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Briefing

Climate change, migration and the 2030 Agenda for Sustainable Development

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Key messages

- Climate change and disasters are, and will continue to be, major drivers of migration and displacement.
- The poor are the most vulnerable to climate change. They are likely to live in high-risk areas, have less means to prepare, and lack information to anticipate, and respond to, a disaster. Yet they are also the people who will find it hardest to migrate.
- National adaptation strategies must help those who are forced, or choose, to migrate as result of climate change. They must inform migrants of risk and build their capacity to cope in new locations.
- For those who are forced to move internationally, bilateral agreements and international frameworks must protect their rights.
- Migrants can put additional pressure on infrastructure and services at destination. National policies need to factor in the needs and impact of new climate-induced migrants.

Migration and the Sustainable Development Goals: a briefing series

People migrate to overcome poverty, escape conflict, or cope with economic and environmental shocks. In the words of the United Nations (UN) Secretary-General, migration is 'an expression of the human aspiration for dignity, safety and a better future. It is part of the social fabric, part of our very make-up as a human family'.

Migration is one of the defining features of the 21st century and can contribute to achieving the Sustainable Development Goals (SDGs). For this to happen, we need a better understanding of the relationships between migration and key development issues – such as health, education, gender, labour and urbanisation. This series of briefs, commissioned by the Swiss Agency for Development and Cooperation (SDC), explores these relationships across the 2030 Agenda and the impact of migration on key development outcomes.

1 Introduction

This brief looks at the anticipated impacts of climate induced migration on efforts to achieve the Sustainable Development Goal (SDG) on climate change – SDG13. More specifically, this brief describes the SDG targets relating to climate change, and the particular challenges to each in the context of increasing climate-induced migration.

In this Introduction, we offer a definition of climate-induced migration. Section 2 examines the migration trends in climate-vulnerable locations, focusing on least developed countries (LDCs) and the Small Island Developing States (SIDS). Although there are few studies on migration trends in response to climate risks, there is an observable increase in external migration flows from countries most vulnerable to climate change. Section 3 explores the main international frameworks for addressing climate-induced migration: the Paris Agreement, Sendai Framework for Disaster Risk Reduction and the Nansen Initiative and Protection Agenda. We conclude that none wholly captures the complex dynamics of climate-induced migration, and the different causes and motivations for leaving or staying. In Section 4, we discuss how the achievement of the SDGs – in particular, SDG13 – might face challenges due to the lack of strategies and plans that directly tackle climate-induced migration. None of the SDGs make the explicit connection between climate change and migration. Yet climate-induced migration must be included in national and international policy to ensure that those who are forced or choose to leave, and those who stay, are not left behind. Finally, Section 5 offers three sets of conclusions and recommendations to build climate resilience for all, through measures aimed at helping people to adapt and minimise risk, wherever they live.

1.1 What is climate-induced migration?

There is no universally agreed definition of climate-induced migration. In this brief, we use the concept to refer to four broad categories: those displaced by climate-related disasters, who often move temporarily; those forced to migrate more permanently due to recurrent events; those forced to migrate to avoid worsening slow-onset deterioration of the environment; and those who 'choose' to move as an adaptation strategy, in response to environmental pressures and other factors.

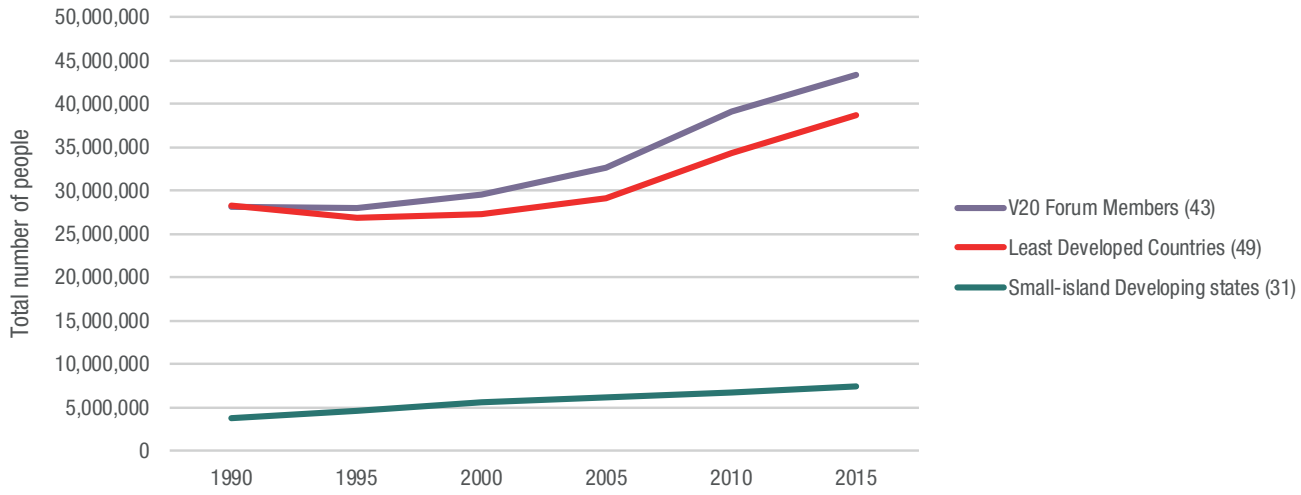
Disasters have always driven people to leave their homes in search of safety. Between 2008 and 2015, an average of 25.4 million per year were displaced by disasters within and across borders. The large majority (85%) of these were climate-related disasters (extreme weather and related events such as flooding). Some people moved across borders but the vast majority move within their own country (Nansen Initiative, 2015; IDMC, 2016). Those that are forced to move often lose property, crops and other resources in the disaster and during the move (Wilkinson and Peters, 2015). However, this kind of displacement tends to be temporary: for example, major floods in 2010 in Pakistan displaced nine million people but most returned home within a year (Brickle and Thomas, 2014). For some, however, the displacement is repeated or for longer periods of time, particularly when flood events become more frequent (IDMC, 2016).

