SPECIAL ISSUE ON Data, Human Mobility and the Environment – MECC & DTM Joint Contribution

MIGRATION POLICY PRACTICE

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Thousands of Kenyans, Somalis and Ethiopians are forced to take long arduous journeys in search of survival, as the Horn of Africa experiences the worst drought in 60 years. © IOM 2011/Lovorka IKOVAC

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Migration, the environment and climate change: What data do we need and how do we get it?

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This special issue of *Migration Policy Practice* focuses on the linkages between migration, the environment and climate change. Although numerous papers and reports have been written about this subject in recent years, it is widely agreed that there is a lack of data on this subject. Estimates suggesting that between 200 million and 1 billion people could be displaced by climate change during the next 30 years have captured the attention of policymakers and the media. Yet, as the authors of this special issue point out, such figures are often based on little more than guesswork.

This special issue focuses on two broad sets of questions: **(a) What kinds of data are needed on migration, the environment and climate change? (b) How can the collection and analysis of data on migration, the environment and climate change be improved?**

Regarding the first question, authors suggest that there is a need for a broad range of different types of data. There is a need for data on both the impact of environmental changes on the movement of people and the impact of migration on areas particularly affected by climate change. There is also a need for data on the impact of extreme environmental events and slow-onset events, which is often more difficult to obtain. The impact of gradual changes in the environment on the mobility of people is difficult to capture in many instances, as it is often linked to so many other factors driving migration.

Too often there is a lack of disaggregated data, which makes it difficult for policymakers to identify which migrant groups are most vulnerable to the effects of environmental change. We also need better data on national policy responses. To date, only 33 countries refer to human mobility in their policy frameworks for addressing climate change – Nationally Determined Contributions (NDCs). Authors also point out that data collection needs to focus not only on those who cross borders but also on the large number of people who may be internally displaced due to factors linked to environmental changes. Some authors also suggest that we need better data to help us understand why some people cannot move and use migration as an opportunity to escape from the negative consequences of climate change. Others note the need for data to help policymakers understand better the impact of remittances on communities badly affected by environmental changes. Policymakers also want to understand better the linkages between environmental change and migration so that they can better forecast and anticipate future migration flows. To sum up, the four articles in this special issue highlight the need for a range of different types of data to help improve the evidence base on migration, the environment and climate change.

The second question discussed by contributors to this volume centres on how to get better data on migration, the environment and climate change. One of the problems is that there is a general paucity of timely, accurate and disaggregated data on all forms of migration. The lack of data on migration has been recognized in the Global Compact on Migration, which calls upon all countries to improve the collection and analysis of data on migration. Currently, only a minority of countries, for example, share data on migration flows with the United Nations Department of Economic and Social Affairs Statistics Division each year.

While some authors note that research on migration, the environment and climate change has advanced in recent years using a range of new methodologies, very few countries produce regular statistics on migration and the environment. A number of authors suggest that one way forward could be to take advantage of new technologies and the potential of using big data and other new sources of data. For example, Kira Vinke and Roman Hoffmann in their article suggest that the spread of cell phones now makes it easier to study the mobility of people rapidly by analysing call detail records (CDRs). They cite the example of a study in the south of Bangladesh that monitored the inflow and outflow of 6 million people after cyclone Mahasen made landfall in the Bay of Bengal in 2013. However, it is also recognized that such data often needs to be complemented with information from more traditional data sources such as surveys and administrative data. In the case of the latter, the problem is not always the lack of data but the lack of the sharing of such data between different actors at the national level and the use of different definitions and concepts. All authors agree that there is a need to invest in building the capacities of statistical systems to better capture data on migration, the environment and climate change in the future. This will require better integration and analysis of often disparate sources of data, as well as the development of specific new tools to better capture the mobility dimensions of migration, the environment and climate change.■

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Human mobility and the environment: Challenges for data collection and policymaking

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Introduction: Environment, migration and data for policy

The public debate over the last few years around the humanitarian effects of environmental and climate change has gained increasing momentum. There is growing awareness of the potential impacts that exposed, vulnerable people might be facing (IFRC, 2019), and at the forefront of public concerns are the ways they will shape patterns and trends of population movements.

The 2019–2020 wildfires in Australia, and the evacuation (spontaneous or government-supported) of hundreds of thousands of residents from affected areas, are one example that received global media coverage, serving as a reminder that adverse environmental impacts and related forced movement can disrupt lives of people everywhere, including in countries traditionally seen as better prepared.

In this context, a recent decision by the United Nations Human Rights Committee reignited global discussions on how to provide assistance and protection to those moving in the context of disasters, environmental degradation and climate change. For the first time, the Committee recognized that States shall refrain from sending people back to situations in which the impacts of climate change in the country of origin pose a risk to their life with dignity. However, the Committee's decision also confirmed that the threshold needed to apply this principle is particularly high and considered that it was not met in the case of the Kiribati national that was under review.

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All these interlinkages between a changing environment and population mobility have in fact become central to policies and decision-making on development, migration, and climate change adaptation and disaster risk reduction (IOM, 2014). At the global level, the nexus has mainly been articulated under the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, through its Task Force on Displacement, as part of the workstreams on adaptation and loss and damage, as well as in the consultations leading to the development of the Sendai Framework for Disaster Risk Reduction (Guadagno, 2016). Most recently, States have reaffirmed both the need to address environmental drivers of forced population movements and to consider options not to return people to harmful situations, through the development of the Global Compact for Safe, Orderly and Regular Migration.

In addition, the specific protection concerns related to people displaced across borders in the context of disasters and climate change have led to the development of the Nansen Initiative's Protection Agenda and the Platform on Disaster Displacement.

At the regional level, work on this topic has resulted in the development of guidelines to protect people moving across borders in the context of disasters in Central and South America (Nansen Initiative, 2016), while a variety of human mobility issues are picked up in national adaptation strategies and programmes of action, as well as in Nationally Determined Contributions, which reflect national commitments to achieve global climate objectives on reducing greenhouse gas emissions and adapting to the impacts of climate change. On the other hand, many national migration policies also make references to climate and environmental drivers of migration (IOM, 2018).

This complex policy picture translates in a diversity of approaches to the nexus between environment and mobility. Internal and cross-border movements in the context of environmental and climate change are seen (sometimes simultaneously) as a potential source of pressure on ecosystems and infrastructure, as a process to be avoided or minimized, as a strategy that contributes to household-level resilience and

adaptation, or as a measure to be supported in order to reduce current and future risks. Common to most policy instruments is the need for an increased understanding of the phenomenon.

The need for better data on the environment–mobility nexus is recurrently highlighted, including in the Global Compact for Migration (objectives 2, 18.i–18.k), for the development of informed adaptation, resilience, and disaster preparedness policies and plans, considering risks linked with sudden- and slow-onset disasters, and the impacts of climate change and environmental degradation. Data is seen as central to answering the (apparently simple) questions underpinning the different policy agendas: How many are moving because of climate change? Where do they go? What are the costs and benefits of population movements? How can (forced) movements be avoided?

Answering these questions, however, requires unpacking the full complexity of the nexus between mobility and the environment, and relies on quality, comparable data on: stocks and flows of people moving and staying behind; their socioeconomic features; the drivers and the characteristics of their movement; current and future trends and patterns; and the socioenvironmental impacts of their movement. Uncertainties on all these key variables profoundly challenge the work of researchers and practitioners. Therefore, despite the progress that has been made over the last decades on many of these elements, significant knowledge gaps still exist, which result in insufficiently informed policy and (potentially) misguided actions. The following sections look at some of the main challenges confronting data work on the environment–mobility nexus, and how they shape relevant efforts in the field by IOM and other actors.

Climate-induced movements

Much of the policy concerns and of the data work on the topic have focused, and still focus, on exploring the causal relationship between environmental events and population movements. The Internal Displacement Monitoring Centre (IDMC) numbers on disaster displacement, the most cited piece of relevant evidence, show that between 2008 and 2018, disasters caused 265 million new displacements, of which 87 per cent were linked to weather-related hazards (IDMC, 2018). Diverse, increasingly nuanced attempts have been made at forecasting future movements under environmental change scenarios

(IDMC, 2014a; Rigaud et al., 2018). However, they still do not provide unequivocal insights on the number of people who will be moving due to climate change.

