PART 2

INTERNAL DISPLACEMENT DATA: FROM CHALLENGE TO OPPORTUNITY

Internally displaced people receive aid at a distribution site, Gedeo Zone, Ethiopia. Photo: IOM/Olivia Headon, September 2018

WHY DOES INTERNAL DISPLACEMENT DATA MATTER?

As the number of IDPs worldwide continues to rise and crises become increasingly protracted, it is ever more important that all actors working to address internal displacement have comprehensive and accurate data and evidence. We currently have a good sense of the numbers of IDPs from country to country, but much remains unknown about the scale, patterns, impacts and drivers of the phenomenon, particularly in urban areas. There are a number of unanswered questions about the extent to which displaced people are able to achieve durable solutions.

There are many good reasons to invest in quality data and evidence. It helps to prioritise the investment of resources and inform programming, policymaking and advocacy. It establishes a better understanding of internal displacement, which helps to forecast and contextualise trends. This in turn informs better responses and contingency and long-term planning. It also sheds light on the costs and impacts of the phenomenon on individuals, communities and states, which helps to make the case for risk reduction and promote the accountability of governments and other actors to vulnerable people.

Improved data and evidence may also challenge assumptions and orthodoxies about the nature of displacement crises, including those in urban areas, which remain poorly understood. Solid baseline data and evidence at the national and global level is a precondition for measuring the success of efforts to protect and assist IDPs and help them achieve durable solutions. Using data to better understand the phenomenon over time, including displacement risk, is also paramount to informing the achievement of sustainable development targets and the monitoring of progress to that end.

To be considered comprehensive and robust, internal displacement data should cover the causes, triggers, patterns and impacts of displacement in all its forms and regardless of scale, including its duration and severity. It is also vital that such data is recorded using methodologies that track population flows based on events and without the use of minimum thresholds for collection and analysis, in order to fully capture and differentiate between small-scale disasters or localised conflicts and major events that trigger mass displacement.

Data should be disaggregated by geographic, demographic, temporal and socioeconomic characteristics which also cover host communities to ensure that vulnerable groups are identified and no one is left behind.

Significant advances have been made, including the development and use of innovative technologies and methodologies that will be discussed below. Partnerships at the national and international level need to be strengthened and government agencies' capacity to record displacement data improved. Greater collaboration would also help to explore the untapped potential of data to generate evidence and insights about the whole spectrum of human mobility and its links with development challenges and opportunities.

Along with political will, adequate resources and appropriate capacities, a clear and comprehensive picture of the severity and scale of internal displacement will enable those working to address the phenomenon to take appropriate measures to mitigate the risk of future displacement. It would also help donors and the humanitarian and development community to prioritise their spending and national and local governments to take evidence-based decisions.

COORDINATION AND COLLABORATION: THE INTERNAL DISPLACEMENT DATA ECOSYSTEM

WHO USES INTERNAL DISPLACEMENT DATA AND WHAT FOR?

A broad range of stakeholders with diverse roles produce and publish internal displacement data for different reasons. They include governments, UN agencies, local and international NGOs and research organisations. Some focus on data collection, others support its sharing or analysis and some perform a combination of functions.

Internal displacement data is often collected or analysed as part of wider exercises, or can be extrapolated from reports that focus primarily on other issues such as housing or protection. It often does not to cover the full scope of displacement crises, whether because of access restrictions, funding shortfalls, security issues or other factors. Nor is the data that is collected always made public to increase transparency and accountability.

Data users at the local, national, regional and global level can be divided into the following broad categories:

- Governments, donors and institutional policymakers use data to design laws and policies, decide where to invest resources for prevention, planning and response, and to track progress over time
- Operational (including coordination) actors use data to inform responses to internal displacement crises, collate and aggregate figures, and help monitor trends and identify risks to inform future programming
- Displaced persons can use evidence to inform their own decision making, and to advocate for better service delivery, inclusive solutions and respect for their civil, human and political rights
- Research bodies use data to analyse displacement trends, patterns and impacts, collate and aggregate figures, and to establish understanding of emerging or under-explored aspects of internal displacement
- Civil society organisations use data to raise awareness, and advocate for policy changes, resource allocation and more effective programming
- Technology initiatives use data to identify better ways to quantify displacement and understand its impacts
- Media use data and evidence for reporting and to inform the public

The main functions performed by various actors at the national and global level in the data ecosystem are outlined below. Some specialise in specific functions, but many engage across a number of them (see Figure 9).

- Primary data collection: this is the process by which actors gather specific information on IDPs and other populations affected by crises, using methods including key informant interviews, surveys and various forms of registration
- Data aggregation: once primary data has been collected, it is consolidated with other data to facilitate analysis, whether for geographic, sectoral, temporal or thematic purposes
- Data analysis: once data has been collected and/or aggregated, it is evaluated and scrutinised to inform and support policymaking, operational decisions, reporting and research
- Data repositories: these are storage platforms that host and preserve data according to specific categories, and which are used to facilitate analysis, reporting and research

- Coordination: the process of bringing together the work of different actors that collect and aggregate data to share information and, where relevant, align their efforts

- Research: the use of primary or aggregated data to produce qualitative and quantitative studies that explore specific lines of inquiry and answer specific questions

- Technical support and capacity building: the provision of expert advice and training to governments and other stakeholders to build or reinforce their capabilities in areas such as profiling and other data collection methods

A number of processes, initiatives, networks and frameworks focus on humanitarian or development data, and include internal displacement as a component of their work. But only a handful focus solely on internal displacement data.

ARRIVING AT BETTER INTERNAL DISPLACEMENT DATA

The displacement data ecosystem is complex, particularly given that actors often perform more than one function. Different stakeholders also experience and prioritise challenges in different ways, depending on their focus (e.g. humanitarian or development) and the levels at which they operate (e.g. local, national, regional or global). Some challenges involve institutional overlap or the potential proliferation of initiatives, but the main ones in obtaining comprehensive and quality data and evidence – which emerge repeatedly during formal and informal discussions – relate largely to a lack of common standards, ineffective coordination and limited sharing and interoperability.

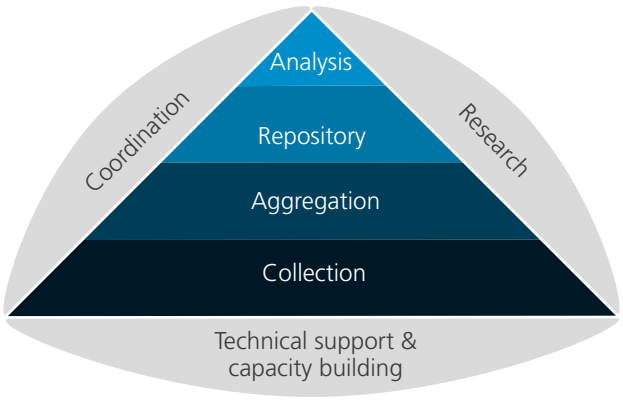
Common standards

There is conceptual and legal guidance on internal displacement, starting with the Guiding Principles and encompassing various resources such as the Inter-Agency Standing Committee (IASC) Framework on durable solutions for internally displaced persons, its Operational Guidelines on the Protection of Persons in Situations of Natural Disasters, and the Brookings Institution's publication Addressing Internal Displacement: A Framework for National Responsibility.[266]

Translating this guidance into practical common standards for data collection and analysis has, however, proved challenging. There is not yet agreement on major questions such as how to systematically measure the end of displacement, and what the best methodologies are for accurately capturing its different stages and characteristics. This significantly hampers the availability and compilation of quality, comparable data and evidence at the national and global level.

Processes such as the Expert Group on Refugee and IDP Statistics (EGRIS), established by the United Nations Statistical Commission (UNSC) at its 47th session in 2016, are starting to address some of these questions as they relate to official statistics. The group includes various governments, international experts and organisations including the UN Refugee Agency (UNHCR), the

FIGURE 9: Functions in the internal displacement data ecosystem



Data analysis: Local NGOs, research bodies, governments, clusters, UNHCR, IOM, REACH, UNICEF, WFP, IDMC, PDD, ACAPS Red Cross and Red Crescent Societies and other INGOs

Data repository: Governments, IDMC, HDX, IOM, UNHCR-WB joint data centre, WB Open Data Initiative

Data aggregation: Regional bodies, governments, OCHA, UNHCR, IOM, REACH, IDMC

Data collection: Governments, UNHCR, IOM, OCHA, NRC, REACH, UNICEF, WFP, Red Cross and Red Crescent Societies, local NGOs

Data coordination: Governments, OCHA, clusters

Technical support and capacity building: JIPS, IDMC, INGOs, UN agencies, clusters, WB

Research: IDMC, ACAPS, UN agencies, INGOs, research bodies, governments

This graphic is not intended to be an exhaustive listing of organisations contributing to each category.

World Bank, IOM, the Joint IDP Profiling Service (JIPS), and IDMC among others. It has been developing two sets of guidelines for national statistics offices, the International Recommendations on Refugee Statistics (IRRS) and International Recommendations on IDP Statistics (IRIS).[267] Building government capacity and developing this type guidance is important, and EGRIS's recommendations will be an extremely valuable resource once finalised in 2020.

In many displacement situations, however, governments still lack the capacity and support, or have little incentive, to collect data. Major data gaps are currently largely filled by humanitarian and development agencies, which collect the bulk of internal displacement data. But their operational planning and responses require information that differ substantively from official statistics.

