Introducing PA-X Tracker - the Peace & Transition Process Tracker from PeaceRep: The Peace and Conflict Resolution Evidence Platform.

Pioneering Peace Analytics through the Peace Agreements Database (PA-X)

Concept and Methodology Note

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Introduction and Motivation

Due to the concept of the fragment state, there is a need to better understand the dynamic nature of peace and transition processes, and how they reshape the political context. PA-X Peace Agreements Database hosts valuable data on peace agreements, which can provide useful insights into peace or transition processes, including the commitments parties have made to end conflict. Yet, tracking how these commitments are implemented in a data-driven manner is difficult for the scholars and actors who require such information of how well a process as a whole works. This is not due to a lack of available data - within the field, there is an abundance of data sources that are trusted to provide information on this process of change. A range of reports all draw on the same, or similar, data sources to try to benchmark or measure change - a process that is complicated as there is little consensus on what peace measures are and what information is reliable. Where there is a consensus on reliable data sources to use, it remains to be difficult to understand this data in a simple manner, to gain snap-shot overviews of what has taken place in a country, both recently and historically to measure change.

This problem highlights the need for a platform that allows a range of users involved in the peace and transition process landscape to track and visualize how peace and transition processes are going in this changing conflict landscape, and evidence of how peace and transition processes have been implemented in other contexts – allowing users to see what worked well, and what did not. Our unique and extensive data contained in PA-X provides in-depth information on commitments outlined in peace agreements, systematically coded into topics across 170 peace and transition processes (in v7 of PA-X). Combining our data with reliable data sources across sectors has the potential to provide an overview of how these commitments emerged and indicators of how they have been implemented. This new platform 'PA-X Tracker' - the Peace and Transition Process Tracker, aims to address this need and existing gap, through a digital interface that can combine a range of interactive data-driven applications and visualizations to enable simple and digestible views of peace and transition processes, and their impacts on change in peace and conflict within a context. This platform will allow for tracking processes across space and time, assist in converging the lens in which to view and interpret open and publicly available data through, and provide for the ability of comparative analysis of what has and has not worked in the past or in other contexts.

Collating this complex information into simple entry points, and digestible data visualizations that can be interacted with in an easy-to-use manner, and quickly available for reports, will provide to be extremely useful for users who require knowledge, monitoring or research into peace and transition agreements, and processes using data as evidence. For instance, those in-country teams who may be deployed to a new context require to immediately absorb an abundance of information to make sense of the past trajectory of the process they are engaged in. Or, for those who are monitoring progress of a peace and transition process who are seeking innovative, but reliable, manners of benchmarking change using data they trust, to support strategic analysis of the direction of the process. Additionally, there is the research community, who seek to better understand of what progress in peace and transition processes look like, across multiple dimensions. For the range of users and use cases of our data and the large availability of other relevant data, this tracker will consist of a variety of digital components that incorporate a range of data types and sources to provide simple entry points into interrogating peace and transition processes, the context in which they emerge and the impacts that the process can have on the context.

Due to the wide range of Country/entity contexts contained in our database, it is difficult to source data that is standardised and reliable to allow for cross-comparison, and still give the level of detail and granularity that is required by our users across all the contexts we have data collected.

Therefore, this is a living and growing platform, which will iteratively include new components and data sources over time to the curated country profiles, to provide a deep dive into case study countries, in addition to providing regular updates of all the data in an automated and sustainable manner.[1]

Components

Explore and Compare All Country/entities in PA-X

Component 1: Process Overview

To allow for users to view an overview of peace and transition process(es) within a Country/entity, and quickly compare them to processes in other contexts, we have developed a dashboard using data from PA-X Peace Agreements Database [shown in Figure 1]. This interactive platform includes an overview of high-level statistics of the number of agreements and processes they fit in to, types of agreements that have been signed to address conflict within the selected context, and when the first and most recent agreement were signed. The peace and transition processes within the Country/entity are displayed on a timeline using a Gantt chart to illustrate that there may be several overlapping processes in a single context. These processes can be expanded to show the individual agreements that have been formally signed as part of this process. In the PA-X database, agreements are labelled with an 'agreement/conflict type' to describe the primary nature of the agreement as either: an interstate, intrastate, mixed or local conflict, in addition to the variable 'stage' which provides information on the stage of the process that the agreement is signed in, either: pre-negotiation, ceasefire, substantive partial, substantive comprehensive, implementation, renewal and

other.[2] Both these variables are displayed on a bar chart to illustrate the stages of the process at which agreements were signed, in addition to the type of conflict they intended to address. To provide a quick reflection of the content that is addressed in agreements within a country/entity or process, a tree map illustrates the number of provisions per topic in agreements, and when hovering over a topic, users can see more detail on how this topic was addressed. This aims to provide an idea of the pressing topics in peace agreements within the selected country/entities, and to highlight the vast data collected in our main Peace Agreements Database, where the
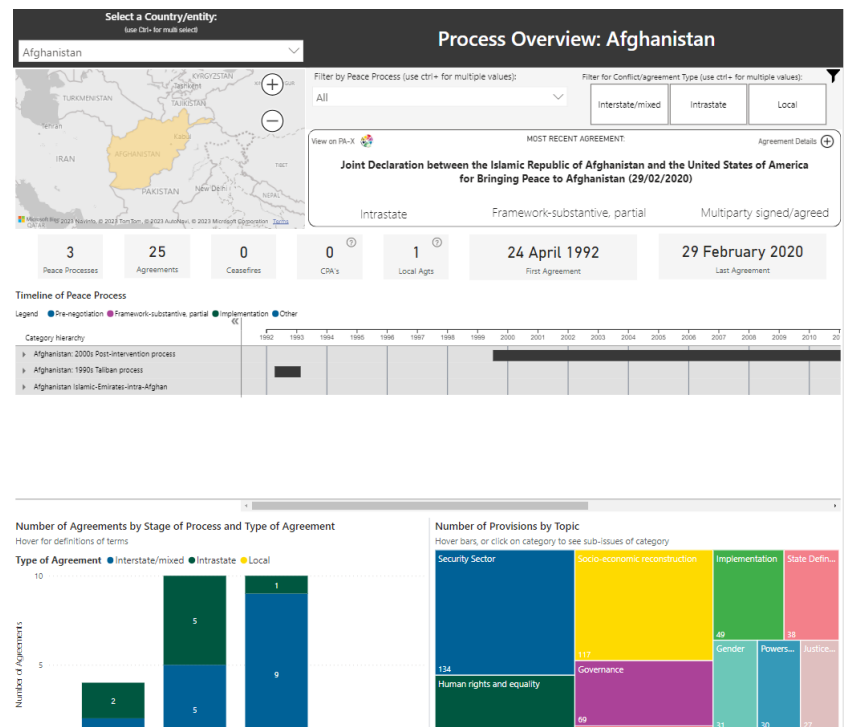

Figure 1: Compare Process Overviews for All Countries

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[1] All regularly updated data sources will be updated on the system on a monthly basis. Other data that updates annually, or on an ad-hoc basis will be updated as and when there are new versions of the data released. See Table 4 for updating cycles of all data sources.

[2] Bell, Christine, Sanja Badanjak, Juline Beaujouan Robert Forster, Tim Epple, Astrid Jamar, Kevin McNicholl, Sean Molloy, Kathryn Nash, Jan Pospisil, Robert Wilson, Laura Wise (2023). PA-X Codebook, Version 7. Peace and Conflict Resolution Evidence Platform (PeaceRep), University of Edinburgh, Edinburgh.

exact provisions related to these topics can be found.

Component 2. Implementation Data

Data indicators of implementation that are widely used in the peace and conflict resolution sphere have been incorporated into the platform to provide users with an idea of how the process is going, and a look back at how it has changed. The data types and sources were split into two different strands to investigate how the peace and transition process impacts the conflict levels and how it impacts levels of peace within a context.

2A. Conflict Impacts

The definition of a peace agreement for entry into PA-X, is a formal, publicly available document, produced after discussion with conflict protagonists and mutually agreed to by some or all of them, addressing conflict with a view to ending it. Thus, when tracking progress of the peace and transition process, it is necessary to view the impact it has on the conflict it intends to address, to interrogate if the process has had any impact upon the levels of conflict. Therefore, conflict event data from Uppsala Conflict Data Program (UCDP)[3] and the Armed Conflict Location Event Dataset (ACLED)[4] is utilised provide an idea of conflict and political violence levels within a country. The UCDP and ACLED datasets both record events related to armed violence and conflict, however, both have a different definition for an event for entry into their database and have different updating cycles.

