

METHODOLOGICAL ANNEX

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INTRODUCTION

IDMC's Global Report on Internal Displacement (GRID) is the result of an intense process of data gathering, collation, analysis and validation and presents IDMC's best estimates of internal displacement associated with the causes and triggers of displacement that we monitor: conflict and violence, disasters and development projects. It reflects continuous improvements concerning the ways we collect data, be it from our partners or with our own tools, as well as advances in the research and analysis that help identify key trends, causes, triggers, patterns and impacts of internal displacement.

For the purpose of this report, we analysed data addressing the following set of metrics:

- | **the total number of internally displaced persons (IDPs) as of 31 December 2018**
- | **new incidents of displacement recorded between 1 January and 31 December 2018**
- | **the estimated number of people who reportedly made some partial progress towards a durable solution in 2018, or those whose return, local integration or resettlement, as reported by data providers or governments, could not be verified.**

To ensure the highest level of reliability of IDMC's estimates and analysis, we adhere to strict guidelines and processes, including extensive research, partner engagement and a rigorous quality-assurance process that involves both internal and external reviews of the data and our analysis of it. This allows us to publish our best estimates accompanied by comprehensive documentation and detailed explanation of any limitations associated with the data. Such limitations relate to the way in which data is collected, treated, disseminated and published.

Monitoring internal displacement comes with a wide array of challenges, mostly linked to the general lack of visibility and understanding of the phenomenon. It also involves addressing several technical complexities related to population movement tracking, including how to deal with gaps in data as well as conflicting sets of figures about the same situation. This annex highlights some of the key challenges we face, as well as the strategies, guidelines, quality-control principles and deci-

sion rules IDMC has in place to overcome them. It also presents some of the tools and procedures used for the collection, collation, analysis and verification of internal displacement data, as well as the potential limitations these might have.

The annex is divided in eight main sections. The first section introduces the foundations upon which IDMC develops its work, including the definitions and terms it applies, IDMC's data model and the metrics we report on, as well as the countries and territories that we monitor. The following section details the critical aspects of how IDMC collects and processes data on internal displacement. It describes our data sources, the geographical and the temporal scope of our data, and when and how we use of proxies, such as housing destruction, to detect displacement and produce metrics. This section also highlights the importance of metadata, the long-term preservation of this information and the internal rules in place to ensure the reliability of IDMC estimates. The annex's third section summarises the main challenges that IDMC faces in monitoring displacement, ranging from the availability of data, through the difficulties in capturing displacement in bordering regions, the coverage by data collectors and the level of disaggregation of the data, to the limitations presented by outdated data. This section also describes potential reporting and selection biases – and how we have tried to overcome them. Sections 4, 5 and 6 explain the criteria and challenges specific to monitoring displacement related to disasters, to conflict and violence, and to development projects, respectively. These are followed by a section detailing the practices that IDMC has put in place to ensure the quality of the data and figures it reports on, and to also ensure transparency over the confidence and the analyses of the figures. Last, section 8 presents additional methods, classifications and assessment tools we are currently developing to improve the monitoring of internal displacement. These include the disaster and conflict typologies, the displacement severity assessment, and the use of satellite imagery and other tools that can increase the scope of our monitoring, identify more situations of displacement, triangulate our figures with more data, and report on displacement in a more timely manner.

1 IDMC'S ANALYTICAL PROCESS, DEFINITIONS AND DECISION RULES

1.1 Definition of an IDP

IDMC adopts the definition of an IDP categorised in the Guiding Principles on Internal Displacement:

“Internally displaced persons are persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.”¹

For accounting purposes, we focus on the three key elements of this definition when determining whom to include in our figures:

1. the forced nature of the displacement
2. displacement from the habitual residence (or the displacement trigger preventing the people or group concerned from accessing or remaining in said place)
3. the fact that those displaced remain within their country of origin or habitual residence.

We attempt to monitor all situations of internal displacement, regardless of the cause and trigger. Our current reporting, and the figures included in GRID 2019, however focus on internal displacement caused by conflict and violence, disasters as well as development projects. We aim to continuously improve and expand the scope of our monitoring and reporting, based on the availability of data on movements. Our data model aims to account for and characterise the diverse forms of population movements we encounter in the course of our monitoring (section 1).

The forced nature of the displacement “within internationally recognised borders” is fundamental in determining whether or not a person is an IDP, but the Guiding Principles do not set other criteria by which to identify a person fleeing their “home or place of habitual residence”. As such, we interpret IDPs to include not only citizens of a country in which displacement takes place, but also non-nationals whose habitual place of residence is in that country.

IDMC also recognises that forced displacement is not solely associated with the notion of a fixed place of residence. For nomadic pastoralists, displacement may be the result of the loss of traditional grazing areas, the death of livestock, or a combination of both. Given that the concept of habitual residence is intimately linked to peoples’ livelihoods, some people who have lost their livelihoods can be considered IDPs. We have found this to be the case for pastoralists who have become displaced due to the impacts of drought and conflict.

1.2 IDMC data model

Estimating the number of people displaced in a certain location and at a given point in time is challenging, especially when population movements are highly dynamic. IDMC has developed a data model (see figure A1, for a simplified version) which we use to map data and transform it into the figures we publish. The model illustrates how different types of population flows influence the total number of people displaced in any given situation at a specific point in time. Additionally, it reflects reported cross-border movements and attempts to reach durable solutions, as these can also affect the total number of IDPs. The purpose of this data model is to provide a comprehensive representation of internal displacement data so that we can publish figures for all the countries and situations we monitor in as consistent a manner possible. This allows us to make meaningful comparisons across all countries and from one year to the next, which is essential for informing more targeted and effective policy-making by government and other actors in complex crises.

The figures that we publish describe two main types of metrics: stocks and flows. Stocks represent the total number of people displaced in a location at a specific moment – in the case of this report, as of 31 December 2018. Flows represent dynamic processes, such as the number of new displacements or reported returns over a period of time. Displacement flow data record the direction of displacement, from the area of origin to the destination location (figure A2).

FIGURE A.1: IDMC's displacement data model

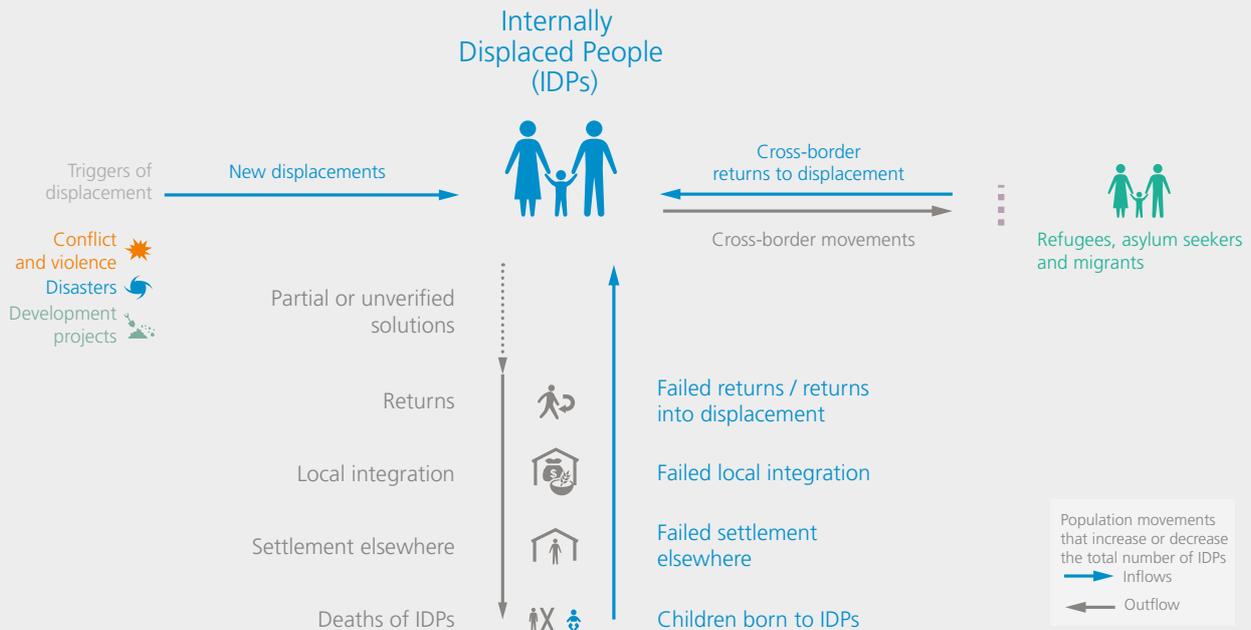
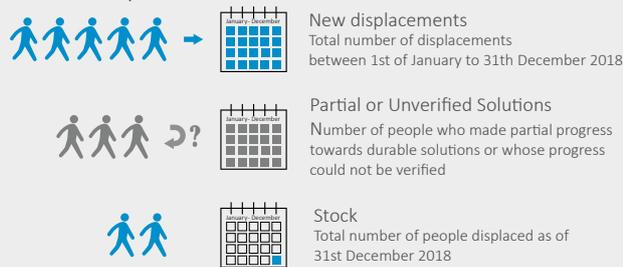


FIGURE A.2: Stocks and flows and their relationship to IDMC's displacement estimates



The data model is an essential tool for producing comprehensive and comparable figures. Populating it with data, however, is a challenge. Data collected in the field almost never accounts for all relevant flows. And it is often difficult to map partners' data onto the corresponding part of the data model.

1.3 IDMC metrics and indicators

| Total number of IDPs (or "stock")

The total number of IDPs is referred to as a "stock" metric. It represents a static snapshot of the number of IDPs in a given location at a specific point in time. For GRID 2019, that reference point is 31 December 2018. The population movements described in figure A2 influence the number of IDPs: new displacements increase it; returns, cross-border flight and other outflows decrease it.

We estimate the total number of IDPs at the end of the year by verifying and triangulating data reported from one or more sources. Along with contextual analysis, we also triangulate the data and estimate the number of IDPs by analysing data on new displacements, cross-border movements, births and deaths in displacement, as well as movements leading to some form of progress towards durable solutions. Thus, we estimate the total number of IDPs as of 31 December 2018 by adding or subtracting different population movements, as illustrated below:

$$\begin{aligned} \text{Total number of IDPs as of 31 December 2018} = & \text{Total number of IDPs}_{\text{Dec 2017}} + [\text{Births}_{\text{in 2018}} + \text{new} \\ & \text{displacement}_{\text{in 2018}} + \text{Returns into displacement}_{\text{in 2018}}] \\ & - [\text{Partial or Unverified Solutions}_{\text{in 2018}} + \text{cross-border} \\ & \text{flight}_{\text{in 2018}} + \text{deaths}_{\text{in 2018}}] \end{aligned}$$

The equation presented above shows that the numbers we report as partial or unverified progress towards durable solutions signify an outflow, meaning that they entail a reduction in the total number of IDPs. This does not imply that people whose progress toward durable solutions is partial or unverified no longer face vulnerabilities related to their displacement; rather it reflects the fact that our data providers often account for these people as "returned" and stop collecting data about them. If we were to continue to include these people in our estimate of the total number of IDPs, we would risk double-counting people who were displaced more than once.

In cases where there is a lack of coverage of all the components of our data model, we nevertheless take into account new displacement and the previous year's stock figure when estimating the total number of IDPs.

For some countries, including Guatemala, Honduras, India and Kenya, we were however unable to apply this formula, because the data related to new displacements and about the number of IDPs was not interoperable and it could not be brought together in a meaningful manner. This means that we could not be certain that people included in an older protracted figure covering the same areas were not the same as those displaced in 2018. In such cases, we refrain from adding possible new displacements to the equation to avoid double-counting people who were repeated more than once.

