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Working paper

Strengthening the collection of data on the indirect or reverberating effects of the use of explosive weapons in populated areas

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United Nations Institute for Disarmament Research and Explosive Weapons Monitor

1. Introduction and background

The *Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences Arising from the Use of Explosive Weapons in Populated Areas* (henceforth Political Declaration) represents a milestone in international efforts to strengthen the protection of civilians in armed conflicts. The Political Declaration promotes a shared recognition by endorsing States of the devastating pattern of civilian harm resulting from the use of explosive weapons in populated areas (EWIPA), as well as of the need to take action to prevent and mitigate these harms. The collection and sharing of data – both operational and humanitarian impact data – is a prerequisite for the implementation of several commitments of the Political Declaration.

The collection and sharing of data on the direct and indirect or reverberating effects of the use of explosive weapons is crucial to increasing the understanding of their severe and wide-ranging impacts on civilians, as well as to informing effective and appropriate responses to prevent, minimize, and respond to these impacts. To advance discussions on the implementation of relevant commitments of the Political Declaration, the United Nations Institute for Disarmament Research (UNIDIR) and the Explosive Weapons Monitor (EWM) organized a multistakeholder workshop on effective measures and practices for the collection of data on the reverberating effects of the use of EWIPA on 29 February and 1 March 2024 in Geneva.

The workshop, organized with the support of the governments of Germany and Norway, brought together over 50 policymakers and practitioners with extensive experience and expertise in peace and security, humanitarian, and development fields. Participants exchanged views and perspectives on measures, tools, and methodologies for collecting, analyzing and sharing data on indirect or reverberating effects in line with the Political Declaration. In particular, the workshop's discussions focused on the role of international organizations, civil society and academia in collecting data and documenting these effects on different areas of civilian life. The workshop also addressed how an improved understanding of indirect or reverberating effects, enabled by data collection efforts, can support operational responses and help inform policies and practices to strengthen the protection of civilians in armed conflicts. Specifically, the workshop sought to:

- Raise awareness and enhance shared understandings of measures and effective practices for documenting the indirect or reverberating effects of the use of EWIPA, and identify relevant tools and methodologies;

- Identify gaps and challenges in existing efforts to collect and share data on the indirect or reverberating effects of the use of EWIPA, as well as actions and resources needed to overcome these;
- Strengthen and expand the communities of knowledge and practice for collecting and sharing data on the indirect or reverberating effects of the use of EWIPA, and identify opportunities for further collaboration within the framework of the Political Declaration;
- Contribute to efforts to broaden and strengthen the evidence base that shows patterns of indirect and cumulative civilian harm resulting from military operations involving the use of EWIPA; and
- Help inform discussions on emerging concepts and terminology in the context of the follow-on process of the Political Declaration.

This working paper summarizes key reflections arising from the workshop’s discussions and provides considerations to help inform future collaborative work on this topic within the framework of the Political Declaration.

2. Data collection on the indirect or reverberating effects of the use of EWIPA and the Political Declaration

The collection of data on the impact of the use of explosive weapons on civilians has long been recognized as critically important. In 2010, the UN Secretary-General called for more systematic data collection and analysis of the “human costs” of explosive weapons use as this was “essential to deepening the understanding of the humanitarian impact ... and to informing the development of policy and practice that would strengthen the implementation of international humanitarian and human rights law.”¹ Since 2011, the UN, the International Committee of the Red Cross (ICRC), and civil society have collected, analysed and shared data on the impacts on civilians of the use of explosive weapons globally and in relation to specific conflicts. Their efforts established a credible evidence base to support efforts aimed at raising awareness of the broad range of harms to civilians resulting from the use of EWIPA and the need for State-led action to address it.

As a result, the importance of data collection on the impacts of the use of explosive weapons on civilians is firmly recognized in the Political Declaration. It also provides a broadened understanding of the scope of data required to understand both the direct and indirect or reverberating effects arising from such use. In the Political Declaration’s preamble, States explicitly acknowledge ‘...the importance of efforts to record and track civilian casualties, and the use of all practicable measures to ensure appropriate data collection’ (paragraph 1.8). In the operative section, States commit to collect and share disaggregated data on the direct and indirect effects of military operations involving the use of EWIPA (paragraph 4.2), as well as to facilitate data collection efforts of the UN, the ICRC and civil society organizations (paragraph 4.3).

