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Briefing note

Water and sanitation, migration and the 2030 Agenda for Sustainable Development

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Key messages

- Migration isn't driven by a lack of water and sanitation services, but providing services can support successful migration.
- The barriers faced by migrants make achieving the SDGs' ambitions of universal access more challenging.
- Challenges stem from failures in governance, not the amount of water available, numbers of migrants or rates of migration.
- The poor visibility of migrants in data limits understanding of their needs and reduces the accountability of governments and service providers.

Migration and the 2030 Agenda for Sustainable Development: a briefing series

Migration is one of the defining features of the 21st century and significantly contributes to economic and social development everywhere. As such, migration will be key to achieving the Sustainable Development Goals (SDGs).

In a series of briefings, ODI, with the support of the Swiss Agency for Development and Cooperation (SDC), explains the relationship between migration and critical development issues that are central to the SDGs. The briefings provide a set of recommendations for governments and policy-makers tasked with delivering the 2030 Agenda.

1 Introduction

This briefing explores the relationships between water, sanitation and migration, and how they may affect the 2030 Agenda for Sustainable Development (2030 Agenda) and achievement of the Sustainable Development Goals. Specifically, we discuss the fact that while water and sanitation do not appear to drive migration, the process of migration can radically shape access to water and sanitation services – particularly for undocumented migrants[1] and people in transit. We question whether attaining universal access to safely managed water and sanitation services is possible without specific measures to address the needs of refugees and other migrants.

This briefing focuses primarily on refugees and international labour migrants. However, several dominant narratives about the relationships between water and migration have been shaped by experiences of other forms of migration. As such, this briefing does discuss domestic migration, nomadic pastoralism and seasonal labour migration, and people temporarily relocating in response to droughts and floods. When not explicitly differentiated, 'migration' and 'migrants' should be understood to mean refugees and other international migrants.

We examine how migration relates to several of the SDGs – chiefly SDG 6: to 'ensure availability and sustainable management of water and sanitation for all'. SDG 6 covers a wide range of issues related to water security, including access to water and sanitation services, and water quality, scarcity, sustainability and management. The 'water security' framing of SDG 6 connects the rights of individuals (e.g. access to safe water and sanitation services) with broader environmental and natural resource issues.

While this briefing touches upon most of the issues covered by SDG 6, we focus in particular on access to water, sanitation and hygiene (WASH) services (section 2). SDG 6, and the specific water and sanitation targets (6.1 and 6.2), set the ambition of 'safely managed' services 'for all'. This is a step up from previous commitments to provide basic water service levels – which might include, for example, a standpipe or well shared by multiple households. Instead, standards for *safely managed* water services focus on piped water delivery to each household (see also Box 1). This poses obvious problems when applied to transitory populations, but also significant challenges for people with insecure land tenure and immigration status.

WASH – and water services more broadly – fall into the category of basic services. This series on migration and the 2030 Agenda has already covered several other basic services: health (Tulloch et al., 2016); education (Nicolai et al., 2017; and social protection (Hagen-Zanker et al., 2017). But several factors make WASH services worthy of separate consideration.

First, like food and shelter, drinking water is an immediate need for human survival, and poor sanitation can also have serious public health consequences. Second, water and sanitation systems have more specific and fixed infrastructure at the point of delivery than other basic services: education services can be provided in a variety of ways, places and contexts, but options for delivering safely managed WASH services are more limited and expensive – particularly where connecting to individual residences. Third, compared to other basic services there are stronger links between WASH access and land rights, an issue that strongly affects migrants.

This briefing begins by exploring narratives about the role of water in driving migration. It then considers how migration affects WASH service delivery from the perspective of four groups: migrants, migrants' origin communities, service providers and the policy community. In section 4 we relate these findings to migration's effects on the achievement of WASH-related SDGs, and in section 5, provide recommendations for national governments, donors, international agencies and civil society organisations to improve WASH access for migrants and strengthen the potential of WASH to support successful migration.

1 'Undocumented migrant' refers to people without valid travel documents, including those who have entered the country without valid documents, overstayed their visas, or had asylum or refugee requests rejected.

Box 1 The challenge of delivering services 'for all'

SDG 6 aims to 'ensure availability and sustainable management of water and sanitation for all'. This unambiguous commitment to universal access presents significant practical challenges. In the past, investment in WASH services has tended to focus on the people who are easiest – and most cost-effective – to reach, such as fixed, urban populations. Ensuring that *no one* is left behind requires additional and different types of investments aimed at the hardest-to-reach people and groups. The requirement for services to be *safely managed* introduces further costs and difficulties.