The equation above for estimating the total number of IDPs is at best a modelled approximation. We compare this with the data we obtain from our sources, and the different figures do not always correspond. This was the case in Burkina Faso, among other countries, given the length of time it takes to verify displacement figures. It is also the case for Colombia, where IDPs have two years to register with the Colombian authorities, and thus, some IDPs who were displaced in 2017 only registered in 2018.

| New displacements and other flows

Our estimates of the number of new displacements refer to the total number of movements that have been recorded over the course of a year. For our estimates of disaster-related displacement, this figure is the sum of all the displacements we have recorded and verified for that country between the 1 January and 31 December. How we produce this figure for conflict-related displacement is often more complicated.

We generate a single new displacement estimate for the total number of people displaced by each event, be it a disaster, a situation of violence or conflict episode, or a development project. It is important to note that this estimate is not necessarily the same as the peak number of IDPs, but instead aims to provide the most comprehensive cumulative figure for those displaced during a given period of time, limiting double-counting.

Given the challenges in tracking population movements, it is difficult to determine what portion of new displacement figures refer to people being displaced for the first time and what portion represents the same people

being displaced a second, third, fourth or fifth time. As a result, new displacements could include secondary or multiple displacement movements.

Repeated displacements occur more frequently in some context than in others. This is the case every year in the DRC and South Sudan, for example, where pendular displacement in which IDPs "commute" back and forth between their place of refuge and their homes. This results in significant numbers of displacements that in fact refer to the movements of the same people.

Since 2017, we have used event-based monitoring to estimate the number of new displacements induced by conflicts where data is available. This is the case in the Philippines where the main source for these mostly small-scale events is the Protection Cluster. However, the national agency DROMIC also publishes updated information on larger events.² Using an events-based approach allows us to monitor and compare figures reported at the local level, helping us to ensure that we report on the most accurate new displacement figure.

Due to enhanced event detection and the increased availability of data, we are able to apply our event-based monitoring of conflict-induced displacement to many other countries, including CAR, Ethiopia, India, Kenya, Libya, Somalia, and South Sudan. For numerous other conflict-related displacement figures, we use event-based monitoring to triangulate data collected at fixed intervals.

| Cross-border movements

In line with our data model, we subtract the number of IDPs who flee across international borders from our year-end figure of the total number of IDPs. To be able to do this consistently, we rely on partners who collect data on refugees, asylum seekers and migrants to record whether people had been displaced internally before cross the border. Currently, we sometimes face challenges when it comes to distinguishing between flows of IDPs and refugees because people may flee to a border area, stay there for only a short time and then cross into another country. Others may take several days to arrive at the border, in which case our ability to account for them depends on whether our partners manage to register them when they were moving inside the country or only once they cross the border.

In some contexts, returning refugees, asylum seekers and migrants can become displaced when they return to

their country of origin. This can occur when their return movement itself is a form of displacement, such as the deportation of some refugees or asylum seekers. It could also occur when people voluntarily return to their country of origin but find themselves in a condition of internal displacement – such as when they return to IDP camps or to destroyed homes. In these cases, we add these people to our year-end headcount of the total number of IDPs.

| Partial or Unverified solutions

As we continue to improve our monitoring, we have identified an increasing number of displaced people reported as having returned, integrated locally or settled elsewhere in the country without sufficient evidence to determine that they no longer have residual vulnerabilities.

When the available data permits, we have been working to separate them from those we continue to count as internally displaced. The result was the revision of our data model to reflect what we refer to as partial or unverified solutions: movements reported as returns, integration or resettlement, but for which there is sufficient evidence their situation only constitutes a partial solution to their displacement; or those whose reported achievement of a solution could not be verified.

Our primary aim in accounting for initial or partial progress toward durable returns, settlement elsewhere and local integration is to encourage governments and other data providers to gather more evidence on the situation of these people so that their needs can be adequately addressed and for them to remain visible.

People currently characterised as having made partial or unverified progress toward durable solutions include those who have been reported as having returned, resettled or integrated, but for whom there is no tangible evidence of the process having led a durable solution; those returning to a situation of persistent vulnerability; those living in protracted displacement for whom some anecdotal or contextual information but no firm evidence has been provided to suggest a move to return, relocate or resettle; and those trying to integrate locally but who do not fulfil all of the criteria for having achieved a durable solution.

Given the lack of systematic longitudinal assessments on the living conditions of IDPs upon their return, it is seldom possible to determine the extent to which they have achieved a solution to their displacement. This

year, we obtained data that described the needs and vulnerabilities for several caseloads of people who had reportedly returned, integrated locally or settled elsewhere. It revealed that more than five million continued to face demonstrable vulnerabilities associated with their displacement, including people who returned to destroyed homes or in other types of temporary accommodation.

| Births and deaths

IDMC accounts for children born to IDPs and IDPs' deaths only when our data providers collect and share this information. Given the fact that the fertility and mortality rates of IDPs may not correspond with national figures, we do not try to extrapolate births and deaths in displacement from national demographic data. In protracted cases of displacement such as Georgia, fluctuations in the total number of IDPs may reflect demographic changes such as births and deaths.

1.4 Terminology

Many terms and expressions are specific to internal displacement, and our database captures the most common ones. They may refer to individuals, families, households or homes. Table A1 summarises the most common terms we look for.

As part of IDMC's monitoring process, we may compile and interpret data that – at first glance – might not seem directly linked to internal displacement. We are compelled to do this because of the variety of terms used to report on situations of displacement. For example, in Afghanistan, "returnees" may refer to returned refugees or to IDPs. People displaced by floods in 2018 were referred to as '*damnificados*' in Peru, which loosely translates as "affected", and as "sheltered" in Saint Vincent and the Grenadines. IDPs in Myanmar are sometimes referred to as "refugees". Many sources refer to people displaced by disasters as "directly affected".

Additional analysis is required to make sense of the terms used by our sources and to understand when and how they relate to displacement. Even within the UN and coordinated international humanitarian reporting mechanisms, agencies refer to IDPs as "people affected", "people in need" and "people targeted".

TABLE A.1: Key terms used to describe internal displacement and internally displaced people

Term	Explanation
Displaced	Involuntary or forced movements, evacuation or relocation – when not specified – of individuals or groups of people from their habitual places of residence.
Evacuated	Voluntary and forced evacuations, both preventive and in response to the onset of a hazard.
Relocated	Voluntary and forced relocations, both preventive and in response to the onset of a hazard.
Sheltered / in relief camp	People accommodated in shelters provided by national authorities or organisations such as NGOs, the UN and IFRC.
Homeless	People rendered homeless and without adequate shelter.
Uninhabitable/ destroyed housing	Limited to habitual place of residence, and includes houses, retirement homes, prisons, mental health-care centres and dormitories. The number of destroyed/uninhabitable houses is multiplied by the AHHS for that country to estimate the number of people rendered homeless and so displaced.
Partially destroyed housing	Data on partially destroyed houses cannot necessarily be taken as a proxy indicator of displacement. This information, however, helps us identify situations we may need to look into further, and access to more detailed shelter assessments is very helpful in this sense. We also use it to triangulate other data. Sometimes, for example, partially destroyed housing is also referred to as uninhabitable.
Forced to flee	“Flee” implies the forced nature of people’s movement and we take it to indicate displacement.
Affected	People whose life has been directly impacted by a disaster. Displaced people are amongst those affected, but not all affected people are necessarily displaced. There are exceptions, however, and in certain Latin American countries IDPs are referred to as “affected” for reasons of political sensitivity.
Other	Other indicators of displacement used by local authorities or organisations. They include context-specific terms such as rescued people, people in need, targeted people, resettled people and people living in temporary or transitional shelters.

1.5 Countries and territories in scope of GRID 2019

The inclusion of a country is not contingent on a quantitative threshold based on the number of IDPs. It depends only on the availability of credible data. When a country is not included in the GRID it does not necessarily imply that no displacement has taken place there. In many cases it means that we were not able to obtain or verify data on displacement, or that the drivers of displacement are complex and multi-causal (see section 2.1). Thus, although IDMC monitors internal displacement globally the GRID 2019 dataset contains information on 148 countries and territories.

Box A1. Geopolitical considerations

Amongst the primary and crucial criteria to determine whether a person or a group is internally displaced is the fact that the forced movement remains within the internationally recognised borders of the place of habitual residence. This is usually straightforward, and the data obtained from governments and other providers allows us to identify the location of departure and/or arrival of said movement(s).

There are, however, several cases in which the borders of a country or territory, as well as the sovereignty associated with them, are disputed or in question. This presents a challenge regarding what countries and territories to include in our reporting and how to account for certain groups of displaced people.

The inclusion of countries and other contested territories does not imply any political endorsement or otherwise on IDMC's part. IDMC collects and presents data on IDPs for UN members states and other self-governing territories, those with unsettled sovereignty such as the Abyei area and others with special status such as Palestine and Kosovo.

a. Foreign occupation

People displaced within areas of an internationally recognised state under foreign occupation are considered IDPs, irrespective of their location within the internationally-recognised borders or the territorial claims of the occupying power. An example of this is Crimea.

b. Creation of new states

For countries that have been divided into two internationally recognised states, such as Sudan and South Sudan, we consider all people displaced within each of the new entities as IDPs and produce separate estimates for each one. People who fled within the previously undivided state and who crossed the border that delineates the new entities are no longer counted as IDPs. For example, we no longer count people who fled from Timor-Leste to West Timor when the former was established in 1999.

c. Unilateral secession

For regional entities such as Abkhazia and South Ossetia, which have unilaterally seceded outside an internationally supported process, we do not count IDPs within them separately from those in the state they have seceded from, in this case Georgia. In cases such as Kosovo, however, where a majority of UN member states have established diplomatic relations with a seceding entity, we do produce estimates for IDPs who have fled within it. We no longer count people as IDPs if they have crossed what has become a de facto international border and find themselves in different entity from the one in which they were originally displaced. As such, our estimate for Kosovo refers only to people who have fled within the territory itself. Given that the Serbian government reports all IDPs in the country as having come from Kosovo, Serbia is not included in GRID 2019. These decisions not to continue counting people we previously considered IDPs in no way implies that they no longer have vulnerabilities related to their displacement.

2

CAPTURING INTERNAL DISPLACEMENT THROUGH DATA

This section describes the key metrics that are captured in IDMC's [Global Internal Displacement Database \(GIDD\)](#) and including in the GRID; the methodology applied for the compilation, curation and aggregation of data; the standardisation of data and metadata; and the tools and methodologies that have been developed to fill data and information gaps.

2.1 Data sources

Our ability to report on displacement and provide reliable estimates is contingent on the availability of sources, and their ability to gather data and willingness to share it with us. We draw on information produced or compiled from a wide range of partners. Although national governments are primary responsible for counting IDPs, many other institutions are involved in data gathering. These include local authorities, the UN and other international organisations, civil society organisations, research institutions, specialised media, thematic databases, national Red Cross and Red Crescent societies and the private sector.

We also rely on media monitoring to triangulate information and to gather displacement figures. Such sources play a significant role, particularly when governments lack the capacity or will to collect data, or when their estimates are unreliable. Figures reported by the media are difficult to validate and we consider them to be less reliable than those our traditional primary data sources report. We therefore base our estimates on them only if no other figures were available.

Different sources gather different data for different purposes. They also use a range of methods for collecting data. One common reason for collecting displacement data is to inform operational plans and humanitarian responses. The range of different uses of displacement data and reasons for collecting it affect the way in which data is collected and presented.