This line is further blurred in the context of slow-onset environmental changes associated with climate change such as changes in rainfall predictability, salt water intrusion, desertification and sea level rise. Migration can be 'forced' when the situation is unbearable. Leaving can also be a survival strategy or more 'voluntary', where a tipping point is reached in the steadily deteriorating conditions and in response to opportunities elsewhere (Renaud et al., 2011).

Across the world, sea level rise will force people from their homes in order to avoid severe deterioration in habitat and resources and even risk to lives. These people may be unable to return due to the physical loss of land, or may need to alter livelihood practices in order to return. This is likely to be the case in some SIDS where land will be lost along the coasts and costal livelihoods affected by salinisation and coastal erosion.

Climate change will be a major driver of displacement in the future. An increasing number of people will be forced to move as a result of deteriorating environmental conditions, loss of habitat and livelihoods, and extreme weather events (Milan et al., 2015). While projections of climate-migrants are unreliable and vary between 25 million and 300 million by 2050 (Gemenne, 2011), it is clear that migration and displacement in the future will be heavily influenced by climate change impacts.

Figure 1: Migration flows from countries vulnerable to climate change



Source: Authors' calculation using WDI and Global Bilateral Migration Database (downloaded on 15/11/2016).
Note: The V20 are the 20 countries considered most 'climate vulnerable'. The numbers in brackets are the number of countries considered in each category.

To avoid average global temperatures increasing beyond 1.5°C above pre-industrial levels, significant climate change mitigation is needed as well as measures to enhance the resilience and adaptive capacity of communities already suffering the negative impacts of climate change. Efforts on both fronts will be affected by the growing numbers of people moving and the changing patterns of migration

2 Migration trends in climate-vulnerable places

The relationship between climate change and migration is complex and there are few reliable global studies of past and current migration trends in response to climate risks (Gemenne, 2011; Beine and Parsons, 2014; Cattaneo and Peri, 2015). Nonetheless, there is a marked increase in external migration from countries that are highly vulnerable to climate variability and climate extremes over the period 1970-2000 (the period for which we have data on migration flows). Over this 30 year period, flows of migrants doubled, with the 20 countries considered most 'climate vulnerable' (known as the 'V20') having the highest outflows (see Figure 1).[1] In these countries, on average 10% of the population migrated in 2000. The trend is also increasing within LDCs. The LDC category of countries is highly exposed to climate hazards because it includes both SIDS, with high exposure to cyclones, storm surge and sea-level rise (Wilkinson et al., 2016a) and landlocked countries, many of which are semi-arid and exposed to desertification and drought (Simonet 2014; Guillaumont and Simonet, 2011; Guillaumont et al., 2015; Istanbul Declaration, 2014).

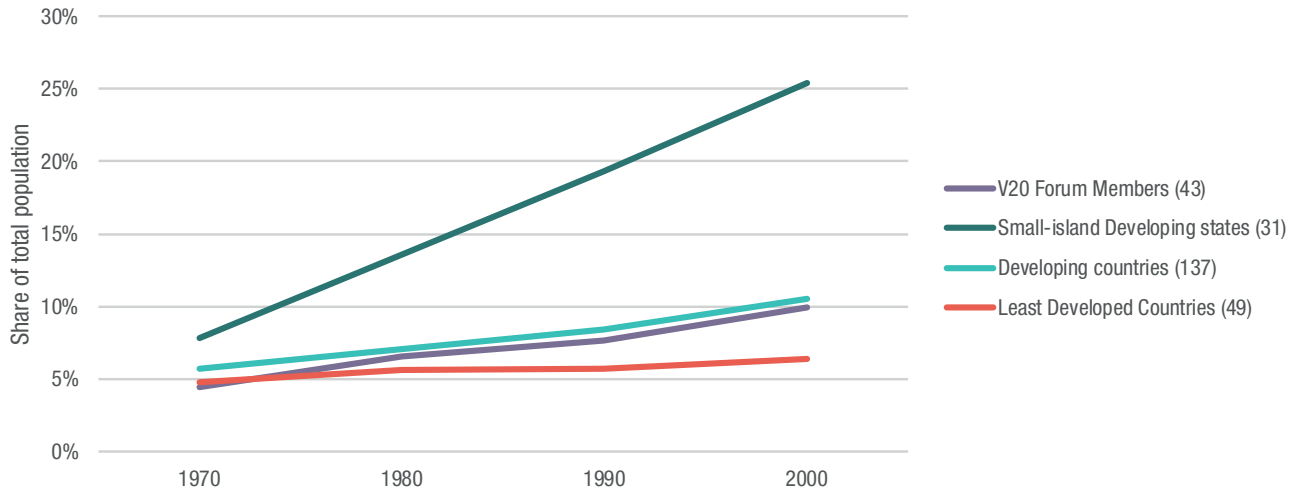
In SIDS too, migration levels have been high, rising fivefold over the period 1960-2000. This group of countries has seen the highest growth in out-migration per capita (see Figure 2). Future climate change poses a real existential threat in countries like Kiribati and Tuvalu – reportedly 70% of households would consider migrating to another country (UNU-EHS, 2014).

