This data explainer describes Insecurity Insight's methodology for monitoring, documenting, and analysing conflict-related violence affecting water systems. It outlines the scope of the dataset, the terminology and classifications used, the data collection and coding methodology, its strengths and limitations, and guidance on the appropriate interpretation and use of the data.

Insecurity Insight systematically documents incidents affecting water systems and their reverberating impacts on civilians and essential services, including public health, healthcare, education, food security, and humanitarian operations in 15 countries covering data since 2018, providing an evidence base to identify patterns, understand conflict-related impacts, and assess humanitarian consequences for civilian populations and critical infrastructure.

Protecting civilians in armed conflict requires safeguarding access to essential services, including water, sanitation and hygiene (WASH). Conflict-related violence affecting water systems can have immediate and life-threatening consequences by disrupting access to safe water, while also generating reverberating effects across public health, healthcare, education, food security, livelihoods, and humanitarian operations. These interconnected impacts often extend well beyond the initial incident, compounding vulnerabilities and undermining the resilience of affected communities.

The data

Purpose of the dataset

The **Conflict-related incidents affecting water systems** dataset is an incident-based dataset documenting conflict-related violence affecting water systems, water-related humanitarian operations, WASH personnel, and civilians accessing water in 15 countries and territories monitored by Insecurity Insight.[1] The dataset covers incidents from 2018 onwards, beginning with the adoption of United Nations Security Council Resolution (UNSCR) 2417 (2018), which recognised the need to protect water resources and infrastructure essential to food security and public health during armed conflict. It provides a systematic evidence base for understanding

[1] These countries and territories are Burkina Faso, Cameroon, the Democratic Republic of the Congo (DRC), Iraq, Lebanon, Mali, Myanmar, Niger, the Occupied Palestinian Territory (OPT), Somalia, South Sudan, Sudan, Syria, Ukraine and Yemen.

how conflict affects water systems, identifying patterns and trends, and assessing the humanitarian and reverberating impacts on civilian populations and critical civilian infrastructure.

The dataset is intended to support humanitarian operations, research, policy development, advocacy, and accountability efforts. It can be used to analyse changing patterns of conflict-related violence affecting water systems, identify risks to critical infrastructure and WASH personnel, assess the indirect and far reaching consequences of attacks, and inform measures to better protect civilians and services that depend on safe and reliable access to water. A particular strength of the dataset is its systematic documentation of the reported conflict parties involved, enabling analysis of patterns of harm by actor, weapon carried or used, location, and type of water system affected.

The dataset documents reported incidents in which water sourcing, treatment, storage, management, distribution, or access is affected by conflict-related violence. It includes incidents involving damage or destruction, contamination, looting, obstruction, disruption, military occupation or use of water infrastructure, forceful entry into water facilities, and incidents affecting water-related humanitarian operations. It also captures incidents involving threats to WASH personnel and civilians harmed while accessing water, where sufficient information is available. The dataset does not seek to document every disruption to water services or every consequence of armed conflict, but rather incidents for which sufficiently documented evidence has been identified through Insecurity Insight's monitoring methodology.

The dataset is produced through Insecurity Insight's event-based, open-source monitoring methodology, combining systematic human analysis, AI-assisted screening, and incident information shared by humanitarian partners. Each reported incident is reviewed, verified where possible, and coded using a standardised methodology to enable consistent analysis across countries and over time. As with all open-source datasets, the information reflects reported incidents and should therefore be interpreted as an evidence base for identifying trends and patterns rather than a complete record of all incidents affecting water systems. Further information on the methodology, coding framework, and limitations is provided in the following sections.

The dataset also contributes to monitoring implementation of international commitments to protect civilians and critical civilian infrastructure during armed conflict. These include UNSCR 2417 (2018) on conflict and hunger; UNSCR 2573 (2021) on the protection of objects indispensable to the survival of the civilian population, including water and sanitation infrastructure; UNSCR 2664 (2022) on humanitarian exemptions to UN sanctions regimes; the Geneva List of Principles on the Protection of Water Infrastructure (2019) and its Cyber Annex (2021); the International Law Commission's Draft Principles on the Protection of the Environment in Relation to Armed Conflicts (PERAC) (2022); the Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the Use of Explosive Weapons in Populated Areas (EWIPA); and related Security Council resolutions concerning the protection of health care, humanitarian personnel, and humanitarian assistance, including UNSCR 2286 (2016) and UNSCR 2730 (2024).