UCDP defines an event within their database as: an incident where armed force was used by an organised actor against another organized actor, or against civilians, resulting in at least 1 direct death at a specific location and a specific date. An 'active year' of conflict is one in which the fatalities exceed 25 conflict-related deaths a year in events of where the conflict actors are involved.[5] Therefore, UCDP release their main GED dataset annually. They do include monthly releases of 'candidate' events that are candidates to be included in the following year's data, which is useful for gaining a more granular update of conflict levels within a country, however these events have a more relaxed inclusion to the database, as events are included that may not fully meet the definition of an event, but have a high likelihood of doing so with additional information.

ACLED focus on tracking a range of violent and non-violent actions by or affecting political agents, including governments, rebels, militias, identity groups, political parties, external forces, rioters, protesters, and civilians.[6] An event can be recorded in this dataset without a conflict related death, illustrating the difference into entry into database for UCDP and ACLED. However, as ACLED record politically violent events, which often, involve the relevant conflict actors, or groups supported by relevant conflict actors, it is useful to include them to triangulate both sources of conflict/violent events. To reduce the non-conflict related events in the data, the event type 'protest' has been excluded from all the ACLED data shown on the tracker. ACLED data updates weekly, providing to be a useful regularly updated resource to fill gaps in time and other events from the UCDP data.

Both these datasets are utilised to contextualise the conflict and political violence that peace and transition processes intend to address in two ways:

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[3] Davies, Shawn, Therese Pettersson & Magnus Öberg (2023). Organized violence 1989-2022 and the return of conflicts between states?. Journal of Peace Research 60(4).

[4] Raleigh, C., Linke, A., Hegre, H., & Karlsen, J. (2010). "Introducing ACLED: An armed conflict location and event dataset: Special data feature". Journal of Peace Research, 47(5), 651-660. https://doi.org/10.1177/0022343310378914.

[5] Högbladh Stina, 2023, "UCDP GED Codebook version 23.1", Department of Peace and Conflict Research, Uppsala University

[6] ACLED. (2023). "Armed Conflict Location & Event Data Project (ACLED) Codebook, 2023."

1. The impact of the **peace process** on conflict: a high-level overview of when peace agreements were signed, and the conflict levels surrounding them. This page aims to provide basic overviews of recent and historical conflict and politically violent events in a selected country. This includes basic and comparable statistics of when the first and most recent events took place, the areas with the most events and actors who are involved. This information can be filtered by the user to only include specific areas, actors, and types of events. This page is illustrated in Figure 3 below.

2. The impact of a **peace agreement** on conflict levels: this page provides another view of conflict levels surrounding individual agreements to interrogate the signing of the peace agreement as an event in time, and to view the conflict/political events before and after this date. This can be viewed from 1 day - 1 year before and after and displays information of the events as an overview of basic statistics, a timeseries chart and as a map to illustrate change in events before and after. This page is illustrated in Figure 2 below.
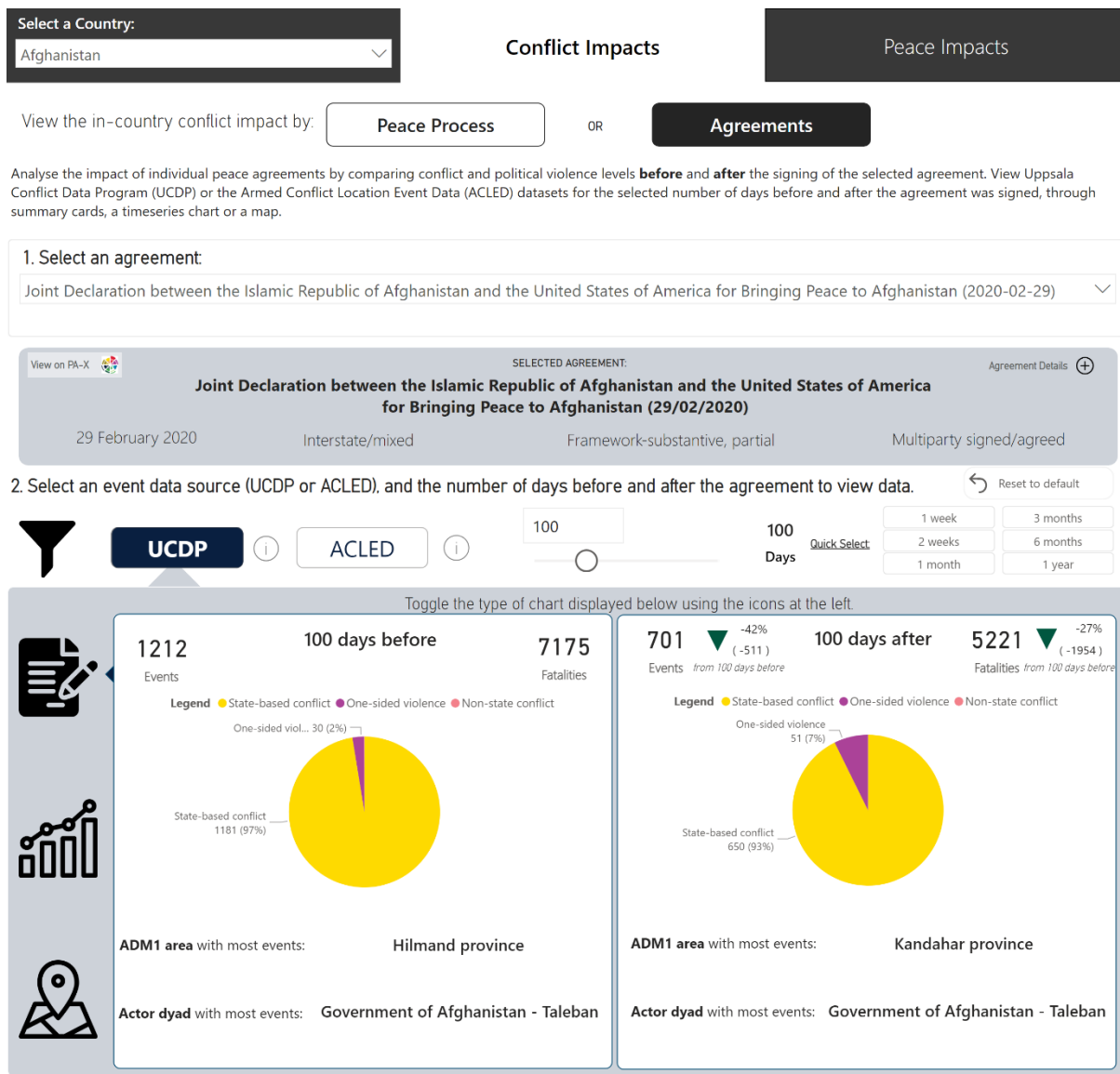

Figure 2: Conflict impacts of a peace agreement - analyse change in conflict before and after an agreement is signed
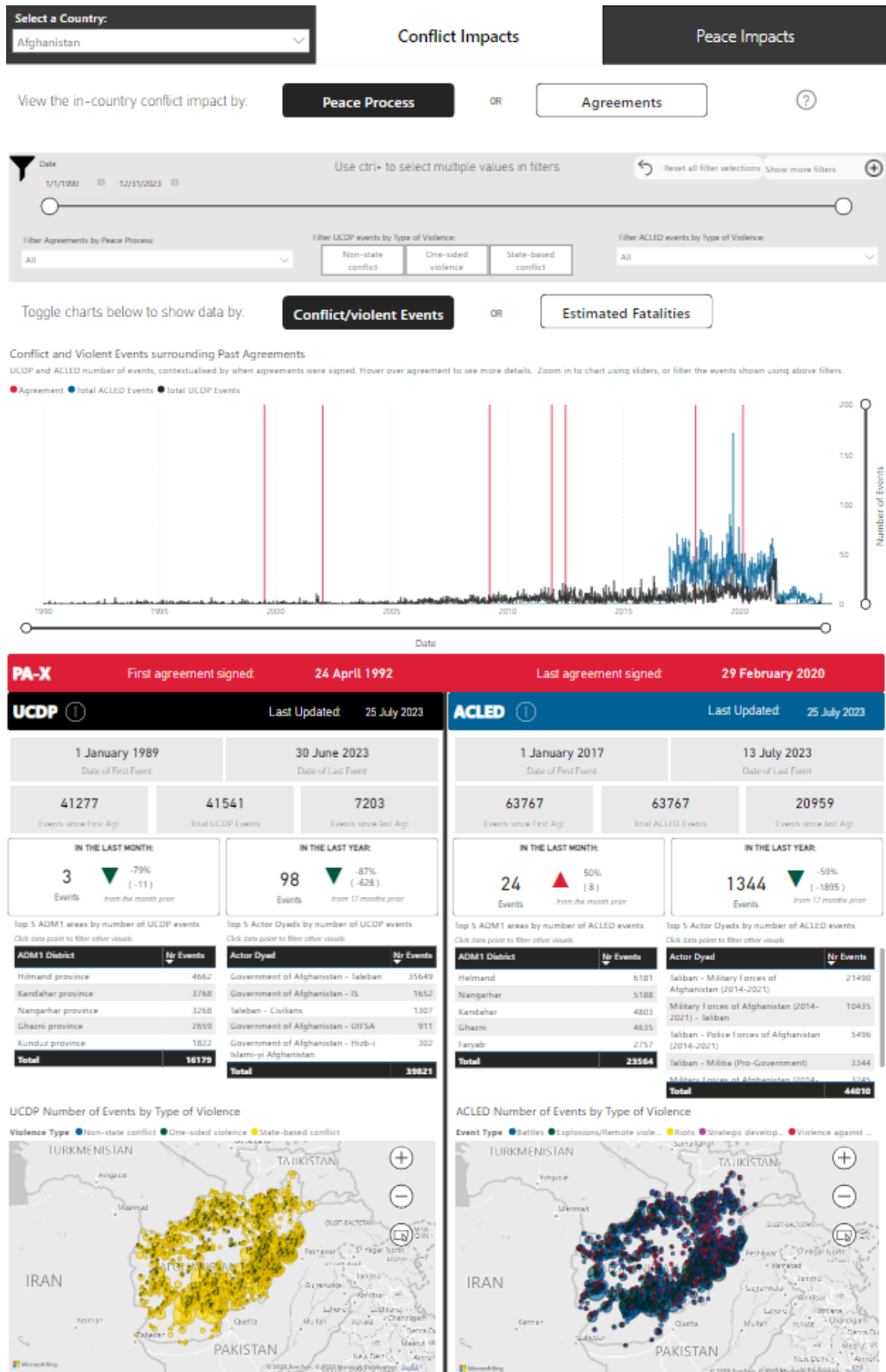
Figure 3: Impacts of the Peace Process on Conflict levels within the country