Over the last 50 years, migration has increased in absolute and relative size. However, the migration patterns remain similar: one-third of those moving from developing countries have migrated to the same ten countries (i.e. the destination countries change very little year on year) and most migration is regional and south-south. The migration flows data (Figure 1) represents the number of migrants moving from one country to another each year. The upward trend in migration flows from V20 countries, LDCs and SIDS (1960-2000) is also confirmed by the migrant stock data (the number of migrants in host countries, by place of origin). After 2000, the number of migrants from these countries rose even more sharply (see Figure 3).

The impacts of climate change on migration patterns are better understood within countries, where effects such as lower crop yields can be observed alongside decisions by families to diversify income and reduce risk through migration to other rural areas or often also to cities (see Box 1).

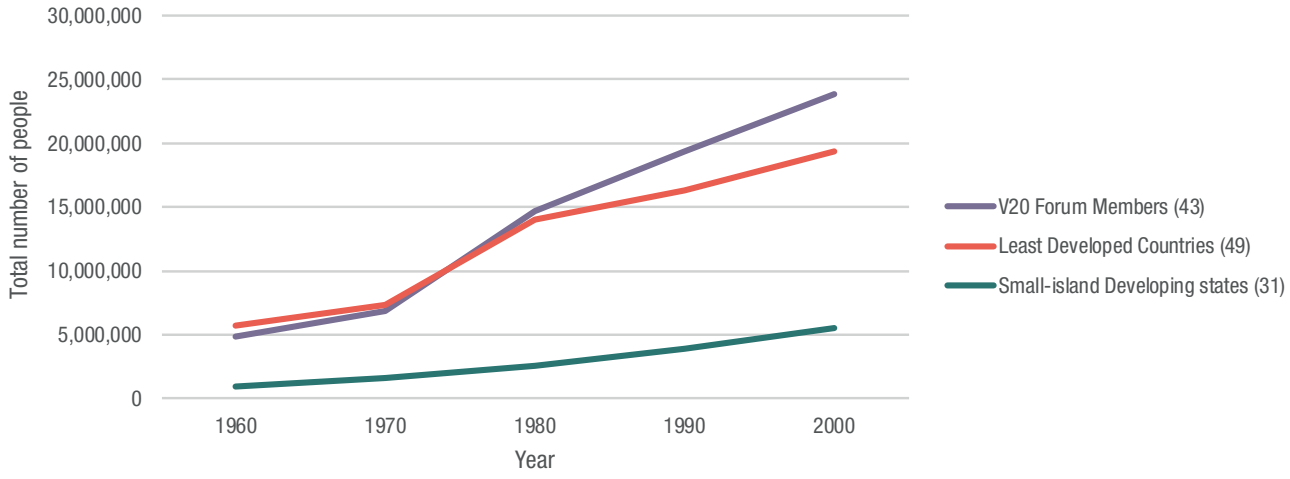
1. In 2015, the twenty member countries of the Climate Vulnerability Forum launched an official bloc for the climate change negotiations, known as the 'V20'. The V20 consists of countries disproportionately affected by the consequences of global warming: Afghanistan, Bangladesh, Barbados, Bhutan, Costa Rica, Ethiopia, Ghana, Kenya, Kiribati, Madagascar, Maldives, Nepal, Philippines, Rwanda, Saint Lucia, Tanzania, Timor-Leste, Tuvalu, Vanuatu and Vietnam.

Figure 2: Migration flows as a share of total population from countries vulnerable to climate change



Source: Authors' calculation using WDI and Global Bilateral Migration Database (downloaded on 15/11/2016).
Note: The numbers in brackets are the number of countries considered in each category.

Figure 3: Migration flows from countries vulnerable to climate change



Source: Authors' calculation using United Nations, Department of Economic and Social Affairs (2015).
Trends in International Migrant Stock: Migrants by Destination and Origin (United Nations database, POP/DB/MIG/Stock/Rev.2015).
Note: The numbers in brackets are the number of countries considered in each category

3 Climate-induced migration in the Paris Agreement and Sendai Framework

As work begins to implement the Paris Climate Change Agreement and Sendai Framework for Disaster Risk Reduction in national contexts, it provides an important opportunity to take stock of the implications of climate-induced migration for achieving goals and targets on climate change adaptation, resilience and disaster risk reduction (DRR).

3.1 The Paris Agreement

The Paris Agreement includes mention of the vulnerability of migrants (UNFCCC, 2015). Under the text on Loss and Damage (paragraph 50), there is a request to establish 'a task force […] to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change' (UNFCCC, 2015). However, it does not specify whether movement is in response to extreme events or gradual

Box 1: Climate change and rural-urban migration in Tanzania

Tanzania is a LDC exposed to extreme weather events, such as recurring droughts and flooding, as well as slow-onset changes, such as rising temperatures and decreasing rainfall. Climate projections predict a temperature increase of up to 2.2°C by 2100 (Agrawala et al., 2003), a shortening of the growing season (Hulme et al., 2001), and altered cropping patterns (URT, 2003). Tanzania is highly dependent on rain-fed agriculture: the sector employs 70% of the labour force but accounts for only 23% of GDP (URT, 2016). Climate change is expected to decrease crop yields (Rowhani et al., 2011) and will therefore put additional pressure on the rural population. Given this context, climate change impacts are likely to impede poverty reduction efforts in the country (Ahmed et al., 2011).