Scope and Coverage

The dataset covers reported incidents and provides an overview of the magnitude and nature of incidents affecting water systems in selected countries, as far as such incidents are reported. It has been compiled using Insecurity Insight's open-source monitoring system, data processing standards and quality control assurance processes. It is not a complete dataset and information is continuously updated as soon as better information comes available.

The dataset is designed to identify patterns and trends in conflict-related attacks on water. It is intended for advocacy, research, humanitarian planning, and policy analysis. The number of attacks on water systems, including WASH programmes, included in this dataset should be interpreted as minimum estimates rather than complete totals as the documentation of attacks is hindered by humanitarian access, monitoring capacity, and reporting practices. Comparisons between countries over time need to be taken into consideration of how reports may have changed over time and differences in reporting practices between contexts and locations. The absence of documented attacks should not be interpreted as evidence that none occurred, and numbers are not directly comparable across countries.

Categories and Terminology displayed in the Conflict-Related Violence affecting water systems dataset.

Incident - An incident is a single reported event that occurred at a specific time and location and is assigned a unique event identifier (SIND ID). Incidents are selected based on documented information describing when and where the event occurred, what was affected, and, where available, the reported perpetrator, weapon carried or used, and the impact. The dataset includes incidents in which water sourcing, treatment, storage, management, distribution, or access was directly or indirectly affected by conflict-related violence. This includes incidents with actual or potential consequences for civilians and for the delivery of essential services, including public health, sanitation, education, humanitarian and developmental assistance, and other activities dependent on safe and reliable access to water.

Conflict-related violence - Refers to acts or threats of violence associated with armed conflict that directly or indirectly affect water systems, WASH personnel, or civilians accessing water. It includes the use or threat of force by state and non-state armed actors, as well as other conflict-related incidents that result in damage to, disruption of, or interference with water sourcing, treatment, storage, management, distribution, or access. The term encompasses both direct attacks on water infrastructure and incidents that produce reverberating effects, reducing the availability, quality, or accessibility of safe water for affected populations. incl, related to IHL and where not in general terms.

Weaponisation of water - Refers to the deliberate use of water resources, water infrastructure, or access to water by a conflict party to achieve a military, political, or strategic objective. While the dataset documents incidents affecting water systems, it does not determine whether these incidents constitute the weaponisation of water. Distinguishing deliberate targeting from incidental damage, military use, cumulative system degradation, or the indirect effects of attacks on interconnected infrastructure (such as electricity or communications networks) is often not possible based on publicly available information alone. Furthermore, no international mechanism exists specifically to determine whether water has been used as a weapon of war. Such assessments fall within the mandates of international courts and investigative bodies, including the International Criminal Court, the International Court of Justice, and United Nations

commissions of inquiry or fact-finding missions, each operating under distinct legal mandates and jurisdictional constraints. Consequently, the dataset should not be interpreted as making legal determinations regarding the intentional weaponisation of water.

Attacks - Refers to a conflict-related incident that directly or indirectly affects a water system, WASH personnel, civilians accessing water, a WASH programme or key civilian infrastructure. It may include deliberate attacks on water infrastructure, incidental damage resulting from military operations, the military use or occupation of water infrastructure, or other conflict-related actions that disrupt sourcing, treatment, storage, management, distribution, or access to water.

To support consistent analysis, Insecurity Insight categorises incidents into seven categories based on how water systems are affected by conflict-related violence:

1. **Damage or destruction of water systems** - Incidents in which conflict-related violence damages or destroys water infrastructure or equipment, reducing or preventing the provision of water services.
2. **Contamination of water sources** - Incidents involving the introduction or release of physical, chemical, biological, or toxic contaminants into water sources, or pollution resulting from damage to water infrastructure or explosive remnants, rendering water unsafe or unsuitable for human consumption or other intended uses.
3. **Looting of water infrastructure** - Incidents involving the theft, looting, or removal of equipment, materials, supplies, fuel, vehicles, or other assets essential for the operation, maintenance, or repair of water infrastructure.
4. **Obstruction of water infrastructure** - Incidents involving physical or administrative barriers that impeded access to water infrastructure, WASH facilities, personnel, equipment, or essential supplies. Examples include checkpoints, road closures, movement restrictions, sieges, or other barriers that prevent access for operation, maintenance, or repair.
5. **Disruption of water infrastructure** - Incidents that interrupt or reduce the normal functioning of water systems without necessarily causing physical damage. This includes actions such as diverting water supplies, interrupting pumping operations, cutting power required to operate water infrastructure, or other measures that disrupt the provision or distribution of water.