In order to mitigate these potential biases, we triangulate the data using several sources whenever possible, prioritising those we have historically deemed to have been most objective and accurate. Particularly for displacement associated with disasters, we monitor data released during the different event stages. This entails identifying the different organisations and indicators that report on displacement over time, from emergency preparedness and response phase to the reconstruction and recovery process. Language bias also impacts our ability to process displacement data comprehensively. We can only obtain and analyse information in the languages we speak and read. Our staff and partners speak most of the required languages, but we inevitably fail to capture some information, particularly for small scale incidents in parts of Asia.

In the past two years, we have started using new methods of monitoring displacement, including satellite imagery, natural language processing and machine-learning (described in section 3.8). These have helped us identify new incidents of displacement and triangulate data from more traditional sources.

2.2 Geographical scope and disaggregation

IDMC aims to have a geographic coverage of displacement data that is as comprehensive as possible. This includes covering all relevant regions and geographic areas where displacement is happening; as well as collecting data that is spatially disaggregated.

Data on displacement collected by IDMC reflects different levels of geospatial aggregation. Factors that have an influence in the geographical coverage of data collected are: the lack of accessibility to areas affected, related with restrictions to the humanitarian access; different operational coverage of relief organizations, political sensitivities, lack of data on people leaving out of camp-like accommodations such as people living with host families.

For example, data resulting from site assessments may provide IDP location data using GPS coordinates, whereas other datasets cover data that is aggregated at the regional or national level. IDMC works to adequately reflect this geospatial information in our database. In addition, in cases where georeferenced data is unavailable, IDMC fills this gap by geotagging data using reverse geocoding methods. This also includes performing satellite imagery analysis (see section 8.4).

| Accounting for IDPs in urban and rural locations

There is no universally recognised and accepted global methodology for classifying areas as being urban or rural. Different definitions of what constitutes an “urban” area serve different purposes and are based on different criteria. When it comes to analysing urban and rural population data, new methodologies exist and can be applied to estimate the scope and scale of displacement in cities.

Supported by international scientific partnerships, initiatives such as the European Union’s Global Human Settlement Layer (GHSL), a dataset developed by the European Commission’s Joint Research Centre (JRC),³ combines satellite observation with census data to produce globally consistent, comparative estimates that can be used to assess the degree of urbanisation of a given location. This gridded dataset divides settlements into rural areas, low density urban clusters and high-density urban clusters.

IDMC used the GHSL dataset for a comparative analysis of internally displacement data across countries to assess how many IDPs lived in urban areas and how many in rural areas. Given this purpose, we simplified the three categories used by GHSL into two categories:

- | urban areas, which encompass high and low-density urban clusters in the GHSL layer; and
- | rural areas, which encompass “rural cells” of the GHSL layer.

We then compiled point-estimate data describing the number of IDPs by location, using data collected by five organisations and consortia – including IOM DTM, the camp coordination and camp management cluster, OCHA, the Humanitarian Needs Assessment Programme and the Task Force on Population Movement – covering 12 countries: Afghanistan, Cameroon, Chad, Democratic Republic of Congo, Iraq, Libya, Myanmar, Nigeria, Palestine, Sudan, Syria and Yemen.

By merging geolocated point estimates of the number of IDPs from the site assessments with the GHSL dataset, we were able to classify displacement locations as being either urban or rural and counting how many IDPs were in each type.

2.3 Temporal scope and frequency of reporting

There are two main factors related to the temporal resolution of data and information on IDPs: the timeframe of data collection and the frequency with which data is updated and published. Data collected on a specific date is a snapshot of a situation and is appropriate to indicate how many people are living in displacement at a given point in time. Instead, data on displacement flows represent a moving picture, and therefore indicate how many movements occurred between two or more points in time.

| “Ten thousand people were still displaced at the end of the month” indicates how many people were displaced at a specific point in time (“at the end of the month”).

|| Total number of IDPs, or stock.

| “In 2018, about 7,446,000 new displacements were accounted for in Sub-Saharan Africa” refers to the number of displacements recorded between two or more points in time (in this case, between 1 January and 31 December 2018).

|| New displacements, or flow.

The frequency of data publication can vary from daily bulletins, weekly or monthly reports, to quarterly and annual publications. The reporting cycle can impact the production and delivery of IDMC’s analysis. Different data sources and publishers might follow different schedules of data collection, data reporting and data publication, which eventually poses a challenge when IDMC compares trends across different countries within the same region, or at the global level.

In general, a short timeframe between the collection of data and its publication allows IDMC to develop a more accurate and up-to-date monitoring of displacement. However, delays may take place for valid reasons; for example, owing to data verification process, or because preliminary data analysis is needed for field operations. Lack of systematic collection and publication of displacement data can also have a significant impact on IDMC’s monitoring and reporting. For example, in 2018, we observed that discontinuity in sharing data was mostly due to high turnover in the country-based teams, lack of

access to the displaced population, delayed communication between data collectors and their team, as well as strained resources.

2.4 Event-based monitoring

In order to better capture displacement, and when data is available, IDMC carries out event-based monitoring. This refers to the monitoring of displacement-generating occurrences as individual units of analysis that encapsulate all aspects of a specific displacement event. In the case of disasters, this can be a flood or a hurricane (the event), which is then broken down and disaggregated into smaller, related units (for example, the impact of the disaster and the displacement it generated in a specific area within the wider affected zone), which all together provide all information necessary for the analysis of the event. This can also include subsequent disasters, related to the wider one, which also cause displacement, in an interconnected manner (for example, multiple floods linked to a rainy season in a specific location). Grouping these incidents of displacement into discrete events allows IDMC to track and record the duration of displacement and allows us to measure the risk of future displacement.

Whenever possible, we also apply an event-based monitoring methodology to displacement caused by conflict and violence. For example, we do this by grouping individual occurrences into a wider context, such as a series of local attacks that occur within a broader conflict.

This form of analysis allows to provide greater, in-depth contextual understanding, as it highlights the multiple components of displacement, what leads to it and what impact it has.

Through this methodology IDMC is capable of producing disaggregated analysis on displacement, based on date of displacement, triggers, causes and duration. As a result, for every displacement, IDMC aims at recording information on the dates of the displacement event, the hazard or actor that caused the displacement, and the geolocation of the origin of displacement, as well as the magnitude (number of new displacements) and the footprint (houses destroyed).

Moreover, event-based monitoring results in a better estimation of new displacement metrics as it allows us to better report on dynamic displacement situations or short-term displacements that would otherwise not be captured by data collection rounds at specific moments in time.

Box A2. Combining data sources using triangulation

| Triangulating data

In highly complex or dynamic situations, we combine multiple data sources and use triangulation to reach an estimate that is as comprehensive and reliable as possible. To capture the extent of the displacement that took place in Ethiopia in 2018, for example, we used a combination of methods. First, we analysed data on IDPs recorded by IOM's displacement tracking matrix (DTM). This data covers the whole year, providing the number of people displaced in specific locations monitored on a given date. When the figures increased between two dates, it represents the minimum number of displacements that occurred during that time interval. Since not all displacement locations in Ethiopia were covered by IOM DTM data in 2018, and since IOM DTM data may not always capture displacements that took place in between data collection rounds, we also considered multiple other sources from humanitarian partners and government agencies to reach a comprehensive estimate, all the while discounting numbers reported in the IOM DTM data whenever necessary to avoid double counting.

2.5 Displacement data based in the number of households or in housing destruction

Housing information is important in estimating displacement associated with disasters. In some cases, displacement sources only report on housing information rather than the number of people displaced. To produce our 2018 estimates, we analysed more than 2,370 reports that mentioned housing destruction rather than the number of people displaced. From these reports 459 were used to produce our recommended figures. As a result, 28 per cent of the disaster events used to produce our estimates in 2018 were based on housing information. In order to use housing data as a valid proxy, we only consider figures for homes that have been damaged to the extent they are no longer habitable. Terms that indicate the extent of damage include “houses at risk [of collapse]”, “houses severely affected/damaged” and “houses destroyed”. We consider housing to be any place where people have established a habitual residence.

We also include shelters in refugee and displacement camps. “Collapsed tents” in Jordan’s Zaatari refugee camp, for example, are counted as uninhabitable housing. This was also the case for IDPs who were already living in precarious conditions in camps in Syria’s Al Hasakeh, Idlib, Aleppo and Ar Raqqa governorates where as many as 27,000 people were displaced in 2018 due to heavy rains and flooding. Such cases constitute repeated displacements, in which people have already fled once, only to become displaced again when their camp is flooded.

Primary sources often report on the number of homes rendered uninhabitable or the number of families displaced, which we convert into a figure for IDPs by multiplying the numbers by a country’s average household size (AHHS). The only global dataset for AHHS does not cover every country and territory we monitor, and it sometimes relies on demographic data that is several decades old.

Given the potentially significant influence of AHHS on our estimates, we have continued to update the data and methodology we use to calculate it. For the past years we have used a linear extrapolation obtained with improved methodology developed for the GRID 2019. This approach considers a national aggregated estimate for the AHHS, without taking into consideration differences between rural/urban households or possible regional differences. Therefore, our estimates that apply this methodology are subject to a margin of error (underestimate). Nevertheless, we include figures from official statistical office when this are available. Furthermore, if possible, we review and update the AHHS every year and, as a general rule, when data is expressed in household or family units, we estimate the number of displaced people according to the AHHS for the year when the data is captured. For the years with missing AHHS data we have used a linear extrapolation based on the available AHHS measurements. This particularly applies to figures obtained from historical or retrospective research, notably in protracted or prolonged displacement cases where using a contemporary household size without accounting for demographic changes would lead to an underestimate for an event that occurred in 2008 (see Table A2).

TABLE A.2: Changes in the AHHS for Benin between 2008 and 2018

	2008	2010	2012	2014	2016	2017	2018
Average household size	5.2	5.1	5	4.9	4.8	4.8	4.7
Estimated number of people displaced if 1,000 households were reported displaced	5,200	5,100	5,000	4,900	4,800	4,800	4,700

2.6 IDMC workflow

The first part of the monitoring of internal displacement consists on identifying key actors and sources providing data and information on internal displacement. Frequently, we select the most conservative sources and estimates available. When information is not available, IDMC fills data and information gaps using media monitoring or satellite imagery analysis.

Subsequently, all relevant data and contextual information gathered by IDMC is stored in our database, 'Helix', and then triangulated. We use Helix to store both the data and metadata and to annotate and comment on the information we receive so that we and external peer reviewers can review the source data and means of interpretation, analysis and validation associated with every figure we publish.

Since 2016, all information collected by IDMC has been recorded in this platform. Helix interactive web interface allows IDMC analysts to organize the content in three interlinked objects called:

- | **Documents:** These objects describe the metadata and they store the link to the original source of data. Information about the publication date of the data, the country and the source are also captured. Since the implementation of Helix more than 10,500 documents have been compiled by IDMC.
- | **Events:** In the context of Helix, "events" group contextual information regarding the specific driver of displacement. In the case of displacement driven

by conflict it could describe a battle, or in the case of disaster-related displacement could describe a disaster such as a specific storm. As of December 2018, we have recorded displacement figures for more than 3,300 disaster events.