2B. Peace Impacts

To provide users with the ability to track the progress and impacts of the peace and transition process in a country, it is essential to get an idea of how things are going, and how this has changed through indicators of change across all aspects of the country including in politics, security and the economy. To provide these contextual indicators as a mechanism to compare processes across countries, it is necessary to have the same data availability for all countries. Therefore, the first release of the tracker will only feature peace impacts data for countries from the PA-X database that feature on Gleditsch and Ward List of Independent States[7] or an ISO Code from the International Organization for Standardization. This was required to allow for comparison between countries, as only these countries tend to have available country-data on the selected peace impacts indicators outlined in Table 2 (at the end of this document, which specifies all data sources utilised on this platform). Therefore, the base data selected to illustrate peace impacts in a country is available for all these countries. As there is a range of other relevant, and detailed data that can provide useful indicators of how a peace and transition process is going within a country, more detailed peace impacts data profiles which include country-specific and crisis related data have been created for the curated country data profiles, outlined in further detail below. An example of the Peace Impacts data available for all countries is shown in Figure 4 below.
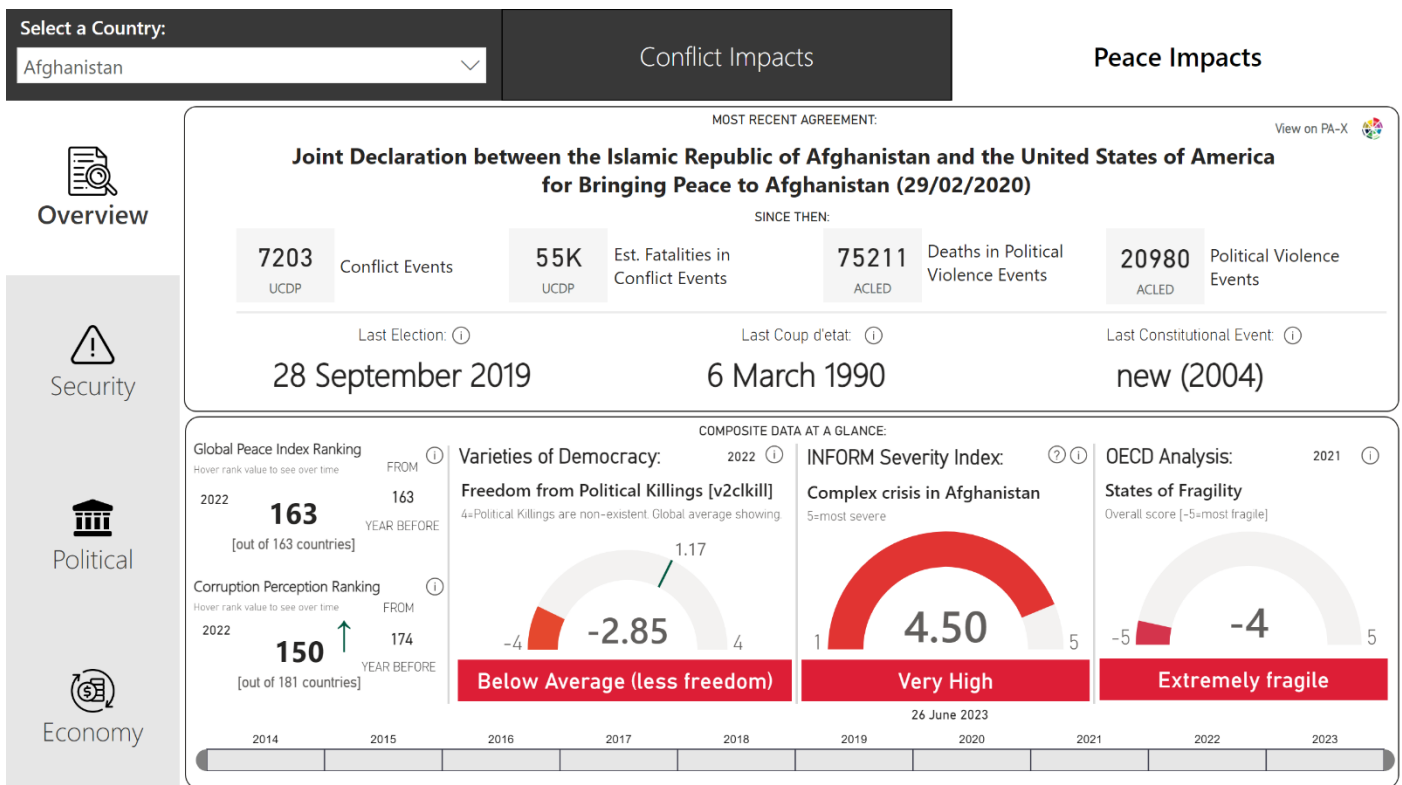

Figure 4: Overview of impacts of the Peace Process on levels of peace in the country

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[7] Gleditsch, Kristian S. and Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." *International Interactions* 25

Modifications to data sources

All data used in the peace impacts component has been extracted as is from the original data sources, with the exception of the additional analysis provided on the election indicator on the political page. For each election recorded in the NELDA dataset[8] for the relevant countries and time period, we labelled them as 'deeply flawed', 'flawed' or 'passes minimal standards' using the following classification system from NELDA data variables:

"DEEPLY FLAWED" if the election included any of the following:

- **No opposition was allowed** (*NELDA3*=no)

- **More than one party was not legal** (*NELDA4*=no)

- **There was no choice of candidates/parties on the ballot** (*NELDA5*=no)

- **Opposition leaders were prevented from running** (*NELDA13*=yes)

"FLAWED" if the election passes the above conditions, but has any of the following:

- **Concerns that the election would not be free & fair** (*NELDA11*=yes)

- **Evidence that the government harassed the opposition** (*NELDA15*=yes)

- **There were protests that involved allegations of fraud** (*NELDA30*=yes)

- **There was significant violence involving civilian deaths immediately before, during, after the election** (*NELDA33*=yes)

"PASSES MINIMAL STANDARDS" if the election passes all the above conditions

Curated Country Data Profiles

To provide a deeper dive into available data on Peace and Transition Processes and the impacts that they have within a country, we have developed curated country data profiles, which each contain the following components: a timeline of institutional change, a process overview page and an actor network of actors who were party or third party to past peace agreements in the context. Some profiles include curated 'Impacts' pages, which includes humanitarian and crisis data in addition to the data included on the comparative 'All' Peace Impacts platform, as this data is only relevant and available for some contexts. This is a living and growing platform, and more components will be added over time as we develop more PeaceTech tools and refine our existing ones. For instance, some country profiles contain additional country-specific components, from the range of research and data collection projects taking place across the PeaceRep consortium, for example, the South Sudan curated country profile will include these three core components as shown in Figure 5 (timeline, process overview and actor network), but will also include the Perceptions of Peace in South Sudan Survey Dashboard, that was collected as part of a PeaceRep project.[9]

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[8] The National Elections across Democracy and Autocracy (NELDA) dataset: Hyde, S. D., & Marinov, N. (2012). Which elections can be lost? Political analysis, 20(2), 191-210.