The Joint Monitoring Programme of the World Health Organization and UNICEF (WHO and UNICEF, 2017) defines basic and safely managed services as:

Sanitation
Basic: *use of improved facilities which are not shared with other households.*
Safely managed: *use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site.*

Drinking water
Basic: *drinking water from an improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing.*
Safely managed: *from an improved water source which is located on premises, available when needed and free from faecal and priority chemical contamination.*

How these standards might be attained in serving migrant and transitory populations without fixed households or premises is a challenging question.

2 The relationship between water, sanitation and migration

The relationship between migration and water security is not straightforward (Wilkinson et al., 2016), despite a common framing in which people are 'pushed' away from areas where water is scarce or inaccessible and 'pulled' towards areas offering better access (Jónsson, 2010). Individual migration decisions are complex, and based on a broad range of social, economic, political and institutional factors of which water is just one (Afifi, 2011; Miletto et al., 2017). Large-scale movements of people, in particular, have multiple causes, and untangling them may be impossible (Cummings et al., 2015; Hagen-Zanker and Mallett, 2016).

Rural livelihoods based on agriculture and livestock production rely on large quantities of water and when supplies are insufficient, people may move to find water or alternative economic opportunities. Many rural households practice seasonal labour migration, with young males in particular moving from agricultural activities to jobs in urban services and construction during the dry season (Afifi, 2011; Simonet and Jobbins, 2016). Similarly, pastoral nomads frequently move in search of water and forage for their livestock, usually in traditional seasonal patterns. In these contexts, providing water services has even been an instrument for the sedentarisation of nomads by governments who seek greater political and economic control over them, often with negative environmental and cultural consequences (Gomes, 2006).

Migration can also be an adaptation strategy where long-term water resource scarcity or degradation of water resources undermines the viability of livestock or agricultural livelihoods. While this can lead to migration that is more permanent than seasonal in character, it does not necessarily mean that whole households or communities are migrating: mostly, migration by some household members is used to generate and diversify household income and support those left behind (Tacoli, 2009). The role of water is also likely to be indirect and/or hard to distinguish from other environmental changes (e.g. land degradation) or non-environmental factors driving migration such as job and economic opportunities (Reuveny, 2007).

Migration is also a common strategy for coping with and recovering from droughts and floods (Bhat et al., 2013; Opitz-Stapleton et al., 2017). For example, large scale movements of people have been seen in response to recent floods in Pakistan (Salik et al., 2017). Migratory responses to water-related disasters are usually temporary, with displaced people returning to their communities and livelihoods as soon as possible (Wilkinson et al., 2016). However, such displacement can be repeated or prolonged, leading to longer-term relocation (IDMC, 2016). Migration in response to droughts and floods is also not usually international, as long-distance migration requires planning and resources, which are scarce in disasters (Jónsson, 2010).

Nor do extreme events necessarily lead to migration. In areas such as the Sahel, where drought and climate variability are the norm, social networks and other assets provide people with a range of coping strategies beyond migrating (Jónsson, 2010). Similarly, though rural–urban migration increased in Syria between 2005 and 2010 during a drought, the same drought didn't produce widespread movements of people in other affected countries, which included Iraq, Turkey, Lebanon

and Jordan (Weinthal, Zawahri and Sowers, 2015). In Syria, the wave of rural–urban migration – and the wider crisis – resulted from broad governance failures, not the drought (de Châtel, 2014).

The role of water and sanitation *services* (as opposed to water *resources*) as a push or pull factor in migration is even less clear. While improved access to basic services, including water, is often cited in policy discussions as a factor pulling people to cities, it is rarely mentioned by migrants as a primary reason for their journey (WEF, 2017). WASH is more likely to be a secondary reason for migration than a direct driver – that is, water and sanitation access may shape factors like jobs, food availability and living standards, but people don't move to a city solely to for improved water services or better toilet facilities (Salik et al., 2017). Migrants may also be willing to accept *lower* levels of WASH access at their destination if other, greater benefits – such as higher or more stable income, or education opportunities for their children – are on offer.

Perhaps surprisingly, there is some evidence that development in origin communities – including improved access to WASH services – may accelerate out-migration. With development comes greater prosperity, which means people are better able to save money and finance their migration, and their aspirations increase (De Haas, 2010). Conversely, unreliable, poor quality or low levels of access to WASH services may prevent people from migrating by contributing to poverty and limiting their ability to form the necessary assets (Dorward et al., 2009; Salik et al., 2017). This might be due to the opportunity costs of the time taken in collecting and managing water, or because water-related health shocks reduce people's assets.