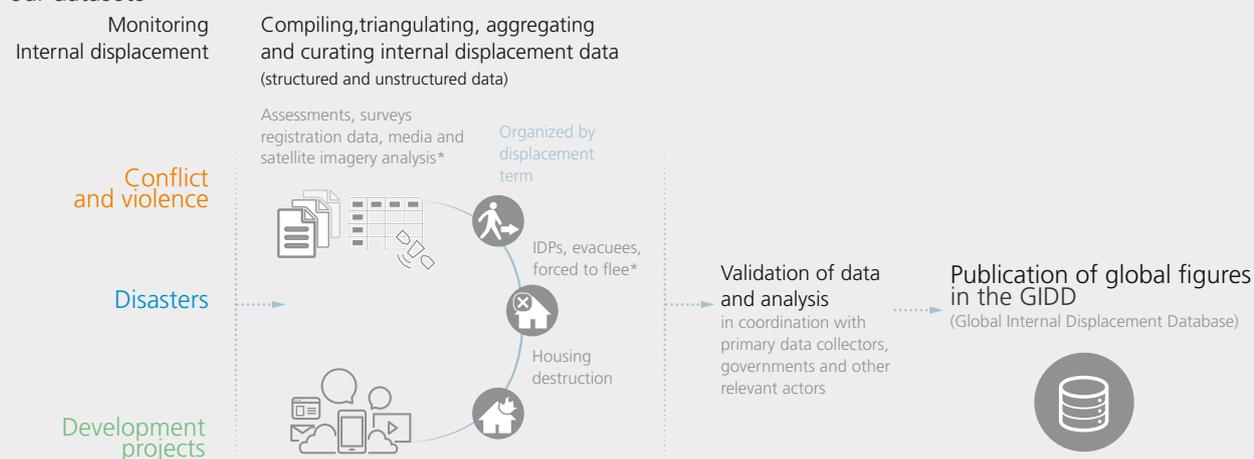
Facts: Depending on our partners' units of measurement, our facts can be stored as a single data point or as an entire dataset (e.g. a spreadsheet). Facts also allow to link the information stored in documents and events with the displacement estimates. These objects also contain an analysis of the figures and their uncertainty, as well as an assessment of the level of coverage and disaggregation of the data by areas affected, age and sex.

Later, the consistency of the displacement estimates, and our interpretation and analysis of contextual information is validated in collaboration with data providers and other key partners in the field. For this purpose, we collaborate with government officials, national disaster management representatives, UN organizations, civil society, and investigative reporters, among other relevant actors.

Finally, after an internal quality insurance processes (see section 7.1) we publish our global estimates on the Global Internal Displacement Database (GIDD). The GIDD is our publicly available global repository of all of our validated data on internal displacement. For data on displacement caused by conflict and violence, the GIDD contains data since 2003, and data on displacement caused by disasters since 2008.

The general IDMC workflow is illustrated below in Figure A3.

FIGURE A.3: IDMC's workflow: Data aggregation, curation, standardization and quality control process, to publish our datasets



* The list of terms used in this graphic is not exhaustive.

2.7 Storage of metadata

Data is collected by a plethora of actors, for different purposes and in different formats. This can include humanitarian bulletins or other reports, structured datasets, infographics, web services; and uses different terminologies or reporting terms. In order to guarantee the long-term preservation of the data, and to facilitate the traceability of IDMC's data to the original source, we store additional information about the context and purpose of the data. This is necessary to understand the data and the methodology used. This is referred to as metadata or "the data about the data".

2.8 Decision rules

IDMC bases its displacement estimates on the most reliable data available, from a variety of sources. This reliability is determined by various factors and rules, to ensure consistency and transparency.

The inclusion of a figure or dataset requires a sufficient level of verification or triangulation, performed by the source(s) and/or by our monitoring team. This means that some numbers or data we obtain, or that have been published by our sources, might not be included in our reporting and our database. Compared to other published figures, our estimates tend to be conservative. All of our estimates of displacement caused by conflict and violence are accompanied by a detailed description of caveats based on the in-depth analysis we performed and considerations raised by external partners when reviewing our work. These "Figures analyses", published on our website, are particularly important for politically sensitive figures as well as instances where the data we have obtained is out of date, of limited geographical scope or does not accurately reflect the magnitude of displacement.

We have developed decision rules which allow us to produce estimates even when a source does not providing a specific number of displaced individuals, such as when they use qualifiers such as "hundreds of people" or "several houses". They also let us produce estimates when sources use terms that could be misinterpreted as referring to displaced groups, instead of people simply affected by a potentially displacement-inducing event, but who have not had to move (see section 1.4 and subsection 5.1.2).

Additionally, we use triangulation to assess the quality and reliability of the data and contextual information we receive. Consequently, we aim to verify and validate estimates by researching and comparing data and information from various sources and publishers. In cases where several sources report on one same event, we compare these reports and the methodology employed by each to produce figures. This is essential when data from two or more partners appear to conflict.

As a result of our decision rules, we sometimes publish lower figures than other organisations. When we have insufficient data or cannot verify the data we have received, we do not publish any figure at all.

| Rounding rules

All our published figures are rounded for consistency and clarity. Below are the rules we use for this purpose:

Box A3. Rounding rules

If a number is under 100 – we report the number itself (e.g. 17 people)

If the number is between 100 and 999 – we round to nearest 10 (e.g. 240 people)

If the number is between 1,000 and 9,999 – we round to nearest 100 (e.g. 2,300 people)

If the number is over 10,000 – we round to nearest 1000 (e.g. 340,000 people)

Rounding can affect aggregated figures, as we usually round total figures, as well as individual caseloads. At the national level, we use these rounded figures for different caseloads to arrive at a single estimate for each country. However, at the regional level, we add the actual, not rounded figures, per country. This prevents the potential for lower accuracy that comes from adding up rounded figures for many countries.

3 COMMON CHALLENGES RELATED TO INTERNAL DISPLACEMENT MONITORING

IDMC has identified the most recurring and critical challenges of monitoring and analysing internal displacement. They issues are summarised in the sections below.

3.1 Data availability

IDMC's global figures on conflict and disaster induced displacement rely on data from primary and secondary sources covering some 148 countries. However, data availability varies considerably. Sources tend to be numerous during humanitarian crises and visible emergencies, especially when targeting assistance efforts, as in Syria. During protracted crises, such as Armenia, Bangladesh, Cyprus, Georgia, India, Togo and Turkey, displacement data tends to be unavailable or out-of-date. We also tend to notice frequent delays in the data collection on conflict-induced displacement. The end-of-year figures for 2018 only became available in February or March 2019 for several countries, including Armenia, Azerbaijan, the Republic of Congo, Mexico, the Philippines, Somalia, Sudan and Ukraine. Where there is enough information, we employ event-based monitoring, as in CAR. In contrast, where data is extremely scarce, we rely on other methodologies such as projections, extrapolations of surveys, such as in El Salvador, or profiling exercises in Honduras.

3.2 Geographical scope of displacement data

Whenever possible, we strive to identify new data sources, even when others already exist. The need to rely on several sources is however oftentimes exacerbated by access challenges due to insecurity or because IDPs are displaced in non-government-controlled areas. In such complex crises, it is rare that one partner is able to cover the entire country. In some cases, access restric-

tions or political sensitivities are so severe that IDMC lacks any reliable data on a given crisis. While this is rarely the case for entire countries, it is relatively common that certain regions of a country go uncovered, such as areas in south-east Somalia that are held by Al Shabaab, Sennar state in Sudan, vast swathes of South Sudan, and Ukraine's non-government-controlled areas (NGCAs).

Whenever possible, relying on multiple sources is necessary to crosscheck figures. However, this exercise may not always be straightforward, especially when there is incomplete information on the methodology used by IDMC's sources, or on the extent to which two or more different data sets overlap. Hence, we may decide to base our estimate on only one source. That decision may vary from year to year depending on the geographical and temporal coverage of the data, or its reliability.

In some cases, changes in the scope of a data providers' geographical coverage also pose challenges. We can be working with two different datasets from one year – or even one month – to the next, as has been in the case in Afghanistan, Burundi, Nigeria and Somalia, among other countries. Data on the number of refugees and asylum seekers from Syria does not indicate whether they had previously been displaced internally. Similarly, there are indications of displacement in south-eastern Chad as a result of the crisis in CAR, but a lack of reliable, updated and verified data on that region. Delays in data collection after events leading to displacement toward the end of the year often make it impossible to disaggregate flows by year. In some cases, the data needed to produce our end-of-year figure for 2018 only became available in February or March 2019.

3.3 Data disaggregated by sex, age and disability

We seek to obtain not only quantitative data on possible increases and decreases in the number of IDPs, but also more specific information such as sex and age disaggregated data (SADD) and disability.⁴ This information is vital for informing targeted and effective responses to IDPs' protection and assistance needs.

Relatively little SADD is available for displacement associated with conflict or disasters. This is mainly because information on IDPs' sex, age and disabilities tend mainly to be captured in official sites, such as relief camps, whereas a significant majority of IDPs in many cases live in dispersed settings among host families and communi-

ties. Even when disaggregated data is available, however, it tends to not represent a statistically significant portion of the overall data collected. More disaggregated data is vital if we are to accurately inform the identification of IDPs and respond to the specific needs of given IDP groups.

3.4 Decaying data

When situations remain unchanged from one year to the next, or when data is not available, we base our end-of-year estimates on the data our partners provide. In many countries, however, it has not been updated for several years. In countries with complex or multiple displacement crises, such as Myanmar, data for one crisis may be regularly reported, while for others it may be missing. If there is no credible evidence that IDPs in such situations have returned, integrated locally or settled elsewhere and thus achieved durable solutions, we have in the past included them in our global figures. In the interest of transparency, we also report the year that the total number of IDPs was last updated (see GRID 2019, Table 3).

3.5 Data on returns and progress towards solutions

More generally, data on returns varies significantly depending on the context. Sometimes data on returnees is collected after people have returned to their area of origin or place of habitual residence. At other times, sources use “returns” or “returnees” to indicate that people have departed a location - such as a displacement camp - with the intention of returning, but with no further information about their location or well-being. In such cases, we are careful to make a comprehensive and systematic assessment about the viability of these “returns”. We do this by keeping a dialogue with the data-producing partners prior to determining how they correspond to IDMC displacement metrics. Given the lack of evidence of actual success in reaching durable solutions, be it through return to their habitual place of residence, local integration or resettlement, IDMC does not report on returns for this report. All movements that have reportedly led to one of the previously mentioned forms of solutions were characterised as partial or unverified solutions (see section 3.5).

In the case of disaster displacement, we are dealing with a temporal bias in data collection and reporting processes: the vast majority of the data on disaster displacement is collected and published during the

emergency phase of the crisis. IDMC has found that for more than half of the largest disasters recorded since 2008, displacement data was collected for less than a month. Data stops being collected before the number of displaced people has returned to zero, and in many cases, it even stops being collected after a few days, long before many IDPs have achieved a durable solution.

3.6 Cross-border displacement

The methodological challenges extend beyond the data collection and analysis phases. Conflict and violence often generate severe protection challenges that impact the way in which IDPs move across and in the proximity of border areas, creating additional methodological challenges relating to the need to ensure that only people displaced within the borders of their countries are included in our estimates. On the borders between Myanmar and Bangladesh, for example, IDPs seeking security have been forced to seek protection in territories that are not claimed by either country, where they are neither internally displaced nor refugees. In other cases, IDMC faces challenges in distinguishing between movements of IDPs and refugees as people may flee to a border area, stay there only for a short time and then cross into the neighbouring countries. Others may need several days to get to the border, in which case IDMC’s ability to account for them depends on whether our partners manage to register them when they were moving inside the country or only once they cross the border.