It is very challenging to isolate climate change[2] from environmental variability, events and processes, and environmental factors indeed drive population movements regardless of any ongoing process of change (Kelman, 2019). Weather- and climate-related hazards and disasters, and resulting population movements, cannot, in general, be specifically attributed to human-induced climate change, albeit there have been some studies in this sense (Imada et al., 2019; Reed et al., 2020). Most often, climate change will be a compounding factor in changes of local ecosystems mainly caused by natural resource exploitation and land use, including in the paradigmatic case of sea-level rise affecting low-lying islands and coastal areas in which subsidence and erosion might be the most urgent concerns. On the other hand, the role of environmental events and processes (whether or not influenced by climate change) in potentially leading to tensions and conflicts and associated mobility might still be underestimated: while they are rarely the main driver, they do tend to act as an underlying exacerbating factor (Ionesco et al., 2017).

The first challenge to data work on this topic is thus the complexity of interconnected ecosystem processes. The ongoing conceptual shift towards more nuanced approaches looking at "mobility in the context of disasters, environmental degradation and climate change" is not necessarily reflected in more comprehensive policymaking. An example are climate change policies that do not look comprehensively at other ongoing environmental processes (e.g. linked with loss of biodiversity and local changes in ecosystems).

Disentangling social and environmental drivers

To compound this complexity, environmental drivers are difficult to isolate from other drivers of human

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2   Defined as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" by the United Nations Framework Convention on Climate Change (UNFCCC) in Article 1(2) or more broadly any change whether due to natural internal processes or external forces as detailed in the Intergovernmental Panel on Climate Change (IPCC) definition (2007).

mobility related to economic, social, political, and cultural conditions and processes. Mobility decisions are always influenced by a variety of factors (including environmental ones), and environmental events and change impact people in diverse manners depending on their pre-existing capacities and conditions of vulnerability (Foresight, 2011). Disasters, environmental degradation and climate change may only trigger movements in the absence of sufficient individual and collective measures to anticipate and cope with relevant impacts. In this context, it can be extremely challenging, if not impossible, to attribute movements to specific drivers.

Data collection practices, instead, often have to take simplistic approaches and seek to single out individual/primary drivers of movement. As a result, they risk masking a broader spectrum of contributing factors. Evidence from a number of different contexts shows that environmental factors or disasters are rarely mentioned by people on the move as a cause of movement, while more common reasons for movement include a search for better opportunities/livelihoods and escaping from conflict/violence (Milan et al., 2016; MMC, 2020; Puscas and Escribano, 2018). This might be interpreted as evidence of a weak link between climate change and population movements. However, it could also be symptomatic of the fact that data collection does not always allow for adequate capture of multi-causality, especially where the decision to move is classified based on a single reason or a list of "top reasons". Indeed, environmental change underpins changes in all dimensions of well-being, including livelihood security and stability (Barnett and Adger, 2007; Burke et al., 2009; Raleigh and Kniveton, 2012), and may thus contribute to conditions resulting in movement – rather than being their direct trigger.

In an introspective analysis of its own data collection practices, the IOM Displacement Tracking Matrix[3] (DTM) team identified that its common practice to classify groups of internally displaced persons by main reasons of displacement makes it difficult to analyse the potential influence of environmental

and climate change on human mobility patterns. For example, displacement reasons may be reported as "communal clashes" without further assessing what the underlying factors for those communal clashes are, whether patterns of clashes have changed over the years and if any of these is related to underlying changes in the environment, including climate. For data collection actors in the humanitarian field, there is a constant balancing act in seeking to design exercises that can be rapidly implemented in emergency contexts yet yield sufficiently granular data to also feed into broader policy debates. The secondary use of data to help inform policy debates is encouraged yet the inherent limitations of data need to be carefully considered before drawing conclusions.

Adjustments to the way data is captured can help improve its use beyond the immediate humanitarian response context. For example, the use of ranked scales, where for each conceivable reason of displacement an indication is made as to whether and how strongly it contributed to the decision to move, can help shine light on multi-causality and therefore contribute to greater clarity around the environment–mobility nexus. Alternative methodologies have investigated experience of environmental impacts of people moving out of hazard-affected areas (Melde, Laczko and Gemenne, 2017), or seek to look at data on environmental variables (e.g. rainfall and soil moisture, temperature) in the areas of origin of those moving to expose environmental events or processes potentially affecting movements. Implementing these options more consistently in both individual-/household-level surveys and key informant-based location assessments could help shed light on the environmental components of complex decision-making processes.

The quest to categorize

Human mobility in the context of environmental and climate change also is a very heterogeneous phenomenon, which takes multiple forms along a set of dimensions – timing, duration, direction and distance, and degree of voluntariness, to name a few. Mobility responses to the same event, whether a sudden-onset disaster, such as a cyclone or an earthquake, or a slow-onset process, such as erosion or sea-level rise that progressively renders an area uninhabitable, may be very different. The IDMC figures, for instance, usually include people who might evacuate both before and after disasters; who might

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3   Developed by IOM, DTM gathers and analyses data to disseminate critical multilayered information on the mobility, vulnerabilities, and needs of displaced and mobile populations, enabling decision makers and responders to provide these populations with better context-specific assistance. For further information, visit https://dtm.iom.int/, with links to the migration and displacement portals.

be forced to leave for days, weeks or months; and who might end up close to their original homes, elsewhere in their countries or abroad (IDMC, 2019; see also Ginnetti, 2020, this volume). This complexity makes it extremely difficult to comprehensively gather data on movements in the context of disasters, environmental degradation and climate change. Moreover, the fact that most of these dimensions can be characterized as continuums rather than clear-cut alternatives makes it almost impossible to analyse data to clearly categorize individuals moving.

For instance, especially in the case of slow-onset processes, some people may move preemptively, either on their own initiative or as part of risk reduction or adaptation programmes, others may wait until the last minute to leave. While all movements might be triggered by the impacts of the same phenomenon, there is a tendency to describe anticipatory movements as more voluntary than those that are undertaken at the height of a disaster. In such cases, overly simplistic, rigid categories may trigger perverse practical effects – for example, if protection and assistance (e.g. in the form of temporary protection for cross-border movements or financial/material entitlements for internal movements) are extended preferentially to those who evacuate in the acute phase of a crisis, anticipatory movements might be disincentivized. Instead,

> "voluntary and forced movements often cannot be clearly distinguished in real life but rather constitute two poles of a continuum, with a particularly grey area in the middle, where elements of choice and coercion mingle" (Kälin and Schrepfer, 2012).

An example of movement along this continuum is seasonal migration as a traditional livelihood option that allows to manage environmental/ seasonal variability. It is characterized by an element of necessity to move, created by environmental constraints, mixed with a degree of voluntariness in determining the timing and direction of the movement. In the context of a changing environment, similar movements might actually represent one of the most effective adaptation measures available (Black et al., 2011). Related movements are likely captured through existing data collection systems, such as the DTM network of flow monitoring points situated in strategic high-mobility locations, including bus stations or border points, in 36 countries across Africa, Asia, Europe and Latin America. However, further analysis is needed to fully understand these

movements, the factors underpinning them and their evolution as a response to a changing environment.

Distinguishing different categories of movements along the voluntary-forced continuum would require focusing on the degree to which a person has come under pressure by the surrounding environment and how much individuals have the freedom to make their own choices – something that is particularly difficult to capture in (quantitative) data collection exercises. Increased environmental pressure with few remaining viable options increases people's vulnerability.

Looking at the case of pastoralist communities, the IDMC (2014b) distinguishes according to the increasing degree of vulnerability and a corresponding decreasing level of voluntariness in the choice to move between traditional nomadic movement, adaptive migration and displacement. Adaptive migration is distinguished from traditional nomadic movement by the fact that the former involves recourse to other routes, grazing land or water points than those traditionally used. Since notions of displacement are often framed around loss of habitual residence, capturing adaptive migration patterns and displacement among nomadic communities can be particularly challenging. Traditional pastoralist movements take place along well-established corridors that are approved by local communities; however, increasing environmental degradation and unpredictable rainfall patterns, exacerbated by climate change, are significantly undermining their regularity and increasing related intercommunal tensions. In order to better capture movements along transhumance routes, the DTM implemented the Transhumance Tracking Tool (TTT) across different countries in West and Central Africa. Through a network of key informants, the TTT monitors transhumance patterns and trends and allows for identification of unexpected movements – which can potentially help identify movements that belong to the less voluntary part of the spectrum.[4]

The duration and direction of movements can also vary widely. Movements can be temporary (ranging from the short term, such as evacuations in response to a sudden-onset disaster whose effects recede rapidly, to the medium term, for example seasonal migration or displacement that protracts over a significant period)

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[4] The latest available dashboards developed with the Transhumance Tracking Tool can be found here: Chad and Mauritania.

or permanent, as is the case when people are leaving an area that becomes uninhabitable. Moreover, movements can take place over shorter or longer distances within the same locality, to a nearby area, to another region in the country or across borders.