IASC's guidelines to improve common data collection to inform disaster preparedness and response, mentioned above, outline the common datasets needed for responses to humanitarian emergencies. This governance model lays out accountabilities and responsibilities in data management, technical standards and recommendations to improve data quality and interoperability.[268] To support the guidance, IASC has developed and endorsed operational datasets, which OCHA has disseminated. These articulate and share baseline data across sectors for mapping and other information and planning purposes.

IASC's durable solutions framework is also supported by a library that builds on the IASC framework to develop a set of indicators and guidance to durable solutions analysis in internal displacement contexts.[269] Such analyses can support national authorities and other stakeholders to develop joint evidence-based responses to displacement crises.

However to further improve the quality of the evidence base on internal displacement, national and international actors will still need to agree on clear definitions of basic concepts and develop common metrics and indicators. They could also build on existing indicators from other fields as proxies, in order to monitor and analyse different forms of displacement.

Coordination

There are examples of good coordination on data collection. But many displacement crises happen in countries where governments have limited capacity, or in some cases the political will to collect data. In the international community, while it is the role of the humanitarian coordinator's role to lead and coordinate responses during crises, no single agency has the sole mandate to monitor and lead the response to internal displacement. Even where the Cluster System or other consortia operate, coordination within and across them can be challenging, creating data collection and aggregation issues that ultimately affect the quality of evidence. When national authorities lead the collection or aggregation of data, typically in response to disasters, gaps in coverage and the fragmentation of datasets across ministries or levels of government are also challenges. Lack of coordination also is an issue internationally, which can create confusion about the scope of institutional mandates. This can lead to overlapping initiatives and ultimately the publication of less comprehensive and reliable data than would have been the case if coordination were more effective.

In order to avoid duplication and identify potential complementarities, new and existing data initiatives and processes should be linked and aligned as much as possible. Opportunities to collaborate on broader thematic research that goes beyond data would also help to establish a stronger evidence base on internal displacement.

Data sharing and interoperability

Interoperable data is drawn from different sources but can be jointly analysed or compared to help consolidate numbers and create more holistic contextual information to support analysis, decision-making and accountability. In practice, however, different organisations define and monitor population movements and collect data in different ways. There may even be differences within organisations in how populations, their movements and their needs are defined. This means the data produced tends not to be interoperable. At the national level, this can undermine the effectiveness of programming and impedes critical insights into trends, patterns and linkages between different population movements. The lack of interoperability also affects efforts to aggregate and analyse data at the global level, including

for forecasting. To address the issue, organisations will need to share information more regularly, consistently and systematically, with due regard for data protection and privacy concerns. They will also need to identify the different methodologies they use to collect data more clearly to strengthen analyses and identify potential duplication, overlap and gaps in coverage.

Box 1. HXL: making datasets interoperable and useful

One of the main challenges data users face is the sheer amount available across different platforms. One way to address this is by labelling, storing and sharing displacement data in a way that allows for easier, faster and more efficient access and use.

Humanitarian Exchange Language (HXL, pronounced HEXel) aims to do just that.[270] It is a new kind of standard, designed to complement rather than replace existing humanitarian data processes. Supported by a range of partners and convened by OCHA, it is intended to reduce duplication, improve interoperability, semi-automise data preparation and make use of existing data visualisation applications using common tags and practices.

IOM, for example, uploads, updates and shares its Displacement Tracking Matrix (DTM) data on the Humanitarian Data Platform (HDX) as part of its standard operating procedure. It also adds HXL hashtags to improve processing and sharing. Common tags include administrative division, geographical information, population, sector, needs and incident/event. This helps to harmonise and enhance data quality and usefulness.[271]

Adding a row of HXL hashtags to a spreadsheet greatly improves interoperability. For example, #country+name identifies a column containing country names, *#adm1+name* always identifies a column containing top-level geopolitical subdivision names and *#affected+idps+ind* identifies a column containing the number of individual IDPs. Because the hashtags are standardised, differences in column ordering or even the number of columns no longer pose a problem.[272]

	Country	Top-Level Geopolitical Subdivision	Number of IDPs
#HXL	#country+name	#adm1+name	#affected +idps +ind
	Burundi	Admin1	Nombre de PDI
	Central African Republic	ADM1_NAME	IDP_ind
	Libya	ADM 1 Geodivision (EN)	IDPs in Baladiya (IND)
	Madagascar	Admin 1	Total No# of IDPs Ind#
	Nigeria	State of Displacement	Number of IDP

IDMC releases all its publicly available datasets with HXL tags to make it easier to promote, disseminate and share. Tagging also facilitates data visualisation using platforms such as HDX and its tools.[273]

CRITICAL DATA GAPS AND WAYS TO OVERCOME THEM

IDMC collects data from a wide range of sources, including UN organisations, national governments, the Red Cross and Red Crescent movement, international and local NGOs and media sources (see Figure 10). These organisations are engaged in a broad spectrum of humanitarian, development, human rights and other work. They also differ widely in terms of regional and national scope, and the types of movement and metrics they report.

Seventy-five per cent of the data that IDMC uses to compile its global estimates for displacement associated with disasters comes from national governments. It relies largely on UN and humanitarian agencies for data on displacement associated with conflict and violence.

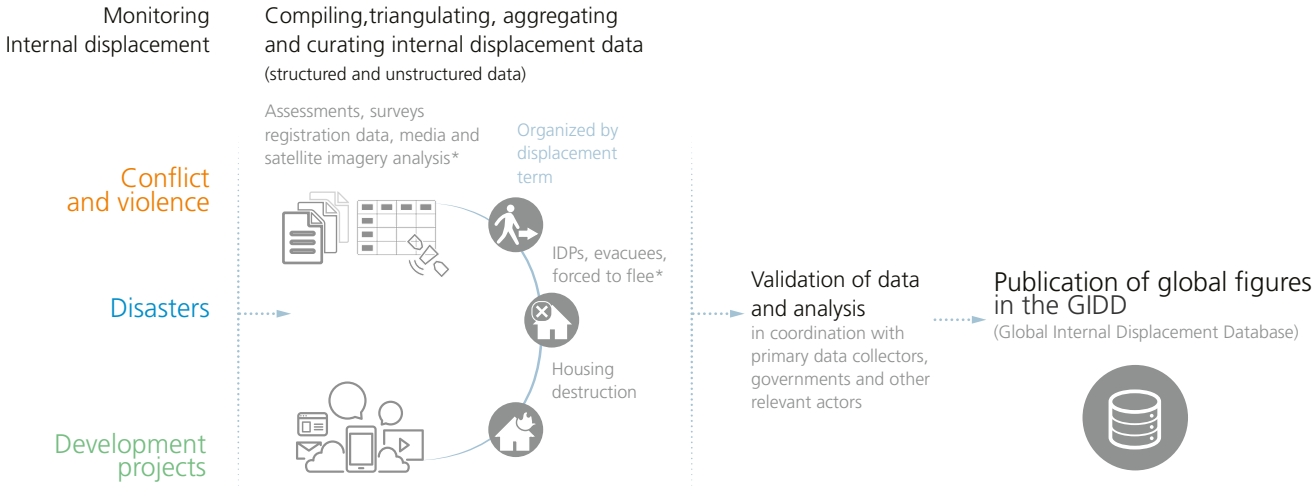
IDMC uses the data provided by different sources to produce the best estimates possible of internal displacement at the national and global level (see Figure 11). In doing so we have identified some critical gaps in data collection that prevent a comprehensive assessment of the scale, nature, trends and impacts of the phenomenon. Still, progress has been made in some areas, and new technologies and approaches hold the promise of significant advances in the future.

INCONSISTENT METHODOLOGIES

The lack of consistent methodologies for data collection and analysis creates many challenges. When different stakeholders use different methodologies to collect displacement data in the same country, it may lead to conflicting estimates of the number of IDPs, new displacements or returns. This is turn has the potential to cause confusion for policymakers, donors and organisations on the ground, and to undermine effective interventions and the prioritisation of resources to respond to internal displacement crises. In some crises, constraints on humanitarian access to areas where IDPs are present impede or severely limit data collection efforts. In others, more effort is required to ensure the added value of simultaneous data collection in similar locations.

This issue also makes aggregating and comparing data at the regional and global level more difficult, particularly if no adequate explanation for differing methodologies is given that might allow for comprehensive analysis. This in turn hampers efforts to understand the regional dynamics of crises. Collecting displacement data will by necessity continue to involve a number of stakeholders. Addressing this issue requires the development of clear, harmonised and consistent approaches to data collection for these actors.

