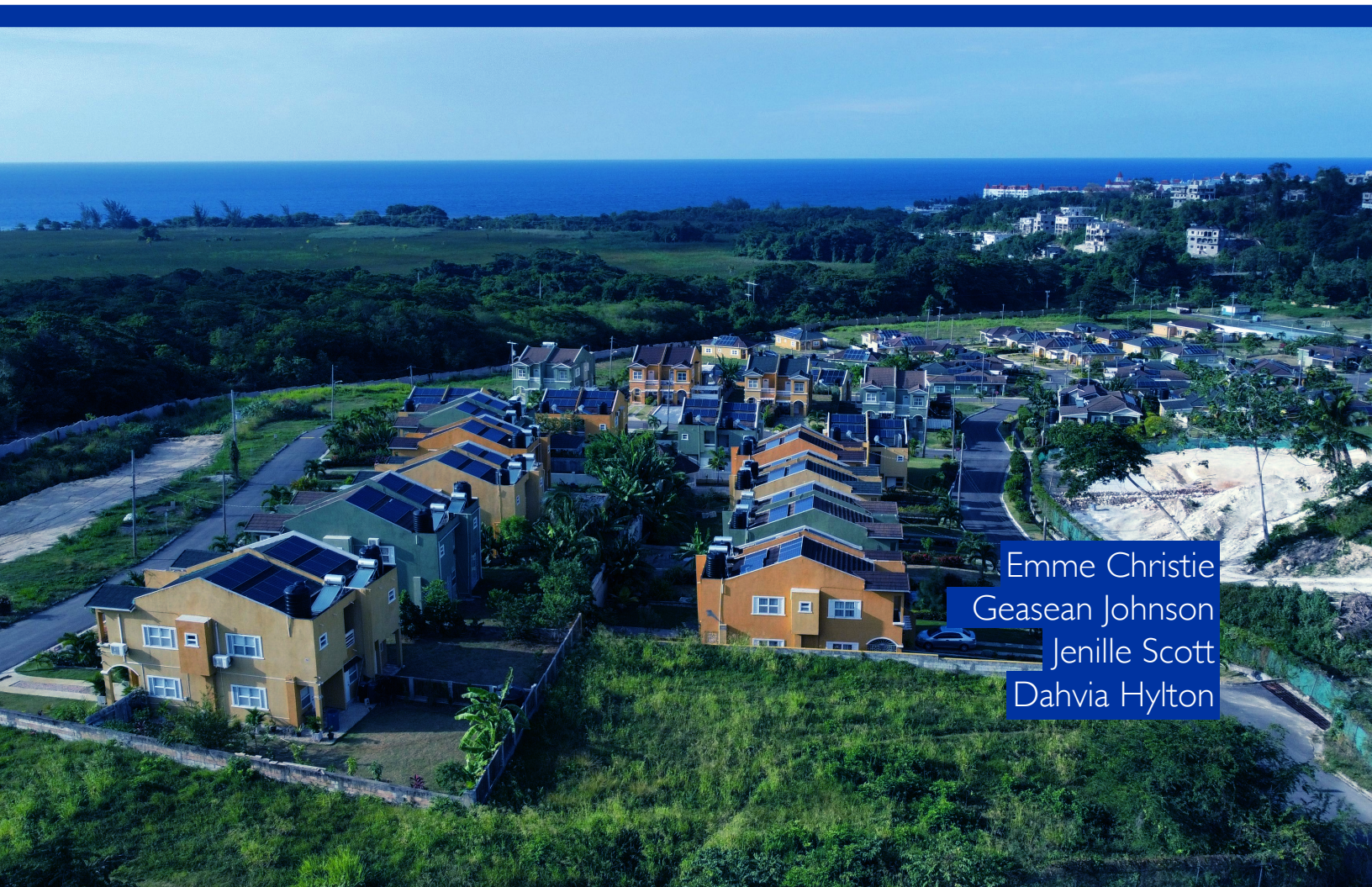


CLIMATE SMART DEVELOPMENT FOR INTERNAL MIGRATION AND URBANIZATION IN JAMAICA



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KEY MESSAGES

- Jamaica's urban population has increased over the years, mainly fuelled by internal migration patterns from rural areas and other parishes, with major cities tending to experience urban sprawl and overdevelopment that leads to land use challenges and socio-economic disparities.
- Jamaica is heavily impacted by a variety of environmental hazards, such as drought, sea level rise and coastal erosion, affecting livelihood and, consequently, migration patterns, as a climate change adaptation strategy and a response to climate change loss and damage.
- While women tend to be more affected by climate change and disasters, they also serve as active agents and leaders in their communities in times of environmental crisis.
- Migration inland is anticipated to occur with the high numerous settlements located in high-risk areas leading to potential new urban development that should consider the challenges and opportunities of migration to urban centres and do not replicate the environmental issues present in urban areas.
- The policy brief makes the case to institutionalize climate change policies and programs across multiple sectors with a data-driven focus on internal migration to ensure that the development of new urban centres follows the principles of just and equitable climate-smart development practices and to strengthen climate resilience in existing urban spaces.

BACKGROUND

Climate change remains one of the biggest environmental challenges in human history, posing a significant global threat to a range of human rights (United Nations Environment Programme, 2015; Wu, 2021). Projections from the University of Hawaii show that Kingston, Jamaica would have entered its era of unprecedented climate departure¹ in the summer of 2023 (Mora et al., 2013) prompting a renewed urgency for localised climate adaptation and mitigation planning for future development. This places Kingston and the rest of Jamaica on urgent watch for continuous increases in average air/surface temperatures and changes in local climatology, which can have far-reaching implications for socio-economic outcomes, including human settlement and mobility patterns.

In six regions of the world, climate change could force over 200 million people into densely populated urban centres by 2050 (Alverio et al., 2023). Noting that the population living in informal settlements increased by 28% between 1990 and 2015 (ibid.), this is an important trend to consider as the coupled socio-economic challenges, such as land tenure and the issue of informal settlement patterns, can complicate planning for internal climate/environmental migration. This comes on the heels of growing evidence, globally, highlighting the potential for urban centres to become overcrowded (ibid.). Overcrowding in urban spaces has also been linked to poverty, inequality, informality, lack of access to basic services and others, bringing forth an opportunity for climate and environmental justice and equity to be embedded in climate change response planning that addresses unsustainable urbanization processes.²