3 How does migration affect WASH services?

The relationships between migration and WASH services are complex; the issues differ depending on your perspective. For migrants, and their origin communities, the issues are largely about how the process of migration affects their *access* to WASH services. For those delivering WASH services – such as public utilities, private companies or charitable actors – the challenges lie in the *sustainable provision* of safe, sustainable and effective services. By contrast, the policy community's concerns focus on *enabling* migrants' access to WASH services. Using case studies from Lebanon and the United States, this section looks at each of these perspectives in turn to illustrate specific challenges.

3.1 Impacts of migration on WASH and water in origin communities

Migration can have mixed effects on the water security of those left behind in origin communities. Remittances can be invested in water management and WASH services, and there is some evidence that visiting and returning migrants can transfer new technologies and practices to communities, including better sanitation behaviours (Fayissa and Nsiah, 2010). On the other hand, migration does not necessarily relieve pressure on water resources, and male out-migration can increase the water management burden for women.

Remittances are an important pathway for migrants to support water security, particularly in rural origin communities with low levels of WASH provision, and where water access is important productive factor (Asian Development Bank, 2009). Remittances can support capital investment in irrigation or domestic equipment (De Haas, 2006), or paying for improved WASH services (Massey, 1990). Remittances can also contribute to cash reserves, and help left-behind families cope with water-related shocks from drought and floods (Miletto et al., 2017; Salik et al., 2017).

Not all these relationships are causal. Richer households are better able to support the cost of migration and to afford WASH equipment, pay for services and cope with shocks. Also, WASH-related benefits don't emerge automatically from remittances. Households may have competing priorities for remittances and, where they are used for consumption expenditure, it will not have the same long-term impact as investments. Arguably governments can do more to channel remittances from international migrants towards better developmental and WASH outcomes for origin communities (Fayissa and Nsiah, 2010; Salik et al., 2017). In Mexico, for example, the Three-For-One Program matches government funds with collectivised remittances for community public works, and has positively contributed to water and sanitation service provision in some communities (Duquette-Rury, 2014).

However, migration doesn't necessarily affect other water security challenges in origin communities. For example, it is not clear that out-migration reduces competition over water resources or helps degraded ecosystems recover (Jónsson, 2010) – despite arguments to the contrary (e.g. Olsson, Eklundh and Ardö, 2005). In practice, migration is often a strategy used to keep most household members in the rural setting (e.g. Mounkaïla, 2002), without significantly reducing demand for water. Remittances can also fund water equipment – particularly for irrigation – that may even increase water demand and contribute to further ecosystem degradation (Zeitoun et al., 2012).

Migration can also have clearly negative impacts for origin communities and households. In particular, male out-migration can shift responsibilities in the home, with women taking additional burdens such as securing water and caring for livestock (Afifi, 2011; Salik et al., 2017). Where women are marginalised in local water management systems, the departure of men can cause further stress and problems (Miletto et al., 2017).

3.2 Access of migrants to WASH services

The vulnerability, exclusion, political and documentation status of migrants contribute to a range of challenges they experience in accessing basic and safely-managed WASH services.

Migrants in transit

Accessing even *basic* water and sanitation services can be challenging for migrants on the move. Migrants – particularly those who are undocumented – can face difficult and hazardous journeys, and access to water and sanitation services is just one of many challenges they face. While there is little evidence on how migrants access water and sanitation services during their journeys, we do know that along extreme but widely travelled trajectories such as the Sahara, the lack of water can be fatal (IOM, 2017a).

Even in less extreme environments, migrants can face exclusion and disincentives in accessing basic WASH services. For undocumented migrants, one such disincentive is the possibility of detection by authorities. Near the French-Italian border, for example, undocumented migrants have slept in the forest, using rivers as both drinking sources and toilet facilities, rather than risk detection by staying in Red Cross camps (Welander, 2017). In populated areas, people on the move often face racism, discrimination and exclusion from services, being moved away from spaces with public toilets and water points, or refused sale of water.