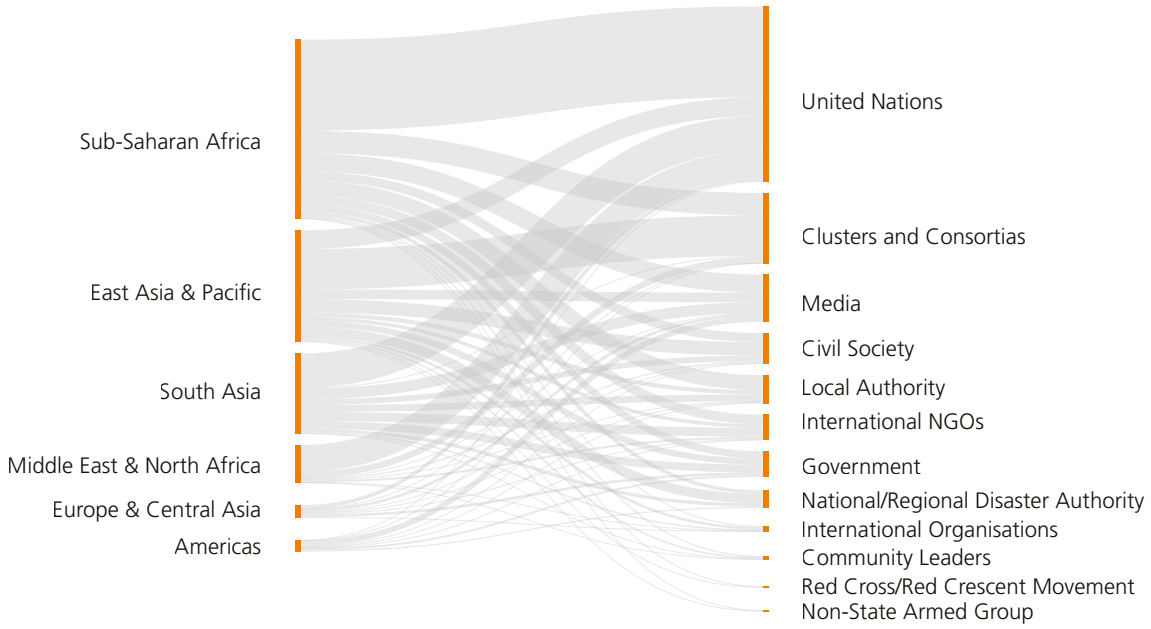
FIGURE 10: IDMC workflow



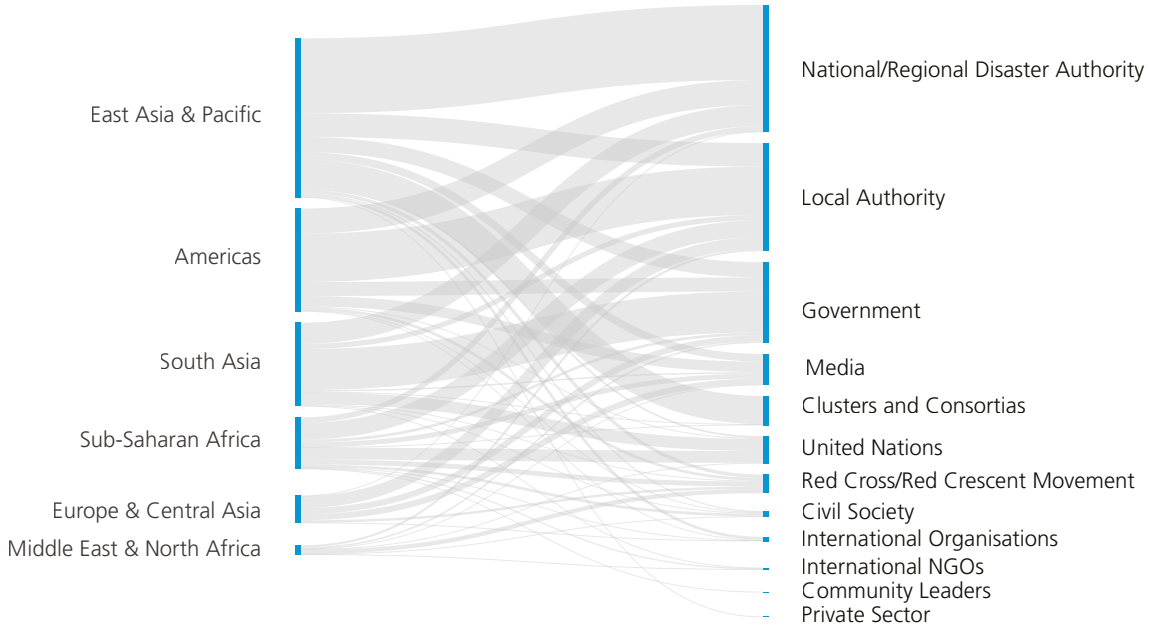
* The list of terms used in this graphic is not exhaustive.

FIGURE 11: Sources of IDMC's estimates for displacement associated with conflict and violence, and disasters, by region

Conflict and violence



Disasters



Note: IDMC distinguishes between the the source, where the information comes from, and where it is published. Sources provide their own figures for IDPs.

SPOTLIGHT

DATA TRIANGULATION

What is it, and why is it useful?

The main purpose of triangulating data is to increase its credibility and validity.[274] IDMC uses triangulation to validate datasets from various sources that describe the same phenomenon. Doing so becomes even more relevant given today's fast-moving news cycle, including the proliferation of "fake news", and the fact that anyone can present unverified information, potentially leading to significant discrepancies in what is reported and confusion about true displacement numbers. Around 70 per cent of the information on disasters recorded in IDMC's database in 2018 was collected for triangulation purposes.

The value of triangulation is demonstrated by IDMC's method of estimating displacement associated with disasters in Afghanistan. IOM and OCHA each work closely with local humanitarian organisations to produce two comprehensive datasets on disaster damage. OCHA recorded 235 disaster incidents in the first six months of 2018, and IOM 304 incidents. The datasets overlapped geographically. OCHA's covered 24 of Afghanistan's 34 provinces, and IOM's covered 26. Twenty-three provinces were covered by both. The two datasets differ in the terminology they use to classify disaster events or damaged and destroyed housing, which highlights the need to synchronise and develop common definitions and metrics.

IDMC used the two datasets to analyse displacement triggered by floods in May 2018. Using OCHA's data on housing destruction as a proxy for the number of people displaced yielded a figure of 24,589. IOM's data on housing destruction produced an estimate of 12,090 people. Additional IOM data on affected people living with host families, in open spaces and informal settlements suggested that 44,884 people had been displaced. IDMC compared the data taking into account differences in definition and coverage, and the potential for double counting. It also triangulated the data with information from media sources to arrive at a final figure of 46,380 people displaced.

Triangulation is also useful in compiling the best estimates for new displacements associated with conflict. Ethiopia had the highest figure worldwide in 2018, and IDMC used data from 16 sources that reported internal displacement during the year. IOM's DTM reports were used as the basis for triangulation, and calculations were made using the sum of positive variations between reports at site level for the whole year. The DTM reports, which covered only nine out of eleven regions in the country, were published bi-monthly and people's movements were highly dynamic. This meant that relying only on DTM data risked missing a significant number of short-term or repeated displacements. Using only IOM DTM reports, IDMC calculated about 1.5 million new displacements.

To overcome this issue, IDMC used other sources including OCHA, national and regional government reports, The Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), other types of IOM DTM reports and assessments, and local and international media to produce a more comprehensive estimate. This method allowed to reach 2.9 million new displacements, which is almost twice the number based only on IOM DTM bi-monthly reports. In order to avoid double counting and errors, the dates, type of movement, triggers, contextual information, geographical and temporal coverage and access to IDPs were considered to determine which caseloads should be included or excluded from the calculation. This method ensured that a significant number of under-reported displacements were not left out, and at the same time minimised the risk of double counting.

Given the increasing amount of information, news and data available, such triangulation exercises will remain important and necessary tools in IDMC's monitoring.

DATA DISAGGREGATION: WHO IS DISPLACED, WHERE AND WHY?

A number of challenges remain when it comes to identifying IDPs' place of origin, destination and current location at a specific point in time. The general lack of data disaggregated by sex, age, disability and other characteristics is also a significant issue that countries need to address if they are to support IDPs in achieving durable solutions and report progress against global frameworks.[275] Data disaggregation gaps currently tend to be filled with qualitative and anecdotal evidence. Data disaggregated demographically, geographically and temporally would also make a significant difference in shaping responses, informing policy and assessing progress in reducing displacement.

Displacement is a highly dynamic phenomenon, making it difficult to monitor over time, and a number of factors make doing so more complicated still. A significant proportion of IDPs live in dispersed settings with or among host families and communities, where they are harder to locate let alone monitor. Some IDPs may be displaced a number of times, while others undertake pendular movements between their places of origin and refuge. Families may also split up, with some members remaining in displacement while others return home. In addition, capturing pendular displacement is further complicated by the fact that it is often missed by assessments which are more prone to capture data on individuals in camps or camp-like settings.

IDMC aims to gather and report information disaggregated by geographical area, including by urban and rural locations, but even when such data is available it can be inaccurate and is not always broken down by location.

Knowing what triggers people's displacement is also vital to fully understand the phenomenon and the type of response needed. To address this issue, IDMC revised its hazard classification and developed a new conflict typology in 2018 with the aim of improving its reporting, and clarifying and expanding its data model to better capture how and why people move.

Data disaggregated by sex, age and other characteristics

Data disaggregation is essential to ensure all vulnerable groups and their needs are properly captured and addressed. Different groups will require tailored interventions that respond to the circumstances of their displacement depending on their income, age, gender and location. It is challenging, however, to obtain comprehensive data on key metrics disaggregated by sex, age and other characteristics such as socioeconomic status, ethnicity, and disability.

In 2018, IDMC obtained data on displacement associated with conflict disaggregated by sex or age for 12 out of 57 countries and territories, or 21 per cent, and by age for 8, or 23 per cent. Some of the data received for other countries was also disaggregated in this way, but the datasets either did not cover the whole country or the whole year. Further, despite greater efforts and improvements over the past decade in collecting data on displaced children, there is very little information available about their age and sex, where they come from, where they are going, why they moved, whether they moved with their families or alone, how they fared along the way or what their specific vulnerabilities and needs are.[276]

Understanding these characteristics, the push and pull factors that lead to their displacement and its impacts is key to designing responses that address diverse protection and assistance needs and to better understanding the implications of displacement for communities and states.

Geolocation and geographical reference issues

Obtaining data disaggregated by specific location continues to be a challenge. One of the most notable gaps in displacement monitoring is the lack of georeferenced information. Local data collectors often have a more accurate idea of where people move to, but gaining access to such information at the global level is difficult. This means that most of the data made available to IDMC is not geolocated at the site level. At best, only the names of towns and provinces are mentioned.