[9] Deng, D., Dawkins, S., Oringa, C. and Pospisil, J. (2022) Perceptions of Peace in South Sudan: Longitudinal Findings (Detcro and PeaceRep Report). PeaceRep: The Peace and Conflict Resolution Evidence Platform, University of Edinburgh
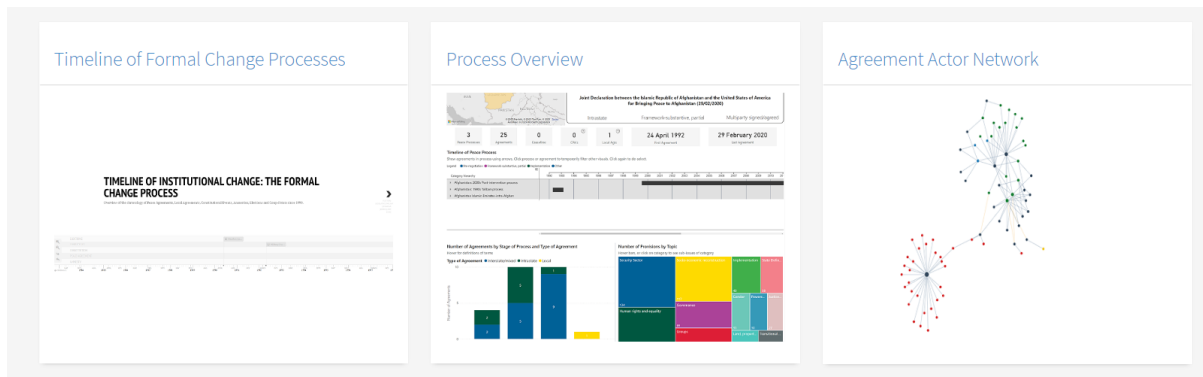
Figure 5: Three core components on curated country profiles: a timeline of institutional change, process overview dashboard and past agreement actor network.

Component 3: Timelines of Institutional Change

To provide users with a complete picture of the entire formal change process within a country, we have developed interactive timelines to illustrate institutional change. This timeline utilises Knightlab Timeline tool to display events of different types along the same axis, in chronological order in which they occurred, as seen in Figure 6 below. The timelines include a range of event types to visualize the trajectory of formal events that have taken place within the country/context, including:

- Peace Agreements: Any formal, written, and signed agreement since 1990 has been included on the timeline. This data is extracted from the PA-X Peace Agreements Database.[10] The Peace Agreement event type contains a brief description of the agreement, as it is written on PA-X database, and includes hyperlinks to navigate to the entry on PA-X and the original PDF.

- Local Peace Agreements: Any local peace agreements contained in PA-X Local, which can be identified under the variable 'Agreement Type' ['Agtyp'] with the value Intrastate/local (other) ['IntraLocal'].[11] The Local Agreement event type contains a brief description of the agreement, as it is written on PA-X database, and includes hyperlinks to navigate to the entry on PA-X and the original PDF.

- Amnesties: The Amnesties, Conflict and Peace Agreement (ACPA) dataset[12] contains detailed information on amnesties introduced as a result of ongoing conflict, as part of peace negotiations, or in post conflict periods from January 1990 to September 2016. The Amnesty event type contains a brief description of the amnesty, including when it was introduced, any relevant laws, and a hyperlink to the record of the amnesty on the ACPA database.

- Elections: The National Elections Across Democracy and Autocracy (NELDA) dataset[13] provides detailed information on all election events from 1945-2020. To be included, elections must be for a national executive figure, such as a president, or for a national legislative body, such as a parliament, legislature, constituent assembly, or other directly elected representative bodies. The detailed dataset was utilised to form text-based

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[10] Bell, C., & Badanjak, S. (2019). Introducing PA-X: A new peace agreement database and dataset. Journal of Peace Research, 56(3), 452-466. Available at https://www.peaceagreements.org/

[11] Bell, C., & Wise, L. (2022). The Spaces of Local Agreements: Towards a New Imaginary of the Peace Process, Journal of Intervention and Statebuilding, 16:5, 563-583. https://doi.org/10.1080/17502977.2022.2156111

[12] Mallinder, L. (Creator), Amnesties, Conflict and Peace Agreement (ACPA) Database, The University of Edinburgh, 31 Aug 2020 https://www.peaceagreements.org/amnesties/ [Dataset]

[13] The National Elections across Democracy and Autocracy (NELDA) dataset: Hyde, S. D., & Marinov, N. (2012). Which elections can be lost? Political analysis, 20(2), 191-210.

descriptions of elections, which incorporated notes on the election from the NELDA data for each election event, in addition to the unique ID of the election within the NELDA dataset. To supplement elections that have taken place since 2020, when this dataset ends, the National Democratic Institute, Global Elections Calendar (available here: https://www.ndi.org/elections-calendar) was utilised to record the date and election type held per country.

- Constitutional Events: the Comparative Constitutions Project (Characteristics of National Constitutions Version 4.0[14], and Chronology of Constitutional Events Version 1.3) was utilised as the primary source for constitutional events that have occurred within a country. This includes a range of constitutional event types, including new constitutions, amendments, suspensions and interim events.

- Coup d'etat: The colpus dataset[15] identifies all military and non-military coup attempts in the world since 1946 through a comprehensive review of related prior datasets, historical documents and secondary literature. It also provides data on the identity of coup leaders and codes whether the coup leaders sought or achieved "regime change" (coups de regime) or "leader reshuffling" (coups de chef). A brief description, and details on the type of coup were extracted from this dataset, and each event includes the unique ID of the coup within the colpus dataset.

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[14] Elkins, Zachary and Tom Ginsburg. 2022 "Characteristics of National Constitutions, Version 4.0." Comparative Constitutions Project. Last modified: October 24, 2022. Available at comparativeconstitutionsproject.org .
[15] Chin, J. J., Carter, D. B., & Wright, J. G. (2021). The Varieties of Coups D'état: Introducing the Colpus Dataset. International Studies Quarterly, 65(4), 1040-1051.
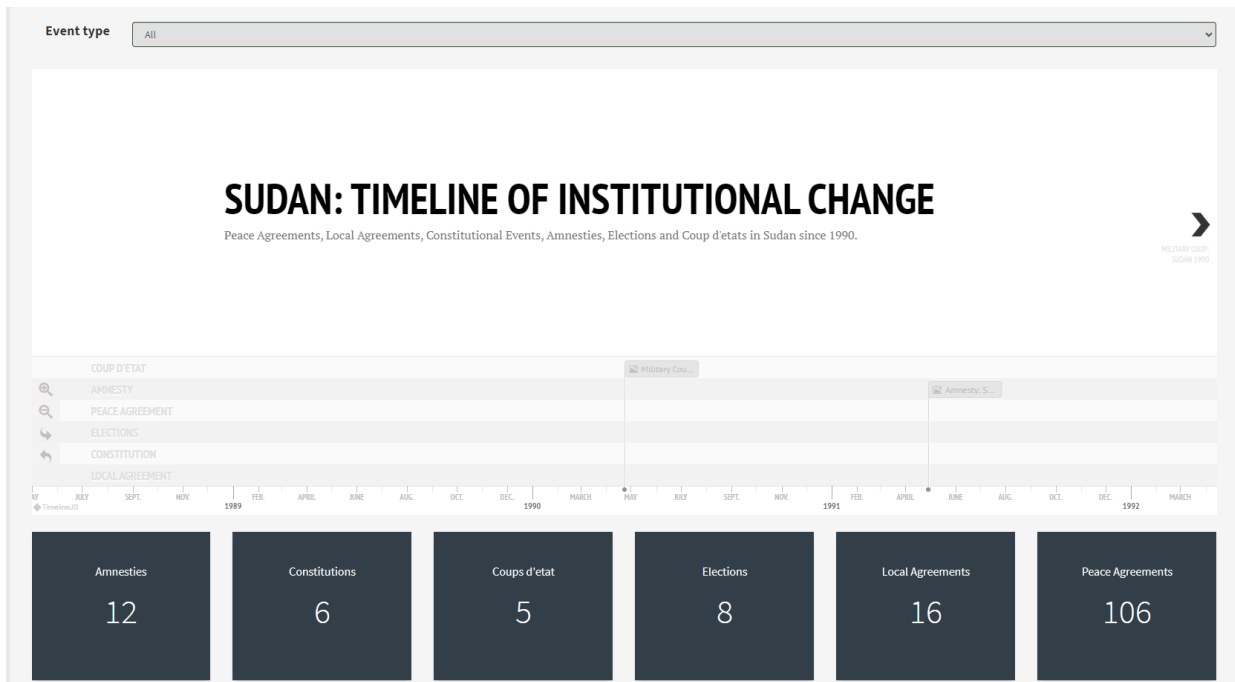
Figure 6: interactive timelines of institutional change - events of the formal change process

Component 4: Past Agreement Actor Networks

As an extension of the PA-X Database, we have been utilising digital methods to extract the signatories of agreements, and aggregate them under a single unique identifier enable identifying all instances of a specific actor signing an agreement. This new dataset, the Peace Agreement Actor Dataset (PAA-X)[16] is still underway, as only a subset of the PA-X database has been completed. However, to provide users with some insights into this data, actor networks of past agreements in peace and transition processes within a context were developed. These networks provide a visual representation of all party and third party actors within a process, and allows for interesting new perspectives on actors, agreements and processes, and the ability to explore possible entry points to dialogue, based on actors that agreed in the past. Each curated country profile contains an actor network of all the agreements signed within that country. These networks were created on graphcommons, and on the tracker users can interact with the network and view information on the agreements and actors, and navigate to the relevant agreement PDF or entry on PA-X. To utilise more advanced network features such as filtering or clustering analysis, users can navigate to the graph network on the PeaceRep profile on the graphcommons site and gain access to all these features.