Formal camps and detention centres for migrants and refugees generally offer better access to WASH than life without a roof. However, the services offered do not necessarily meet the 'safely managed' standard (i.e. services on premises and not shared with other households). For instance, the 'formal' migrant camp at Calais had inadequate WASH services, with overflowing toilets and reports of respiratory disease linked to bacteria-contaminated water (Dhesi et al., 2015). Similar reports of unsanitary conditions and waterborne disease in transit camps are found around the world, including Europe (Van Berlaer et al., 2016). Unsanitary and overcrowded WASH facilities have also been reported in more permanent infrastructure for housing migrants, such as detention centres for people awaiting deportation (e.g. HM Chief Inspector of Prisons, 2015).

The reasons for these shortfalls in service standards are diverse and complex, and include – for example – challenges coping with increased numbers of migrants at the onset of the European 'migration crisis'. However, they also reflect the technical challenges of meeting the standards for basic and especially safely managed services for people on the move, and the limited political incentives and will to do so (Dhesi et al., 2015).

Migrants settled in host countries

Challenges in accessing WASH services can persist long after the initial migration journey. Refugees and low-income and undocumented migrants are more likely to end up living in decaying or informal urban areas with old or absent infrastructure and services that fall below standards for safely managed – or even basic – provision (Jabareen, 2014). Unestablished migrants in new communities often lack the necessary social and political capital to demand better services from authorities; language skills and limited knowledge of their rights can also be barriers (Jabareen, 2014; IOM, 2017b). Undocumented migrants are in a worse position: those without the right to remain are less likely to demand services because of the risk – perceived or actual – of detection and deportation (Jepson et al., 2014; UN-Habitat, 2016) (see Box 2). Financial barriers to access can also be significant, as poor and marginalised people pay a greater proportion of their income for water services (Bakker et al., 2008).

Migrants are also highly vulnerable to homelessness (Pleace, 2010). In the UK, migrants from Central and Eastern Europe make up a large proportion (28%) of the homeless population (Fitzpatrick et al., 2012). UK government policies attempt to create a hostile environment for undocumented migrants and failed asylum seekers by excluding them from support and benefits, driving homelessness (Fitzpatrick et al., 2012; Burnett, 2016). As homelessness implies exclusion from basic services, these policies constitute a further risk factor for the access of migrants to WASH services.

Despite these challenges, there is evidence that successful migrants gain improved access to WASH services over the longer term. Urban areas provide better services than rural areas, and not all migrants are relegated to slums (Lu, 2010; Lucci et al., 2016; Salik, 2017). Over time, migrants can also move from low-income neighbourhoods to more established parts of the city with better services (UN-Habitat, 2016).

Box 2 Undocumented migrants and WASH services in the *colonias* of Texas

In Texas, more than 1,800 informal shanty towns – or *colonias* – lie along the border with Mexico. *Colonias* provide limited services, rights and security to their largely undocumented, Latino, migrant population, and have been termed America's 'third world' (Rios and Meyer, 2006). The *colonias* occupy a specific institutional and political niche in the US: politically and socially unwelcome, but providing cheap and disposable sources of labour that is economically useful.

Water and sanitation provision in the *colonias* is highly variable. One study in Hidalgo County found that 46% of residents in 950 *colonias* faced deficiencies in water and/or sanitation provision (Jepson et al., 2014). Sporadic attempts by the state to address WASH needs as a public health measure have yielded some formal service provision. But many *colonia* residents lack water utilities, and instead purchase water privately from trucks or vending machines and store it in drums. This water is often unaffordable to many residents and of poor quality.

Source: Jepson et al., 2014.

3.3 Water and sanitation service providers

The sustainable provision of WASH services is the principle challenge for utilities, private suppliers and charitable provider organisations. Though largely a question of mobilising capital for investment and generating the income to sustain WASH services, service provision can also have political dimensions. Migration compounds the challenges faced by WASH service providers in several ways, particularly where meeting the needs of migrants might involve – or be perceived as – lowering the service standards for long-standing residents.

In cities experiencing rapid growth from rural–urban migration, problems with WASH provision are well documented. In fast-growing cities in Africa and Asia, such as Accra and Hyderabad, rapid growth in demand for WASH services has outstripped the ability to invest in, and provide, them (Ramachandraiah and Vedakumar, 2007; Van Rooijen, 2011; WEF, 2017). Haphazard responses to rapid city growth exacerbate the challenges: in India, this has contributed to unequal access to water, over-abstraction of water sources and water pollution (Bhat et al., 2013). A related problem is that rapid growth in low-income areas is often marginalised in flood-prone areas, increasing flood risk (Di Baldassarre et al., 2010).