The Political Declaration recognizes the severe and wide-ranging indirect or reverberating effects resulting from the use of EWIPA. As elaborated in the preamble (paragraphs 1.3-1.6), these effects often stem from damage to or destruction of critical civilian infrastructure and can take multiple forms, including disruption or deprivation of access to essential services, such as health care, education, water and electricity supply, as well as environmental damage, large-scale displacement,

¹ UN Security Council (2010). ‘[Report of the Secretary-General on the protection of civilians in armed conflict](#)’. S/2010/579, para. 50.

permanent disabilities and psychological harm. Given the complex interdependence of infrastructure and the interconnectivity of essential services in urban and other populated areas, these impacts are often cumulative and can extend well beyond the immediate impact zone and time of an incident, spreading into multiple areas of civilian life. They also affect women, men, girls, and boys differently. An improved understanding of the nature and scale of these impacts, enabled by data collection efforts, is vital to States' implementation of several operational commitments of the Political Declaration. In addition, such data is essential for humanitarian and development actors to assess preparedness and response mechanisms in urban ecosystems, as well as to develop and coordinate programmatic responses to address both their immediate and long-term consequences for the civilian population.

Box 1. UNIDIR's research on the direct and indirect or reverberating effects of the use of EWIPA

UNIDIR has developed a research framework to support the collection of data to understand and document the direct and indirect or reverberating effects on civilians from the use of EWIPA and help inform efforts to prevent, mitigate and respond to the negative humanitarian consequences.

- The [First Menu of Indicators](#) focuses on documenting civilian casualties and injuries, as well as disruptions to the infrastructure of sustainable cities and communities, good health, and education.
- The [Second Menu of Indicators](#) examines the consequences from disruptions to water, sanitation and hygiene services, food security, environmental standards, and economic opportunity.

These menus provide a standardized set of indicators that can be used to capture, measure, compare, and understand how the use of EWIPA impacts the survival, well-being, human rights, and dignity of civilians, in ways that are often overlooked or underestimated.

Moreover, UNIDIR produced a [Gender Factsheet](#) to better understand the gendered impacts of the use of EWIPA. Improved understanding of the different risks and vulnerabilities faced by women, men, girls and boys can better inform prevention and protection strategies, as well as response and recovery efforts, including assistance to survivors.

3. Collecting data on indirect or reverberating effects – existing approaches and methodologies

International organizations, civil society, and academia utilize various approaches, methodologies and tools to collect and analyze data on the indirect or reverberating effects of the use of EWIPA and of armed conflicts more generally. Workshop discussions identified many of these relevant tools and methodologies and explored their practical application through data collection in different thematic areas or contexts, as well as existing platforms to facilitate the sharing of data (see Box 2 on existing platforms for the sharing of data on indirect or reverberating effects). The methods presented below are not exhaustive and are instead indicative of workshop discussions.

3.1. Incident-based approaches

Incident-based methodologies for data collection develop qualitative or quantitative data that can be linked to incidents characterized by the use and impacts of explosive weapons. The information is recorded and categorized in a standardized manner that often identifies incident locations, dates, weapons or weapons categories, numbers of casualties or other indicators of harm, and event descriptions. While this methodology has been widely utilized to collect data on the direct effects of the use of EWIPA, it is also of relevance to monitoring and understanding their indirect or reverberating effects. There are numerous tools and methods available for undertaking incident-based monitoring of the use of explosive weapons in populated areas. Researchers that are local to conflict contexts and have relevant language skills can monitor local language media and social media sites. National Language Processing (NLP) classifiers can be used to identify information on the effects of explosive weapons use in open sources available online. Machine learning or artificial intelligence can be similarly developed to convert text-based descriptions of events into structured data that is then checked by qualified researchers.

3.2. Impact-based approaches

Impact-based methodologies for data collection capture qualitative information that can provide greater context to the broad range of impacts of the use of EWIPA that quantitative data alone cannot. As experiences of affected communities vary across contexts and change over time, employing quantitative research methods to understand the nuanced and evolving impacts of the use of explosive weapons on civilians can be critical to understanding patterns of harm that extend beyond the time and location of specific incidents. International organizations, civil society, and academia often use qualitative research methods to document the indirect or reverberating effects of the use of EWIPA. Field research, for example, allows for on-the-ground documentation of permanent injuries and disabilities, or the many ways in which impeded access to essential services disrupts the lives and well-being of civilians in the short and long term. Interviews and surveys, conducted either with individuals or community groups, can similarly show how access to such services for entire communities might be affected by damage and destruction of civilian infrastructure.