In some conflicts, governments or non-state actors obstruct the systematic collection of data, or security risks may be too high to undertake such exercises. Data may also not be made available because of protection protocols, and investments in data collection tend to decrease after the emergency phase of a crisis. This may mean that IDPs in hard-to-reach areas or protracted situations fall off the radar. Having accurate estimates of the scale of population movements, including rural to urban, urban to urban, intra-urban and urban to rural movements, would also help to fill the stubborn data gap on the number of displaced people living in cities (see Urban displacement spotlight, p.63).

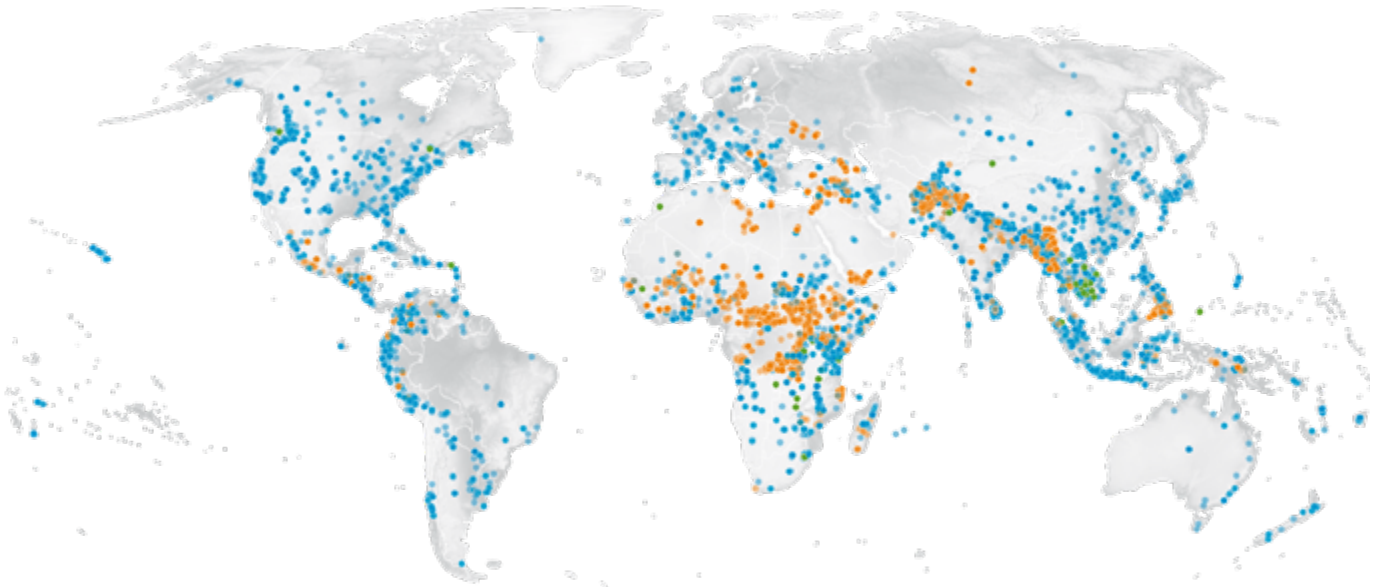
To establish a more accurate picture of where displacement happens, IDMC applies different methods to georeference the phenomenon. In doing so, it gives due consideration to the ethical implications of using such data. The aim is not to track individuals, but rather to understand broader displacement trajectories during and after crises to inform improved responses and help estimate future movements.

In 2018, IDMC was able to geolocate the origin or destination of some displacement flows. Figure 12 shows the approximate geolocation of displacement reports related to both conflict and disasters during the year.

The main method used was reverse geocoding, in which coordinates are automatically allocated based on location names mentioned in the data sources. Automated coordinates are generated using the centre of administrative areas, which reflect an approximate location of where displacement occurred. If information is provided at the provincial level, reverse geocoding will only point to the centre of the province in question. Municipal-level information allows more accurate locations to be determined.

Using reverse geocoding in this way is useful in understanding where displacement happens, but most sources' data tends not to identify the origin and destination points of peoples' movements, which makes it difficult to understand specific displacement patterns. This is particularly the case for fast-moving emergencies, hard-to-reach areas and less visible protracted displacement caseloads.

FIGURE 12: Geolocated displacement events monitored by IDMC in 2018



Note: 11,511 data entries in the IDMC database by cause of displacement recorded in 2018

SPOTLIGHT

URBAN DISPLACEMENT

First steps to paint a global picture

By some estimates, between 60 and 80 per cent of IDPs live in cities and "out-of-camp settings".[277] There is, however, no strong evidence to support such assertions, and a number of factors make understanding the true scale and characteristics of urban displacement particularly challenging.

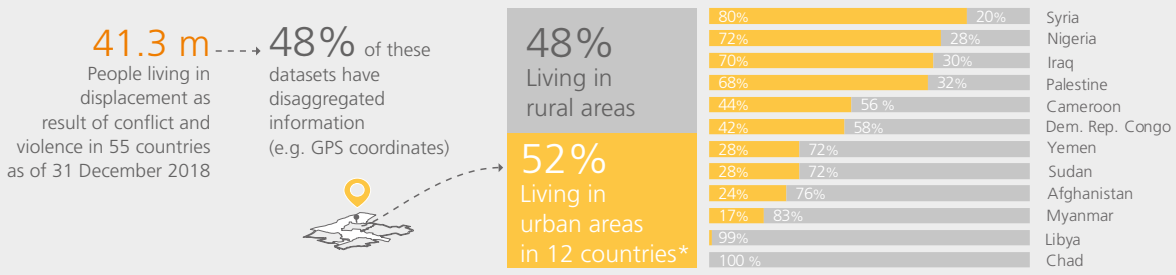
There is a lack of common definitions and methodologies to classify urban and rural areas.[278] Different definitions emphasise different factors including demographics, social dynamics, infrastructure, the availability and provision of services and the way land use and the built environment are structured.[279] Nor does displacement data that includes information about the type of settlement, whether it be a camp, out-of-camp setting or spontaneous site, necessarily specify an urban or rural location.

Camps and camp-like settlements facilitate data collection because IDPs are gathered together in one place, unlike urban areas where they tend to live in dispersed settings among the local population, which makes them more difficult to identify. Some may also choose to stay under the radar to preserve their anonymity because of potential threats to their security.

IDMC was able to address some of these challenges for the first time in 2018, and disaggregate displacement associated with conflict by urban and rural location. The EU's Global Human Settlement Layer (GHSL) was used as a basis for conducting the analysis. GHSL is a global dataset that assesses degrees of urbanisation using census data from national statistical institutes and satellite observations.[280] It provides multi-temporal geospatial data, presented in grids of one square kilometre, enabling a globally consistent and comparable classification of rural and urban areas.[281] By overlaying information on displacement sites with GHSL, it was possible to disaggregate the data.[282]

More than 41.3 million people were living in internal displacement as result of conflict and violence as of the end of 2018. Information on displacement sites was obtained for 19.8 million, or 48 per cent of the total. Of 55 countries where conflict displacement was identified, information on IDPs' specific location was available for 12. Within these 12, specific caseloads were selected where good quality geolocalised data was available, for example from site-level assessments. IDMC's analysis concluded that 52 per cent of IDPs were living in urban settings in these twelve countries (see Figure 13).

FIGURE 13: Disaggregation of stock figures for 12 countries by rural and urban settings using GHSL as reference