There is little evidence that international labour migration contributes significantly to such problems in major cities: international migrants are usually a relatively small proportion of urban growth. However, migrants may concentrate in slums or new shanty towns, with shortfalls in service standards (Jabareen, 2014; Jepson et al., 2014). Such situations provide few incentives for service providers to make the necessary investments: replacing decaying infrastructure in old neighbourhoods can be highly expensive, as can reaching new shanty towns outside city limits. Authorities may also reason that shanty towns are temporary and therefore it is difficult to justify the investment, as well as being wary of providing de facto tenure to communities with informal land rights. Such issues can exacerbate spatial inequalities, where communities with political voice and wealth are better able to leverage urban amenities for their own benefit, leaving poorer and marginalised communities behind (UN-Habitat, 2016).

Problems for service providers are accentuated in areas where large movements of people cause rapid fluctuations in service demand. This is particularly the case where competition over water resources is already high, or where host communities already have low levels of service access. This is the case in Amman, one of the most water-scarce cities on Earth. Here, demand for drinking water rose 40% between 2011 and 2015 due to influxes of refugees from Syria (WEF, 2017), and additional pressure has also decreased access to, and the quality of, urban sanitation (Mosello et al., 2016). Again, expansion of supply and network capacity requires substantial capital investment, and uncertainty over migrants' length of stay complicates the business case. Yet reliance on some short-term measures such as water rationing and private supply can also raise costs and lower user satisfaction for permanent residents (see Box 3). Cost-effective, scalable models are needed that can provide services for extended periods, such as the shared water and sanitation facilities provided in Durban's community ablution blocks (Roma et al., 2010).

Refugee camps pose similar problems. The average stay in a camp is 17 years, yet WASH provision is frequently managed in terms of short-term assistance (UNHCR, 2006). This can be as much a political and institutional issue as a financial issue. The Kenyan government forbids the construction of permanent structures at Dadaab refugee camp, for example, meaning that water still comes from temporary taps decades after the camp was first

Box 3 The impacts of migration on water services and resources in Lebanon

Lebanon, like Jordan, has taken in many Syrians since 2011: around one in four people currently in the country is a Syrian refugee.

But while inflows of refugees have affected Lebanon's WASH services, the country's WASH systems and water resources struggled to meet demand before the current crisis due to weak governance and insufficient infrastructure. The poor quality and reliability of water services in Lebanon means that many households self-supply, usually through private water trucks or wells. The influx of refugees has increased demand and increased competition for private water services, with supply from water trucks becoming both more expensive and less frequent (Baylouny and Klingseis, 2018). The proliferation of private – often illegal – wells has also accelerated, contributing to already serious groundwater deterioration and salinisation (Saadeh and Wakim, 2017). The lack of sanitation provision in informal areas occupied by refugees has also contributed to degraded water quality (Jägerskog and Swain, 2016).

One poll found that 93% of Lebanese people believe that their availability of water and energy is affected by Syrian refugees (Christophersen et al., 2013). Yet the problems of competition over services and degradation of water quality are long-standing; the arrival of refugees has simply exacerbated pre-existing governance problems. For example, years of conflict-related damages and underinvestment in wastewater treatment have long meant that untreated sewage discharges have contaminated water supplies (Assaf and Saadeh, 2008). Localised, additional pressures from refugees in informal areas are significant, but are not transformational.

Source: Baylouny and Klingseis, 2018.

constructed. Inadequate sanitation has contributed to regular outbreaks of waterborne disease such as hepatitis E and cholera (Médecins Sans Frontières, 2014).

Expanding services to meet the additional needs of migrants is not a technical challenge. Rather, it is a challenge of effective governance, needed to overcome financial, political, institutional, social, cultural, political and environmental obstacles (Van Rooijen, 2011). Surges in demand do not explain an inability to deliver services: even in a difficult case such as Amman or migrant camps in France, it is a lack of readiness to meet the challenge (Diep et al., 2017).

3.4 The policy community

The policy community faces two distinct problems: a lack of evidence/data to inform programming; and political barriers to addressing the marginalisation of migrants and shortfalls in service provision. The marginalisation of refugees and migrants, and their marginalisation in the data record, jeopardises the achievement of universal access.

On the first, data is limited for a number of reasons, one of which is undocumented migrants' attempts to avoid detection (Welander, 2017). Even where migrants join official or unofficial camps, authorities are often uninterested in fully assessing their needs. Several small camps near Calais in 2016 had no WASH facilities: authorities failed to accurately estimate numbers so even when water was provided it was insufficient (Alarcon et al., 2016). More broadly, data on WASH service coverage in most countries is generated by household or census surveys – methods which can exclude migrants living in informal settlements or without shelter. Migration can lead to intense demand for services, but demand that is temporary and localised, leading to further problems with monitoring and understanding the scope and nature of the challenges. To address these methodological issues, inform programming and complement national census results, we need surveys with purposeful – and opportunistic – sampling strategies that focus on the needs of migrants, the homeless and dwellers of temporary housing and informal areas.