To mitigate this impact, emphasis is on agricultural policies, such as increasing the use of fertiliser, irrigation or alternative farming systems (URT, 2007). However, progress has been slow because of a lack of funds at the national level (Norrington-Davies and Thornton, 2011). Opportunities for diversification into non-agricultural activities in rural areas are also hampered by the poor links between farm and off-farm sectors, as well as insufficient access to credit and infrastructure (Lanjouw, Quizon and Sparrow, 2001; Bah et al., 2003; Katega, 2013). For many Tanzanian households affected by weather shocks, migration is therefore seen as a risk management or adaptation strategy to climate change. Migration enables families to spatially diversify income and therefore reduce the risk that the entire household income will be affected by weather events (Liwenga, Kwazi and Afifi, 2012; Kubik and Maurel, 2016).

Migration in Tanzania takes place mainly within rural areas. However, climate change can alter mobility patterns and foster migration from rural to urban areas, especially towards big cities such as Dar es Salaam (Liwenga, Kwazi and Afifi, 2012; Kubik, 2016), which can offer better opportunities (See: Mbonile, 1996; Beegle, De Weerdt and Dercon, 2011). However, many households don't have the funds to make such a move (Kubik and Maurel, 2016). In addition to acting as a push factor, weather shocks also undermine people's ability to move by reducing crop yields and eroding assets (Hirvonen, 2016). Climate change can therefore intensify the poverty trap experienced by rural populations.

Those who are forced into cities by adverse weather shocks may not be easily absorbed by the urban labour market – rural poverty can transform into urban poverty (WB, 2015; Kubik, 2016). It can also put additional pressure on insufficient urban infrastructure, pushing migrants into overpopulated informal settlements and further increasing environmental risks. Evidence of these effects can be seen in Dar es Salaam, where 70% of the population live in unplanned settlements, including those in low-lying areas susceptible to coastal erosion and regular flooding (Casimiri, 2009). The number of people directly exposed to these risks is expected to more than triple by 2050 (Kebede and Nicholls, 2012).

changes; or if it is within or across national borders. Critically, there is also no mention of the positive effects of migration and therefore no recommendation to Parties on how to harness these.

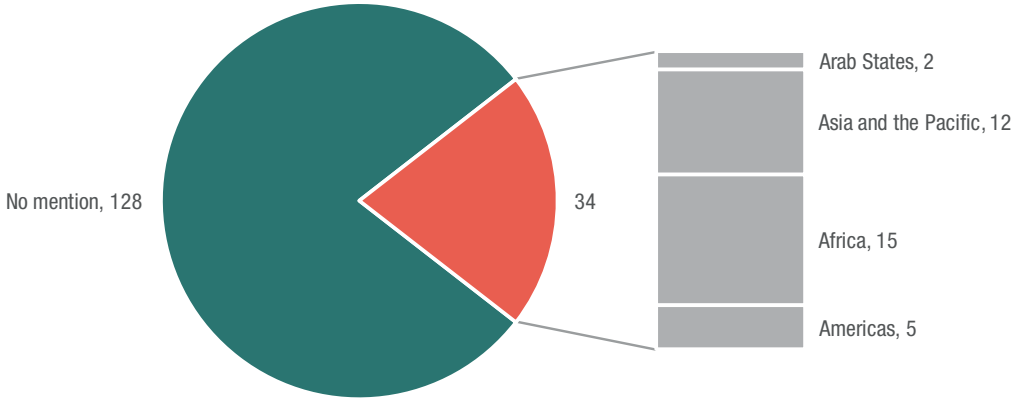
At the national level, countries have developed Intended Nationally Determined Contributions (INDCs), making commitments to actions they will take after 2020 (when the Kyoto Protocol ends) to reduce greenhouse gas (GHG) emissions and put CO^2 back into the atmosphere through actions like reforestation. The collective contributions of all country's INDCs make up the overall global commitment to climate change mitigation from 2020-2030. Post-Paris, these national-level commitments are now being converted into Nationally Determined Contributions (NDCs), which include more detail on how the INDCs will be implemented – including the contributions of different sectors like transport and industry. Of the 162 INDCs that were submitted, only 34 referred to human mobility (see Figure 4). No European countries mentioned migration in their INDCs, suggesting that they did not think it would affect their ability to meet their commitments around reducing greenhouse gas emissions.

National Adaptation Plans (NAPs) are the main government planning instrument for adaptation. They are currently being developed as a way of assessing how climate change will affect development progress and to identify adaptation opportunities within national development and sectoral plans. Few NAPs have been finalised but their predecessors, the National Adaptation Programmes of Action (NAPAs), which were undertaken by LDCs only, commonly referred to migration as an impact of climate change. Two-thirds of all NAPAs referred to migration as a negative impact, with many seeking to limit rural-to-urban migration and a few identifying planned relocation, whereby people are moved to other sites to avoid impacts (Warner et al., 2015).

3.2 The Sendai Framework

The Sendai Framework for Disaster Risk Reduction, 2015-2030 (SFDRR) (UNISDR, 2015) focuses on displacement in response to extreme events. It focuses less on those people moving due to/in anticipation of gradual changes in climate. Serving as a global blueprint for efforts to build resilience to natural hazards, SFDRR represents

Figure 4: Inclusion of migration in national climate change commitments



an evolution in the way human mobility is considered within global policy dialogues. Its predecessor, the Hyogo Framework for Action 2005-2015 (HFA) (UNISDR, 2005) only recognised that forced migration, and efforts to address it, could increase exposure and vulnerability.