6. **Forceful entry into water infrastructure** - Incidents involving the unauthorised or forceful entry into water infrastructure or facilities that disrupts operations, threatens personnel, or interferes with the delivery of water services.
7. **Take-over of water infrastructure** - Incidents in which a conflict party occupies, seizes, or assumes control of water infrastructure or facilities for military or other conflict-related purposes, preventing or restricting their normal civilian operation.

Incidents affecting water-related aid projects - Incidents in which conflict-related violence affects the delivery of water-related humanitarian assistance or WASH programmes. This includes attacks on or denial of access for humanitarian personnel, facilities, vehicles, equipment, and essential supplies, as well as physical, administrative, or security-related constraints that disrupt the implementation, maintenance, or delivery of water-related humanitarian assistance.

Water system - Refers to systems, services, infrastructure, essential supplies, equipment and energy, personnel, and practices required for people to access sufficient, safe, acceptable and affordable water. It includes water sources, treatment, storage and distribution, and the energy, treatment chemicals, spare parts, and personnel that services depend on.

Components of the water supply system: The classification of water supply system components draws on the definition of water infrastructure developed by the Geneva Water Hub and Ferdowsi et al., and adapts the framework proposed by Zeitoun and Talhami on the hierarchy of water system components. For analytical purposes, water infrastructure is grouped into three components of the water supply system:

- **Upstream components** - Water sources and the infrastructure used for water extraction and treatment.
- **Midstream components** - Water storage infrastructure, facilities, and equipment used to store bulk water prior to distribution.
- **Downstream components** - Infrastructure and equipment used to distribute water and enable end users to collect and access water.

Some incidents affect infrastructure or activities that span multiple components of the water supply system, such as multipurpose infrastructure, water utilities, or water-related capacity-building initiatives. Where these incidents cannot be assigned to a single component, they are classified as "**No Information**".

The three components are highly interconnected. Damage or disruption affecting one component may have cascading or reverberating effects on the functioning of other components of the water supply system and, ultimately, on civilian access to safe water.

Water Infrastructure Categories

Insecurity Insight classifies water systems and infrastructure into ten categories that describe each system's role within the broader water supply system. These classifications enable the user to assess how damage to specific components affect the overall functionality of the system.

Capacity Building	Refers to projects and workshops that strengthen the capacity of staff and communities and the water system.
Collection(End-User)	Refers to designated infrastructure, locations, or temporary initiatives that enable civilians to access water directly, such as fixed or static water collection points e.g. water pumps, or dynamic collection points such as water trucks or bowsers.
Multi-Purpose/Function Infrastructure	Refers to any water infrastructure that performs multiple functions such as reservoirs, water towers, water plants or water stations.
Water Abstraction	Refers to any equipment or infrastructure involved in the process of removing or diverting water from a natural water source, can include wells, boreholes and abstraction equipment (such as water drilling rigs).
Water distribution	Refers to any infrastructure or equipment involved in the distribution of water. This can include water

	transportation vehicles, water pipes and pipelines, water pumping infrastructure and equipment and water supply facilities.
Water Source	Refers to any natural or artificial point from which water can be obtained, including aquifers, rivers, lakes or the sea.
Water Storage	Refers to any infrastructure related to storing water, including dams, water silos and larger water storage facilities as well as any portable or fixed containers used to hold water for later use such as water tanks, barrels or water vessels.
Water treatment	Refers to any infrastructure involved in the process of making water appropriate for a specific end-use, such as desalination facility, water treatment tank, water distiller, water filtration station.
Water utility	Refers to an organisation or company that manages the supply, treatment, and distribution of water often through public infrastructure.
Water-Related Infrastructure	Refers to infrastructure which affect a water system's ability to operate, such as electricity, solar or other power infrastructures, telecommunication infrastructure, and transport infrastructure.

Attacks on beneficiaries and WASH personnel - Includes any form of violence directed to a beneficiary making use of the water system or any WASH personnel. Includes killing, injury, threat or intimidation, sexual violence, arrest or detention or kidnapping.

People collecting water - Refers to a community member making use of the water systems, such as communities relying on water networks or pipers, civilians at a water collection point.

WASH Personnel - Refers to personnel responsible for operating, maintaining, repairing or supporting water services, including water utility staff, engineers, technicians, electricians, contractors, water-truck operators, community water committee, and humanitarian WASH and energy personnel.

Data Collection Methodology

Insecurity Insight uses an event-based approach to document incidents affecting humanitarian operations, healthcare, education, food and water systems, and civilian protection. Information is collected based on when (date) and where (location) an incident took place. Information on what was affected (water system or infrastructure, aid programme, health facility or education facility) or who was affected (communities, WASH personnel, aid workers) and how (including the reported perpetrator the incident was attributed to and the type of weapon used).