As this dataset and adjoining codebook has not yet been finalised for release, the definitions of the actor types utilised in the actor networks are outlined in Table 1 below.

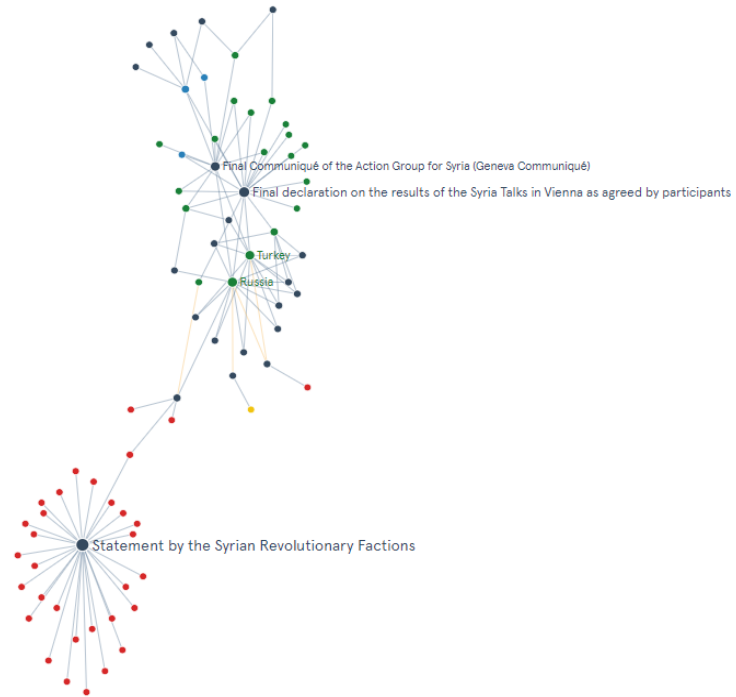[16] Badanjak and Henry (2023) PeaceRep at the University of Edinburgh

Figure 7: Example past agreement-actor graph network visualization of party and third party actors to national peace agreements in Syria.

Table 1: Actor Type definitions for the Peace Agreement Actor data utilised in the actor networks.

Actor Type Label	Definition
Country/State	Internationally recognised Country/State.[17] Refers to any instances where it is the country name, or the government of the state representing the country. Eg. Leaders of the country/state or ministers that represent the country.
Entity	Representatives of entities which are not an internationally recognised country/state eg. Kurdistan, Palestine. Also includes areas with representatives that are not internationally recognised independently of their country/state. Eg. Bougainville, Abkhazia, Puntland, Donestk People's Republic.
Military	In cases where the state army/military was distinguished from the country/state name, they are labelled with the country/state army/military name. Important in cases where the army signs in addition to the state. Particularly important in cases where army acts as its own entity, separate to the state.
IGO	Intergovernmental Organisations. Actors are labelled with this in instances where they appear in Correlates of War (IGO v3)[18], ICEWS Actor Dictionary[19] or the International Governmental Organization Data (v2.1)[20]. The shared definition of IGO across these datasets, is international organisations that have at least 3 nation-states as their members.
NGO	Non-governmental Organisation. An organisation formed independently from any governments.
Armed Organization	Labelled as armed organization if appears in: UCDP, ACLED, 'Rebel Group Abbreviations'[21]
Political Party	If the actor has had a candidate contest in an election for government, or hold a seat in government, on behalf of the shared ideologies of the political group, they are provided with this label. If appear in PoliticalpartyDB[22], Global Party Survey[23] they are labelled as Political Party.
State Coalition	Where country/states act through a coalition, usually designated for a specific purpose or scenario. Intergovernmental groups/coalitions that do not fit the typical 'official' IGO definitions. Includes 'Group of Friends of UNSG', 'Troika Countries', 'Group of 8'.
Umbrella	Umbrella groups/alliances of groups who formally act/coordinate through the umbrella group as a unified front. Can be political or military alliance. Eg. CGSB - Simón Bolívar Guerrilla Coordinating Board - an umbrella group of six armed groups in Colombia.
Other	An actor that does not fit into any of the above definitions of actor types. Can include committees, centres, organisations, councils, commissions.

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[17] Gleditsch, Kristian S. and Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." *International Interactions* 25

[18] Pevehouse, Jon C.W., Timothy Nordstron, Roseanne W McManus, Anne Spencer Jamison, "Tracking Organizations in the World: The Correlates of War IGO Version 3.0 datasets", Journal of Peace Research.

[19] Boschee, Elizabeth; Lautenschlager, Jennifer; Shellman, Steve; Shilliday, Andrew, 2015, "ICEWS Dictionaries", https://doi.org/10.7910/DVN/28118, Harvard Dataverse, V4

[20] Correlates of War Project, 2018, "International Governmental Organization (IGO) Data (v2.1)", https://doi.org/10.7910/DVN/POLS26, Harvard Dataverse, V1

[21] Jo, H. (2015). Rebel Group Abbreviations. In Compliant Rebels: Rebel Groups and International Law in World Politics (Problems of International Politics, pp. Xiv-Xxi). Cambridge: Cambridge University Press.

[22] Scarrow, Susan; Webb, Paul D.; Poguntke, Thomas, 2022, "Political Party Database Round 2 v4 (first public version)", https://doi.org/10.7910/DVN/0JVUM8, Harvard Dataverse, V1. Accessible from: https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/0JVUM8

[23] Norris, Pippa, 2020, "Global Party Survey, 2019", https://doi.org/10.7910/DVN/WMGTNS, Harvard Dataverse, V3, Acessible: https://dataverse.harvard.edu/dataverse/GlobalPartySurvey

Component 5: Map of Maps [Ukraine]

We have developed a Ukraine Peace and Conflict map which triangulates a range of datasets and is a 'map of maps'. This map includes data from the UCDP and ACLED datasets, as already discussed above, they provide useful insights into conflict and political violence events in a country.

This map immediately illustrates why triangulation of event data is extremely important, as there are two different stories being told through these events, with state-based conflict events from UCDP shown in purple in Figure 8 and battles, explosions, strategic developments and violence against civilians in blue, orange, green and yellow in Figure 9.
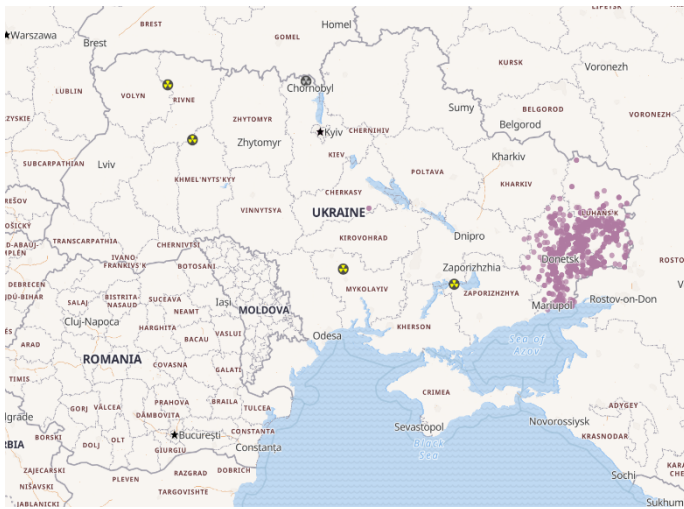

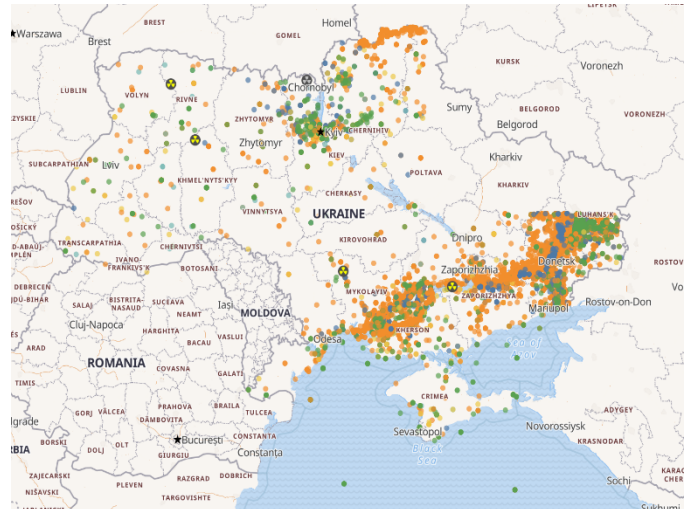Figure 8: UCDP data filtered to Ukraine, as displayed on the Ukraine Map of Maps.