The exclusion of migrants in WASH data collection and analysis reflects broader issues with the invisibility and exclusion of migrants, and migrant camps as spaces of exclusion and exception (Agier, 2016). The rules and rights that apply to citizens are not expected to apply to migrants and camp residents. The location of camps, often in border areas, falling in between jurisdictions, compounds the statelessness and exclusion of their inhabitants. These issues of exclusion and marginalisation naturally extend to the provision of services. As described, service providers and governments can face disincentives in serving migrants where there are negative public attitudes about immigration and its perceived impacts on public services (Ford and Lowles, 2016).

There are positive experiences of reducing the access barriers of migrants and the institutional and financial challenges of service providers – at least in cases of domestic migration. In Colombia, where 7 million people have been uprooted by conflict, the government, as part of the process of social reconstruction and peacebuilding, has broken the division between slums and the rest of the city by guaranteeing basic services for all and making progress with land reforms (Econometria, 2016; UN-Habitat, 2016). Similarly, efforts to deliver services to even the poorest of India's urban communities (Bhat et al., 2013) have helped integrate migrant slum dwellers in a broader 'right to the city' (Harvey, 2008; IOM, 2017b), thereby contributing to greater social cohesion and urban resilience. But such approaches require political will, and it may be more difficult to generate sufficient political will to meet the needs of foreign migrants than those of domestic migrants.

4 Relevance to the 2030 Agenda

The 2030 Agenda advocates safe and orderly migration (SDG 10.7), and the provision of universal access to safely managed water and sanitation services (SDG 6). While the two issues are not explicitly linked in the 2030 Agenda, it is not possible to achieve universal access unless internal and international migrants also have access to WASH services. The linkages between water, sanitation and migration also affect other SDGs – on poverty (SDG 1), human health (SDG 3), and sustainable cities and communities (SDG 11).

Targets 6.1 and 6.2 call for *universal* and *safely managed* access to water and sanitation services. Yet migrants face significant financial and non-financial barriers in accessing WASH services, particularly when they are in transit, undocumented, or living in informal areas, ghettos, or without a roof. Disabled people, children and menstruating women can have specific water, sanitation and hygiene needs and access constraints that compound their vulnerabilities as migrants. Service providers face technical, governance and financial challenges in meeting the needs of migrants, as the provision of safely-managed services requires significant capital investment, and – usually – delivery to a household. These challenges are compounded by large and abrupt flows of migrants and refugees, and where migrants are living in informal, unincorporated or temporary accommodation.

These issues of exclusion in access to and provision of WASH services relate also to **target 11.1**, which calls for universal access to adequate, safe and affordable housing and basic services, and the upgrading of slums. Addressing the rights of people living in slums and informal areas can be politically and institutionally challenging. Yet breaking down the distinction between formal and informal areas by providing safely managed WASH services can reduce spatial inequality and improve social cohesion (UN-Habitat, 2016).

The absence of safely managed sanitation services and wastewater treatment can contribute to the pollution of surface and groundwater with human waste – relevant to **target 6.3**, which calls for an end to water pollution,

including from untreated wastewaters. This is a specific challenge in refugee camps and other concentrations of people in areas, such as informal settlements, without adequate services (Mosello et al., 2016). The public health consequences of poor sanitation provision, as seen in refugee camps across Europe (Van Berlaar et al., 2016) can also affect **targets 3.3 and 3.9**, which call for an end to waterborne disease and mortality from water pollution.

Migration may also affect **target 6.4**, which addresses the sustainability of water resources. While there is limited evidence that emigration improves water resource sustainability in places of origin, large and abrupt inflows of migrants can exacerbate sustainability issues where water resources are scarce. While there is only evidence of this being problematic in contexts with pre-existing water governance challenges, the geography of instability means that it is countries with such challenges to which people displaced by conflict often move (Mason et al., 2017).