In contrast to the HFA, the SFDRR addresses a range of topics, including climate and non-climate-induced displacement after disasters as well as migrants' contribution to resilience at their destinations, all of which is missing from other global dialogues. The complex relationship between disasters and human mobility is well articulated but the SFDRR too fails to highlight the exacerbating effect of climate change and the likelihood of increased forced migration in the future. Desertification and repetitive drought in the Sahel, glacial retreat in the Andes, water and soil erosion in low-lying coastal areas around the world are just some examples of the types of environmental risks that are not necessarily classified as disasters or extreme events.

As well as being considered in climate action and DRR, climate-induced migration is considered a protection issue and is addressed in this way through the 2015 Nansen Initiative Protection Agenda (See Box 2).

Box 2: The Nansen Initiative and the Platform on Disaster Displacement

Established in 2016, the Platform on Disaster Displacement addresses the protection needs of people displaced across borders as a result of disasters and climate change. The Platform aims to follow up on work started under the 2015 Nansen Initiative, which revealed a general lack of preparedness leading to ad hoc responses, and implement the recommendations of Protection Agenda.

The Platform is built on three pillars: a Steering Group, an Advisory Committee, and a Coordination Unit, and has four Strategic Priorities:

1. Address knowledge and data gaps.
2. Enhance the use of identified effective practices and strengthen cooperation among relevant actors.
3. Promote policy coherence and mainstreaming of human mobility challenges.
4. Promote policy and normative development in gap areas.

Knowledge and data gaps persist, especially on cross-border movements, human mobility in slow-onset disaster contexts, disaggregated data, solutions and future risks. The Platform aims to address these gaps by mapping and consolidating existing data, and utilising existing data gathering mechanisms.

In most cases, people who are forced to leave due to disasters and climate change will not be considered refugees under current international law. Rather than calling for a new convention, the Platform supports an approach that focuses on the integration of effective practices into existing normative frameworks.

Finally, the enormous challenges that cross-border disaster-displacement generates are diverse. International cooperation as well as regional and national engagement is crucial. To this end, the Platform promotes coherence and enhanced cooperation across relevant global policy dialogues.

4 Climate, migration and the SDGs: SDG13

This section explores SDG13 on climate action (UN, 2015). SDG13 does not mention migration or displacement, or recommend the inclusion of this important phenomenon in climate policies. Other SDGs, specifically SDGs 8, 10 and 17, point to the need for facilitated, planned and well-managed migration policies – but do not make the connection with climate change. Therefore, the ways in which migration may be altered by climate change and the challenges this poses for policy and planning are not directly addressed in the SDGs. Nor are the broader challenges that human mobility presents to meeting goals on mitigating and adapting to the impacts of climate change.

SDG13 is exclusively focusing on climate change, and requires governments to 'Take urgent action to combat climate change and its impacts'. The goal is to be achieved through five targets. These focus heavily on the adaptation needed to deal with climate change impacts, and emphasise mainstreaming climate change in policies and plans, requiring capacity building, awareness raising and mobilising funding. SDG13 is supported by Target 1.5 under SDG1, 'End poverty in all its forms everywhere', which relates to building resilience of the poor to climate-related extreme events and other economic, social and environmental shocks and disasters.

Migration will affect progress on SDG13. However, given the uncertainty surrounding migration projections and where migrants will go in the future, it is hard to anticipate the precise impact of human mobility on achieving these targets. This section looks at some of the challenges for SDG13 posed by existing patterns of migration as well as those anticipated in the future, including away from coastal areas particularly in SIDS.

4.1 Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and 'natural' disasters in all countries

DRR and climate change adaptation policies can build the resilience and adaptive capacity of individuals and communities and help them to prepare for and prevent displacement due to climate extremes. Therefore, policies aimed at reducing disaster risk can limit displacement. DRR policies commonly include structural measures to protect people and assets (such as dykes and sea walls) and land-use planning and relocation policies to limit exposure to hazards. People displaced by disaster often end up in hazardous urban areas where housing fails to comply with planning and building regulations, and basic services are lacking or provided irregularly (UN-Habitat, 2015; Wilkinson et al., 2016b). This increases the challenge for DRR. While measures to strengthen resilience and adaptive capacity will be confronted with further difficulties in assessing the level of disaster risk (vulnerability or risk assessments usually being the starting point for identifying suitable policies), and in providing effective early warnings of climate hazards and related health risks.

Pushing up levels of risk

New arrivals are particularly vulnerable to climate change impacts for a number of reasons, including the fact that they are less connected to support networks and services than established city dwellers. In addition, the UK Government Foresight Report found that those migrating in 'illegal, irregular, unsafe, exploited or unplanned ways' are more likely to find themselves migrating to areas of high environmental risk, such as low-lying areas in mega-deltas or slums in water insecure, expanding cities (Government Office for Science, 2011: 104). They also come from other environmental, social and cultural settings and therefore, may be unfamiliar with how to respond to the unfamiliar climate extremes. For example, new arrivals in Indian cities were less experienced in responding to heatwaves and were among those most affected by the high temperatures of 45-48°C across cities and towns in the region in May 2015 (Burke, 2015).

Similarly, those left behind in places where outgoing migration is high may become even more vulnerable to climate change. In Bangladesh, coastal farming is being increasingly affected by sea-level rise and storm surges introducing saline water. The high levels of migration to urban areas as a result of this, is having a negative economic and social impact on those left behind, particularly women and children who are less able to manage the farming activities and deal with floods and other extreme events (Lazar et al., 2015).