Distance and duration are not necessarily correlated: as a result of eroding coasts, people may be moving to a new neighbourhood in the same city, while there are those who can be temporarily evacuated across hundreds of miles to avoid the impacts of a cyclone. For neither of these dimensions it is possible to univocally define boundaries, such as a minimum distance to move for somebody to be considered an "evacuee" or a "displaced person", or the time beyond which somebody becomes a "migrant". Attempts at related categorization are necessarily arbitrary and might result in limited assistance for those who do not meet a category's criteria.

Further compounding this complexity from a conceptual and data gathering point of view is the fact that people's situations, priorities and intentions evolve over time as they experience longer or different impacts and are presented with new arrays of mobility options. What started as a short-term evacuation can morph into a protracted displacement, then to something more akin to labour migration – and determining the actual trajectory and outcomes of a specific movement can only truly be done ex post. This, however, is not something that will usually fall within the scope of most operational data collection exercises.

Even relatively clear-cut categories can in fact be riddled with caveats. Efforts to specifically protect people displaced across borders in the context of disasters and environmental change, for instance, need to be complemented by adequate support for those who move within national borders – who are likely to be the overwhelming majority in most scenarios (Faist and Schade, 2013), and who might have more constrained access to resources and coping capacities. Moreover, even at the height of a crisis, cross-border movements will remain underpinned by a combination of factors and varying degrees of voluntariness.

Attribution, time scale, space scale and degree of voluntariness are just a few potential ways to categorize people on the move in the context of environmental change, and it is paramount to remember that the decision to define such categories, attribute them specific statuses and entitlements, and include or not a specific individual in a counting exercise depends on definitions and political agendas in the last instance (Kelman, 2019). A certain level of arbitrariness will always be present, but the current lack of international consensus on the topic is a major obstacle to systematic, consistent data collection exercises in this field.

The (im)mobility continuum

Policies and programmes on the nexus between mobility and the environment (and related data collection work) have largely focused on population movements, more specifically on the more intense, concentrated flows. However, moving and its positive and negative outcomes cannot be fully understood by looking at movement alone: framing mobility as a successful or an unsuccessful coping strategy, as an adaptation measure or a failure of adaptation, requires looking at potential alternatives based on immobility and staying in place.

Investigating and understanding immobility, however, is no easy feat. Many large-scale data collection efforts on population movements take place primarily or exclusively in locations of transit and destination, and do not provide the multi-sited approach that would be required to also assess the situation of people staying behind. Moreover, immobility takes place along a continuum of forced and voluntary choices: on the one hand, those who have effective strategies in place to reduce impacts or cope locally and do not need or want to move; on the other, those who do not have the means to leave (so-called "trapped populations") in the face of an impending or potential hazard, not even as a last-resort measure (Black and Collyer, 2014; Gemenne, 2010). Mobility and immobility might even be adopted simultaneously by different individuals within the same household as a way to minimize risks or maximize opportunities, including in the aftermath of major disasters (IDMC, 2017). It is challenging to fully grasp the motivations, meanings and impacts of different mobility choices without having information on pre-existing socioeconomic conditions and without looking at how they influence the short- and long-term outlook and options of those affected by environmental and climate change. Studies that are multi-sited, longitudinal and look at well-being variables through the lens of different (im)mobility trajectories remain scarce.

While the point of "quantifying the impacts of immobility and mobility" might remain an unresolved theoretical challenge, expanding data collection and analysis to include information on the scale and situation of people who stay in place would provide an additional dimension to needs and vulnerability assessments in the context of mobility related to disasters, environmental degradation and climate change, and result in much needed further indications for policymaking and programming. In particular, it would strengthen the case for adopting measures that build people's resilience by supporting their ability to move in a pre-emptive or reactive manner. More open and inclusive migration schemes and regimes, the preservation of traditional migration and transhumance routes, evacuation assistance, planned relocations, policies facilitating admission of (and assistance to) people displaced across borders, and measures removing obstacles for displaced persons to return or move onwards all aim to reduce current and future risks by expanding people's mobility options.

Understanding current and potential costs of immobility will be increasingly important as we look at how disasters, environmental degradation and climate change potentially lead to a progressive erosion of people's resources and ability to move. In this context, it is likely that forced immobility will become an increasingly relevant issue, in particular in areas of the world and for people who will be most heavily affected by these environmental events and processes.

Conclusion

While the need for better data on the nexus between mobility and the environment is well established for policymakers at all levels and around the world, there are still significant obstacles to achieving a comprehensive, detailed understanding of this domain. Data is seen as essential to answering fundamental policy questions and concerns, but simple, clear-cut answers can rarely be produced through the observation and analysis of an eminently complex, dynamic and uncertain landscape.

In addition, many of the most comprehensive, comparable data collection efforts are not explicitly designed to inform policy and may lack the nuanced approach needed to provide analytical insights into relevant phenomena. In contrast, more detailed studies that look at mobility in context-specific manners over time and across places tend to lack the breadth and uniformity that would allow them to give broader relevance to more specific conclusions. The resulting gap may be overcome by making small adjustments to the way comprehensive and comparable data collection efforts are implemented, for example increasing the use of ranked scales to obtain greater nuance on reasons for movement, or explicitly defining immobile populations as a population of interest.

In light of the challenges highlighted in the previous sections, it is likely that uncertainties on triggering factors, numbers of people on the move, trajectories and outcomes will remain. In this context, "informing policies" might require exposing the fallacies of simplistic approaches, pointing to the arbitrariness of clear-cut categories, and anticipating the potential, adverse consequences of specific decisions. The main responsibility and biggest contribution of data practitioners might be to ensure that complexities and nuances are adequately preserved, understood, and valued in policymaking and decision-making processes. At the same time, ensuring continued dialogue between thematic area experts and data practitioners is key to determine where the latter may be able to support the information needs of the former. ■

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State of the art: Impacts of environmental and climate change on human mobility*

Susanne Melde and Alex Flavell[1]

Tackling the climate crisis is an object of heated discussions, reflected in increasingly frequent and large-scale demonstrations in the streets and slowly translating into more ambitious political agendas, such as the 2019 Green Deal for the European Union and its citizens. The contribution of human activity to global warming is well documented by scientists, with a 1-degree Celsius warming above pre-industrial levels already confirmed and the impacts on natural and human systems increasingly observed across world regions (IPCC, 2018). Changing environments, or disasters[2] such as floods and storms, have for centuries influenced human settlements and movements in various ways and are now increasingly impacted by global heating.

Just like environmental change, human mobility[3] is an old phenomenon but its links to gradual degradation of the environment and climate change are often not well understood. What do we know about data on human mobility, the environment and climate change, and the impacts of hazards[4] on migration and other forms of mobility?

Data for policy: Recent progress and remaining gaps

The number of publications on the links between human mobility, environmental change and climate change has increased exponentially over the past 10 years (Piguet et al., 2018), since different forms of mobility (e.g. migration, displacement[5] and planned relocation[6]) were first recognized in international policy frameworks on adaptation under the United Nations Framework Convention on Climate Change (UNFCCC) at the Conference of the Parties (COP) 16 in Cancun, Mexico, in 2010. It is widely established that migration is multi-causal and that environmental "drivers" are often interwoven with other factors, notably economic ones (Foresight, 2011). For

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2 As defined in the report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction established by the United Nations General Assembly, a disaster is "[a] serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts".

3 Human mobility is understood as a general term, encompassing forced and voluntary migration, including displacement and planned relocation.

4 As defined in the report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction established by the United Nations General Assembly, a hazard is "a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption, or environmental degradation".

5 IOM defines displacement as "[t]he movement 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".

6 As defined in the 2019 IOM *Glossary on Migration*, planned relocation, "[i]n the context of disasters or environmental degradation, including when due to the effects of climate change", is "a planned process in which persons or groups of persons move or are assisted to move away from their homes or place of temporary residence, are settled in a new location, and provided with the conditions for rebuilding their lives".

instance, changing environmental conditions can influence migration decisions via impacts on crop yields. Methodologically it is often difficult to single out the environment as the only or deciding factor for moving. Data on the number of people displaced due to disasters within countries is more widely available,[7] in part reflecting the clearer causal chain between an "environmental stimulus" and "mobility outcome," where the environmental driver of movement is relatively clear. Overall, available data on the environment and climate change are also far more exhaustive than existing migration data (Flavell, Milan and Melde, 2020:35; for a discussion on the reasons for this, see Vinke and Hoffmann, this issue).