Figure 9: ACLED data filtered to Ukraine, as displayed on the Ukraine Map of Maps.

In an effort to not just map the conflict, and to also map the attempts at *peace* being made, humanitarian corridors were added as a layer to this map. This data on the start and end points of humanitarian corridors was collected from research undertaken by the Ceasefires Project in ETH Zurich[24], and the corridor represents the start and end point of a corridor (and not the geographical area of the corridor itself). For context on the map of areas with nuclear power plants, data from the Global Power Plant database[25], and information from the OECD[26] on nuclear power plants in Ukraine on these plants were added to the map.

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[24]Clayton, Govinda, ETH Zurich Ceasefire Project: https://css.ethz.ch/en/research/research-projects/ceasefires-mediation.html

[25] Global Energy Observatory, Google, KTH Royal Institute of Technology in Stockholm, Enipedia, World Resources Institute. 2018. Global Power Plant Database. Published on Resource Watch and Google Earth Engine; http://resourcewatch.org/ https://earthengine.google.com/ | Data accessed here and filtered to Ukraine: https://datasets.wri.org/dataset/globalpowerplantdatabase [v1.3.0]

[26] Ukraine: Current status of nuclear power installations [OECD]. Accessible: https://www.oecd-nea.org/jcms/pl_66130/ukraine-current-status-of-nuclear-power-installations
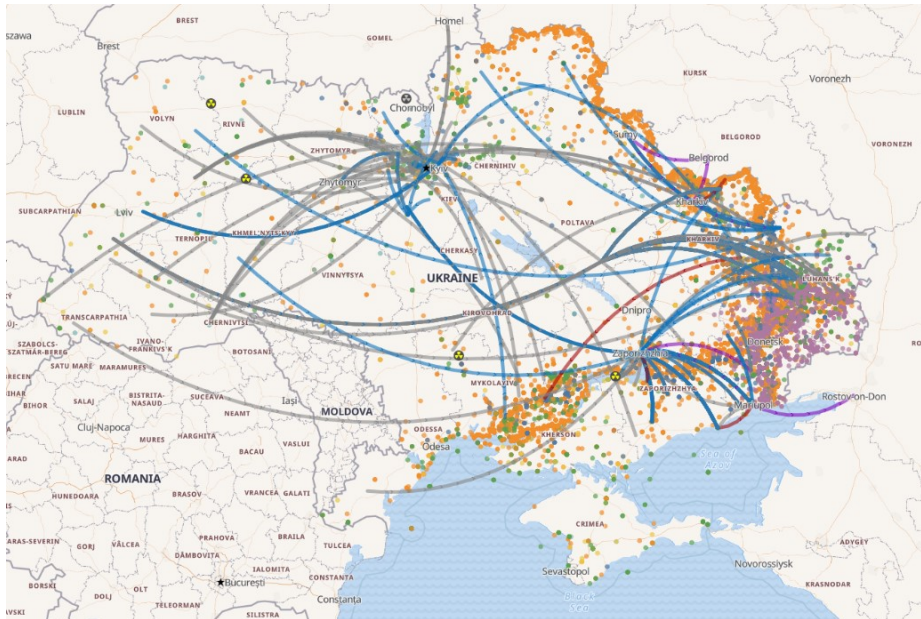
Figure 10: Representations of proposed humanitarian corridors start and end points in April-May 2022, as displayed on the Ukraine Map of Maps.

Component 6: Local Case Studies

Across the PeaceRep consortium there is a range of ongoing in-country research (view all our research sites). Some of these include data collections from which we can develop PeaceTech tools. Depending on the research, data and project, these tools are varied and will be research specific. Two projects from PeaceRep that will be incorporated in the first iteration of the tracker are outlined below.

6A. Perceptions of Peace in South Sudan Survey

This interactive data report presents insights and key findings from a longitudinal survey on Perceptions of Peace in South Sudan by PeaceRep, Detcro, USIP and partners[27]. The three-wave survey recorded the views of 8,843 people from 12 counties across 9 states and special administrative areas, covering urban, rural and IDP camp environments. Respondents were asked questions about their daily experiences of safety, based on indicators of 'everyday peace' developed through focus groups. They also shared their views on a wide range of related topics, including elections, governance arrangements, security arrangements, trust in public authorities, civic space, national identity, and social cohesion, among others. Another survey wave has been collected, and will be added to the platform at a later stage once cleaned and finalised. The dashboard contains the key findings of the survey collection and provides users with interactive access to the data, that they can slice and view in a range of manners depending on topics of interest.

6B. Mapping Syria

Mapping Syria is an innovative new platform that was designed to overcome the challenges of collecting and framing data for research purposes in conflict zones. The platform maps institutional status, public authority and legitimacy, justice at the local level, and inclusive development, using innovative expert surveys as a measurement tool. Led by LSE Ideas strand of the PeaceRep consortium, the project sources its data through an extensive trained network of local researchers. Some data is available to access directly through the platform, as well as a series of reports based on

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[27] Deng, D., Dawkins, S., Oringa, C. and Pospisil, J. (2022) Perceptions of Peace in South Sudan: Longitudinal Findings (Detcro and PeaceRep Report). PeaceRep: The Peace and Conflict Resolution Evidence Platform, University of Edinburgh

analysis of the data. So far, the project has conducted mapping of the governorates of Sweida, al Raqqa, Aleppo and Idleb, with more forthcoming. The platform has its own standalone website: Mapping Syria, with the portal on the curated Syria country profile providing an additional entry point to the tool, alongside other relevant data on Syria.[28]

Component 7: Narrative Implementation [Ukraine and South Sudan][29]

PeaceRep research[30] has been experimenting with how semantic similarity models, namely the Universal Sentence Encoder[31], can be utilised to identify text excerpts of agreement provisions and track similar topics to them in status update and violation reports, to provide a PeaceTech tool that allows users to quickly track implementation of agreement provisions throughout time via text-based data/reports, to direct users to relevant sections of agreements/reports, in turn saving valuable time in reading and finding relevant sections of the original reports. The full-text of agreements and reports used are also accessible from this platform, and open at the relevant section of the text.

These methods are first being trialled on Ukraine and South Sudan, for which the results we have made accessible through an interactive interface, shown in Figure 11.[32] This interface allows users to select an agreement, then select a topic mentioned in the agreement which will show all agreement provisions that match the topic (left side of Fig.11). The right side of the interface shows all instances this topic has been addressed in the pool of reports over time, with positive mentions denoted in green, negative instances in red and neutral mentions in grey. The exact text that matches the provision topic is then listed in reverse-chronological order to view the most recent mention first, and the text excerpt from the report can be opened up to the location in the full text of the report (and agreement) for contextualisation and further reading.

In the first iteration of this platform, the reports utilised to track implementation of the Ukraine agreements are Status Update reports from the OSCE Special Monitoring Mission to Ukraine[33], and for South Sudan, the reports are from the Reconstituted Joint Monitoring and Evaluation Commission (RJMEC)[34] and Ceasefire & Transitional Security Arrangements Monitoring & Verification Mechanism (CTSAMVM) Violation Reports.[35]

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[28] Mapping Syria Platform, LSE Ideas, PeaceRep. Accessible from: https://mappingsyria.com/?pid=authority_survey

[29] As this is a work in progress, any feedback on the data, methods or presentation of this interface is most welcome and can be sent to: PeaceRep@ed.ac.uk

[30] Gardner, Roy, PeaceRep (2023)

[31] Cer, D., Yang, Y., Kong, S.Y., Hua, N., Limtiaco, N., John, R.S., Constant, N., Guajardo-Cespedes, M., Yuan, S., Tar, C. and Sung, Y.H., 2018. Universal sentence encoder. arXiv preprint arXiv:1803.11175.