This policy brief thus discusses the linkages between internal migration and climate change in Jamaica and calls for attention to be given to climate change adaptation and mitigation in the assessment of settlement and urban planning issues, such as urbanization, urban sprawl, and informal settlement, amidst growing environmental changes. This policy brief addresses the lack of clearly communicated plans for both the national- and municipal-level actions to address the challenges and opportunities

resulting from internal migration to urban centres, as well as to mitigate the current impacts of climate change, making cities and towns climate resilient. It also addresses the need for mainstreaming climate change adaptation efforts across the development sectors and relevant ministries, departments, and agencies (MDAs) related to urban governance toward ensuring effective preparation for and management of internal mobility in Jamaica. This is in keeping with Principle 2 of the 2021 Climate Policy for Jamaica, which speaks to implementing a multi-sectoral approach to climate change (Government of Jamaica, 2021, p. 44).

The foundations of this policy rest on the Global Compact for Safe, Orderly and Regular Migration (GCM) objectives *GCM1 – Collect and utilize accurate and disaggregated data as a basis for evidence-based policies*, *GCM2 – Minimize the adverse drivers and structural factors that compel people to leave their country of origin*,³ *GCM3b – Provide accurate and timely information at all stages of migration* and *GCM7 – Address and reduce vulnerabilities in migration* (GCM, 2018), as well as *SDG 11 – to make cities and communities inclusive, safe, resilient and sustainable* (Resolution Adopted by the General Assembly on 6 July 2017, 2017).

¹ Climate departure marks the point when the coolest year going forward is expected to be warmer than the hottest year between 1960 and 2005.

² Urbanization is not inherently unsustainable but can be done in unsustainable ways due to improper planning, design and construction of urban landscapes.

³ GMC2 is applicable here even though the focus is on internal migration. The environmental/climatic bases of internal migration as well as lack of opportunities for employment, education, and leisure in rural areas, for example, constitute a set of adverse and structural drivers leading to out-migration.

APPROACH

The policy brief was developed from a survey of published grey and peer reviewed literature, local standards, laws, and regulations as well as raw census and population data⁴ for Jamaica. Grey literature was in the form of government reports as well as reports from international organizations as applicable. Search terms included climate/environmental migration and internal migration/mobility.