For its news briefs, Insecurity Insight collects open-source information (publicly available material from edited media, organisations, and private sources) using tailored, AI-supported search functions. These tools continuously scan open-source content using advanced deep-learning techniques to identify potential events. Retrieved information is then processed through natural language processing classifiers and categorisation tools in English, French, and Arabic, trained on more than 15 years of event data on attacks affecting humanitarian access and essential civilian services in conflict settings. The resulting data is automatically fed into a central platform and tagged with suggested relevance levels and thematic categories to support the efficiency of human data processing. This system was short-listed for an award at the AI for Good Global Summit in 2025.[2]

Insecurity Insight's team of human researchers reviews the suggested content and selects the information that meets the inclusion criteria and that contains sufficient information to ensure that events are verifiable. Key criteria include information on when and where an incident occurred, what or who was affected, and how they were affected as well as information on the conflict actor an incident was attributed to, the type of weapon used and how it was launched or delivered.

[2] Lamba, Hemank et. Al. 2024. HUMVI:AMultilingual Dataset for Detecting Violent Incidents Impacting Humanitarian Aid; https://arxiv.org/pdf/2410.06370

Data is collected daily, with continuous backdating as new sources and incidents are identified or additional information becomes available. All incidents undergo analyst review and verification.

Verification and Quality Assurance

Insecurity Insight uses three primary sources to document incidents:

1. **Open sources** - which refers to incidents that are reported by edited media, journalists as well as civilians through social media outlets. Open source data collection enables continued data gathering and information sharing in contexts where physical barriers to access and repressive media environments limit the ability of data collection and sharing on the ground.
2. **Private sources** - which refers to incidents received through personal networks.
3. **Aid agency data sharing mechanisms** - which refers to incidents shared by a partner aid agency.

Documented incidents must provide sufficient information to ensure events are verifiable, fostering trust in the data. Whenever possible we use a variety of sources in order to ensure transparency. Transparency about sources and event details is essential to make information verifiable, while ensuring that individuals, aid agencies, and health services are not put at risk. At the same time, it is crucial that data does not expose individuals, organizations, or services to additional risks. As a non-operational organization, Insecurity Insight is able to shoulder the

We systematically cross-check our incidents with other databases, including the World Health Organisation (WHO) Surveillance System for Attacks on Health Care (SSA), the Armed Conflict Location & Event Data (ACLED) and the Aid Worker Security Database (AWSD).

We also often collaborate with other organizations, such as Airwars, on specific incidents in order to verify or collect further information about specific incidents.

Data Processing

Each incident is assigned a unique event identifier (SIND ID) and coded using a standardised methodology. Data is systematically recorded by date, geographic location (including coordinates and geo-precision), as well as reported perpetrator(s), weapon carried or used, and the type of water system affected and the manner in which it was impacted. This structured coding enables consistent analysis of trends and patterns across incidents.

Data Responsibility and Quality Assurance

Insecurity Insight's data responsibility policy supports safe, ethical and effective data management through a comprehensive data quality assurance process developed to maintain the accuracy, credibility, reliability and ethical integrity of its datasets. Quality assurance is embedded throughout all stages of incident processing procedure, with additional checks conducted whenever information on incidents is updated or backdated. The process covers three steps of credibility and data purpose checks designed to protect privacy and security to prevent harm, and ensure transparency, accountability and understandability. These steps are applied through three interconnected components: internal mechanisms, collaboration efforts and source verification.

Strengths of the dataset

The dataset provides an evidence base for understanding how conflict affects water systems, enabling the identification of recurring patterns, emerging trends, and geographic hotspots of harm. By systematically documenting incidents over time, it supports analysis of the methods, weapons, and actors involved, helping to identify risks to communities, essential civilian infrastructure, and WASH personnel and aid projects. These insights can inform humanitarian planning, operational risk management, advocacy, and policy development, contributing to more effective measures to protect civilians and ensure continued access to safe water during conflict.

Limitations and sources of bias

The *Conflict-Related Incidents Affecting Water Systems* dataset is based on documented incidents identified through publicly available and partner sources and therefore does not attempt to capture all attacks affecting water systems. The categories of attacks reflect only the evidence available and should not be interpreted as indicating that these were the only types of attacks that occurred in a particular country or territory.