While data gaps persist (see Ponserre and Ginnetti, 2019; Vinke and Hoffmann, this issue), research methodologies have seen important advances over the past decade, including comparative studies, agent-based modelling, identification of hotspots and other innovative approaches, including the use of cell phone data to track locations of populations displaced after disasters such as earthquakes (Flavell, Milan and Melde, 2020:36–37). An important evidence base has thus been established but often political will to act on findings is still lacking.

Fashion pitfall: The limited use of existing prognoses

Policymakers like to be able to "put a number on it" and have forecasts. Yet quantification of human mobility in the context of environmental and climate change is difficult. This is particularly the case for prognoses of future movements, most of which have been criticized due to methodological flaws and can at best be considered guesstimates (for a summary, see Flavell, Milan and Melde, 2020:39–40; Melde, 2016:1). Projections of at-risk populations are less controversial, for instance populations who would be at risk from projected sea-level rise in different scenarios of the future. A more recent projection by the World Bank (Rigaud et al., 2018) uses a gravity model to estimate internal climate change-related population movements in three world regions by 2050. While it is a useful study and most mobility in the context of environmental change will take place within countries, some movements will be international, which the model does not cover (Rigaud et al., 2018:53).

Prevention and preparedness can foster resilience to sudden-onset disasters and mitigate the impacts of displacement on vulnerable populations

Displacement resulting from disasters is one of the most tangible examples of the environment–human mobility nexus. While it is not (yet) possible to attribute single disaster events to climate change, there is widespread agreement among scientists that climate change is already leading to more frequent and intense extreme events and that this trend will increase going forward (IPCC, 2018). Combined with projected population growth in disaster-prone areas, the number of people projected to be at risk of being displaced by disasters is predicted to increase significantly (IDMC, 2015).

However, disaster risk reduction approaches can, in many cases, reduce disaster displacement risk. Physical infrastructure such as flood defence systems can be effective, but non-physical measures such as land-use planning can be just as important, with zonal restrictions to development in urban areas subject to flood risk being one example. Of course, there are limits to the effectiveness of these approaches, often linked to cost constraints or uneven implementation of policies, and disaster displacement will continue to occur. Nonetheless, while displacement is never a desired outcome, it is important to keep in mind that displacement numbers on their own are a very blunt – and insufficient – proxy for population vulnerability[8] in relation to disasters. Being able to move away from danger may reflect and result in resilience rather than vulnerability. This is particularly the case when early warning systems are in place and populations are prepared. Evacuation can be a form of displacement, which – when managed well and adequately resourced – mitigates the impacts of disasters on exposed and often vulnerable populations.

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[7] The Internal Displacement Monitoring Centre (IDMC) has been compiling data on people newly displaced internally by disasters since 2008.

[8] According to the 2019 IOM *Glossary on Migration*: "Within a migration context, vulnerability is the limited capacity to avoid, resist, cope with, or recover from harm. This limited capacity is the result of the unique interaction of individual, household, community, and structural characteristics and conditions."

While disaster risk reduction seems an eminently logical approach, adequate funding to support effective implementation is still a long way off. Reducing displacement and increasing the resilience of communities will need political commitment and leadership at all levels to ensure that measures are in place before hazards such as floods, tropical storms or droughts hit and force people to leave their homes. Particular attention to cultural specificities and the needs of vulnerable groups will need to be integrated into all stages of planning. For example, in some contexts, women may be less likely to be alerted in case of emergencies or may face enhanced risks of gender-based violence in post-displacement settings. Similarly, migrants may be less aware of evacuation plans, less able to access support, and unable to rely on local support from friends and family networks. Involving such groups actively in the design of disaster risk reduction measures will be key to ensuring effective human rights protection for all affected populations (Flavell, Melde and Milan, 2020:18).

The complex relationship between human mobility and vulnerability in the context of slow-onset changes to the environment

Increasing population growth in areas threatened by climate change and environmental degradation is expected to have profound implications for human mobility. Sea-level rise, land degradation and desertification are among the key slow-onset processes that threaten both lives and livelihoods. The projected exposure[9] of low-lying but fast-growing mega cities in Asia has been highlighted as a particular concern (Foresight, 2011:19). Much less is known about how this growing exposure will impact human mobility, since much depends on financial and human capacities as well as governance (Flavell, Melde and Milan, 2020:28).

At the macrolevel, a country like the Netherlands may be able to meet the challenges posed by sea-level rise without any implications for human mobility, or with only limited impacts such as the planned relocation of a few, specific communities. Migration, displacement and planned relocation will be – and in many cases

already are – more likely in low-income countries with vulnerable populations, such as small island developing States. Within this broad macrolevel picture, it is important to also keep in mind that some communities, groups, households and individuals will be more vulnerable than others to environmental change.

A growing number of studies have sought to investigate the hypothesis that migration, particularly in the form of temporary or seasonal labour migration, can help households to build resilience to environmental change by diversifying income sources; for some, migration is an adaptation strategy (see for instance Melde et al., 2017). However, the full picture is more complex, with better-off families being more able to build resilience through more planned and voluntarily undertaken forms of migration, while for more vulnerable households, migration is more likely to be a necessity and may, in some cases, actually exacerbate vulnerabilities (Warner et al., 2012). Policies that increase options to stay and make mobility a choice are needed.

Planned relocation of communities should only be considered as a last resort, due to its high complexity, and the high economic, social and cultural costs often associated with it. For instance, a government's perception of when land has become unproductive or uninhabitable will often differ to that of the affected community. Planned relocation requires strong human rights protection principles, the mainstreaming of gender considerations, and an inclusive approach which involves both the community to be relocated and the host community from the beginning. Relocation in the context of environmental change has so far only taken place within countries – international relocation would pose major additional challenges on many levels (Flavell, Melde and Milan, 2020:23–24).

The non-migration effect: Immobility

Yet not all people who live in degraded or hazard-prone areas will move. As environmental and climate change undermines livelihoods, some will be unable to migrate – so-called "trapped populations" (see Foresight, 2011) – as they lack the necessary resources to move away. In other cases, people in affected areas who are able to move may not do so, for diverse reasons (e.g. attachment to the place/community/culture or social obligations). Both of these immobile groups – "trapped populations" who cannot move but would want to, and those who might be termed

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9   Defined by the Intergovernmental Panel on Climate Change (IPCC), exposure is "the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places … that could be adversely affected" by environmental and climate change impacts.

"voluntarily immobile", who have the means to move but choose not to – are likely to be among the most exposed and vulnerable to environmental change but difficult to identify (Melde et al., 2017). This highlights the need for supporting all populations in areas affected by environmental and climate change (Flavell, Melde and Milan, 2020:47).

The need for action in climate policies: Finding entry points for human mobility

A review of 184 Nationally Determined Contributions (NDCs)[10] of countries in the framework of the UNFCCC shows that only 33 referred to human mobility in one form or another (Wright et al., 2020:24). The national adaptation plans and the national communications on climate change of these 33 countries show some progress in mainstreaming human mobility into climate policy planning, but this can only be taken as a starting point. Both challenges and opportunities for adaptation based on human mobility need to be considered a cross-cutting issue if countries aim to adequately address the adverse effects of climate change on human mobility. Furthermore, lessons learned from these first experiences of countries integrating mobility into their NDCs should be shared widely so other countries can build on them.

Many other entry points for integrating human mobility in policy planning exist, be it disaster management, human rights, labour standards, education, gender, health, sustainable development and humanitarian relief. Government and other actors working in all these domains can help to foster the resilience of communities vulnerable to environmental and climate change (Wright et al., 2020:52).

Last but not least is a(nother) point about funding. Most global climate finance mechanisms or funds have few or no dedicated components or streams open to human mobility issues. Yet those countries most affected by the climate crisis and disasters are most likely the ones with the fewest resources to address the impacts. The international community thus has a common but differentiated responsibility to provide support in planning and implementing relevant programmes. Opening up climate change adaptation programmes to include human mobility

would seem a logical and much-needed step in building resilience to environmental degradation and climate change (Wright et al., 2020:55). At the same time, funding and policymakers' attention should not neglect the data dimension, as reliable evidence is needed to underpin climate migration policies. Sustainable funding for research is needed to enable comparative and longitudinal studies with information disaggregated by sex and age. In addition, information on policies seeking to address human mobility in the context of environmental and climate change can further improve policymaking by providing good practices for other countries. ■

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Data for a difficult subject: Climate change and human migration*

Kira Vinke and Roman Hoffmann[1]

Introduction

Climate change will necessitate a redistribution of the population because some areas may no longer sustain agricultural practices or simply become too dangerous to live in. As impacts intensify, understanding the interactions between climate change and migration is becoming more important for policymakers who have to balance the interests and needs of destination communities and migrants. In this regard, comprehensive data and evidence play a key role in informing policy.