Difficulties understanding risk

Risk assessments form the basis of national-level policies and plans designed to manage disaster risk and adapt to climate change. However, these are usually a snapshot of circumstances at a given time to identify where people are living in relation to hazards and their vulnerability or sensitivity to these – they do not reflect the dynamic nature of vulnerability and exposure.

Risk assessments rarely take into account migration patterns and fluctuation in demographics and any migration will affect the level of risk. There is some evidence that people who cope well with changes in climate are less likely to migrate (Koubi et al., 2016). Yet those who decide to migrate often do so because their livelihoods become unsustainable (Koubi et al., 2016). Farming practices in semi-arid areas, for example, are becoming less and less viable as drought periods lengthen. Understanding why people migrate – in any given context – is key to understanding the level of risk.

It is difficult to untangle the causes of migration because the relationship between vulnerability to climate change and migration is circular. People displaced by an extreme event will often return home (Oxfam International, 2016), but this may change in the future as climate extremes

Box 3: Taking account of internal climate-induced migration in Tanzania

Tanzanian authorities have not, as yet, recognised migration as an adaptation response to climate change. The only official document that explicitly takes into account migration in the context of climate change is the National Adaptation Program of Action (URT, 2007). Migration is also viewed as a vulnerability, and not a potential adaptation activity. The Program of Action further stipulates relocation of vulnerable communities, in principle from coastal areas subject to sea-level rise, emphasising again the forced and not voluntary dimension of migration.

Tanzanians are already migrating as a response to climate change. Policy-makers need to integrate this reality into official climate strategy to better facilitate the movement of people. Furthermore, climate-related strategic interventions, as exposed in the Climate Change Strategy (URT, 2013) should, where relevant, take into account the migration perspective, including the upgrading of unplanned settlements and peri-urban areas. Employment-related solutions are also needed for integration of migrants into the local labour markets. The current Five Year Development Plan, which is focused on industrialisation, is a good starting point for this integration.

Despite extensive work on planning a climate strategy, the Tanzanian government has been less effective in its implementation (Daly, Yanda and West, 2015). These commitments need to be binding and further international financial assistance will be important to achieving this.

Box 4: Taking account of internal climate-induced migration in Kenya

Unlike other countries facing climate-change related risks, Kenya has recognised migration as a coping strategy. Several official documents, including the National Climate Change Response Strategy (Republic of Kenya, 2010), National Environmental Policy (Republic of Kenya, 2013a) and National Climate Change Action Plan 2013-2017 (Republic of Kenya, 2013b), refer to rural-urban migration as a response to deterioration of rural livelihoods due to environmental change, emphasising the challenges this might present for those left behind.

Some policies have been put in place to address disaster-related displacement and planned relocation (Republic of Kenya, 2012), including a special Resettlement Policy Framework (Republic of Kenya, Ministry of Agriculture, Livestock and Fisheries, 2016). The government considers voluntary and forced climate-induced migration as issues to be addressed in adaptation strategies rather than as separate problems requiring their own set of policies. The government acknowledges the need to understand these coping mechanisms and to identify alternatives to allow people to remain in their communities (Republic of Kenya, 2013b).

Kenya now needs to make these commitments binding. The recently signed Climate Change Act (Republic of Kenya, 2016), the first such legal framework in East Africa, although not referring to migration directly, could be a first step in this direction. Kenya's participation in the EU-funded project 'Migration, Environment, and Climate Change: Evidence for Policy (MECLEP)', is another encouraging sign of commitment to this issue.

become more frequent (Field et al., 2012), while this movement and loss of assets will make people more vulnerable to future climate change impacts.

Furthermore, like risk assessments, early warning systems for climate extremes are commonly based on past data of the types of hazards that occur and the population that might be affected. Migration can create new risks with people inhabiting hazard-prone and previously uninhabited areas, without drainage or sanitary services causing secondary health risks when there is heavy rainfall and drains are blocked and floodwater contaminated. The effectiveness of early warning systems for floods and related health risks will be severely affected by changes in population and by the likelihood of migrants not understanding the warnings and/or knowing how to respond.

Recognising migration as an adaptation strategy

Migration is not necessarily a last resort for people confronting environmental change and can be a powerful adaptation strategy (IOM, 2016). Yet facilitating migration when people decide to move voluntarily to seek more resilient livelihoods will require recognition of the challenges posed by migration and better infrastructure planning. Decision-makers will need to consider whether adaptation policy should help people become more resilient in a given location, or help people in leaving. For example, smallholders in fragile environments, for whom agriculture is already a tremendous challenge, will find it even more difficult to have a decent harvest in the future. The question is then whether investments in irrigation, more tolerant crop varieties and alternative crops are required, or whether these investments will only increase

vulnerability over the long term. If these new crop varieties fail to produce or sell, people may become worse off and indebted if they have taken out loans to purchase new seeds or technologies. In these cases, support to migrate could be more effective.

4.2 Target 13.2: Integrate climate change measures into national policies, strategies and planning

For many years, the international climate change community has been arguing for national development plans to incorporate climate change mitigation and adaptation. Countries can only hope to reduce the impact of climate change on development by considering climate change impacts in policies, strategies and plans. Development plans and investments that do not take into account migration as an impact of climate change are likely to cost more, be less effective, and potentially increase people's vulnerability to climate change. Local development plans, in particular, will need to take into account how people move in response to climate change – whether this is permanent, temporary or seasonal – and how these patterns might change in the future (see Box 3 and 4).