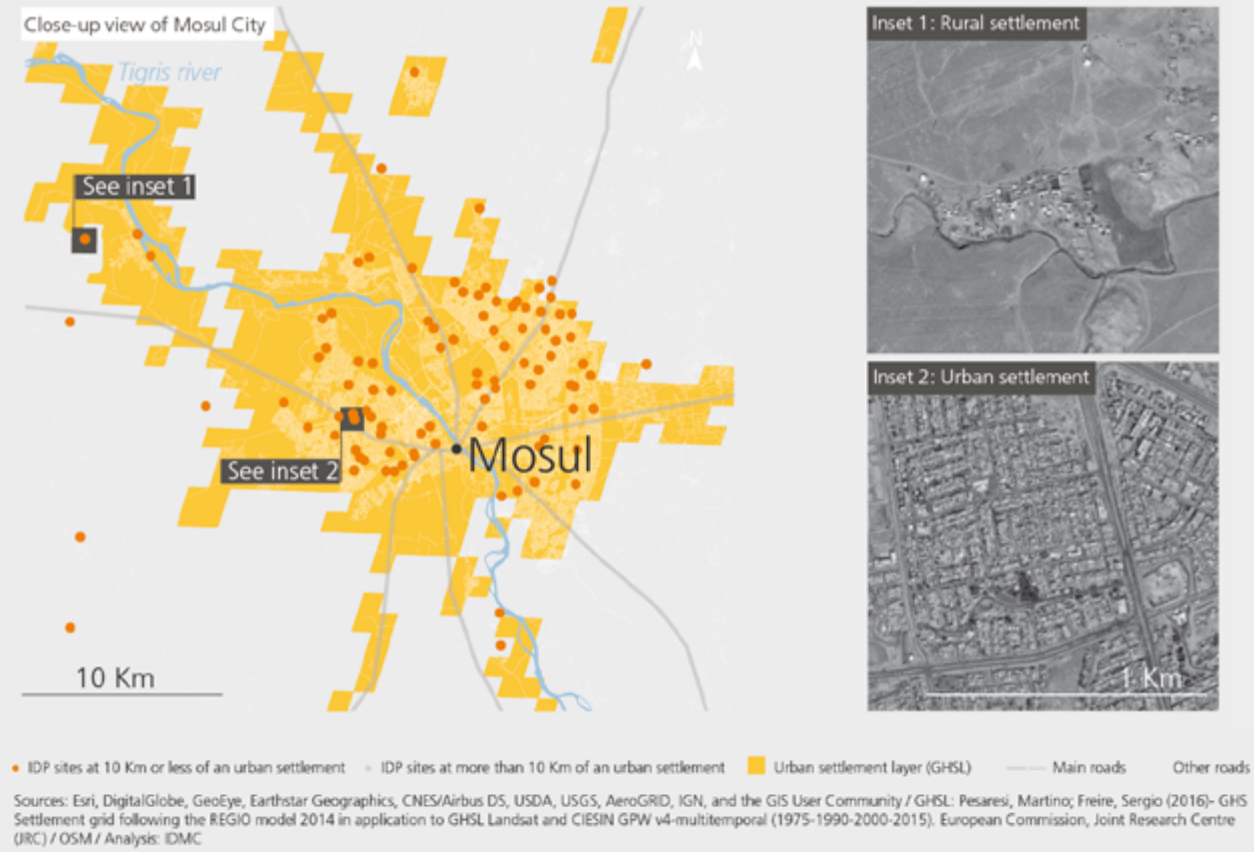


* Percentages refer to the portion of the national IDP caseload that has geospatial information. In the case of Yemen, Chad, Iraq, Syria, Afghanistan, Sudan and Dem. Rep. Congo, more than the 90% of the caseload is published with coordinates. In other countries this proportion is lower: Libya 85%, Nigeria 55%, Cameroon 37% and Palestine 0.2%.

Iraq provides an interesting example. The use of data provided by IOM's DTM, all of which was geolocated, helped to paint a more accurate picture of urban displacement. The analysis shows that 70 per cent of IDPs were living in urban settings as of the end of 2018. Sixty-two per cent were living with host families or in rented accommodation.[283] Ninety-six per cent of displacement sites were also within ten kilometres of an urban area. At an even more granular level, Figure 14 illustrates urban displacement in Mosul as revealed by overlaying data with the GHSL layer.

This exercise was a first step toward filling the significant data gaps on urban displacement. Clearly, when primary collectors geolocate and share their data, a consistent methodology can be applied to illustrate the scale of the phenomenon. As long as this kind of information is not consistently collected or shared, however, it will be difficult to paint a global picture. In its absence, policies and programmes to support IDPs and host communities and to help cities cope with displacement will not be as effective as they might.

FIGURE 14: Iraq: IDPs' location by distance from an urban settlement



Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community / GHSL: Pesaresi, Martino; Freire, Sergio (2016)- GHS Settlement grid following the REGIO model 2014 in application to GHSL Landsat and CIESIN GPW v4-multitemporal (1975-1990-2000-2015). European Commission, Joint Research Centre (JRC) / OSM / Analysis: IDMC

OTHER METHODS OF TRACING DISPLACEMENT FLOWS

IDMC collects and analyses data on two main metrics – stocks and new displacements, as well as on solutions. Stocks are the number of people displaced at a certain moment in time, new displacements also include repeated movements, and solutions include returns, local integration, resettlement and "partial or unverified solutions" (see Part 1). IDMC uses a number of proxy data sources to paint a more complete picture of internal displacement events. A significant part of IDMC's analysis relies on data and reporting that does not focus specifically on displacement, which can pose challenges in terms of accuracy.

Mobile phone data

The number of mobile phone users in the world is expected to pass five billion in 2019, and anonymous mobile phone data offers a way to bridge data gaps and better monitor IDPs' movements with due regard for privacy and data protection concerns. The use of mobile technology in the humanitarian sector is not new, but it has been used primarily to support emergency operations and disaster relief.[284] Its use beyond the emergency phase helps to understand population movements before, during and after a disaster or conflict event, including their duration (see Box 2).

Box 2. Using mobile phone data to track displacement in Papua New Guinea

Papua New Guinea experienced a 7.5 magnitude earthquake on 26 February 2018, which was followed by significant aftershocks in the subsequent days and weeks.[285] As many as 465,000 people are thought to have been affected by the disaster, which left around 247,000 in need of immediate humanitarian assistance. Around 58,000 people were internally displaced.

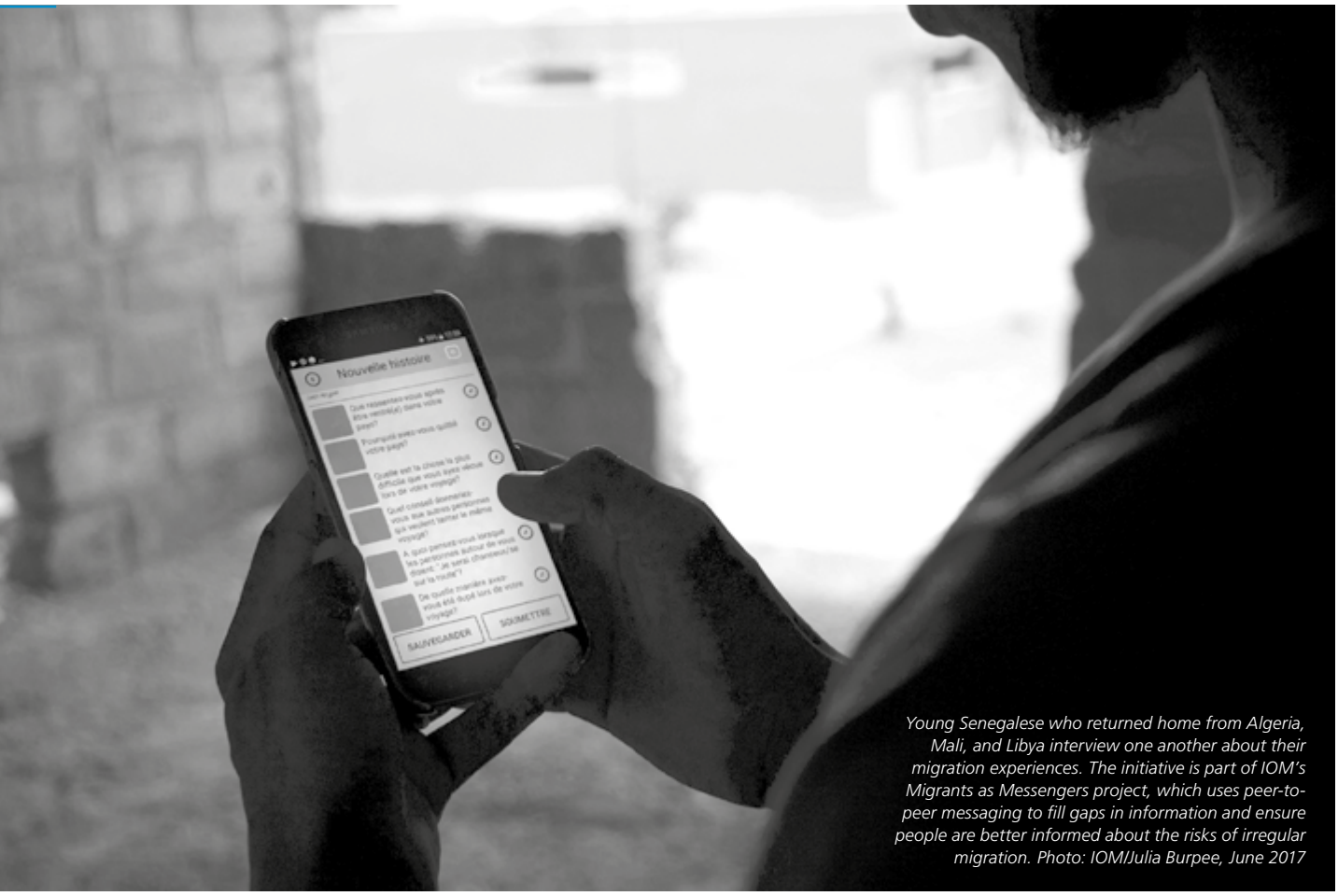
A study conducted in the aftermath of the earthquake showed the benefits of using anonymous mobile phone data to track the displacement it triggered. The data proved particularly useful in assessing how far and in which direction people had fled, and how their movements evolved over time. Because mobile phone data is uniquely detailed and traceable, it can provide information that is not easily gleaned from other sources at such scale. On the downside, only the movements of mobile phone users can be analysed, and it is not possible to assess people's specific vulnerabilities.

Papua New Guinea has a mobile penetration rate of 54 per cent, and Digicel is the main service provider with a market share of more than 90 per cent. The study, which was carried out with the collaboration of the government, the UN country team and Digicel, ensured users' privacy was protected by following guidelines for the use of mobile phone data published in 2014 in response to the Ebola outbreak in West Africa.

The data was analysed from several angles, first by modelling the relationship between the activity of transmission towers and their distance from the earthquake's epicentre. The logs of calls and messages sent and received via the towers also reveal population movements that can be tracked over time. Analysis over longer periods can provide insight into return movements.

The study also combined mobile phone data with information from humanitarian sources including OCHA and IOM DTM. It found that the humanitarian community had targeted its assistance effectively, showing the data's added value in monitoring crisis responses and disaster management.

The Papua New Guinea study illustrates the significant value of anonymous mobile phone data in tracking displacement flows, including when it is used in conjunction with other forms of data collection and assessments determining displaced people's specific needs.