Documentation varies considerably across locations and over time due to differences in access, security conditions, reporting capacity, monitoring systems, and the availability of publicly accessible information. Consequently, the absence of documented incidents for a particular category should not be interpreted as evidence that such attacks did not occur, but rather that not sufficiently documented evidence was identified through the sources reviewed. Information

available at the time of reporting may also be incomplete or change as additional details emerge.

Figures on civilians harmed while accessing water are particularly likely to underestimate the true impact. Casualty reporting is often inconsistent and rarely specifies the circumstances in which civilians were killed or injured. As a result, many incidents in which civilians were harmed while collecting or accessing water cannot be reliably identified and are not included in these counts.

Appropriate and inappropriate uses

The dataset is intended to support humanitarian operations, evidence-based research and policy or advocacy activities that contribute to the protection of civilians, essential water infrastructure and WASH programmes. To ensure the data is used responsibly and in line with Insecurity Insight's data-sharing principles, the following table outlines appropriate and inappropriate uses of the dataset.

Permitted Uses	**Not Permitted**
Humanitarian analysis and research	Use for political advocacy or political gain
Evidence-based policy development	Use for financial or commercial gain without agreement
Operational planning and risk analysis	Reproduce data in reports, dashboards, maps or other products without proper acknowledging Insecurity Insight
Academic research and teaching (with attribution)	Redistribute or republish the dataset without permission
Advocacy to improve the protection of civilians, water systems, and WASH programmes	Use the data without informing Insecurity Insight of the intended purpose (where required under the data-sharing agreement)
Trend and pattern analysis	Present the data as complete or exhaustive

	without acknowledging its limitations
Monitoring changes over time	Misrepresent, manipulate or selectively present the data in a misleading way

Data sharing, licensing, and citation

Insecurity Insight makes the Conflict-Related Violence on Water Systems dataset available to support evidence-based humanitarian action, research, policy development, and advocacy aimed at protecting civilians, essential water infrastructure, and WASH programmes. The data is intended to strengthen situational awareness, support operational planning and security risk assessment, and contribute towards evidence-based research and to a better understanding of patterns of harm affecting water systems and their far-reaching consequences on affected communities.

Access to the dataset is subject to Insecurity Insight's data-sharing terms and conditions. Certain uses, including academic research and the sharing of detailed datasets, may require completion of a Data Sharing Agreement. Users should ensure that the dataset is used responsibly, with appropriate acknowledgement of its limitations and in accordance with the licensing conditions outlined below.

Citation

Any use of Insecurity Insight's data, including in reports, publications, dashboards, maps, visualisations, and other outputs, should acknowledge Insecurity Insight as the source. Citations should include the dataset name, the period covered by the data, and the date on which the data was retrieved. As the *Conflict-Related Incidents Affecting Water Systems* dataset is continuously updated and backdated as new information becomes available, the retrieval date is essential to ensure transparency and reproducibility.

Suggested citation:

Insecurity Insight. 2026. Conflict-Related Incident Affecting Water Systems, 2018-2026. *Data retrieved on DD MM YYYY.*

Data Outputs

Insecurity Insight produces the **Conflict-Related Incidents on Water Systems Dataset**, which is updated weekly. The dataset compiles reported incidents affecting water systems across the countries and territories monitored by Insecurity Insight using its event-based, open-source monitoring methodology. It includes the full set of documented incidents identified through routine monitoring, including backdated entries as new information becomes available.

Where available, additional datasets provide information on the reverberating effects of attacks on water systems, including their impact on civilians, humanitarian operations, and other essential services.

The dataset underpins a range of Insecurity Insight publications. It contributed to the *Explosive Weapons Monitor* annual report and the quarterly *Fragments'* series, and supports thematic analyses on conflict-related incidents affecting water systems. These include reports examining the humanitarian consequences of attacks on water infrastructure, such as the impacts of explosive weapons on water systems in Lebanon.

Data Usage

Insecurity Insight's data is designed to support evidence-based humanitarian action, operational planning, research, policy development, and advocacy. The data provides an evidence base for analysis patterns and trends in conflict-related violence impacting water systems, informing humanitarian security risk assessments, supporting the protection of civilians, essential water infrastructure, and WASH programmes, and strengthening responses to the humanitarian impacts of conflict.

The dataset contributes to policy processes and international reporting. Selected data has been used in submission to UN Special Rapporteurs and featured in major global publications, including the Explosive Weapons Monitor quarterly brief and annual report, the Safeguarding Health in Conflict Report (SHCC) and the Watchlist on Children and Armed Conflict's 'Credible List' annual report.

Version history and updates