3.7 Reporting bias

We attempt to reduce reporting bias by following a set of established decision rules. We are aware, however, that our methodology and data may be subject to different types of reporting bias:

| **Unequal availability of data:** Global reporting tends to emphasise large events in a small number of countries where international agencies, funding partners and media have a substantial presence, or where there is a strong national commitment and capacity to manage disaster risk and collect information.

| **Under-reporting:** Small-scale events are far more common, but less reported on. Disasters that occur in isolated, insecure or marginalised areas also tend to be under-reported because access and communications are limited.

| **“Invisible” IDPs:** There tends to be significantly more information available on IDPs who take refuge at official or collective sites than on those living with host communities and in other dispersed settings. Given that in many cases the vast majority fall into the second category, figures based on data from collective sites are likely to be substantial underestimates.

| **Real-time reporting is less reliable, but later assessments may underestimate:** Reporting tends to be more frequent but less reliable during the most acute and highly dynamic phases of a disaster, when peak levels of displacement are likely to be reached. It becomes more accurate once there has been time to make more considered assessments. Estimates based on later evaluations of severely damaged or destroyed housing will be more reliable, but they are also likely to understate the peak level of displacement. For example, assessments conducted months after a disaster often people whose homes did not suffer severe damage but who became displaced for other reasons.

| **Use of proxies to determine displacement:** Our estimates for some disasters are calculated by extrapolating the number of severely damaged or destroyed homes or the number of families in evacuation centres. In both cases, we calculate the number of people displaced by using the average number of people per household, and the number of houses destroyed.

4 ACCOUNTING FOR DISPLACEMENT ASSOCIATED WITH CONFLICT AND VIOLENCE

4.1 Inclusion of countries affected by conflict and violence displacement

The inclusion of new countries or territories is dependent on the availability of data on displacement events (see sections 3.1 and 4.2). In some cases, despite tangible evidence of violence and population movements (often across borders), the absence of reliable data means that we will be unable to include certain countries in our dataset. In 2018, this was the case with Zimbabwe and Venezuela, the latter being particularly prominent in global news. Despite having access to reports on cross-border flights from Venezuela to Colombia, Ecuador and Peru, amongst others, we were not able to access reliable enough information on internal movements and people whose displacement remained within the country's borders.

However, throughout 2018, we also started collecting data for five new countries— Benin, Ecuador, Ghana, Madagascar, and Sierra Leone – where we detected displacement generated by violence. The displacement triggers ranged from clashes between pastoralists and agriculturalists in Benin, inter-ethnic violence in Ghana, violence linked to criminal violence in Madagascar, post-electoral violence Sierra Leone, and cross-border attacks by FARC dissidents in Ecuador.

4.2 Methodological challenges specific to conflict and violence displacement monitoring

Although most challenges linked to conflict-induced displacement monitoring will be similar or identical to other forms of monitoring, some are more specific to this type of setting.

| Access to data

In many countries with conflict or violence displacement, population movement tracking is often limited only to the most affected areas, therefore limiting the geographical coverage, and therefore potentially leading to some movements not being captured. Also, with access being limited or inexistent in certain parts, certain datasets can show significant variations that are not linked to conflict dynamics improving or worsening, but rather to a greater or more restricted access to certain conflict zones.

| Volatility and visibility of displacement

Due to the nature of displacement caused by conflict or violence, these movements can happen very suddenly and in a repeated manner. They are therefore harder to detect, and data from our providers does not always reflect short-term or spontaneous types of movement. Additionally, due to security or protection concerns, some displaced persons or groups might not be identified until after having crossed an internationally recognised border, leading them to only be identified as migrants, asylum seekers or refugees.

The way in which IDPs move across and in the proximity of border areas can create additional methodological challenges relating to the need to ensure that only people displaced within the borders of their countries are counted. On the borders between Syria and Jordan, and Myanmar and Bangladesh, for example, IDPs seeking security have been forced to seek protection in no man's lands, where they are neither internally displaced nor refugees. In other cases, IDMC faces challenges in distinguishing between movements of IDPs and refugees as people may flee to a border area, stay there only for a short time and then cross into the neighbouring countries. Others may need several days to get to the border, in which case IDMC's ability to account for them depends on whether our partners manage to register them when they were moving inside the country or only once they cross the border. Despite the fact that we do not use a threshold of minimum duration or distance of displacement to consider someone as internally displaced, short term, spontaneous movements, or people rapidly fleeing across borders often lead to a lack of data on such displacements.

| Indicators used for reporting

Similar to the challenges linked to the terms used by the various sources, the scope of certain indicators can,

at times, lead to data collection being more restrictive, as those indicators might be defined in a manner that excludes or includes people or groups who do not match the agreed-upon definitions of internal displacement. An example of this is the registration of individuals as IDPs only if they are members or related to members of law enforcement officers or the military. Or the characterisation as "returnees" of people who have returned to their general area of habitual residence, but not the exact location, such as people who have returned to their village or neighbourhood, but not their residence.

IDMC works closely with sources and partners to properly understand how indicators are defined. This can result in the relevant caseloads needing to be broken down, differentiating between those that fall within IDP definitions and those that do not. Or, conversely, it may be necessary to include individuals or groups who, as a result of certain indicators being too restrictive, are not initially included in IDP records or registries. This is, for example, the case in El Salvador, for which our new displacements estimate is based on individuals reporting having had to change their place of residence due to violence or threat of violence.

| Common standards between and within agencies

Indicators and definitions can vary from one agency to another, or within one same agency when it operates in different contexts or countries. This means that some indicators might refer to a specific thing in one place, and to something different in another. Hence the importance of understanding and documenting precisely the methodology used by each source in each context, in order to ensure the highest level of accuracy.

| Continuity of engagement

Oftentimes, due to the volatile and challenging nature of field work for humanitarian or development agencies workers, continuous engagement can prove difficult over the long term. Therefore, our engagement efforts can, at times, be affected by high turnover and changes in personnel in the field, and cause reporting to be unequal or interrupted. This can result in data over time seeing some fluctuations more related to the availability of data, as explained earlier in this section, rather than due to the dynamics of the conflict or violence.

5 ACCOUNTING FOR DISPLACEMENT ASSOCIATED WITH DISASTERS

Our estimates for displacement associated with disasters are classified by event and country. We monitor and collect information for all reported disasters from partners including governments' disaster management and disaster risk reduction agencies, the UN, IFRC, national Red Cross and Red Crescent societies, NGOs and local and international media outlets.

There is no threshold for a displacement event to be recorded, either in terms of the number of people displaced or the distance they have travelled.

We have also implemented a procedure to systematise and improve the monitoring of hazards with potential humanitarian and displacement impacts, and to expand the integration and use of international standards such as international event names, the intensity of events and GLIDE numbers in our data and metadata collection.

We try to collect data from a number of reports on the same disaster, specifying reporting units such as individuals or households, reporting terms such as "sheltered" or "housing destruction", sources used, publishers, the title of the source document and the date of publication. When possible, we triangulate the figures using different reports. Sometimes, however, our estimates are derived from a single report. In other times, they are the aggregation of several reports that together cover the wide geographical area affected by said disaster.

We have also implemented a procedure to systematise and improve the monitoring of hazards with potential humanitarian and displacement impacts, and to expand the integration and use of international standards such as international event names, the intensity of events and GLIDE numbers in our data and metadata collection.

The dataset allows us to better interpret the context of the figure in each report. In determining our estimates, it is vital that the data selected represents the most

comprehensive figure from the most reliable source available for that event at the time when data was collected.

5.1 Methodological challenges specific to disaster displacement monitoring

| Temporal coverage

Our dataset records incidents of displacement and are supported by a reliable and comprehensive source. As in previous years, overlapping hazards were a challenge because the monsoon and cyclone seasons coincide in many countries. This is particularly the case in regions where there is a rainy, hurricane or monsoon season where continuous storms makes it a challenge to define when storm systems begin and end, as well as secondary effects such as triggering flooding and landslides. Given our monitoring of disasters is event-based, further research is required to improve the way in which we define these disaster events by taking into account both the temporal and geographic nature of hazards.

Sometimes our sources reported on people who had fled from disasters but without reference to when or how they had become displaced. One of the main gaps and challenges for accurately estimating the number of internally displaced people is the lack of measurement of return flows. This estimates how many people were able to return to their former place of habitual residence, ideally their actual home. The measurement also includes those who have managed to find a safe place to live and have achieved "durable solutions" in those places.

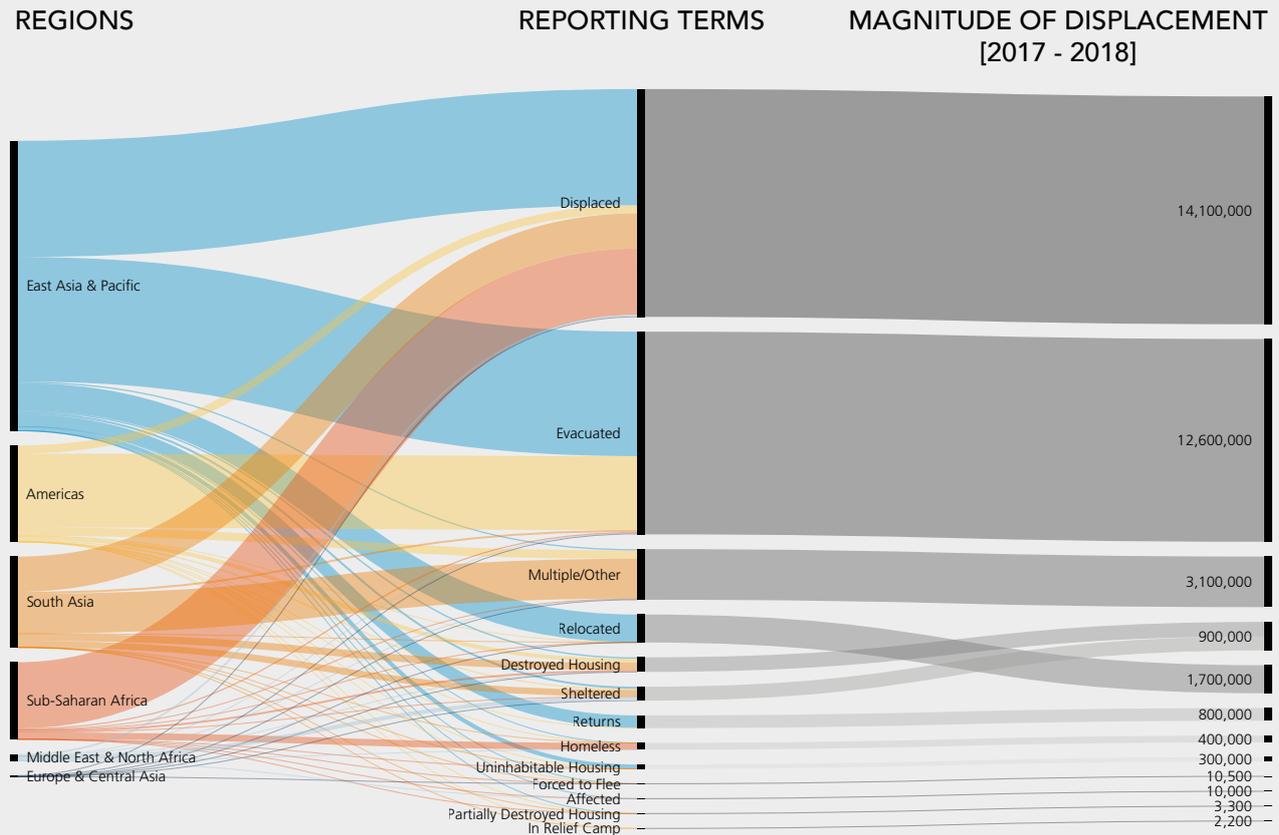
| Reporting Terms

We use the term "displaced", but it is rarely, if ever, adopted consistently and unequivocally by different countries or sources. Additional analysis is required to make sense of the terms that sources use, and to understand when and how they signal displacement. Even within the UN and coordinated international humanitarian reporting mechanisms there are inconsistencies in the way different populations are described and counted. Many terms and expressions are specific to internal displacement, and our database captures the most common ones (see sections 1.4 and 5.1.2).

| Evacuation data

We often use data on mandatory evacuations and people staying in official evacuation centres to estimate event-

FIGURE A.4: Reporting terms in IDMC database, 2017 and 2018 (reporting terms vs magnitude of displacement recorded)



based displacement. This was the case for almost 6 million of the new displacements we reported on in 2018, or around 35 per cent of the global total. On the one hand, the number of people counted in evacuation centres may underestimate the total number of evacuees, as others may take refuge elsewhere. On the other hand, the number of people ordered to evacuate usually overstates the actual number, given that some people do not comply. The potential for such discrepancies is much greater when authorities advise rather than order people to evacuate, and as a result we do not incorporate such figures into our estimates. When a major disaster occurs or is forecasted in Japan, the cabinet office publishes situation reports that include figures for evacuation advisories, orders and people staying in temporary shelters. The discrepancies between them can be significant. At a minimum we consider those in shelters as displaced, but without further context to triangulate orders and advisories, this may understate the true scale of evacuations. Mandatory evacuation orders are triggered in the US when danger is imminent, but not all people ordered to evacuate do so.