[32] Wang, Jinrui. University of Edinburgh, PeaceRep (2023) Accessible here: https://peacerep.github.io/implementation-narratives-tracker/

[33] Status Reports of the Special Monitoring Mission to Ukraine, OSCE. Reports accessible here: https://www.osce.org/special-monitoring-mission-to-ukraine/157261

[34] RJMEC, South Sudan: https://jmecsouthsudan.org/

[35] CTSAMVM Violation Reports: https://ctsamvm.org/ctsamvm-violation-reports/#

Figure 11: Interface for the tracking implementation narratives tool.

Component 8: Global Peace Actor Profile

As mentioned above in Component 4 (Agreement Actor Networks), we at PeaceRep are utilising digital methods, namely, named entity recognition models, to extract signatories who were party or third parties to peace agreements in our database, as part of a new extension to the database under development, the Peace Agreement Actors (PAA-X)[36] dataset, which records party and third party actors under a unique identifier. The Agreement Actor Networks illustrate a subset of this data, by viewing all actors who have been party or third party to agreements in a specific context (country/entity/peace process). However, this component aims to interrogate the use of this data by looking at a specific actor, and their involvement *across* processes as not just a conflict actor, but as a third party actor. Thus, using NetPanorama software[37], we developed an interface[38] shown in Figure 12 that includes a dashboard of different views of the agreements and other actors involved in agreements where the selected Global Peace Actor has been present. These views include a timeline of the agreements, highlighting the agreements in the selected process, an actor network of the agreements in the process, an actor jigsaw view to link agreements to actors, and a list of the agreement and actors who signed the agreement. Russia is one of the actors recognised most in the subset of national agreements completed in the PAA-X dataset, being a party/third party in 159 agreements across 29 peace processes since 1990. Therefore, Russia was selected as the initial Global Peace Actor for this template, and is accessible through the Ukraine curated country profile. This template will be iteratively extended to new actors over time.

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[36] Badanjak and Henry (2023) PeaceRep at the University of Edinburgh

[37] Software Developed by Bach and Brown at University of Edinburgh School of Informatics, VisHub

[38] Global Peace Actor Profile Interface Developed by Wang, UoE (2023). Accessible from: https://peacerep.github.io/actor-network/
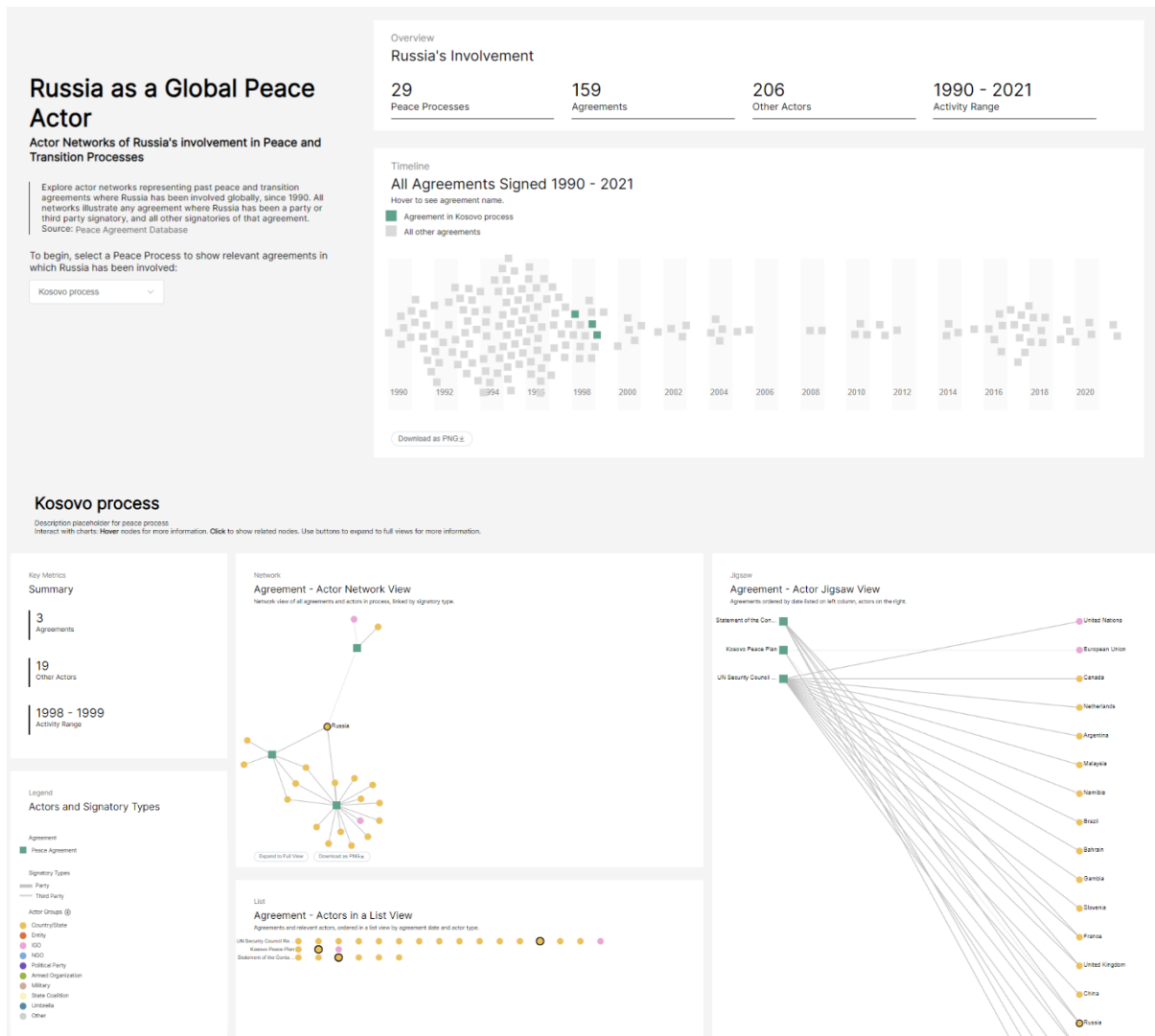
Figure 12: Interface for Global Peace Actor Profile [Russia].

Data Sources Table

Table 2: Table of data sources external to the Peace Agreements Database (PA-X) or PeaceRep, and reasoning for selection as an indicator.

Impact	Indicator	Data Source	Reasoning	Time and Country Coverage	Updating Cycle
Conflict Impacts	Recent and historical conflict levels.	Uppsala Conflict Data Program (UCDP) GED [Davies, Shawn, Therese Pettersson & Magnus Öberg (2023). Organized violence 1989-2022 and the return of conflicts between states?. Journal of Peace Research 60(4). View here: https://ucdp.uu.se/]	To track conflict levels of the armed conflict the peace agreements/peace and transition process aims to end, and to get an idea of conflict events, including the timing, actors involved, resulting deaths and other relevant data UCDP provide.	All countries who have experienced conflict since 1989. Includes all conflicts in our database.	Annually for entire dataset (currently 23.1) and monthly for candidate events from the month prior, that will be included in the following years annual dataset.
Conflict Impacts	Recent and historical political violence levels.	Armed Conflict Location Event Dataset (ACLED) [Raleigh, C., Linke, A., Hegre, H., & Karlsen, J. (2010). "Introducing ACLED: An armed conflict location and event dataset: Special data feature". Journal of Peace Research, 47(5), 651-660. https://doi.org/10.1177/0022343310378914. D. View here: https://acleddata.com/]	Provides insights into the levels of political violence in conflict-affected areas, including the type of event and the actors involved. To ensure events are relevant to political violence, the event type 'protest' (civilians protesting – usually peaceful) are dropped for this tracker.	Different time coverage depending on geographical region – Africa is covered from 1997, with other region starting later (2015-2018). Most locations included in our database are included in this dataset.	ACLED updates events on a weekly basis per region.
Peace Impacts	Security	Global Peace Index	Composite indicator that considers a range of variables to measure the 'peacefulness' of a country per year. Useful to get a quick	Data available since 2008 and covers 163 countries in total.	Annually.