3.3. Concentric approach (statistical estimates)

A concentric approach to documenting indirect deaths resulting from a loss of access to essential goods and services in armed conflict, developed by the UN Office of the High Commissioner for Human Rights (OHCHR), employs statistical estimates that may be used to approximate the extent of death caused by the indirect or reverberating effects of the use of EWIPA. The tools and methods utilized within this methodological approach include:

- Counting documented direct deaths captured by a range of possible sources;
- Estimating undocumented direct deaths by employing statistical surveys and techniques; and
- Estimating indirect deaths by using additional records and/or statistical surveys to measure 'excess mortality', or deaths that would not have occurred in the absence of conflict.

3.4. Digital investigations

Investigative methodologies for data collection allow for the use of digital tools to identify the use of explosive weapons by specific actors and both the direct and indirect or reverberating effects of their use in populated areas. Digital investigations can verify the accuracy of accounts in media or elsewhere of an incident of explosive weapon use, attribute an attack to specific actors, identify weapons, and show how the use of EWIPA can impact urban or other environments over time. Open-source research methods include geolocation, or the identification or verification of an otherwise unknown location of an attack. Methods also include the use of satellite imagery and satellite measurements of airborne substances and pollutants, social media content analysis, and the analysis of other geospatial digital data.

Box 2: Existing tools and platforms for the sharing of data on indirect or reverberating effects

While the collection of data on the reverberating effects of the use of EWIPA is crucial to improving the understanding of the impacts on civilians, sharing this data is equally as important to enable collaborative work that can inform effective and appropriate responses to mitigate and address these impacts. Several tools and platforms have been established to compile and make easily accessible a range of relevant data sources on reverberating effects. This includes the [Humanitarian Data Exchange](#) (HDX) which, since 2014, has aimed to make humanitarian data easy to find and use for analysis, including baseline data (context), situational data (affected communities and their needs) and response data (humanitarian response).

4. Reflections on strengthening the collection of data on indirect or reverberating effects

Workshop discussions on the various approaches, methodologies and tools to collect, analyze and share data on the direct and indirect or reverberating effects of the use of EWIPA enabled the sharing of good practices and the identification of current challenges and gaps in existing efforts to document these effects. This prompted reflections and considerations on opportunities for future collaborative work by relevant stakeholders from international organizations, civil society, and academia.

4.1. Consider the varied purposes for which data on indirect or reverberating effects is collected and shared before, during, and after armed conflicts.

Different stakeholders collect, share and use data at different times before, during, and after conflict, for a variety of purposes based on their different mandates, objectives, technical expertise and operational capacities. Depending on these factors, stakeholders may have varying resource needs, utilize different tools and methodologies, and identify opportunities for collaboration amongst a range of actors. These may include:

- **Early warning and prevention** data collection to inform prevention, humanitarian preparedness and contingency planning, as well as wider response efforts;
- **Crisis response and assistance** data collection to inform operational and humanitarian responses, including assistance and protection activities, victim assistance, clearance operations, and rehabilitation and reconstruction efforts; and

- **Post-conflict impact assessments** or data collection to understand the indirect or reverberating effects of the use of EWIPA after conflict has ended, including how the needs of affected communities might evolve over time.

4.2. Strengthen engagement with local organizations and affected communities in the collection of data on indirect or reverberating effects.

The indirect or reverberating effects of the use of EWIPA on people and communities can vary significantly depending on specific contexts and circumstances. Engagement with conflict-affected communities is crucial to understanding the nature and extent of these effects, including the differentiated impacts on women, men, girls, and boys. Stakeholders could consider initiatives that both build capacity within and enable communities to play a key role in data collection. This would benefit efforts to better understand the indirect or reverberating effects and to support and empower communities to contribute to crisis response.

4.3. Collect data to improve understanding of the interconnected nature of civilian infrastructure and services in urban and other populated areas.

To understand the indirect or reverberating effects of the use of EWIPA on civilians, data should be collected to understand the interconnected nature of civilian infrastructure and services in urban and other populated areas, including civilians' reliance on such services. This includes baseline data on the location of systems and services in urban areas, as well as population numbers, demographics, and mortality rates to determine "excess mortality" and indirect deaths that occur as a result of disrupted access to essential services. It also includes information that allows for an understanding of what is required to keep such services functional, including supply routes and the locations of power and water supply lines.

4.4. Advance methodological discussions to overcome challenges in the reporting, analysis and sharing of data on indirect or reverberating effects.