Young Senegalese who returned home from Algeria, Mali, and Libya interview one another about their migration experiences. The initiative is part of IOM's Migrants as Messengers project, which uses peer-to-peer messaging to fill gaps in information and ensure people are better informed about the risks of irregular migration. Photo: IOM/Julia Burpee, June 2017

Aerial and satellite imagery analysis

Satellite and aerial imagery is useful in assessing displacement via proxy indicators such as housing damage and destruction or the extent of flooding. The method is particularly suited to urban settings, where the ready availability of images can also help to track reconstruction processes and estimate the duration of displacement.

For example, IDMC conducted a satellite imagery analysis exercise for its previous global report in close collaboration with the UN's Operational Satellite Applications Programme (UNOSAT). It aimed to assess displacement associated with development projects by tracking the number of dwellings inundated as a result of the construction of a dam in Indonesia. Similar methodologies were applied to estimate housing damage and destruction in southern Turkey, because no other form of data on the conflict in the region was available.[286]

This method does not come without challenges, however, such as the expense of scaling up given the cost of the images, and the complexity of the analysis. The human validation currently required is also resource intensive, and may lead to misinterpretation and errors.

That said, new technologies such as aerial and drone imagery produce high-resolution images, and recent advances in artificial intelligence permit the extraction of information with very high accuracy, even if image quality is compromised. This can help to overcome some limitations from satellite imagery noted above. IDMC continues to work with its partners to explore innovative ways of filling data gaps. This includes a study of disaster displacement in Dar es Salaam (Tanzania), where drone imagery is complemented by local data collection on the ground (see Box 3).

Box 3. The Ramani Huria project: community mapping to assess displacement

Ninety-five per cent of global urban growth over the next 20 years will take place in developing countries.[287] As cities grow, disaster displacement risk is also expected to increase, but a number of factors make assessing it at the local level difficult.[288] They include:

- A lack of up-to-date population data
- A lack of up-to-date urban plans
- A lack of data on populations' exposure, vulnerability and resilience
- A lack of disaggregated information on possible vulnerability to specific hazards
- A lack of national spatial data infrastructures that provide access to information, such as exposure, vulnerability or risk models

To overcome these challenges, participatory tools such as community mapping have been developed to report on events that take place at the local level. This type of crowdsourcing, which is combined with geographical data, has been constantly improving as communication technologies and tools evolve.

One example of this approach is Ramani Huria, Swahili for "open map", a project in flood-prone areas of Dar es Salaam. Dar es Salaam is one of the fastest growing cities in Africa. Its population is expected to exceed 10 million by 2040, making it a megacity. However urbanisation is largely unplanned and flooding occurs regularly during two annual rainy seasons, the "long rains" between March and May and the "short rains" between October and December.[289]

Around 70 per cent of the city's residents live in informal settlements which are particularly vulnerable to flooding given their poor infrastructure and drainage and a lack of solid waste management.[290] Data and information about the impact of large-scale floods are fairly easy to come by, but not for smaller, more localised events in vulnerable areas, despite the fact that local residents are affected. The Ramani Huria project is supported by the World Bank and DFID, and implemented by the Humanitarian OpenStreetMap Team. It has addressed the need for up-to-date and detailed data on flood hazards, vulnerability and exposure since 2015. Through the engagement and participation with local communities, authorities, leaders, civil society and academia, it produces community maps using open geospatial technologies and tools supported by the collection of high-resolution drone imagery.[291]

Drainage mapping being conducted at the Hananasif Ward in Kinondoni District, Tanzania. Photo: World Bank/ Chris Morgan, September 2017

DETERMINING THE DURATION OF DISPLACEMENT

With a few exceptions, it remains difficult to estimate for how long people are displaced. This is a major gap that is far from being filled, but it requires attention, especially as internal displacement becomes protracted. As explained above, IDMC collects and analyses data on two main metrics – stocks and new displacements, as well as on solutions.

Measuring the duration of displacement associated with disasters

The main obstacle to determining the end of displacement following disasters is that systematic data collection stops long before IDPs have achieved a durable solution. Data tends to be collected only during the immediate recovery phase to guide responses. The emergency phase is also usually covered by media reporting. IDMC has previously found that for more than half of the largest disasters recorded since 2008, displacement data was collected for less than a month. This makes attempting to assess whether IDPs have achieved a durable solution following many disasters extremely complex and resource intensive.

As a result, it has been difficult to compile an end-of-year estimate of the total number of people living in situations of internal displacement as a result of disasters at a given moment in time (disaster stock figure). Without this the aggregate global estimates of the number of people living in displacement, including those quoted in previous GRIDs, are incomplete. For example, UNHCR adds its global number of refugees to IDMC's conflict stock figure to arrive at a global displacement figure that is often published or cited by the media and policymakers, but without a disaster stock figure it constitutes a considerable underestimate. This gap also encourages the framing of displacement as associated exclusively with conflict, when in fact it is a much broader and more complex phenomenon.

The absence of a global disaster stock figure also feeds the mistaken assumption that people who flee disasters are only displaced for short periods, when in fact there are many examples of such displacement lasting years and even decades. This in turns means policy and operational responses tend not to address major questions such as how to achieve durable solutions to disaster displacement. Without time-series data it is also difficult to measure and track the social and economic impacts on individuals, communities and economies.

IDMC was able to estimate a global stock figure for disaster displacement for the first time in 2018. More and better data from partners was obtained, and models to fill gaps and infer the number of people displaced by disasters over time were applied. The estimate for 2018 was of just over 1.6 million people still living in displacement 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 will need to be done to refine the model in 2019 and beyond (see Box 4).

Estimating a stock figure for disaster displacement will not only clarify how many people are still living in displacement at the end of a given year. It will help to reveal those who until now have been off the radar and so are unlikely to have been reached as part of disaster recovery processes or with initiatives to support the achievement of durable solutions. It will also help to assess the mid to long-term impacts of displacement on societies and economies.[292]

More broadly, comprehensive monitoring and reporting on the duration and end of disaster displacement will fill a critical gap, which in turn will help the humanitarian and development sectors to plan and implement more effective and evidence-based responses.

Returning home, but under which conditions?

A core element of the Guiding Principles is that IDPs achieve durable solutions by returning to their habitual place of residence, integrating locally or resettling elsewhere in the country or further afield. To be considered a durable solution, this must happen voluntarily, in safety and in dignity and involve overcoming all vulnerabilities associated with displacement. Such outcomes are particularly complex to achieve, and also to measure.

Box 4. Estimating a disaster stock figure for 2018

Figure 15 shows a conceptual illustration of how the number of people living in displacement as a result of disasters at the end of 2018 was estimated. The time-series curves for the stocks are represented by the blue dotted lines. The stock for disasters on a given date equals the sum of the values of each curve on that date.

FIGURE 15: A conceptual illustration of IDMC's disaster stock estimation

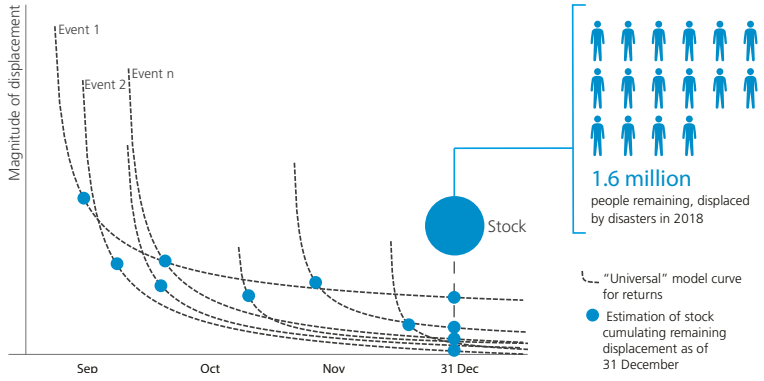
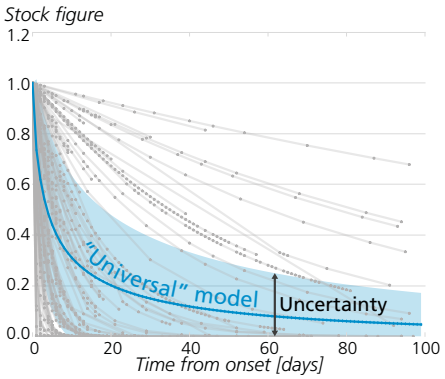


FIGURE 16: Estimating the decay rate for disaster displacements



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

IDMC applied a two-step approach based on data gathering and modelling to estimate the number of people living in displacement as a result of disasters as of the end of 2018. A data pool from a variety of sources was compiled, based primarily on around 100 disaster events recorded in its database during the year. Each time series describes the evolution over time of the number of people displaced in a specific location.

These time series were used to model the remaining displacement for each event. Due to the lack of data, the model does not distinguish between different types or location of disasters, and is applied to all of the events. A simple model was used because it provided a good fit with the observational data and was easy to interpret. IDMC may construct specific models for hazard types or countries in the future as more time series data becomes available.

IDMC derived a closed mathematical expression for the model. By using the most recent stock figure it had for each of the events that took place in 2018, it applied the model and estimated a global stock figure of 1,601,150 individuals. Taking into account the uncertainty of the model, the number could be twice as high.

IDMC believes this to be an underestimate because the learned curve is heavily skewed toward capturing evacuations, which dominated the time-series pool used for training. This type of displacement tends to last for a relatively short period of time.

The same curve is also applied to all events, regardless of whether the reported figures correspond to evacuations or displacements. This implicit assumption is an important source of modelling error because the same decay rate is applied even to time series in which the reported displacement was inferred from reported destruction of housing. Again, given these issues, the true figure could be twice as high.

This methodology 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 to estimate how the number of people displaced by disasters evolves over time more accurately.