Adaptation undermined by rural abandonment

Not taking into account rural-to-urban migration patterns in the future could result in incomplee adaptation plans, which fail to protect important economic sectors from climate change impacts. Agricultural policies that incorporate projections of warmer weather in the future, will be ineffective if people end up moving out, resulting in a loss of both resources and skills. An example of this can be seen in Rwanda, where a team of researchers are working with the agricultural ministry to incorporate climate information into existing plans to expand the coffee and tea sectors (CDKN, 2014). The economic development of the country is linked to these exports but both tea and coffee will be heavily affected by climate change in the future. With the increase in temperatures projected over the next few decades, the low-lying areas of current production of tea (around 1700 metres) will become less suitable for optimal production of high quality tea (CDKN, 2014). Adaptation plans consider climate change scenarios and direct impacts on crop yields, but not the indirect impacts of the decisions of farmers if they were to relocate to urban areas. Lack of adequate drinking water during dry periods, flash floods and landslides will affect all communities living in these areas – not just those working in coffee and tea plantations, and many may choose to migrate to cities where there are more stable sources of income. If adaptation plans do not address the multi-dimensional vulnerability of those living in rural areas – not just those of a particular farming activity – investments to adapt these farming practices may be wasted.

Failure to meet targets for GHG emissions

Migration, particularly large flows of migrants driven out of areas affected by disasters and conflict, could have an impact on GHG reduction targets outlined in country NDCs, although how significant this will be remains unclear. Rural-to-urban migration leads to higher incomes and greater CO^2 emissions, as seen in China (Ru et al., 2015). Urban low-carbon development plans will need to include population projections to ensure that GHG reduction targets can be met as the urban population expands. New residents will also put pressure on services, particularly transportation and energy: there may be a growth of vehicles transporting people from city centres to sub-urban areas, as well as greater demands for goods and services, all of which result in increased energy consumption. Planning for low-income settlements should include measures to increase use of LPG gas rather than fuelwood.

4.3 Target 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Skills and knowledge, whether traditional or learned, are crucial in helping people adapt to climate change and cope with natural hazard impacts (Agrawal, 1995). However, migrants arriving in a new location may not have appropriate skills or understand their new contexts sufficiently to be able to overcome unfamiliar challenges. Education and awareness-raising must ensure that those new to an area gain the knowledge necessary to thrive. This may mean providing education in additional languages or with different, more culturally appropriate messages. This will include providing information to 'invisible', undocumented people whose children may not be able to attend school, so that they too are aware of the risks to which they might be exposed, and what they can do to reduce their vulnerability. Spurring cultural change is necessary in some situations. For example, in Pakistan, women often cannot leave the home without a male relative – even in a flood (Drolet et al., 2015). In order to save lives, policy-makers will need to address these cultural barriers directly.

Box 5: Funding to support climate-induced migration

To-date, programmes financed by climate funds rarely address aspects of voluntary and forced climate-induced migration (IOM, 2016). The V20 Group, which brings together finance ministers to mobilise and stimulate climate funding, has identified migration as critical area of action. This is a promising step for allocating funds to address climate-induced migration in V20 countries. In addition, a number of countries – Azerbaijan, Bangladesh, Egypt, the Maldives, Mali, Nepal and Peru – have applied to the IOM Development Fund (2001) to launch pilot projects that integrate migration and responses to climate change.

Migrants themselves offer a source of funding for adaptation activities though remittances. Asian countries have received high levels of remittances and in Nepal, which is particularly vulnerable to climate change, remittances accounted for 29% of GDP between 2013-2014. Around the world, remittances are used for basic needs, such as food, housing and healthcare, and are invested in assets (De Haan 2000; Banerjee, 2016). However, it is unclear to what extent these remittances are invested in measures that build resilience and adaptive capacity (Banerjee, 2016). The Nepalese Government has emphasised the role that governments and local authorities should play in supporting these transfers and in offering options for them to be used in concrete adaptation investment (IOM, 2016).

4.4 Targets 13a and 13b on means of implementation (finance and institutional capacity)

Financial support for climate-induced migration

The direct implications of climate-induced migration for climate finance are unclear and identifying appropriate measures to be funded by the Green Climate Fund (GCF)[2] will be made more difficult by changes in population and energy use. Ideally, UNFCCC-related funds could be used to support climate-induced migration, helping people to move when they choose to do so, to help people adapt in destinations, and to ensure that costs of low-carbon development associated with new arrivals would be covered.

Funding is a crucial trigger for action, but sometimes measures are taken with incomplete knowledge. It is important to consider whether DRR and adaptation investments are actually limiting mobility and promoting activities that prevent resilience to climate change in the future – something that is referred to as 'maladaptation'.

Capacity challenges in SIDS

In some contexts, capacities to respond to climate change will need to be higher – in particular, in LDCs and SIDS. Many factors make it difficult for people to migrate. However, there are also a large number of people considered to be 'trapped' – unable to migrate due to a lack of resources even when they would like to leave (Black and Collyer, 2014). In some SIDS, migration away from coastal areas will be essential and some islands will have to be abandoned entirely due to sea-level rise. This migration needs to be facilitated by governments in places of origin and destination, and will likely involve planned relocation (see Box 6).

Forced migration will require internationally agreed solutions and institutional arrangements to support those needing to move. The Loss and Damage Mechanism, under the UNFCCC, is expected to do this, potentially including a means to compensate countries for climate change impacts. Yet agreement on how this will work remains in the distant future. Beyond simply ensuring that people are free to move, action needs to be taken before we reach the point of no return: people should be helped before they have depleted all of their capital, health and mental wellbeing.