The issues of water resources (target 6.4) and WASH services (targets 6.1 and 6.2) also intersect with **target 1.4**, which calls for natural resources rights and basic services as essential components for ending poverty. While water resources and WASH services may not be principal drivers of large-scale migration, they can be indirect multipliers of drivers such as underdevelopment and marginalisation in origin communities and economic opportunities in destinations (Jägerskog and Swain, 2016). The provision of WASH services and improved water resources management in both origin and destination communities can support successful

Relevant SDGs and targets	Link to migration
Goal 1 No poverty	
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	Sustainable water resources management and the provision of WASH services can enable successful migration, which plays an important role in reducing poverty.
Goal 3 Ensure healthy lives and promote well-being for all at all ages	
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, waterborne diseases and other communicable diseases	In origin communities, poor WASH services can contribute to health shocks that inhibit successful migration. However, remittances from migrants can contribute to WASH provision and health outcomes.
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	Failure to meet the WASH needs of migrants can contribute to public problems, particularly when large numbers of people are concentrated in temporary, informal or dilapidated areas.
Goal 6 Clean water and sanitation	
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	While there is evidence that water resources shocks and long term stresses contribute to seasonal, temporary and permanent migration, there is limited evidence that WASH services are a significant driver of migration. Achieving universal access for all requires addressing the needs of migrants. Migrants can face significant barriers in accessing WASH services, particularly when they are in transit or undocumented. Large and abrupt flows of migrants, particularly refugees, can pose specific problems to the coping capacity of service providers. Monitoring is a challenge, especially for disaggregation by migratory status. Monitoring methods for WASH targets are likely to exclude undocumented and transitory migrants, and localised and temporary needs.
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	Where refugee and migrant populations are not served with safely managed sanitation, open defecation, untreated wastewater discharge, and unsafe disposal of faecal sludge can contribute to pollution of surface and groundwaters.
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	Large and abrupt flows of migrants can increase competition where water resources are scarce. However, this becomes problematic only in contexts of pre-existing challenges in water governance. There is limited evidence that economic out-migration reduces water competition in origin communities.
Goal 11 Sustainable cities and communities	
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Providing WASH services to slum and informal areas helps reduce spatial inequality and strengthen social cohesion.

migration – enabling planned migration and reducing the challenges that migrants face in making a success of their new lives. Migration has an important role in reducing poverty, and water resources and WASH services have an important role in migration.

5 Conclusions and policy recommendations

The 2030 Agenda sets out ambitious goals for water resources management and access to WASH services. Here refugees and migrants pose specific challenges to service providers and host governments.

Dominant narratives about the relationship between water and migration focus on the role of water in driving migration and the stresses that migrants place on the resources and services in host communities, although the evidence for these narratives is far from conclusive. The 2030 Agenda presents a different set of questions and challenges: how do we ensure access to WASH services is universal, including the hardest-to-reach groups; and how can providing WASH services and improving water resources management help reduce poverty?

The following recommendations set out actions for national governments, donors, international agencies and civil society organisations to improve WASH access for migrants and strengthen the potential of WASH to support successful migration.

Conclusion 1 Migration isn't driven by a lack of water and sanitation services, but providing services can support successful migration

People migrate for many different reasons. The role of water in these decisions can be complex and indirect, and the drivers and challenges of nomadic pastoralists, rural–urban domestic migrants, refugees and international economic migrants all look very different. Before a 'response' can be developed and implemented, we need to understand who migrants are, why they have moved, where they move to, how long they intend to stay, and how these issues relate to their water and WASH needs. The principal challenges for governments lie not in mitigating the impacts of migration on water resources and services, but in ensuring that migrants have access. WASH can be an ingredient supporting successful migration, and most migrants are moving to positions of better access to WASH services over the long term.

Recommendation: governments in origin and host countries should develop policies that support synergies between improved WASH access and successful migration.

- Host countries and communities which ensure migrants have adequate WASH access are more likely to achieve economic co-benefits from migration, reduce risks to public health and the environment, and promote social cohesion and equality.
- Programmes and institutional measures to support people and communities during drought and flood are important, but shouldn't be framed in terms of preventing migration; migration can play a critical role in helping households cope with and recover from shocks (Opitz-Stapleton et al., 2017).
- Similarly, investments in WASH services and water resources management in marginalised areas may reduce the barriers to successful migration. This can support those households using migration to diversify their income and get out of poverty.
- Governments in origin countries can improve investments into communal WASH in migrant communities via policies that co-finance collectivised remittances, as in Mexico's 3-for-1 Programme.