We often use data on mandatory evacuations and people staying in official evacuation centres to estimate

event-based displacement. This was the case for almost 6 million of the new displacements we reported on in 2018, or around 35 per cent of the global total. On the one hand, the number of people counted in evacuation centres may underestimate the total number of evacuees, as others may take refuge elsewhere. On the other hand, the number of people ordered to evacuate usually overstates the actual number, given that some people do not comply. The potential for such discrepancies is much greater when authorities advise rather than order people to evacuate, and as a result we do not incorporate such figures into our estimates. When a major disaster occurs or is forecasted in Japan, the cabinet office publishes situation reports that include figures for evacuation advisories, orders and people staying in temporary shelters. The discrepancies between them can be significant. At a minimum we consider those in shelters as displaced, but without further context to triangulate orders and advisories, this may understate the true scale of evacuations. Mandatory evacuation orders are triggered in many countries when danger is imminent, but we have found that not all people ordered to evacuate do so (see box on evacuation orders versus actual evacuations).

| Accounting for the length and severity of displacement in the aftermath of disasters

We produced a first scoping exercise in 2015, which aimed to shed light on the phenomenon by challenging the notion that people who flee a disaster are not likely to remain displaced for long. This false assumption is fostered by only occasional reporting of ongoing cases, often to mark the anniversary of a disaster. Our scoping exercise allowed us to re-examine the issue, and conclude that there are likely to be many more people living in protracted displacement than previously thought. Quantifying this is difficult, however, given that data collection continued until the number of IDPs reached zero for fewer than one per cent of the 4,000-plus events we have recorded in our database since 2008. This represents a challenge, with significant implications for people who remain displaced but are not counted, and those responsible for protecting and assisting them.

5.2 Accounting for displacement associated with slow-onset hazards

Displacement associated with slow-onset hazards such as drought, sea-level rise, coastal erosion and environmental degradation is challenging to monitor. The “slow-onset” nature of certain hazards and processes means that it is difficult to identify “incidents” of displacement or to relate population movements to specific hazard events. It is therefore often difficult to distinguish displacement from internal migration. Furthermore, displacement associated with slow-onset hazards is usually the result of a combination of factors, many of which are shaped by human actions and decision-making.

In some cases, monitoring slow-onset disasters such as droughts really only becomes possible when it has reached crisis levels. In 2018, we increased our drought coverage and also recorded information on coastal erosion, mainly in Bangladesh. Data on drought-related population movements was available for 9 countries: Afghanistan, Brazil, Burundi, Ethiopia, Iraq, Madagascar, Mongolia, Senegal and Somalia. Although drought affected other countries, including El Salvador, Mauritania, Niger and Uruguay, we lacked sufficient information about the nature of population movements associated with the droughts to quantify them or characterise them as “displacement”.

5.3 Estimating the disaster displacement stock

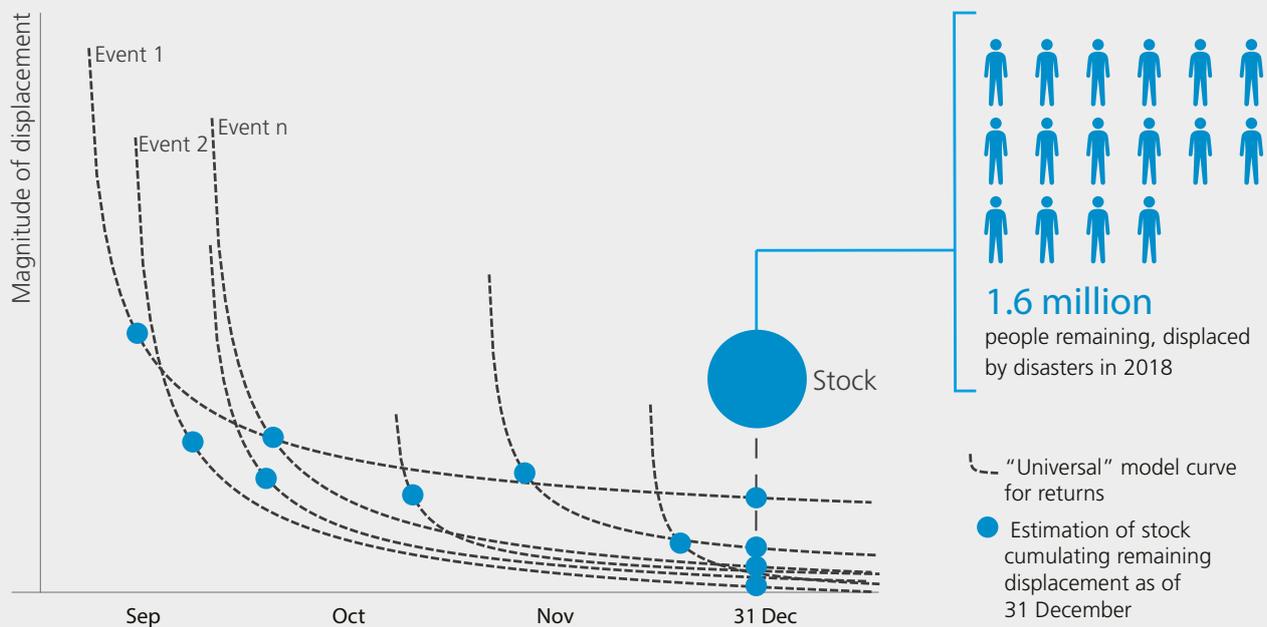
Stock figures on disaster displacement are important as they provide an overall and current view of people living in displacement. Stock figures also provide evidence for policy and operational responses to key disaster displacement issues, such as the length and location of ongoing displacement as well as how to achieve durable solutions. This stock figure will help to understand how long people remain displaced after a disaster, countering the assumptions that people forced to flee in the context of disasters are displaced for a short period of time, when there are many examples in which disaster-induced displacement has lasted several years and even decades. In 2018, IDMC initiated a project to estimate a global disaster stock figure (see GRID 2019 Part 2 – Measuring disaster stock). IDMC’s disaster stock figure estimation is made possible with the support of data from the development of models to fill in gaps. The challenge in producing a global stock figure of moderate to high confidence is the quality and quantity of available data which helps to calibrate our models. Further research and work are required to collect and utilize both datasets by partners and authorities, as well as other data sources such as from cell phone GPS.

Box A4. Estimating a disaster stock figure for 2018

IDMC was able to estimate a global stock figure for disaster displacement for the first time in 2018. We obtained more and better data from partners, and we applied models to fill gaps and infer the number of people displaced by disasters over time. Our model estimates that over 1.6 million people are still living in displacement as of 31st December 2018 as a result of disasters which took place in 2018. This is a highly conservative estimate, as it does not include people displaced by disasters prior to 2018. More work is needed to refine the model in 2019 and beyond.

The methodology explained below is a first step toward estimating a global stock figure for disaster displacement. IDMC will refine the model by using additional and more representative data, testing and validating it against observational data and employing more complex modelling methods. Taken together, these improvements will help IDMC to estimate how the number of people displaced by disasters evolves over time more accurately.

FIGURE A.5: Estimation of disaster stock figure from displacement time series



| Data

The main data sources for the results presented in this report are official documents, both from a range of partners mainly from national governments (Japan, Philippines, Indonesia, USA etc.) and IOM, OCHA.

Since 2016, the IDMC database contains time-stamped information regarding 4,000 events and 22,000 entries, out of which approximately 3,500 and 14,500, respectively, correspond to disasters.

Although a significant number of events has been recorded, only for a subset of events we have time series data with enough points to draw solid conclusions on the evolution over time of the displacement figures. Filtering out events for which we have less than 5 data points results in around 100 time series from the combined sources described above.

| Pre-processing

We followed a three-step process to prepare the data for the modelling part.

| We isolated the decaying part of each of the around 100 time series described above.

| We then normalised all the curves to capture only the shape of the time series considered.

| We assumed that all 100 events started at the same time since the time of the onset of the event is not of interest for the modelling phase.

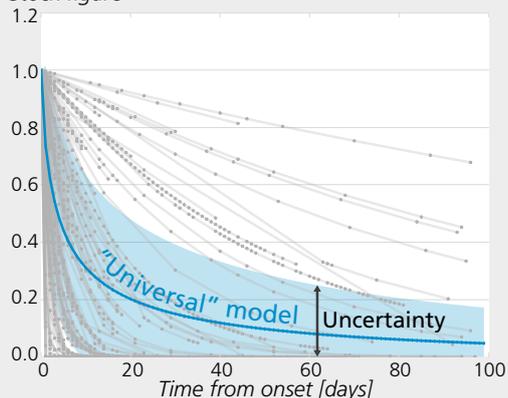
| Modelling

After the mentioned pre-processing steps, we estimated the best parameters for an exponentially decaying curve for each of the around 100 time series. We then averaged these parametric functions to construct one representative function.

To quantify the uncertainty in the model extrapolation we estimated the standard deviation of the values of the exponential functions.

The time series for the around 100 events are approximated by exponential functions. The average of the time series is used to fit the exponential model, depicted by the thick black line. The grey interval either side depicts the uncertainty in the prediction.

FIGURE A.6: Estimation of the stock figure



The model generated in the previous step is now used to estimate the stock figure for 2018. Since the modelled estimate decays relatively fast, it only makes sense to look at all the events that started in 2018 and estimate the residual stock for each of those. Subsequently, all stock

figures are summed up to give the global stock figure. Sampling the IDMC database, around 1600 events were used for that interest, using the date of displacement (regardless if the people were evacuated, before, during or after a disaster) and the magnitude of displacement.