The IASC's framework establishes a set of criteria for what would constitute a durable solution.[293] They are:

- Safety and security
- Adequate standard of living
- Access to livelihoods
- Restoration of housing, land and property
- Access to documentation
- Family reunification
- Participation in public affairs
- Access to effective remedies and justice.

Putting the framework into practice, however, has proved a challenge. It is supported by the Durable Solutions Indicators Library that provides useful guidance for durable solutions analyses, but translating such analyses into numerical, universal and comparable data is difficult, particularly when trying to aggregate at the global level.[294] It is hard, for example, to measure vulnerabilities numerically and so to assess progress toward achieving durable solutions. EGRIS is, however, in the process of developing guidance and recommendations for measuring the end of displacement statistically, and it is hoped that this will provide more concrete guidance.

Nor are many reported returns followed up on over time, making any assessment of their sustainability extremely difficult. When return movements are reported prematurely or go unverified, people may be "taken off the books" before they have been able to achieve a durable solution, which means their needs are unlikely to be met. This happens, for example, when IDPs are reported as returnees simply because they have left a camp, or because they have gone back to their places of origin despite their homes having been damaged or destroyed. In order to capture such movements, IDMC has started recording them as "partial and unverified solutions" (see Part 1).

ASSESSING THE IMPACTS AND THE SEVERITY OF DISPLACEMENT

The number of people living in displacement offers only partial insight into IDPs' reality. Their needs and the impacts of their displacement at the individual, local and national level differ from one situation to another. They may vary widely based on the duration of displacement, pre-existing capacities and resources and current levels of vulnerability. There are, for example, roughly equal numbers of IDPs in Colombia and Syria, but their needs are vastly different. Effective and targeted responses require a fuller understanding of the impacts and experiences of displacement beyond the numbers.

Economic impacts of displacement

Displacement affects economies in many overlapping and interconnected ways. Its impacts may be felt directly or indirectly, in the short or long term and at the local or national level. Some are tangible, for instance when crops and livestock are lost. Others, such as months of lost education, are intangible. Impacts may occur at the time of displacement, when IDPs have to pay for transport and temporary lodgings, or later when they have to accept a lower-paid job in the saturated labour market of their host area. As part of IDMC's research into the economic impacts of internal displacement, we have developed a new methodology to assess the direct costs, showing that internal displacement could be costing countries across the world a total of nearly $13 billion each year.[295]

We were able to estimate the direct economic impact of displacement associated with flooding in Somalia in 2018 at around $19 million for 287,000 people displaced from April to August. We also estimated the impact of displacement associated with drought between January 2017 and August 2018 at $500 million for 1.2 million IDPs, and of displacement associated with conflict over the same period at $110 million for 423,000 IDPs. The latter figures represent 4.7 and 1 per cent of Somalia's annual average GDP respectively.[296]

A better understanding of the longer-term economic impacts of displacement is also needed to inform the development sector about where and how to engage in displacement crises (see Box 5).

Box 5. Assessing the economic impacts of displacement

IDMC's estimates account for the costs associated with IDPs' housing, health, education and security needs, and for their loss of livelihoods. They focus on direct and immediate costs and losses for which quantitative data is publicly available at the global level. Information such as the funding required to provide food to a given number of IDPs serves as proxy for the cost associated with nutritional needs that result from displacement.

The estimates do not account for the longer-term consequences of internal displacement, nor its impacts on hosts, communities of origin and other affected groups. As such, they should be considered underestimates of its overall financial burden.

Dimension	Metric	What is included
Housing Data sources: Humanitarian Response Plan and Humanitarian Needs Overview by OCHA	Cost of shelters or temporary accommodations	| providing emergency and transitional shelter solutions, including subsidies for rents or repairs | delivering needs-based lifesaving non-food items | providing water, sanitation and hygiene services | coordinating and managing shelters and camps
Livelihoods Data sources: World Development Indicators and PovcalNET by the World Bank, Displacement Tracking Matrix by IOM	Loss of income	| loss of income from work
Education Data sources: Humanitarian Response Plan and Humanitarian Needs Overview by OCHA	Cost of providing temporary education	| restoring educational activities for children of primary and secondary school age | ensuring healthy and secure learning environments, including in some cases psychological support to children
Health Data sources: Humanitarian Response Plan and Humanitarian Needs Overview by OCHA	Cost of providing food assistance	| providing life-saving food assistance | improving food production | preventing and treating malnutrition of children aged under five, and pregnant and lactating women
	Cost of providing healthcare in emergency situations	| providing emergency and essential primary/secondary health services | preventing and responding to outbreaks and communicable diseases | providing immunisation coverage for children aged under five
Security Data sources: Humanitarian Response Plan and Humanitarian Needs Overview by OCHA	Cost of ensuring security in host areas	| reinforcing and providing protection to IDPs | preventing and responding to human rights violations | protecting children and women

Toward a better understanding of displacement severity and vulnerability

Understanding how IDPs' vulnerabilities differ from one situation to another, irrespective of scale, is important in painting a comprehensive picture of the severity of the phenomenon and informing effective and targeted responses and planning. IDPs in the Afghan city of Ghazni, for example, were caught in the crossfire of fighting between the Taliban and government forces in 2018. Those sheltering in civilian protection sites in South Sudan are generally shielded from such conflict, but women and girls are at high risk of sexual and gender-based violence. IDPs in Mexico's Guerrero state are exposed to criminality and extortion.

These contrasting experiences of security are just one component of displacement severity. Access to housing, services, livelihoods, documentation, family reunification, public affairs and justice are also factors.[297] IDPs in makeshift shelters in Tanganyika and South Kivu in DRC, for example, are exposed to severe weather and fire hazards, while those in collective centres in Ukraine's government-controlled areas of Donetsk and Luhansk regions close to the Line of Contact receive free accommodation but are reportedly at risk of eviction. Similar contrasts exist in terms of access to services. The cost of medicines is the main barrier to healthcare for IDPs in Donetsk and Luhansk, while for those in Tanganyika and South Kivu it is scarce and poorly equipped facilities.

Assessing the severity of displacement and differing vulnerabilities associated with disasters is also challenging, mainly because of the absence of reliable data on its duration and the different coping capacities of individuals, communities and states. Some people are able to return shortly after a disaster strikes, but many remain displaced for months or even years and find it difficult to access effective mechanisms to restore or rebuild their homes, land and property.

For each disaster event recorded, IDMC tries to collect as much information as possible on housing destruction, whether as a proxy for displacement or for triangulation purposes. Housing destruction is a good proxy to estimate the magnitude of displacement. Also, as highlighted in the section above on measuring the disaster stock, the duration of displacement could be used as an indicator of people's vulnerability.

An illustrative example can be found in India, where tropical cyclone Titli struck the states of Odisha and Andhra Pradesh in October 2018 and caused significant destruction, particularly in coastal districts. In the aftermath of the disaster, the authorities in Andhra Pradesh recorded the extent of damage by housing type.

Indian families traditionally build different types of housing depending on their location and economic resources. "Pukka houses" are relatively solid structures built with durable materials such as concrete, bricks and timber. They tend to withstand the impacts of cyclones reasonably well, but may be vulnerable to earthquakes. "Kutcha houses" are built with cheaper and less durable materials such as mud, thatch and bamboo, which makes them vulnerable to most natural hazards. When kutcha houses are destroyed, they tend to be replaced by pukka houses.[298]

By using the authorities' classification of damage according to the two housing types, IDMC was able to establish a better and more nuanced understanding of Titli's impacts on the local population. People living in kutcha houses were four times more affected by housing destruction than those living in pukka houses. Those whose pukka houses were destroyed, however, are likely to have remained displaced for longer time.

IDMC will continue to develop this qualitative assessment of the severity of displacement to enable meaningful comparisons between countries, and to help monitor their progress toward resolving the phenomenon.

HARD-TO-DETECT DISPLACEMENT

Some types of displacement are particularly difficult to assess because of missing data or the complexity of their drivers and triggers. These include displacement associated with development projects, criminal violence, slow-onset hazards such as drought and sea level rise, and overlapping factors. Data limitations also impede efforts to determine how many IDPs become refugees, and migrants return to a life of internal displacement. The result is an incomplete understanding of the displacement continuum and its dynamics.

Many reports of displacement associated with disasters provide data on evacuation orders, but not necessarily

Box 6. Why do some people refuse to leave?

The most visible and tangible aspect of displacement associated with disasters is having to evacuate from one's home. This may take the form of self-evacuations or as ordered by local authorities. The challenge with accounting for displacement associated with mandatory evacuation orders is that the orders cover more people than are accounted for in temporary shelters.

At the height of tropical cyclone Prapiroon in Japan, for example, as many as two million people were ordered to evacuate, but fewer than 31,000 were recorded in shelters (see Japan spotlight, p.30).[299] Two factors account for at least some of such discrepancies. First, not all of those ordered to evacuate may comply, meaning that the number of people covered by evacuation orders is likely to overestimate the scale of displacement. Second, many evacuees may choose to stay with family and friends, in hotels or elsewhere, meaning the number of people in shelters is likely to underestimate the scale of displacement.