Both quantitative and qualitative data can serve to understand why some people move and some people stay when faced with a climatic hazard (IPCC, 2018) or what the outcomes of migration are for migrants, receiving communities and sending communities. While quantitative datasets are well suited to analyse migration patterns over time and different locations and to understand broad dynamics of climate migration, qualitative data, like interview data, focus group discussions or participatory observation data provide insights on migration motivations and outcomes especially with regard to identity and culture or the specific needs of migrants in new settings.

For both types of sources (quantitative and qualitative), data availability is limited for different reasons. For example, many movements that are related to climate change impacts are undocumented because they occur mainly within countries and among populations that live in areas with limited government and administrative oversight. The available data is scattered between different case studies and was collected with different objectives and sampling methods, resulting in a low intercomparability.

When linking qualitative and quantitative datasets to physical climate impacts, the scales of analysis are also a challenge. Some effects of global changes, like increases in mean temperature and sea-level rise, have not yet been downscaled to the regional and local levels. This includes, for example, the aggravated effects of storm surges in deltaic areas, or the increase in extremely hot days in cities, both of which can have implications for population movements.

Challenges also exist on the structural level. For some of the most exposed regions of the world, like in the Sahel, few universities and research institutions exist that produce climate impact research. Funding is limited and analysis suffers from the dearth of weather stations and incomplete historical climate data. Other countries and areas, such as small islands, are too small to be captured adequately in global climate models.

As with other non-traditional research fields, investigating climate migration requires methodological innovation and improvement in the existing data sources. Especially because both migration and climate change have been heavily politicized and subjected to false reporting and misinformation campaigns, it is necessary to strengthen the evidence base as well as to expand the communication of research results.

A large majority of States have already agreed to foster progress on migration data. The Global Compact for Safe, Orderly and Regular Migration calls for the collection and utilization of accurate and disaggregated data as a basis for fact-based policies committing signatory countries to strengthen the "global evidence base on international migration" (United Nations General Assembly, 2018). Also, the Sustainable Development Goals highlight different migration data needs (Migration Data Portal, 2019b). With regard to climate change and migration, better

data could improve the analytical capacity of the epistemic community. A strategic approach in which countries agree on how to improve migration data would serve cost efficiency of data collection and enable better streamlining.

Gaps and challenges in data collection and analysis

Despite improvements in the availability and quality of population and climate data over the past decades, significant gaps remain in the measurement and modelling of climate migration. Some relate to research on migration in general, others are specific to the investigation of the climate–migration nexus, which is complex and characterized by multicausal relationships. This section discusses both forms of gaps and highlights implications for climate migration research.

Predictions and estimates of numbers of climate migrants remain a highly contested issue in debates on climate migration. As to date, no consensual estimate exists as to how many people (will) migrate due to climate-related factors and where (Gemenne, 2011). Partly, this is due to a **lack of a clear definition and coherent methodology** in assessing climate impacts on migration. Different definitions exist as to what characterizes a climate migrant. Among others, these depend on the shock experienced (continuum from slow onset to rapid onset), the timing and duration of migration (continuum from temporary to permanent), the decision power of the household (continuum from voluntary to forced), and the distance of the move (continuum from short to long distance).

At the same time, what constitutes a **climatic hazard in different environments** has been subject to debate. There is no deterministic relationship between climatic change and migration, and the relationships depend strongly on local conditions and the adaptive capacities[2] of populations. Often models take a broad approach by simply including various climatic factors, such as temperature anomalies or drought indices,

which makes the interpretation of the results against the local context difficult. Some estimates are merely based on the number of people at risk as opposed to the number of people who intend to migrate. This deterministic approach ignores the possibility of in situ adaptation and the inherent complexity of the migration decision (Gemenne, 2011).

Climate migration can differ in scale, magnitude and form in any given region. Studying how **contextual factors** influence household responses to hazards and environmental changes requires a profound understanding of local conditions and standardized data that allow for comparisons across different contexts. Global data on migration is limited and commonly referring to migration stocks rather than flows.[3] In particular, data on more irregular forms of migration is often missing, likely leading to an underestimation of migration movements. Case studies can help fill the gap by providing in-depth information about the climate–migration relationship for specific locations. However, studies on the topic are not evenly distributed geographically, resulting in several blind spots (i.e. locations for which no data or research is available) (Piguet et al., 2018).

Climate-induced **migration is mainly internal** (Cattaneo et al., 2019; Hunter et al., 2015). This creates further problems in the assessment of climate migration flows since internal movements are more difficult to count and there are often no migration monitoring measures for intranational mobility in place. Population censuses in many countries provide data on internal migration. However, this information is only collected retrospectively at varying time intervals. Also, censuses use different measures to capture population mobility, making a comparison across countries difficult. Data from censuses is also not collected often enough to link migration to particular climatic events and largely does not capture seasonal movements, which can be increasing as agricultural livelihoods are under growing pressures.

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[2] As defined by the Intergovernmental Panel on Climate Change (IPCC), adaptive capacity is "[t]he ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences". In the context of climate migration, the concept refers to the ability of individuals, households or entire communities to anticipate risks and take protective measures, such as migrating from an affected area.

[3] Defined in the Handbook on Measuring International Migration through Population Censuses, developed by the Statistics Division of the United Nations Department of Economic and Social Affairs: international migrant stocks refer to the total number of migrants present in a given country at a particular point in time; migration flows, on the other hand, capture the number of migrants entering and leaving a country over the course of a specific period. In particular, with regard to climate impacts on migration, flow data is essential for understanding migration patterns and the role of climate drivers.

Data from surveys as well as administrative data can offer alternatives, but these forms of data also come with specific challenges. Survey and administrative data may be prone to underreporting and limited documentation of migrants. Administrative data is often not comprehensively collected or processed for scientific use. In surveys, migrating households may be lost from the sample as attrition without any collected information about reasons for the disappearance of the households from the sample or their current place of residence. In both censuses and surveys, migration motivations often are generalized; therefore, environmental changes do not appear as a possible answer. For example, the 2011 census in India, one of the partner countries of the East Africa Peru India Climate Capacities (EPICC) project, collects information on reasons for migration under "employment", "business", "education", "marriage" and "others". Environmental reasons for migration are not considered.

Time and space are important dimensions for understanding climate migration. A large share of climate-induced mobility is over short distances and involves seasonal and circular migration moves, which are hard to capture with current forms of data. These are typically not collected longitudinally at a high frequency and do not reflect seasonal differences in migration. Given the structure of most data, it is typically not possible to follow or track migrants. Instead, more limited measures of migration have to be constructed, such as retrospective measures (e.g. did you change your residence in the past five years) or indirect measures (e.g. is any member of your household currently absent).

When available, **migration data is often limited in its scope** and does not include complementary information related to the migration process or migration outcomes, including information on the well-being and vulnerability of migrants. Also, the perspective of migrants is rarely taken into consideration, with only limited available measures for migrants' perceptions and opinions (Koubi et al., 2016). Finally, while much focus has been placed on collecting data on mobile populations, less focus has been placed on the **immobile** and their motivations to refrain from migrating, despite being exposed to environmental hardships or natural hazards.

In extreme circumstances, such as in the case of displacement due to **disaster events**, special data is required, which is often not accessible through traditional migration data sources. The provision of humanitarian aid and relief, for example, requires detailed, real-time information on displacement and human mobility. However, existing data is often collected only in the aftermath of an event. A recent study found that time-series data on displacement was available for only 130 of 7,000 events reported by the Internal Displacement Monitoring Centre since 2008 (Ponserre and Ginnetti, 2019). This lack of data restricts not only our understanding of household responses to shocks but also our abilities to provide relief and support in case of emergency.

What is needed to close the gaps?

Data and methodological improvements are needed along several dimensions. These include improvements in the research frameworks and capacities for data collection and management, the scale and scope of collected data, and the development of new methods and instruments.

First, **research frameworks** that are conducive to the study of climate migration in different contexts are needed. These include the development of a common definition of climate migration that bridges perspectives from different fields and institutions and allows for the comparison of findings across settings. Also, further progress is needed in the development of statistical systems for the monitoring and tracking of migration flows both within and across countries. The collection of complex data requires capacities on the ground that enable authorities not only to collect data but also to manage and analyse it. In this regard, a further engagement of the research community is required to advise local institutions on how to effectively integrate the climate dimension in migration data collection and modelling.