Relevant SDG targets

1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

3.3 End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases

3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination

6.1 Achieve universal and equitable access to safe and affordable drinking water for all

6.2 Achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

6.3 Improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

6.4 Substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity

Conclusion 2 The barriers faced by migrants make achieving the SDGs' ambitions of universal access more challenging

Refugees and migrants face significant barriers in accessing water, sanitation and other basic services. These barriers vary across different contexts, at different stages of the migration journey, and with documentation status. In addition to high costs, migrants can face non-financial barriers stemming from limited knowledge of their rights and how to claim them, and underlying political and institutional factors that discriminate against them. Such barriers are compounded when migrants live in conditions that concentrate deprivation and exclusion, such as shanty towns, ghettos and homelessness.

Recommendation: governments, service providers and international agencies must ensure all people have access to water and sanitation services, regardless of their migratory status.

- Governments should guarantee the rights and entitlements of migrants to water and sanitation services. This includes eliminating institutional barriers to WASH access that arise from documentation status. Migrants and refugees need to be able to assert their rights to water and sanitation without fear of arrest and deportation.
- States and service providers should proactively ensure that homeless people, formal holding facilities and informal transit camps have adequate WASH provision, with appropriate needs assessment, working through trusted and competent intermediary organisations where appropriate.
- States and service providers should mitigate the financial barriers to WASH provision, mitigating the relatively high cost of water to migrants.
- States and service providers should ensure that the specific WASH needs of vulnerable migrant subgroups are met, including those of children, disabled people and menstruating women.
- At a national level, targeted interventions and investments should address areas of service deprivation, such as ghettos, shanty towns and camps in unincorporated or marginalised areas.
- International programmes should continue to invest in contexts where high rates of migration overwhelm response capabilities e.g. Lebanon and Jordan.

Relevant SDG targets

1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

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6.3 Improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

11.1 Ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums

Conclusion 3 Challenges stem from failures in governance, not the amount of water available, numbers of migrants or rates of migration

Droughts alone don't cause mass waves of migration. Similarly, problems with expanding services in rapidly growing cities are as much to do with issues of land tenure, accountability, policies and finance as they are with the rate of growth or constraints on the amount of water available. The two critical factors are (1) the extent to which water management systems are capable of providing water security to all, and (2) the ability of that system to respond different rates of change in demand by expanding and contracting services.

Recommendation: governments and utilities should strengthen water governance and services to cope better with the effects of migration.

- General strengthening of governance and institutions will help cope with the needs of migrants, consequences of migration, and the water security of host communities. Infrastructure is an important element, but monitoring, planning, finance, coordination with other actors, improving accountability and getting the right mix of incentives in place are key.
- More should be done to bridge divides between humanitarian and developmental programmes. Development actors can do more to strengthen resilience through better emergency planning for WASH institutions before crises begin, and humanitarian actors can support longer-term sustainability through better exit-planning and appropriate collaboration with government agencies, utilities and non-humanitarian agencies during emergencies.
- Governments and donors need to invest in innovation. Technologies and processes for delivering services to transitory people and communities are different to those for fixed populations; rather than focusing on settling people, more efforts are needed to provide agile, flexible, safely-managed services.

Relevant SDG targets

1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

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Conclusion 4 The poor visibility of migrants in data limits understanding of their needs and reduces the accountability of governments and service providers

Monitoring for WASH services is already a significant challenge for the 2030 Agenda. The call in Target 17.18 for indicators 'to be disaggregated where relevant by … migratory status' makes data challenges even more problematic. Monitoring frameworks for the SDG water and sanitation indicators generally use census data and household surveys to assess water and sanitation coverage, and data from administrative and regulatory bodies to determine whether provision is safely managed. These data do not necessarily enable disaggregation by migratory status, and collection methods underlying them may not even sample undocumented or transitory migrants in a representative fashion. Such approaches fail to capture any localised, temporary, but intense effects of migration on WASH coverage. These data constraints make it more difficult to understand the needs of migrants, and to identify, design and deliver services that meet those needs. They also make it difficult to hold governments to account for failing to do so.

Recommendation: international agencies should revise monitoring frameworks for SDG water and sanitation targets, ensuring they disaggregate by migrant status.

- Targets 6.1 and 6.2 should be revised to include specific mention of migrants and refugees as vulnerable groups who are explicitly included under universal access.
- Service providers, and the agencies that hold them accountable, should adopt appropriate monitoring techniques to identify and report on the scale and character of the needs of unserved or under-served migrant, transitory and refugee populations.
- National and international bodies should assess the scale and character of needs in marginalised, unincorporated, and border areas outside the responsibility and mandate of specific service providers or states.

Relevant SDG targets

1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance

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11.1 Ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums

17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts

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