		[Institute for Economics & Peace. Global Peace Index 2022: Measuring Peace in a Complex World, Sydney, June 2022. Available from: http://visionofhumanity.org/resources (accessed Feb 2023)]	indication of relative peace of a country in comparison to others, and change over time.		
Peace Impacts	Security	Corruption Perceptions Index [Corruption Perception Index (CPI) [2022] by Transparency International is licensed under CC-BYND 4.0. View here: https://www.transparency.org/en/cpi/2022]	The Corruption Perceptions Index (CPI) aggregates data from a number of different sources that provide perceptions by business people and country experts of the level of corruption in the public sector. This is a useful indicator of security and impacts of a peace process on a conflict as corruption undermines governments' ability to protect people and erodes public trust, provoking more and harder to control security threats. On the other hand, conflict creates opportunities for corruption and subverts governments' efforts to stop it. This indicator provides to be useful for these reasons, and also allows for a comparison between countries over time.	Data available for 183 countries since 2012.	Annually.
Peace Impacts	Security	United Nations Office on Drugs and Crime (UNODC) Data: Intentional Homicide. [Accessible here: https://dataunodc.un.org/dp-intentional-homicide-victims]	Intentional homicide is the unlawful death inflicted upon a person with the intent to cause death or serious injury, which provides a useful indicator of security over time.	Data available from 2010-2022 for all countries in database.	Annually.
Peace Impacts	Political	Election data from NELDA [Hyde, S. D., & Marinov, N. (2012). Which Elections Can Be Lost? Political Analysis,	NELDA is the largest collection of elections with systematic details on the elections recorded, therefore making it a useful indicator of the political sphere in the context in question. To provide an indication	Data available for all countries in Gledistch and Ward list of independent states, and data	Ad-hoc.

		20(2), 191–210. http://www.jstor.org/stable/23260172] View here: https://nelda.co/#	of how the election went, we utilised a classification system to categorise elections as 'deeply flawed', 'flawed' or 'passes minimal standards'.	available from 1990 (our database start date) until 2020.	
Peace Impacts	Political	National Democratic Institute – Global Election Calendar. View here: https://www.ndi.org/elections-calendar	As NELDA only records elections until 2020, this global elections calendar supplements the election gaps with the date and type of election held in a country.	Used to record elections post-2020.	Ad-hoc – contains dates of future/planned elections.
Peace Impacts	Political	Varieties of Democracy (V-Dem) View here: https://v-dem.net/ [Coppedge, Michael, John Gerring, Carl Henrik Knutsen, Staffan I. Lindberg, Jan Teorell, Nazifa Alizada, David Altman, Michael Bernhard, Agnes Cornell, M. Steven Fish, Lisa Gastaldi, Haakon Gjerløw, Adam Glynn, Sandra Grahn, Allen Hicken, Garry Hindle, Nina Ilchenko, Katrin Kinzelbach, Joshua Krusell, Kyle L. Marquardt, Kelly McMann, Valeriya Mechkova, Juraj Medzihorsky, Pamela Paxton, Daniel Pemstein, Josefine Pernes, Oskar Ryd´en, Johannes von R¨omer, Brigitte Seim, Rachel Sigman, Svend-Erik Skaaning, Jeffrey Staton, Aksel Sundstrom, Eitan Tzelgov, Yi-ting Wang, Tore Wig, Steven Wilson and Daniel Ziblatt. 2022. "V-Dem Country–Year Dataset v12" Varieties of Democracy (V-Dem) Project. https://doi.org/10.23696/vdemds22. Pemstein, Daniel, Kyle L. Marquardt, Eitan Tzelgov, Yi-ting Wang, Juraj Medzihorsky, Joshua Krusell, Farhad Miri, and Johannes von Romer. 2022. "The V-Dem Measurement	V-Dem provides a multidimensional and disaggregated dataset that reflects the complexity of the concept of democracy as a system of rule that goes beyond the simple presence of elections. To indicate levels of political change and democracy over time the following V-Dem indicators are utilised: the Electoral Democracy Index [v2x_polyarchy in dataset], which is an indicator of the extent of electoral democracy in its fullest sense achieved, the Women political empowerment index [v2x_gender in data], which incorporates three equally weighted dimensions: fundamental civil liberties, women's open discussion of political issues and participation in civil society organizations, and the descriptive representation of women in formal political positions and Freedom from political killings [v2clkill in data].	Has full time and country coverage for scope (since 1990).	Annually.

		Model: Latent Variable Analysis for Cross-National and Cross-Temporal Expert-Coded Data". V-Dem Working Paper No. 21. 7th edition. University of Gothenburg: Varieties of Democracy Institute]			
Peace Impacts	Security/ Economic	Military Expenditure (as a share of GDP) data from the Stockholm International Peace Research Institute (SIPRI), Military Expenditure Database: https://www.sipri.org/databases/milex	Military spending is a useful indicator of the scale of resources absorbed by the military. The share of gross domestic product (GDP) is a rough indicator of the proportion of national resources used for military activities, and therefore of the economic burden imposed on the national economy, which can be viewed over time.	All countries and time period in scope.	Annually.
Peace Impacts	Economic	Gross Domestic Product (GDP) from the Government Revenue Dataset (GRD). View here: https://www.ictd.ac/dataset/grd/ [UNU-WIDER Government Revenue Dataset'. Version 2022. https://doi.org/10.35188/UNU-WIDER/GRD-2022.]	The Government Revenue Dataset provides a useful picture of government revenue and tax trends over time.	All countries and time period in scope.	Annually.
Peace Impacts	Economic	Consumer Price Index Data taken from the International Monetary Fund (IMF) Consumer Price Index (CPI) Dataset. Accessible from: https://data.world/imf/consumer-price-index-cpi	Consumer Price Indexes (CPI) are index numbers that measure changes in the prices of goods and services for consumers, that is a useful proxy for the general rate of inflation. This is a useful indicator as historically when prices have increased, there tends to be higher levels of social unrest.	All countries and time period in scope.	Annually.
Peace Impacts	Economic	Personal Remittances (received)	A personal remittance is a non-commercial transfer of money back to a home country/home land by migrants, which	Most countries with data since 1990.	Annually.

		[World Bank Data, Personal remittances, received (current US$), BX.TRF.PWKR.CD.DT. Available from: https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT]	provides financial inflows into a country. It is a useful indicator of peace impacts on an economy, remittances trends may signal an important shift in the perception and behaviours of peace/conflict in the home areas.		
Peace Impacts	Fragility	OECD States of Fragility [OECD (2022), States of Fragility 2022, OECD Publishing, Paris, https://doi.org/10.1787/c7fedf5e-en. View 2022: http://www3.compareyourcountry.org/states-of-fragility/overview/0/]	The OECD's States of Fragility analysis on fragility and sustainable development provides a framework to measure the magnitude of fragility to compare and contrast different types of fragility. This framework captures the diversity of those contexts affected by fragility, measuring it on a spectrum of intensity across six dimensions: economic, environmental, human, political, security and societal.	Analysis since 2016, countries labelled with Extremely Fragile, Fragile or Rest of World	Annually.
Peace Impacts	Humanitarian	acaps INFORM Humanitarian Severity Index, Available from: https://www.acaps.org/en/thematics/all-topics/inform-severity-index	The INFORM severity index enables comparison of scale and severity of crises across the world, assesses the level of humanitarian access in various contexts, and investigates the level of humanitarian needs for certain groups. The index is computed across 3 dimensions, which each have 2 categories included in them which are computed with a range of data sources. The three dimensions include: the impact of the crisis (Human & Geography), Conditions of People Affected (People in Need & Concentration of Conditions), and the complexity of the crisis (society and safety & operating environment)	Only for countries in humanitarian crisis, updates to most recent value.	Ad-hoc. Will pull updates monthly.
Peace Impacts	Humanitarian	ReliefWeb Crisis Figures	ReliefWeb's editorial team regularly updates this curated dataset based on relevance to	Only for countries in humanitarian crisis,	Regularly – will update

		[ReliefWeb Crisis Figures Data latest figures available from Humanitarian Data Exchange: https://data.humdata.org/dataset/reliefweb-crisis-figures]	the humanitarian community. It contains topline numbers on the world's most pressing humanitarian crises, and is useful to compare across contexts the levels of humanitarian aid required.	updates to most recent value.	along with other sources monthly.
Peace Impacts	Humanitarian/ Security	Global Aid Worker KIKA (Killed, Injured, Kidnapped or Arrested) [Data on Global Aid Workers KIDA (Killed, Injured, Kidnapped or Arrested) from Insecurity Insight, Available on Humanitarian Data Exchange: https://data.humdata.org/dataset/sind-aid-worker-kka-dataset]	Agency and publicly reported data for KIKA incident events (killed, injured, kidnapped or arrested) of aid workers (an employee, consultant, contractor or volunteer attached to a not-for-profit humanitarian, multi-mandated, UN or government aid agency. This data includes information on the actor, the weapon and the location of the incident, providing sub-national focus.	Available for 21 countries with Global Aid Workers since 2020.	Updated every 2 weeks, will update once a month with other sources.
Peace Impacts	Humanitarian/ Economic	Multi-Partner Trust Fund Office Gateway (United Nations) [Data accessible from: https://mptf.undp.org/analyze-all-contributions]	All contributions into humanitarian and peace and transition trust funds in the UN MPTF office are recorded for analysis.	Fund-level rather than country level. Only used in some curated country profiles as not all covered.	Ad-hoc updates.

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The country-outline images used in the tracker interface are royalty-free, sourced from pixabay, with credits going to user GDJ.