The predicted stock figure is 1,601,150 IDPs. Taking into account the uncertainty of the model, the number could be twice as high.

| Considerations

a. Implicit assumptions about the data. A key step in the modelling process is the isolation of the decaying part of the time series so as to fit the model. Given the few data points available in the majority of the events, it is challenging to identify the point at which the stock starts decaying. This is an important source of uncertainty, since the selection of that time instance will seriously affect the learned decay rate.

b. Bias in the model. The selection of the exponential curve introduced bias, both in the sense that we introduce a prior belief about the shape of the time series, and due to the simplicity of the model. Exploration of more complex and richer structures is necessary, provided that we have enough data to feed to the modelling process.

c. Underestimated stock. There are several reasons why the stock resulting from the modelling process is an underestimate of the actual global stock figure. First, the same exponential curve is applied to all event. This implicit assumption is an important source of modelling error, since the same decay rate is applied even to time series related to destroyed houses. Apparently, this results in a crude underestimation of the stock. However, the fact that the proposed model underestimates the stock should not prevent us from reporting the number. Even having chosen to be conservative about the figure, the reported number exhibits the real magnitude of the problem, where, at the very least, 1.6 million individuals remain in condition of internal displacement.

6

ACCOUNTING FOR DISPLACEMENT ASSOCIATED WITH DEVELOPMENT PROJECTS

Displacement associated with development projects is not currently covered in global displacement data. That said, such projects have historically forced large numbers of people off their land “in the public interest” across the world, as states exercise their power to further development through compulsory acquisition based on the legal principle of eminent domain.

One of the methodological difficulties with monitoring development-induced displacement is that in many cases displacement occurs over long periods of time. Some people leave when they first hear about the project, others when the project starts and their land is taken away. Some stay while the project is ongoing if their land has not been taken, but are forced to leave months or years later because the project has hindered their access to natural resources, services or markets. Reports of such displacements may not be found in the press like mass displacement caused by conflict or sudden-onset disasters. In some cases, they are not made accessible publicly. In this sense, development-induced displacement is similar to slow-onset disaster-induced displacement.

Another issue related to the definition of displacement is the (in)voluntary nature of the movement. People who leave their homes when they first hear about a development project, without being actually prompted to do so, may not be considered displaced. IDMC consulted with experts in 2016 and concluded that people who are forced to leave their home because they have no legal option to oppose it, even if they sign an agreement and receive compensation for it, are to be considered displaced.

With the support of 30 online volunteers, IDMC analysed over 562 resettlement plans published by the World Bank between 2014 and 2017 over a period of 7 months.

The plans were produced by governments as part of their application process for World Bank funding, which means the people identified will only be at risk of being displaced or affected if and when the projects go ahead. We only considered projects that the World Bank had already approved for funding.

This analysis allowed the identification of people at risk of being displaced by these projects, amounting to around 130,000, and people at risk of being affected amounting to around 1,000,000.

The overall figures presented in GRID2019, section 3 – Box 7 only account for people clearly identified as displaced in the plans. The World Bank’s policy on involuntary resettlement identifies three possible consequences of the involuntary requisition of land:

- | Relocation or loss of shelter
- | Loss of assets or access to assets
- | Loss of income sources or means of livelihood, whether those affected must move to another location or not

The first point is considered displacement. IDMC considers a displaced person as someone physically moved from their home as a direct consequence of a project, regardless of the length of the displacement or irrespective of the temporary or permanent state of the displacement. Further, regardless of whether they were an owner, tenant or squatter. Affected people include those displaced and anyone else who suffers a project’s impacts in any form.

7

ANALYSIS AND PRINCIPLES OF QUALITY

7.1 Introducing IDMC's quality assurance process

To produce figures that are as accurate and comprehensive as possible, IDMC conducts a quality assurance process every year before it releases its global displacement dataset. Data that has been collected in IDMC's internal database, over the course of the year, is examined and controlled before being released to the public. The verification stage is as important as the data collection itself, as it allows for possible errors, data gaps, and caveats to be identified, and for the data to be refined before it is published. This process is led in-house, via a rigorous internal peer review process that is supplemented by an external peer review involving feedback and discussions with our partners in the field.

In 2018, IDMC collected displacement estimates for almost 1,600 disasters, and monitored displacement associated with conflict and violence in 61 countries. For disasters, not all displacement events were reviewed, but the 50 largest disasters were focused on. These 50 disasters collectively account for 87 per cent of the displacement in 2018. Regarding conflict, all countries for which IDMC had data, 55 countries in total, underwent the quality assurance process.

During the internal peer review process, analysts swap database entries related to the largest disaster events and all of the countries with conflict or violence induced displacement for the previous year. They analyse the estimates that have been produced by colleagues, ensuring that there is internal consistency in the monitoring and analysis; that decision rules have been followed and that all figures, sources and methodologies are clearly explained and documented; and that there is no missing information or potential sources of data that have been discarded.

7.2 Partner engagement and external peer review

Throughout the year, IDMC regularly engages with NRC offices, UN agencies, government agencies, universities and NGOs, who can be both the sources (primary data collectors) or publishers (reporting information) of figures for different displacement contexts. This is a crucial component of IDMC's global monitoring, both as a means of collecting and validating displacement data, but also just as importantly, to seek to understand the different methodologies behind the data collection and the possible limitations and caveats that may be present. Analysts aim to engage with as many partners as possible for each context, to make sure that the data draws from as many sources as possible.

As part of the quality assurance process, analysts at IDMC also undertake a peer review before the global dataset is published. This involves sharing preliminary estimates and the associated methodology with the partners, particularly those who produce data and act as primary data collectors. Obtaining feedback from the partners regarding the figures is crucial, to make sure that the data is correctly interpreted and the methodology behind the data collection is well understood. Oftentimes, IDMC may combine estimates from different sources in order to produce a national figure, for example in cases where coverage for certain displacement contexts is regional, and not nationwide. This requires a good understanding of the data eco-system, the data that is available and the role of each data provider.

Partners also provide valuable contextual information about conflict and disaster events, which provides crucial information for qualitative research, such as the humanitarian impacts and conditions of displacement. There is an understanding that data collection on displacement can be complex, particularly in the case of conflicts, which can be politically sensitive. In addition, IDMC does not publish data without a partner's permission.

7.3 Confidence assessment

IDMC uses a comprehensive framework to assess the confidence that it has in the estimates that are published. This is presented below. To some extent, we are yet unable to apply these specific criteria to our data on displacement associated with disasters, we assess our confidence only in the figures associated with conflict and violence. We applied a common set of criteria to assess the data based on:

- | The methodologies used
- | The reporting unit
- | Whether it could be independently validated
- | The degree to which it is geographically comprehensive in terms of the extent of displacement associated with conflict and violence
- | Whether it is disaggregated by sex and age
- | The frequency with which it was collected
- | How extensively it covers the components of our data model

We have not attempted to weight or rank these factors, nor have we assigned quantitative point values for each factor to generate an overall confidence score per displacement estimate. In order to do so rigorously, we would have needed to determine the relative significance of each of these factors, which can be subjective and difficult to achieve empirically.

Therefore, the confidence assessment can be better regarded as an overview of the comprehensiveness of the data that has been analysed rather than an empirical judgement of quality. It allows readers and users of the data to get an overview of the type of data that is available in each displacement setting associated with conflict or violence, and some of the main data gaps or caveats present.

Some of the data gaps reported can be attributed to the way governments and organizations collect and disseminate data, but this is not always the case. We try to be as comprehensive as possible in our own data collection, but we may overlook some sources that could address the gaps we report. As such, our assessment reflects the level of detail of the data we were able to collect and process from various sources, rather than the level of detail of all the data that exists or was published by each provider.

7.4 Figures analysis

The displacement estimates associated with conflict and violence are presented in detail in Figure Analysis documents posted on IDMC's website. These provide a contextual update in each country, highlighting the

main events that led to displacement that year and present the results of the different metrics for each country. Depending on the data available, this includes new displacements, total number of IDPs, as well as partial or unverified solutions. The methodology behind the calculation of each metric, the sources used, main caveats and monitoring challenges, along with significant changes concerning the methodology or the displacement context are all explained in detail.

Box A5. A living dataset

While the utmost care is taken to ensure that the data published is as accurate and transparent as can be, via the internal and external peer review process and regular partner engagement, constraints linked to the yearly reporting schedule can mean that new information comes to light after the GRID and the global dataset on displacement are already published. It is also possible that mistakes in calculation can occur, changing the results of the figures. In these cases, IDMC takes note of the new information and, in some cases, releases revised figures.

The figures released by IDMC can best be seen as a living dataset that evolves as new information becomes available, and IDMC is committed to improving the quality of its data over time. One example of this is the historical data review project, which seeks to fill data gaps for some of the largest displacement events that occurred since 2008.

8

PROGRESS ON IDMC'S INTERNAL DISPLACEMENT MONITORING

8.1 Conflict and violence typology

Our data collection and data-processing mechanisms and tools have improved consistently over the past years. Consequently, we are collecting more information and are capable of processing further disaggregation of data, allowing for a more comprehensive understanding of displacement and its drivers. With this increase in the amount of information collected, the capacity for event-based monitoring has also improved.

Our data can also be used for research on internal displacement. Receiving data on situations of violence that do not resemble conventional armed conflict or even civil war have led to a greater need to distinguish between diverse modalities of violence.

A new typology of violence is currently being implemented, to further improve our overall analysis of data on internal displacement as it relates to violence or conflict. Coupled with event-based monitoring, this typology will enhance our capacity to analyse and understand fluctuations in displacement patterns over time and how these relate to changes in the use of violence by different actors.

8.2 Disaster typology

Our estimates are based on displacements known to have taken place as a result of disasters for which natural hazards have been identified as the primary trigger. When available, we use the internationally acknowledged name of hazards and categorise them initially into four main types: geophysical, meteorological, hydrological and climatological. In 2018, we initiated a project to align our hazard classification with internationally recognized classifications used by EM-DAT based on the IRDR Peril Classification and Hazard Glossary.⁵

8.3 Assessing the severity of displacement

As highlighted in GRID2019, there were 3,545,000 more IDPs in Colombia than in Nigeria at the end of 2018. This does not inherently mean that displacement in Colombia is more severe than in Nigeria. The experience of IDPs, and their resulting vulnerability, differs significantly across contexts. In some cases, IDPs are exposed to high levels of violence, malnutrition and disease in overcrowded and unsanitary displacement camps. In others, IDPs are provided with free social housing, and priority-access to services. To assess these different experiences of displacement, IDMC has developed a severity assessment.

The goal of the severity assessment is to compare displacement severity across conflict-related caseloads of IDPs living in different countries and contexts. In some instances, the country's total number of IDPs may represent only one caseload that needs to be evaluated, as seen with the Lake province in Chad. In countries such as Myanmar, in which there are several discrete conflict-related IDP populations associated with different displacement situations, the severity of each would be evaluated individually.

To enable comparisons at the global level, and in the absence of reliable quantitative indicators on severity, IDMC used a standardised set of evaluation criteria to obtain maximum consistency and comparability across situations assessed. The primary categories of the severity assessment are aligned with the eight criteria outlined in the IASC framework for durable solutions,⁶ namely safety and security; adequate standard of living; access to livelihoods; restoration of housing, lands, and property; access to documentation; family reunification; participation in public affairs; and access to effective remedies and justice. Three questions have been identified for each category, based on the review of existing initiatives and IDMC's expertise on internal displacement. These questions are worded to limit subjectivity. They are also designed to assess the severity of displacement without comparing caseloads of IDPs to either host communities or national average.

FIGURE A.7: IASC Criteria 1

SAFETY AND SECURITY

- Is the area to which IDPs are displaced free from active fighting?
- Is the area to which IDPs are displaced free from explosive hazards?
- Are IDPs free from persecution or human rights abuses (including GBV) in the area to which they have been displaced?