To facilitate coordination and collaboration among relevant stakeholders, discussions should continue to address the different methodological challenges to collecting data that can support the many roles these stakeholders play in addressing and mitigating harm to civilians from the use of EWIPA. This includes exploring options to harmonize key terminology and concepts guiding the collection of data on indirect or reverberating effects, as well as to tailor existing data collection practices to improve levels of disaggregation (e.g. sex, age, disability, population density, etc.). Methodological discussions should also aim to identify and incorporate the different categories and types of explosive weapons.

4.5. Foster multistakeholder and cross-disciplinary dialogue and collaboration around the collection of data on indirect or reverberating effects.

Many opportunities exist to build bridges with other knowledge communities that have valuable expertise in documenting indirect or reverberating effects (e.g. environmental and disaster risk reduction, public health and epidemiological studies, system dynamics, etc.). Further discussions could explore complementarities and synergies with relevant processes and initiatives beyond

EWIPA to prevent siloes and promote effective collaboration across disciplines and organizations. Such efforts could also identify opportunities for integrating considerations on the collection of data on indirect or reverberating effects of the use of EWIPA into relevant existing frameworks, impact assessment tools and methodologies, and guidance materials to ensure the complementarity and sustainability of efforts to document their impacts on civilians. This includes identifying and making better use of existing platforms for the sharing of relevant data.

4.6. Promote transparency and encourage the sharing of data on the indirect or reverberating effects of the use of EWIPA amongst a wide range of stakeholders.

All stakeholders have a role to play in collecting and sharing data on the indirect or reverberating effects of the use of EWIPA to strengthen understanding of these effects and to support the development of policy and practice to address them. To do so, stakeholders, including States, should commit to transparency in the sharing of relevant data. It would be useful, for example, to have publicly available satellite imagery that shows blast impacts or damage to and destruction of infrastructure.

5. Considerations for next steps within the framework of the Political Declaration

The following recommendations are put forward to endorsing States to help advance the implementation of relevant commitments on the collection of data on indirect or reverberating effects within the framework of the Political Declaration, in collaboration with relevant stakeholders.

- Endorsing States could consider the establishment of formal or informal structures of work, such as standing and/or ad-hoc working groups, to promote collaborative work and exchanges to improve understanding of indirect or reverberating effects, their nature, scale and foreseeability. Such an approach would help to operationalize the Political Declaration’s commitments, including on exchanges of good policies and practices in relation to “emerging concepts and terminology”.
 - **Possible composition:** The working group(s) could be composed of representatives from interested endorsing States and their armed forces, as well as from relevant stakeholders from UN entities, the ICRC, civil society, and academia with different thematic and/or geographical expertise.
 - **Mandate and activities:** The working group(s) could convene regular meetings to promote exchanges amongst stakeholders and deepen engagement with the broader community of practice, including academia. Such meetings could invite external experts to present on topics and issues of relevance across contexts and thematic areas. The regular meetings would help to:
 - Enable the identification of good practices for documenting the foreseeable indirect or reverberating effects of military operations involving the use of EWIPA on civilians;
 - Identify existing gaps in knowledge as well as capacity needs based on the varied challenges faced by different stakeholders in collecting data on these effects;

- Support the development of tools and other voluntary guidance materials, as well as scenario-based exercises, simulations and other activities that can be incorporated into trainings and capacity building ; and
 - Promote initiatives to further build and strengthen the community of practice around the documentation of indirect or reverberating effects.
- Endorsing States could consider the establishment of a voluntary “trust fund” or another type of mechanism to support independent research to improve the understanding of the nature, scope, and foreseeability of the indirect or reverberating effects of the use of EWIPA. This could include, for instance, support for the development of case studies focused on different contexts and thematic areas to strengthen and promote the diversification of the evidence base. Consideration could also be given to tasking a group or consortium of organizations to conduct a “pilot project” to develop and/or test different approaches and methodologies for documenting these effects over time and across different geographical contexts.
- Endorsing States should utilize the international review meetings of the Political Declaration, as well as other regional and national-level implementation activities, to exchange on policies and good practices to prevent, minimize and respond to the indirect or reverberating effects of military operations involving the use of EWIPA. This should include policies, practices, or mechanisms that can be established or adapted to track, monitor and respond to these effects in a way that promotes operational and institutional learning within States and their armed forces. Such activities should help identify the types of resources and expertise needed to build or strengthen such mechanisms, taking into account the varied needs, challenges, and capabilities of endorsing States. This would support efforts to “identify any relevant additional measures that may need to be taken” to promote and strengthen the implementation of relevant commitments of the Political Declaration.