Height 1.0 m Or Higher)
El_02b	Annually Averaged Population Exposed To Strong Intensity (Coastal Run-Up Height 1.0 m Or Higher)
El_02c	Annually Averaged Population Exposed To Severe Intensity (Coastal Run-Up Height 3.0 m Or Higher)
El_02d	Annually Averaged Population Exposed To Severe Intensity (Coastal Run-Up Height 3.0 m Or Higher)
El_02e	Annually Averaged Population Exposed To Extreme Intensity (Coastal Run-Up Height 5.0 m Or Higher)
El_02f	Annually Averaged Population Exposed To Extreme Intensity (Coastal Run-Up Height 5.0 m Or Higher)
El_03	Coastal Floodings
El_03a	Annually Averaged Population Exposed To Strong Intensity (Inundation Height 0.5 m Or Higher)
El_03b	Annually Averaged Population Exposed To Strong Intensity (Inundation Height 0.5 m Or Higher)
El_03c	Annually Averaged Population Exposed To Severe Intensity (Inundation Height 1.0 m Or Higher)
El_03d	Annually Averaged Population Exposed To Severe Intensity (Inundation Height 1.0 m Or Higher)
El_03e	Annually Averaged Population Exposed To Extreme Intensity (Inundation Height 2.0 m Or Higher)
El_03f	Annually Averaged Population Exposed To Extreme Intensity (Inundation Height 2.0 m Or Higher)
El_04	Riverine Floodings
El_04a	Annually Averaged Population Exposed To Strong Intensity (Inundation Height 0.5 m Or Higher)
El_04b	Annually Averaged Population Exposed To Strong Intensity (Inundation Height 0.5 m Or Higher)
El_04c	Annually Averaged Population Exposed To Severe Intensity (Inundation Height 1.0 m Or Higher)
El_04d	Annually Averaged Population Exposed To Severe Intensity (Inundation Height 1.0 m Or Higher)
El_04e	Annually Averaged Population Exposed To Extreme Intensity (Inundation Height 2.0 m Or Higher)
El_04f	Annually Averaged Population Exposed To Extreme Intensity (Inundation Height 2.0 m Or Higher)



Different indicators related to exposure or vulnerability, either as number or percentage share, at the country level. This data is for the whole population of a country, not necessarily for children! Doesn't really take conflict events into account (except people killed in conflicts).

Conflict on children

Data needs:

1. **We need to advocate:** how can we better quantify how many children are affected by conflict? Trends? Degrees/severity/types of conflict? Temporal memory (protracted crisis and accounting for impact of past conflicts)? (Conflict indicators / Trends at the country level...)
2. **We need to plan:** how can we better understand within a country where children are affected by conflict, in different dimensions (high resolution maps of Impact of conflict on children at a)
3. **We need to understand** compound crisis: What's the relation between conflicts and natural hazards/climate change? How do we quantify the combined vulnerabilities? (Kenya data)

Challenges:

- **Good visualizations:** its is difficult to come with striking visualizations, able to convey this complex story in simple ways
- **Good algorithms and analysis:** multidimensional problem. Different conflicts will affect children differently: type, frequency of occurrence, memory effects of conflict, cumulative effects, compound effects with other vulnerabilities, severity of the conflict event... it is a complex problem and we need ideas to identify powerful indicators/models that can help us quantify and understand, even partially, this problem
- **Understanding the data itself:** How should we interpret ACLED data? Is conflict really growing, or might be that more things are being recorded?

Conflict on children

Outcome:

Indicator(s) that depicts the actual possible impact of a conflict on children as closely as possible which can be displayed on a map on GeoSight.