LIVELIHOODS

- Are there income-generating opportunities for IDPs?
- Do IDPs have enough to eat?
- Can IDPs avoid resorting to negative coping strategies such as child labour, prostitution or child marriage?

HOUSING

- Are IDPs living in safe, adequate shelters able to withstand the local climate (i.e. not in unfinished buildings, tents, etc.)?
- Are accessible and effective mechanisms in place for IDPs to apply for property restitution or compensation for their lost or damaged property?
- Are IDPs protected from forced evictions?

SERVICES

- Do IDPs have appropriate access to water and sanitation?
- Are there accessible and affordable health care services?
- Are primary-age IDP children in school?

DOCUMENTATION

- Do IDPs have documentation to access services or assistance track?
- Do IDPs have access to easy and affordable mechanisms for replacement documentation?
- Are IDPs able to travel freely?

FAMILY REUNIFICATION

- Are IDPs living with their close family members?
- Are there any family tracing and reunification mechanisms available to IDPs?
- Are protection mechanisms in place for unaccompanied and separated children?

PUBLIC AFFAIRS

- Can IDPs vote in elections in their area of displacement?
- Are the issues of IDPs represented in the platforms of political parties?
- Are IDPs able to participate in decision-making regarding their displacement?

REMEDIES AND JUSTICE

- Do IDPs have access to legal counsel and/or representation?
- Do IDPs have access to effective law enforcement?
- Do IDPs have access to effective remedies and justice for harms that they suffered?

For more details on the severity assessment methodology please refer to the IDMC's methodological paper on assessing the severity of conflict displacement.⁷

8.4 Satellite imagery analysis

Satellite imagery analysis can be applied for assessing the damage to settlements or buildings, as result of conflict, disasters and development projects in hard to reach areas. This methodology consists in the interpretation of optical imagery to assess variations associated with major changes in structures or in their contours, using pre- and post- event satellite data –minimum of two images. The core components of the analysis consist of: (1) Determine the area of interest; (2) Assessing changes in structures using multitemporal images from the area of interest;(3)

If possible, compare the preliminary results with additional documentation, pictures or other resources; (4) Assessing the damage category –e.g. Totally destroyed, severely damaged–; (5) Transforming the number of structures or areas damaged into displacement data by using the AHHS relative to the area, as illustrated below:

Number of buildings totally destroyed or damaged*AHHS = potential number of IDPs

Some of the limitations of this methodology are the heterogeneity of the images (pre/post), the angle in which images are captured (nadir angle), the access to an updated AHHS. Furthermore, this method does not consider the height of buildings.

8.5 Event detection, data storing and sharing

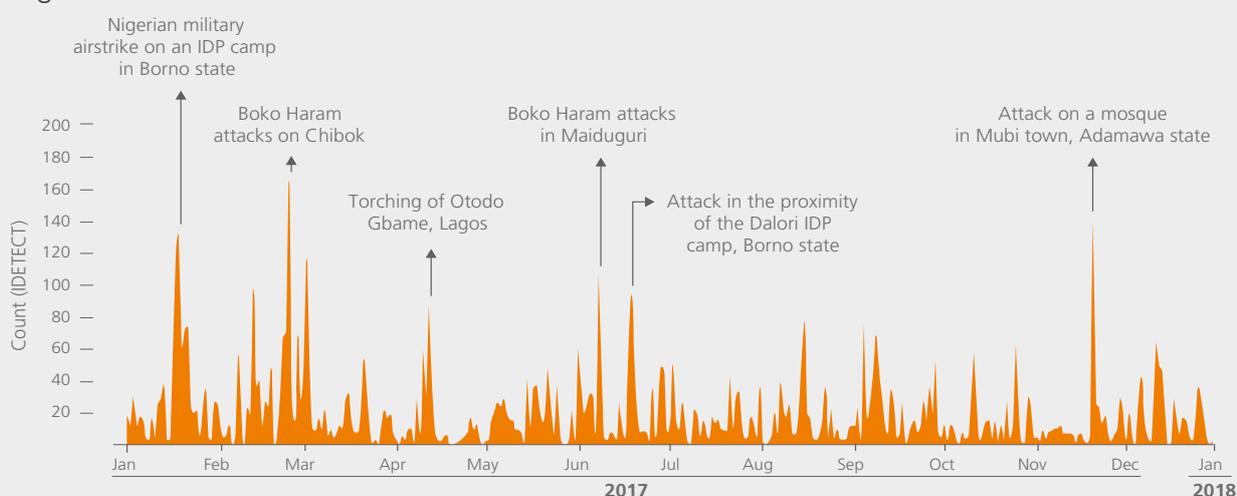
The global picture on internal displacement remains incomplete. Not all incidents of internal displacement are reported and only some of the figures can be verified. New tools, technologies and data sources represent an opportunity to strengthen data collection and verification efforts. At IDMC we see innovation as a way to tackle some of the practical challenges we face in our daily work with the best tools at our disposal, rather than an opportunity to experiment with the impact of new technologies and tools in the humanitarian sector. When it comes to innovation, we will keep investing in open source solutions and engaging with our partners from academic institutions, international organisations and UN agencies. We will continue to be curious and learn from other sectors. Our 2015-2020 strategic plan reflects these efforts by aligning IDMC's information management system and data collection flow with technological advances.

One example is the Internal Displacement Event Tagging and Clustering Tool (IDTECT). This tool mines news data sets and uses natural language processing and machine learning algorithms to classify reports by type of displacement, while also extracting information about location and the number of people displaced in real time. The fact that IDTECT works in real time means that IDMC can collect and analyse a wide array of information, reporting on a greater number of displacement incidents in a more timely and responsive manner. The timeline below shows the volume of data extracted from thousands of local and international sources on Nigeria, and how this is correlated with the main events triggering displacement.

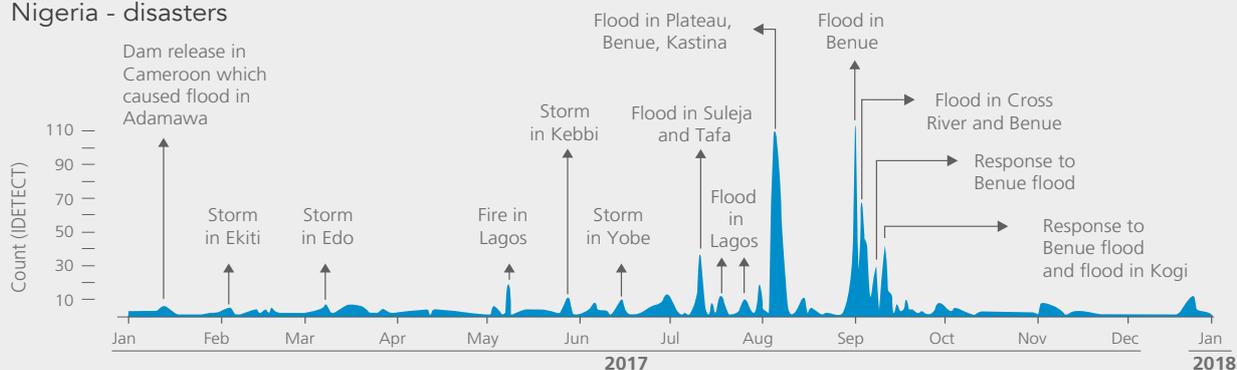
To speed up the data entry process and improve the analysis of displacement data in 2018 we launched our new real-time monitoring platform (figure A9).

FIGURE A.8: Flows of displacement tracked by IDTECT in Nigeria through 2017

Nigeria - conflict

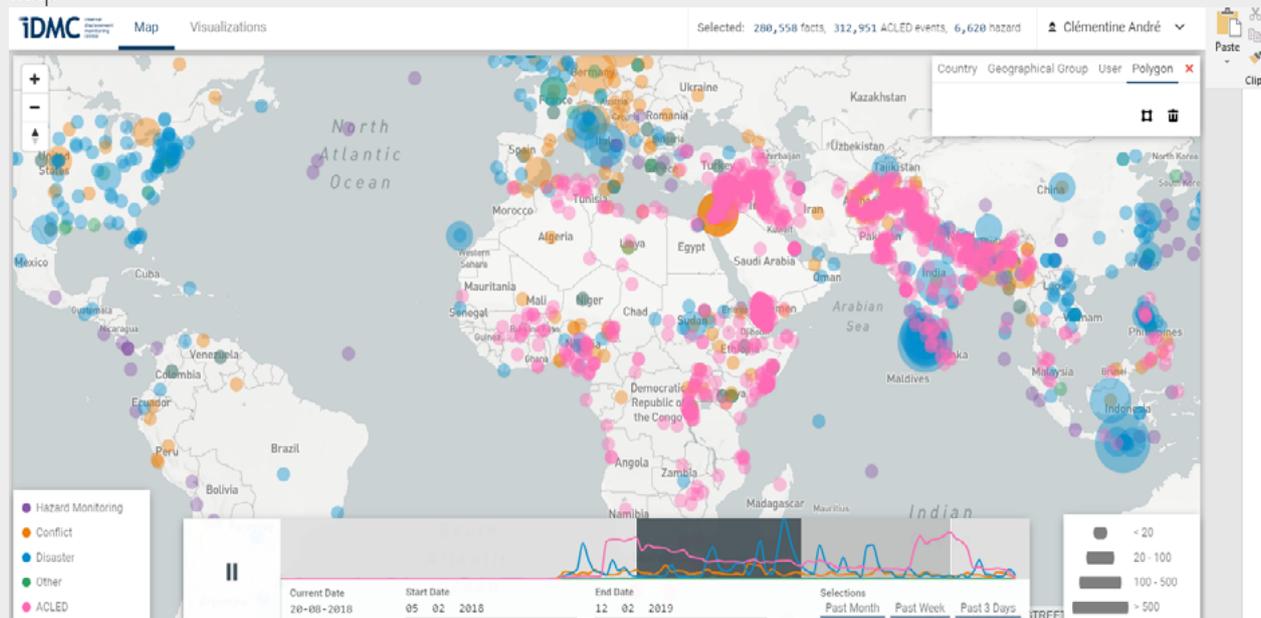


Nigeria - disasters



Note: The timelines above illustrate the flow of displacement facts captured through IDTECT, validated and cross-checked against events that took place in Nigeria through 2017.

FIGURE A.9: IDMC's Internal Displacement Update (IDU) Map



The global displacement monitoring platform displays data from multiple sources and provides the possibility to explore, filter and validate information.

It helps IDMC to easily identify new displacement events reported by the thousands of sources used; to visualise and compare displacement figures from different and independent sources and to analyse in a single place different layers of data.

Our vision is for the monitoring platform to become the reference point for our analysts when looking for reports on internal displacement. In the coming months we plan to improve the link between the monitoring platform and our global displacement database, to reduce the time our analysts need to input into the database. We are also planning to expand and enhance the platform by adding more languages in the IDETECT tool and by expanding the number of sources the platform pulls data from.

CONCLUSION

As highlighted throughout this annex, monitoring internal displacement is not free from complications and requires sound and transparent methodologies to compile and report reliable estimates. This document presents the methodology that IDMC has developed to navigate these challenges posed by monitoring and generating estimates of internal displacement. It attempts to reveal in a detailed and transparent manner, how we produced the figures included in this edition of the GRID and the data available via our website. It takes stock of our existing practices and outlines tools in development and potential future improvements in our monitoring of internal displacement.

More importantly, this methodological annex reflects IDMC's commitment to continuously improve our methods, and to make our tools and knowledge available and accessible to all audiences interested in learning more about internal displacement.

For any inquiries, comments or feedback, please contact us at data@idmc.ch.

NOTES

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