Second, migration data, especially if collected at the microlevel, needs to be **further harmonized and standardized** to allow for comparisons. This process needs to be guided by the scientific community, which has to define and promote clear standards in the conceptualization and collection of migration data, including data collected for administrative purposes and in surveys. Researchers should be encouraged to share their fully anonymized data to allow building a joint knowledge base. Data-sharing platforms should be established regionally and could benefit from federal funding. Also, in censuses, the use of more coherent and complete migration measures would be

of paramount importance, including complementary measures related to the migration reasons, the process and outcomes. This requires closer collaboration between national statistical offices.

Third, there is a need to **rescale data collection efforts** in terms of both temporal and spatial dimensions, producing more data at a higher resolution. In this regard, more geo-tagged longitudinal data, accounting for seasonal movements, would prove to be particularly useful. Keeping track of the whereabouts of migrating households in surveys can further provide important information. This requires special efforts to protect the personality rights of migrants and to ensure their anonymity.

Fourth, data collection efforts on migration in general and climate migration in particular should be extended to include **complementary information** of relevance for understanding migration processes and outcomes. These involve not only questions about who is migrating but also where to and why. Importantly, additional information is required to assess what happens in and after the migration process, including difficulties encountered by the migrating individuals/households. This is important information necessary to ensure the protection of migrants and to effectively address the high vulnerabilities of migrant groups. Capacity-building programmes for staff of statistical offices and immigration departments could provide guidance on how to integrate additional non-quantifiable information into data collection.

Fifth, there is a need to more carefully **connect and integrate different forms of data** collection, including qualitative and quantitative data. This directly links to the importance of what is behind the numbers – which are people and their life stories. Further efforts in this direction can yield promising insights and should be incentivized by decision makers. As part of the EPICC project, we are, for example, collaborating with the National Institute of Statistics and Information (INEI) in Peru to create a long-term panel of migrant households. To obtain comparable observations over time, data from household surveys and censuses is matched by the INEI based on encrypted identification codes. The integration of the different data sources allows us to observe individual households before and after the migration and hence to better understand migration trajectories and outcomes.

Sixth, better **theoretical models and predictive analyses** that allow modelling migration responses to specific environmental shocks under different conditions are needed. This would allow for more accurate estimates and forecasts that are useful for national governments and other stakeholders. To achieve this, the empirical data work and theoretical modelling and simulations need to be more strongly connected in order to effectively inform each other.

In general, national efforts are required to improve migration data collection. At the same time, stronger coordination and international exchange is necessary to harmonize and improve data for climate migration research. In this regard, IOM can play a key role in promoting and orchestrating joint data collection efforts (Migration Data Portal, 2019a). A step in this direction has already been taken within the "Migration, Environment and Climate Change: Evidence for Policy" project in 2014–2017 (Melde, Laczko and Gemenne, 2017).

What is needed is not only a clearer understanding of common methodologies but also a larger debate on how to address **ethical questions** related to the collection of sensitive migration data. The European Union General Data Protection Regulation, which came into effect on 25 May 2018, and which also applies to the use of migration data, gives a legal framework for the collection and use of sensitive information by institutions in European Union member States. However, for its successful implementation across research lines, more guidance and best practices need to evolve. These include, for instance, standardized informed consent forms for data acquisition, usage and storage as well as procedures for anonymization, pseudonymization and encryption of personal data.

Recent innovations

Research on climate migration can benefit from new developments in migration statistics and data sources. Besides improvement in traditional surveying techniques, digitalization and the spread of cell phones have opened access to larger data sets that can be analysed using new methodologies. One example is the use of anonymized cell phone data (Bengtsson et al., 2011). By assessing the call detail records (CDR) of a large number of people, a more comprehensive estimate of migration flows can be provided. For example, a study in the south of Bangladesh monitored the in- and outmigration flows

of 6 million people after cyclone Mahasen, which made landfall in the Bay of Bengal in 2013 (Lu et al., 2016). The time and spatial resolution of tracking movements in this case study was higher than would have been possible through surveys. However, in many countries, restrictions apply to the storage and use of cell phone data, even if it is anonymized metadata. As a large part of the global population could potentially be tracked through the analysis of cell phone data, ethical considerations that require further debate arise. One is the question of user consent to the analysis of anonymized CDRs. Moreover, real-time tracking of movements as well as reanalysis of movements could potentially be misused, for example to trap minority groups in certain locations. While recent papers have outlined the benefits of using CDRs for research, a larger societal discussion is needed around the risks that could materialize and the restrictions that should apply for its use.

Modern survey data, such as the Demographic and Health Survey (DHS) data, is geo-referenced and highly standardized. This allows researchers to effectively link population and climate data and to gain insights into the impacts of changing climatic conditions at a spatially very high resolution. By employing a multi-country longitudinal design, the data can furthermore be compared across countries and over time. As of today, DHS data is available to more than 90 countries, including the EPICC partner countries, namely the United Republic of Tanzania, Peru and India, offering a broad scope for the analysis. The most recent DHS wave (8) contains a migration module with several retrospective questions on mobility, allowing for the exploration and estimation of migration patterns.

Meta-analyses, which build on quantitative findings from primary studies, offer a useful tool to consolidate large amounts of evidence from different settings. Currently, several ongoing research projects carry out meta-analyses to collect and compare findings on climate migration worldwide, including one study conducted as part of the EPICC project (Beine and Jeusette, 2018; Hoffmann et al., 2020). These provide insights into the mechanisms at play and highlight the role of contextual factors in influencing climate migration patterns.

Progress has been made not only in the collection of data but also in the forecasting and projection of climate-induced migration flows worldwide. Agent-based models and microsimulation models represent two examples of methods that allow for a behavioural-based estimation of future migration under different scenarios. Recently developed forecasting models also increasingly take the climate and environmental conditions into account as relevant migration drivers (Kniveton et al., 2012).

Overall, there is now greater accessibility of data through online databases. However, there is a need to enhance communication of data analysis to a wider audience. In particular, giving climate-displaced persons, who may be the subjects of research, access to results should be a priority. This can also require different means of communication, for example through radio, or community-led discussions like participatory scenario planning (Chakraborty, 2011; Oteros-Rozas et al., 2015). Assessment reports that summarize data and research on the country level can help to inform policymakers and other stakeholders.

Conclusion

There is a paucity of publicly available, high-quality migration data, which creates difficulties for robust assessments of the interactions between climate change and migration. The most pressing questions of our societies on this topic will have to guide where investments in data collection, streamlining and analysis should be made. It requires careful evaluation of ministries and policymakers to outline which type of information on current and future climate migrants would in fact influence their policy decisions and what blind spots need addressing to support migration and in situ adaptation more effectively. More data and research will not necessarily lead to better policy outcomes. Because the threats of climate change to livelihoods are already severe in some regions, more solution-oriented research is needed. Integrating people who experienced displacement situations and outmigration pressures because of climatic events into consultations and research could bring new approaches to the respective investigations, which in turn could better inform policies. The escalating climate crisis demands the attention of all areas of government, including statistical offices and science ministries. Novel thinking is needed to expose unnoticed climate migration dynamics and to support those who will need to move. ■

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Internal displacement data gaps and challenges: Why they matter for policy and operations

Justin Ginnetti[1]

Introduction

During the past few years, experts and policymakers have convened to discuss internal displacement data, gaps and challenges as well as good practices. This short note describes the significance of 10 key data gaps for both policy development and operation plans that aim to address internal displacement or meet the needs of people who have been displaced. It may be used to inform where to prioritize action, investment and analysis.

Many of the data gaps presented in this article exist because of the way that internal displacement has been framed – or *mis*framed – over the years. For most of the past two decades, internal displacement has been regarded almost exclusively as a humanitarian concern. Internally displaced persons (IDPs) are part of the Humanitarian Profile and feature in humanitarian needs overviews and response plans, but the Sustainable Development Goals do not have an indicator on internal displacement. While internal displacement is often a symptom of humanitarian crises, the issue is much bigger and broader than that. The framing of internal displacement as a primarily humanitarian issue likely explains why the estimation of future displacement risk is a recent development. It also explains why there is relatively little data – or why there are few systems and frameworks in place to collect data – on the "end of displacement" and progress towards durable solutions.