Box 6: Avoiding the worst impacts of climate change: planned resettlement in the Maldives

After the 2004 tsunami in the Maldives, a government programme was put in place to move communities from smaller islands to larger ones. A total of 20,000 people were evacuated to other islands after the tsunami, and half returned to their homes a few weeks later. Many remained displaced because of the damage to the island. The government designed three types of durable solutions for those affected:

1. Rebuilding houses and facilitating return but in safer locations, where possible
2. Building houses on islands where people were temporarily displaced, and facilitating integration
3. Where returns and resettlement were not possible, building new villages and infrastructure on uninhabited islands.

Source: Duwat and Magnan, 2014.

2. The GCF is one of several funds operated by the United Nations Framework Convention on Climate Change.

5 Conclusions and policy recommendations

Building 'resilience for all' is akin to leaving no one behind. It will help to reduce the number of people displaced by disasters or forced to leave as a result of deteriorating environmental conditions and support those that do so in maximising opportunities and limiting the creation of new risks. For national policymakers, this means that adaptation policies should include awareness raising, capacity building and education on climate change to ensure that people understand the risks they face and the impacts that their behaviour might have on the environment, wherever they live.

National governments will need to negotiate durable solutions on resettlement and local integration to address the needs of those permanently forced out due to irreversible environmental change, including from some SIDS (Wilkinson et al., 2016c). International agreement around a Loss and Damage Mechanism is making slow progress, but will most likely focus on forced migration and displacement, where the climate change drivers are clear.

The following conclusions on implementing SDG13 are drawn from the research and evidence presented in this brief. Based on these conclusions, we make further recommendations aimed at national and local governments in climate vulnerable countries for future policy consideration.

Conclusion 1: Forced climate-induced migration and displacement can lead to further risk accumulation in cities

Investments in building resilience and adaptive capacity could help reduce displacement and forced migration, limiting the impacts of environmental change, where it is not an existential threat. Displaced populations in particular often end up living in hazardous urban areas and their unfamiliarity with climate risks in these places makes them particularly vulnerable. At the same time, migrants often take crucial resources, skills and knowledge with them, leaving communities behind with insufficient capacity to respond to climate change impacts in those places. Investment in DRR and adaptation can help to reduce migration and the associated 'risks' by tackling the causes.

Recommendations:

- Diversify livelihoods in places that are likely to be most affected by climate change. People affected by climate change will seek to diversify their livelihoods and rely on remittances from relatives elsewhere to cope with seasonal variation, extreme events and longer-term trends. Adaptation policies can ensure income diversification into less climate vulnerable sectors.
- Promote livelihood options that are less risky. Measures to strengthen resilience need to go beyond helping people adapt within their current livelihood activities. These measures need to enable livelihood options that are less risky. This might include a switch to predominantly off-farm activities, and ensuring that people living in rural areas are better linked up to markets.

Conclusion 2: Climate policies do not take future migration into account because the timing of forced migration and displacement is unpredictable

In some places, solutions are needed for whole communities forced from their habitats. The most extreme example is in SIDS, where residents of some islands will simply no longer have any land to live on, and will be forced to move. Unplanned, forced migration for which governments and destination locations are not prepared, will create problems for national and local governments that could result in humanitarian crises. With greater foresight and preparedness planning, significant financial and human costs could be avoided.

Recommendations:

- Ensure DRR and adaptation measures are flexible and take into account how movement of people – whether planned or voluntary – could affect these measures. Consider how disaster response measures and provisions can quickly expand in scope and reach to include new arrivals with different cultural backgrounds. Ensure adaptation and DRR strategies can incorporate undocumented migrants – i.e. not just those on an electoral or housing register.
- Policy-makers and planners to consider projections of future climate conditions and migration trends. Projections of migration patterns and population changes can be generated through models by looking at potential climate change impacts with and without adaptation investments. This would provide a more compelling case for investing in adaptation.
- Data gaps still exist, in particular on forced migration related to slow-onset changes in the environment, the role of remittances and the demographic dynamics of migrants. Data collection needs to be enhanced alongside improved understanding of these phenomena, to allow better planning for these changes.

Conclusion 3: Voluntary climate-induced migration can be supported and planned for as an adaption strategy

For some people, migration is an adaptation strategy, helping families to diversify their incomes and reduce their vulnerability to climate change impacts. In the context of some SIDS, the ability to move is existential and greater support to facilitate these individuals and families' decision to move is important.

Recommendations:

- Funding should aim to avoid vulnerability traps where climate change impacts deplete people's assets to the extent that they cannot afford to move. Better consideration of migration as a response to climate change – both extreme and slow-onset changes – and better financial planning is required to divert funds from adaptation to addressing a migration crisis.
- Consider whether development investments are making mobility more difficult and potentially leading to maladaptation. Measures specifically designed to keep people in place must also consider the consequences if they fail. For example, facilitating people's access to off-farm labour opportunities now may make them less dependent on failing agriculture in the future.
- Policies and funding is needed to support resettlement and integration of migrants into DRR systems so they are informed about the hazards, and can avoid behaviour that might even introduce new hazards or settling in places that actually increase their exposure.

Relevant SDG targets

13: Take urgent action to combat climate change and its impacts

13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2: Integrate climate change measures into national policies, strategies and planning

13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

13.a: Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

13.b: Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

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