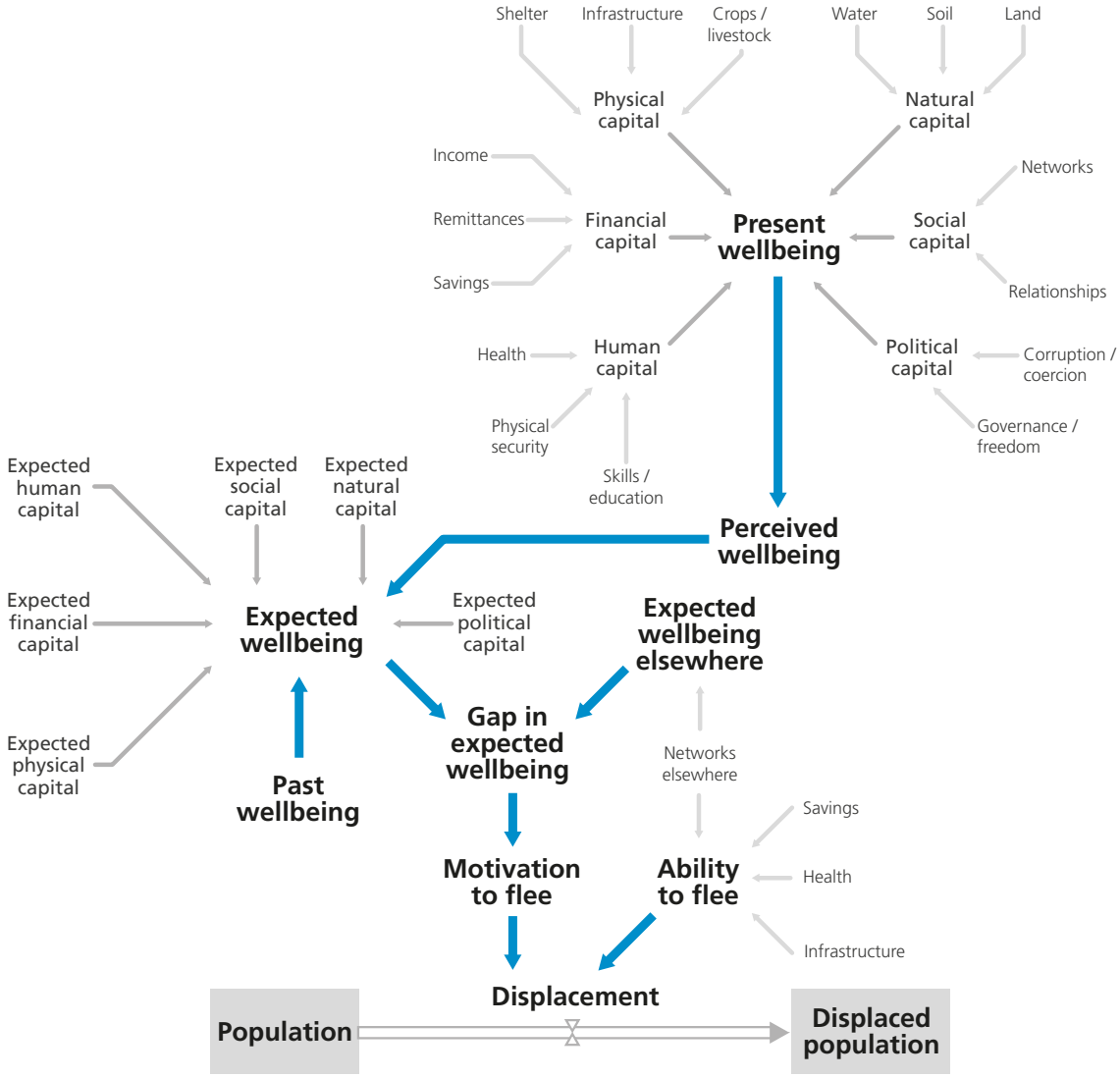
People's reasons for not following evacuation orders are complex and multifaceted. They range from practical challenges for the elderly and those with disabilities, to a lack of timely and accessible information and the perception and communication of disaster risk. These factors may also combine with people's desire to protect their home, pets, livestock and other assets.[300] Socioeconomic factors may also be an influence. Some households may not be able to afford to self-evacuate, and the same people may also be vulnerable in other ways such as being located on flood plains, living in mobile homes or lacking reliable transport.[301]

on how many people obey them. This makes the scale of disaster displacement hard to detect, given that many people do not to follow mandatory evacuation orders, taking the risk of staying put (see Box 6).

Displacement associated with slow-onset disasters and environmental degradation is also complex to monitor. It is difficult to distinguish from internal migration and painting a comprehensive picture is challenging because it encapsulates a wide range of phenomena, drivers, triggers, impacts and movement types. More concrete examples and evidence of how displacement occurs in different slow-onset situations are needed to inform more solid risk assessments and the evaluation of appropriate policy responses.

To overcome these challenges, IDMC has begun to explore modelling and the interconnectivity of systems to understand the complexity of slow-onset displacement. A similar approach is being used to better understand the interconnected factors driving displacement associated with criminal violence in the Northern Triangle of Central America (see Figure 17, p.74).[302]

FIGURE 17: Interconnectivity of systems



Based on system dynamics and agent-based modelling approaches, IDMC is also mapping the ways in which policy responses and long-term investments determine displacement risk. This helps to understand the circumstances in which displacement is likely to occur and why. This approach will enable IDMC to model scenarios for displacement risk in different slow-onset situations and with different policy interventions.

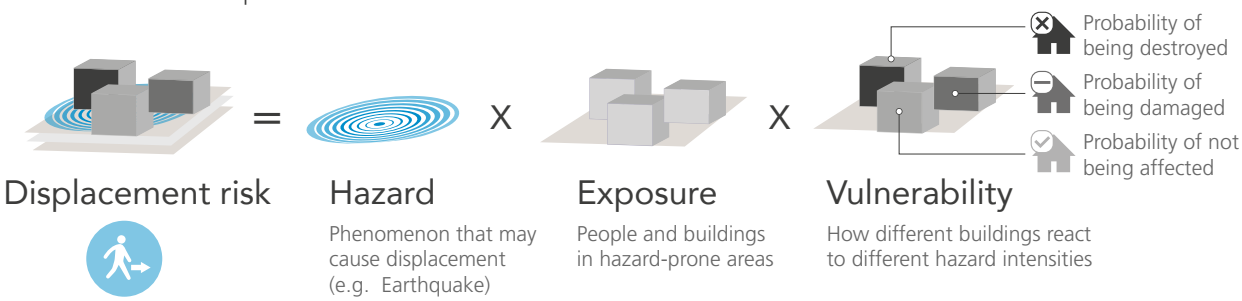
ACCOUNTING FOR FUTURE RISK

Many governments and operational actors recognise the need to understand future displacement risk. There is increasing demand for displacement risk models and forecasting tools that are able to estimate the scale and severity of future displacement and reveal its underlying drivers. However, the development and improvement of these tools is still catching up with the demand.

Using probabilistic approaches to estimate displacement, however, requires highly localised and detailed information, and many governments lack the data needed to validate risk models and conduct full risk assessments. More capacity building is needed before models can be adapted to specific needs and the results applied to inform policy development and investment planning.

IDMC released its unique global disaster displacement risk model in 2017.[303] The first iteration, based on a global model developed by the UN Office for Disaster Risk Reduction (UNISDR) calculates the average number of people likely to be displaced every year by sudden-onset hazards (earthquake, tsunami, floods, cyclonic winds and storm surge).[304] It calculates the probability

FIGURE 18: How is displacement risk calculated?



and intensity of hazards, and exposure and vulnerability components to estimate disaster displacement risk (see Figure 18). The results are based on the likelihood of housing destruction as a proxy for displacement, and suggest that an average of around 14 million people are likely to be displaced globally in any given year in the future.[305]

Because the model excludes those displacements associated with pre-emptive evacuations – which is particularly relevant for countries with strong disaster preparedness capacity such as Bangladesh, China, Cuba, the Philippines and Viet-Nam – the estimation of risk is inherently conservative. The model is likely to be a closer fit for countries with less disaster preparedness capacity.

IDMC has since worked closely with the Swiss Federal Institute of Technology in Zurich (ETHZ) to improve the model's ability to predict flood displacement risk. Increasing the resolution of the exposure layer from five square kilometres to one allowed a more granular assessment of the people and assets exposed to floods. This, coupled with a re-run of hazard scenarios using the latest technologies, produced a more accurate estimate that suggests the number of people at risk of displacement by floods is significantly higher. Better resolution of the model also allowed the disaggregation of displacement flood risk figures by urban and rural locations (Flood displacement risk spotlight, p.84).

The evidence disaster displacement risk modelling produces can be used to inform national and more local disaster risk reduction (DRR) policies and investments, and to identify areas where large numbers of people risk losing their home and being displaced. It also helps to identify the required capacity for evacuation centres and the amount of assistance needed to support displaced people.

IDMC's model also provides a benchmark for measuring progress toward DRR, including against international frameworks such as the Sendai Framework for Disaster Risk Reduction, and the 2015 Paris Agreement on climate change. It can also be adapted to support operations in real time by indicating the number and location of damaged and destroyed homes caused by modelled or observed hazards.

THE WAY FORWARD

The ongoing challenges associated with internal displacement data are clearly interlinked. A systemic response which develops common standards and improves cooperation, coordination and data interoperability is critical, if governments and other actors are to fully understand, prevent and address the phenomenon through better policymaking, planning and risk reduction.

New technologies and approaches have the potential to overcome some of the specific challenges in obtaining comprehensive, timely, accurate and disaggregated data on a range of displacement situations. Used with due regard for ethical questions of privacy and data protection, they could help to fill significant knowledge gaps.

Armed with stronger data and evidence, governments and other stakeholders will be better equipped to understand and plan for future risk and to monitor progress toward targets under frameworks such as the Sustainable Development Goals, the Sendai Framework on Disaster Risk Reduction and the Paris Agreement. More importantly, they would also be in a better position to address the needs of IDPs.