The framing of internal displacement as a humanitarian issue also explains the limitations of many of the tools and systems that do exist. With the exception of the Government of Colombia's Registry of Victims and a few others, most systems that are used to collect data on the number of IDPs are intended to account only for those IDPs who are likely to receive humanitarian assistance. That is, their purpose is to inform humanitarian operations and not to account for all IDPs. Thus, it is no surprise that these tools have not been used for comprehensive IDP counting, though some of them could be adapted for this purpose.

The lack of adequate framing of internal displacement has also led to a general confusion about which displacement metrics are needed, or even what they mean. No wonder those tasked with collecting the data, in very difficult and even life-threatening circumstances, loathe to see their data criticized for failing to deliver on something it was never supposed to be in the first place.

Inconsistent methodologies in data collection, interpretation and analysis

When actors use different methodologies to collect data on displacement within one country, this can result in multiple estimates of the number of IDPs or the volume of new displacements or returns. The publication of "conflicting" displacement figures about a single crisis can cause confusion both for operational actors and for policymakers and donors. This can undermine effective responses and prioritization.

Aggregation and comparison of displacement data on regional and global levels is challenging when differing methodologies are used in a country without adequate explanations that allow for a comprehensive analysis. This also affects efforts to understand the regional dynamics of crises.

Issues to consider:

- Addressing this gap requires the development of predictable, harmonized and consistent approaches to data collection. How can we better understand how various data initiatives fit together?

- Out of necessity, there will continue to be several actors collecting data on displacement. How can we ensure that others recognize the value of simultaneous collection of data by multiple actors in the same places? And how can we also clearly explain to donors the reason for differences in data that has been collected?

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Lack of data on specific flows and limited connection between stock and flow data

Flow data – looking at new, secondary and repeated displacements as well as returns – is necessary to paint a full picture of displacement and identify specific patterns. Without this information, it is difficult to make sense of stock figures, for example why they may be increasing or decreasing.

Understanding this dynamism is critical to effective operational responses: it is one thing when the population of an IDP camp doubles gradually over the course of a year, but it is another thing altogether if that doubling occurs within the span of one week or one month. For example, from the end of 2016 to the end of 2017, the number of IDPs in South Sudan increased by only 2.4 per cent, rising from 1,854,000 to 1,899,000. By comparing these two figures, one might conclude that the situation was stable. The data on internal and cross-border displacement flows, however, reveals a dynamic crisis. There were 767,000 new internal displacements (IDMC, 2018), and the number of refugees from South Sudan increased by 1 million (from 1.4 to 2.4 million) during the same period (UNHCR, 2018).

In addition to describing displacement dynamics, data on new displacements and returns is needed to understand why these processes occur in the first place. Understanding the underlying drivers of internal displacement is critical to addressing them.

Further, data on flows is necessary to assess the risk and patterns of future displacement, and the risk of situations becoming protracted (see below). Humanitarian partners – both donors and operational actors – have called for models that can simulate future displacement flows. Data on previous flows is required to produce and validate such models.

Issues to consider:
- Addressing this gap requires predictable, harmonized and consistent approaches to data collection. How can we develop systems that allow for more transparent and robust aggregation, analysis and comparison of different data sets?

Lack of interoperable data on internal displacement and cross-border flows

Without interoperable data on the number of refugees, asylum seekers and migrants who have been initially displaced within their countries of origin, it is more difficult to identify – and avoid – the tipping points when internal displacement crises spill across borders. A lack of such data also makes it difficult to assess the success of returns and the achievement of durable solutions.

Issues to consider:
- Addressing this gap requires predictable, harmonized and consistent approaches to data collection. How can we ensure that data is collected in a way that it explains the link(s) between cross-border movements and internal displacement?

Lack of data on internally displaced persons in hard-to-reach areas

In many countries, the number of IDPs and the rate of new displacements and returns remain unknown due to the difficulty of collecting and sharing data. These include conflict contexts where parties to the conflict obstruct monitoring or security risks are too high for actors to collect data, and situations where displaced people do not wish to be identified.

In these situations, operational actors' capacity to respond can be limited both due to a lack of information and a lack of access to displaced populations. This is a concern because IDPs in some hard-to-reach areas face threats to their security and well-being, as they are targeted by militaries and armed groups (e.g. Syrian Arab Republic and Nigeria among many other countries where there are conflicts); are susceptible to food insecurity, cholera and other diseases (e.g. South Sudan and Yemen); and face the prospect of protracted displacement (e.g. Ukraine).

More and better information about displaced people in hard-to-reach areas is also needed to inform advocacy and promote accountability.

Lack of systematic and longitudinal information on the wider impacts of displacement on internally displaced persons, host communities and State development

Data on other impacts is required to make an economic case for government action to address displacement. Understanding the costs and other impacts of displacement can help convince governments to make investments where they are needed most and inform the programming of other actors.

An improved understanding about the longer-term impacts of displacement is also needed to inform development actors where and how to engage in displacement crises in order to reduce the impacts of displacement on host communities and national economies.

Issues to consider:
- Addressing this gap means improving how we account for displacement in urban/outside-of-camp settings and how we measure the socioeconomic impacts of displacement. How can we develop predictable, harmonized and consistent approaches to do this? And how can we do so in a way that allows us to identify and address the needs of both IDPs and host communities?

Lack of data needed to assess the severity of displacement

The needs of IDPs differ from one context to another. Data about the magnitude of displacement or the number of new displacements does not indicate what is needed in terms of a humanitarian and/or development response to that situation. While there are roughly equal numbers of IDPs in Colombia and the Syrian Arab Republic, their needs are vastly different: many IDPs in the Syrian Arab Republic are struggling to stay alive and meet their basic needs, whereas many IDPs in Colombia have begun to make progress towards durable solutions – and even within Colombia, the needs of different IDPs vary depending on the context.

Governments and organizations responding to displacement therefore need to know the severity of displacement in each of its dimensions in order to respond in a targeted manner to the needs of those displaced and to reduce the impacts on communities affected by displacement.

Issues to consider:
- It is important to find more objective criteria for measuring the severity of displacement in order to assist in prioritizing responses. Addressing this gap also means acknowledging the benefits of collecting and analysing microdata. Furthermore, it is important that when prioritizing data gaps, practical operational needs and realities are addressed, for example by linking IDP data collection to joint needs assessments to facilitate intersectoral prioritization. How can we ensure that the ethical implications of collecting data are considered, particularly if substantive assistance is not available?

Absence of data for all phenomena

Data is missing or incomplete regarding certain forms of displacement particularly in the context of slow-onset natural and human-induced hazards, such as drought or the impacts of climate change, and when multiple overlapping factors combine and result in displacement. The result is an incomplete picture – and understanding – of internal displacement and its dynamics.

Without evidence of the scale and scope of these phenomena, some displaced people remain invisible and may not receive the assistance they require. Furthermore, without good data on these phenomena, it will remain a challenge to respond to these situations and to reduce the risk of future displacement by addressing its root causes. Well-documented examples of different forms of displacement include drought-related displacement everywhere but a handful of places, displacement caused by the negative impacts of climate change, and displacement caused by gangs and criminal violence in Central America.

This data gap also represents an obstacle to addressing internal displacement through development, climate change and disaster risk reduction policy agendas.

Issues to consider:
- Addressing this data gap will require the development of predictable, harmonized and consistent approaches to data collection, including data that explains the causes and triggers of displacement. How can we change the way data is collected in order to achieve this?

Lack of data and analyses needed to determine the duration of displacement

With the exception of a few cases, it remains difficult to estimate the duration of individuals' displacement. This is the case for both disaster- and conflict-related displacement, but for different reasons. As mentioned previously, the duration of disaster-related displacement is difficult to assess for the simple reason that actors stop systematically collecting data on displacement long before displacement ends. The Internal Displacement Monitoring Centre (IDMC) found that for more than half of the largest disasters recorded since 2008, data on displacement was collected for less than one month.

Duration of conflict-related displacement is difficult to measure because most data does not indicate when people became displaced. The displacement is not linked to a specific event or date when displacement began. Making matters even more difficult, data on conflict displacement typically aggregates multiple caseloads of IDPs.

This data gap is important because the needs of IDPs differ in relation to the duration of their displacement. Emergency situation requires different types of response than are needed for situations of repeated and protracted displacement. Furthermore, data on the duration of displacement involves measuring the end of displacement. Data of this nature is essential for programming in order to know what is needed and what measures are most effective when it comes to ending displacement.

Issues to consider:
- In order to estimate the duration of displacement – and to develop stronger evidence of effective responses to protracted crises – it is necessary to collect data that describes how specific situations evolve over time. How can we capture both stock and flow data in a way that allows us to do so? And how can we identify examples of good practice that can be applied in different contexts?

Lack of time series data on people displaced by disasters

According to the latest figures from the United Nations High Commissioner for Refugees and the IDMC, there were 63.1 million people in displacement at the end of 2018 (UNHCR, 2019).[2] This stock figure (which includes refugees and IDPs) is an underestimate because it does not include the number of people who were displaced by disasters at that time. Time series data on the number of people displaced by disasters is patchy. In most cases, data on displacement induced by disasters is collected for less than one month following the disaster event (IDMC, 2017).[3]

This lack of data hinders efforts to protect and provide for people who remain in protracted displacement following a disaster. The lack of such data, and consequent invisibility of people who are displaced by disasters, means the global discourse on internal displacement largely excludes this population.

Lack of understanding of future displacement risk

Governments and operational actors have increasingly asked for displacement risk models and forecasting tools that can estimate the scale and severity of future displacement flows and reveal the underlying drivers of such phenomena.

Despite this demand, governments are unfamiliar with risk metrics and are therefore not well equipped to make decisions using risk models or evidence produced with them. Many governments lack the data needed to validate risk models; more importantly, they often do not have the capacity to take full ownership of the displacement risk models and to adapt other models for their own use.

Risk models can rapidly estimate the scale and location of future displacement caused by forecast or detected hazards. Thus, this gap limits governments' and civil society's ability to prepare for and respond to displacement. It also means that they are missing evidence needed to inform policies, investments and actions to reduce the likelihood that displacement will occur in the first place.

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[2] According to the United Nations High Commissioner on Refugees report titled *Global Trends: Forced Displacement in 2018*, this figure includes the number of internally displaced persons, refugees and asylum seekers.

[3] The IDMC *2017 Global Report on Internal Displacement* indicates that of the 130 largest events that occurred between 2008 and 2016, data was collected for less than one month in more than half of these disasters.

Looking ahead

In December 2019, United Nations Secretary-General António Guterres launched a high-level panel on internal displacement. Data on internal displacement will be one of the topics the panel will consider. It will take stock of current tools, systems and practices, and make recommendations to bring these in line with what is needed in order for governments and their partners to address internal displacement in all of its dimensions. Thus, 2020 represents a key opportunity for those who collect, analyse or depend on data on internal displacement to make progress and address some of the gaps and challenges highlight above. ■

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Publications

Travesías mortales Volumen 4:
Niños migrantes desaparecidos
2020/140 pages
E-ISBN 978-92-9068-816-7 (Spanish)
E-ISBN 978-92-9068-817-4 (French)
Spanish, French

El volumen 4 de "Travesías mortales" se centra en un tema especial – los niños y las niñas migrantes desaparecidos – en vista del creciente número de niños que emprenden peligrosas travesías para llegar a otros países. Desde 2014, la OIM ha documentado más de 32.000 muertes y desapariciones en el curso de la migración en todo el mundo, aunque se desconoce el número real de muertes de personas migrantes, ya que muchas muertes no se registran. Aunque es sabido que los niños son uno de los grupos de migrantes más vulnerables, los datos sobre los que desaparecen durante la migración tienden a ser muy limitados. Según los datos de la OIM, desde 2014 se ha notificado la muerte o desaparición de casi 1.600 niños.

En este informe se examina por qué es tan difícil encontrar datos desglosados por edad sobre los migrantes desaparecidos, y qué medidas podrían adoptarse para mejorar la información sobre los niños y las niñas migrantes desaparecidos y tratar de prevenir esas tragedias. El informe es una contribución a los esfuerzos conjuntos del UNICEF, el ACNUR, la OIM, Eurostat y la OCDE para mejorar los datos sobre los niños migrantes y refugiados. Sin mejores datos sobre los migrantes desaparecidos, toda comprensión de las rutas migratorias de los niños y los riesgos y vulnerabilidades a los que se enfrentan seguirá siendo incompleta.
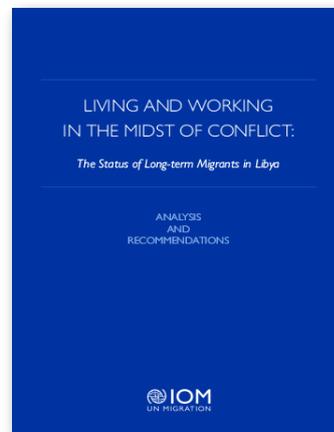
Living and Working in the Midst of Conflict:
The Status of Long-term Migrants in Libya
2020/96 pages
English

Since 2011, Libya has been experiencing political turmoil that has reverberated across its society. Recognizing the broad impacts of these developments, the International Organization for Migration (IOM) commissioned a study on long-term migrants in Libya, focusing specifically on circumstances related to livelihoods, remittances and security.

While existing literature extensively focuses on the conditions, challenges and risks associated with transiting through Libya, this study aims to shed more light on the circumstances of migrants who have stayed in Libya for more than a year. Research conceptualizing migration in Libya through the perspective of transit migration frequently focuses on mobility as a central topic and explores issues arising from circumstances that put transitory migrants at risk, such as dangerous desert and sea crossings, incidences of human rights violations, risk of exploitation, and limited access to public services and justice. While recognizing that some of those challenges and vulnerabilities may be applicable to both long-term migrants and short-term transit migrants, this research intends to contribute to the migration discourse on Libya by distinguishing between these two groups and specifically examines the situation of long-term migrants in terms of livelihoods, remittances, security and migration intentions to provide a better understanding of their circumstances.
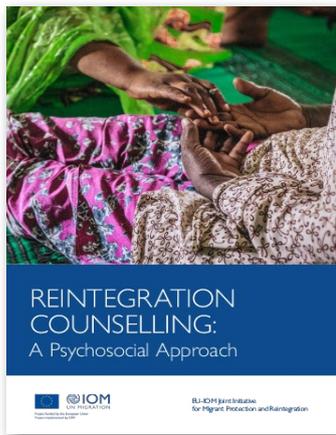
Reintegration Counselling:
A Psychosocial Approach
2020/54 pages
English

The present guide is intended to provide key information on the importance of a psychosocial approach to post-arrival reintegration counselling, describing the basic counselling and communication skills necessary to conduct a successful and psychologically informed reintegration counselling interview with a returned migrant. It is a practical tool to support the reintegration counselor during the reintegration counselling process. It does not cover counselling of specific cases such as victims of trafficking or torture, children and others whose return counselling requires specific training, attitudes and precautions.
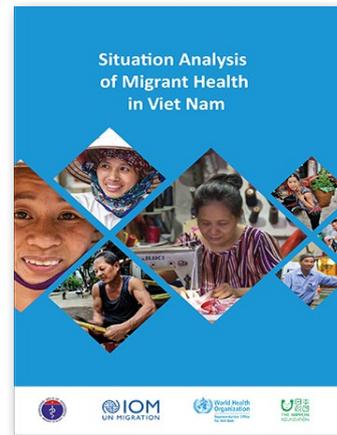
Situation Analysis of Migrant Health in Viet Nam
2020/106 pages
English

Viet Nam is home to dynamic and multi-dimensional population movements. Harnessing the full benefits of the migration process can unlock opportunities and deliver much needed income and prosperity to families and communities, yet migrants themselves have been identified as vulnerable populations facing disadvantages in health care access in Viet Nam and destination countries.

The relationship between health and migration is complex and influenced by the socioeconomic and cultural backgrounds of migrants, their previous health history as well as the nature, quality and access to health care systems prior to moving.

At regional and global levels, ensuring the health of migrants is a human rights quest and a common responsibility with public health impacts that transcend national boundaries. This is recognized as a key Global Health Goal by the World Health Assembly (WHA) and a tenet of the Sustainable Development Goals (SDGs), as evidenced by SDG 3. Good Health and Well-Being and Target 3.8: achieve universal health coverage.

The Ministry of Health, Viet Nam in partnership with the International Organization for Migration and World Health Organization jointly undertook a situation analysis of migrant health. Its findings are articulated in this Situation Analysis of Migrant Health in Viet Nam report, which outlines the key needs and steps forward for development of a national action plan to promote the health of migrants in Viet Nam.

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- Not exceed five pages and be written in a non-academic and reader-friendly style.
- Cover any area of migration policy but discuss, as far as possible, particular solutions, policy options or best practice relating to the themes covered.
- Provide, as often as applicable, lessons that can be replicated or adapted by relevant public administrations, or civil society, in other countries.

Articles giving account of evaluations of specific migration policies and interventions, including both evaluation findings and innovative evaluation methodologies, are particularly welcome.

To discuss any aspect of the journal, or to submit an article, please contact:

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