⁴ 2011 census and population data were obtained from the statistical institute of Jamaica. Available at https://statinja.gov.jm/Demo_SocialStats/PopulationStats.aspx

INTERNAL MOBILITY IN JAMAICA

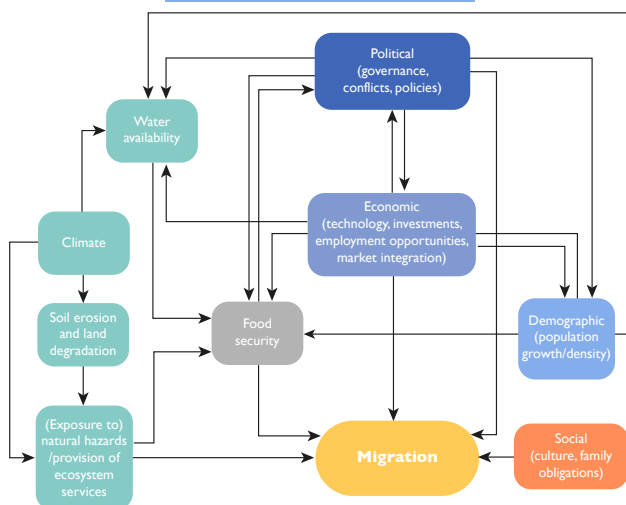
Deciding to migrate, as well as being forced to move, rests on a complex set of factors which is unique to individuals, households, and communities. There is a dearth of studies focused on the drivers of internal migration in Jamaica. However, one study that assessed climate change vulnerability in the country showed that a large percentage of Jamaicans tend to relocate from their hometown for educational (33%) and employment (23%) opportunities (Christie, 2021). This is in line with earlier works that suggest migration tends to follow established “labour migration networks” (Suckall et al., 2015), as seen in Figure 1.

The National Population Policy (revised 1995) showed that internal migration has always been a feature of Jamaican development, with population movement being typically into parish capitals and main towns. The 2018 country profile for migration in Jamaica produced by the International Organization for Migration (IOM) suggests that developments close to Kingston and St. Andrew, for example, those in Portmore, Old Harbour and May Pen, have variable impact on choice of residence (Thomas-Hope et al., 2018, pp. 22–23), and thus the decision to migrate/relocate. Another potential driver of this internal movement is the ease of travel, which has been improved over the years with the expansion of the road networks, especially the highway system. As such, changes in migration processes can become manifested in commuting patterns, and thus a focus on mobility patterns becomes important to addressing the challenges with internal migration.

Additionally, despite some development outside of Kingston and St. Andrew (KSA), as of 2019, these two parishes together are home to approximately 25% of Jamaica’s population.⁵ Reasons for this include the fact that Jamaica’s two top regarded tertiary learning institutions, as well as the majority of manufacturing companies and other businesses, are located within these two parishes. Jamaica’s population has steadily increased since 2011⁶, with population estimates in 2019 showing a 1.2% increase in total population over the previous 8 years. According to the Jamaica National Report for the United Nations 2016 Conference, Jamaica’s urban population was recorded at 52.1% in 2001 and 54% in 2011. This was projected to increase to 58% in 2030 (Planning Institute of Jamaica, 2012).

For example, from 1970-1982, Mandeville and Spanish Town saw the highest in-migration of 8% and 7.1% respectively.⁷ From 1970-1982, St. James, St. Andrew, and St. Catherine were the only parishes to see net in-migration with Portmore accounting for a substantial portion of those numbers (Planning Institute of Jamaica, 1995). This was attributed to the development of tourism in St. James and commercialization in St. Andrew. Based on the 2011 census, of the 14 parishes, all showed an increase in population from 2011-2019 except for Portland and St. Andrew. Also, Kingston, St. Andrew, and St. Catherine had more people living there than were born there. This trend was reversed for the other 11 parishes. This is illustrated in Figure 2.

Figure 1: Drivers of Migration



Source: Majumder and Rahman, 2023; Neumann et al., 2015

⁵ See year end population data by parish for 2019 available from the Statistical Institute of Jamaica (STATIN). Available at https://statinja.gov.jm/Demo_SocialStats/PopulationStats.aspx

⁶ 2011 Census and population data for Jamaica can be accessed from the statistical institute of Jamaica. Available at https://statinja.gov.jm/Demo_SocialStats/PopulationStats.aspx. 2011 is the most recent population census on record.

⁷ It was not clear whether the source of in-migration was from within Jamaica or outside the country.

Figure 2: Difference between population born in and living in each parish, 2011.

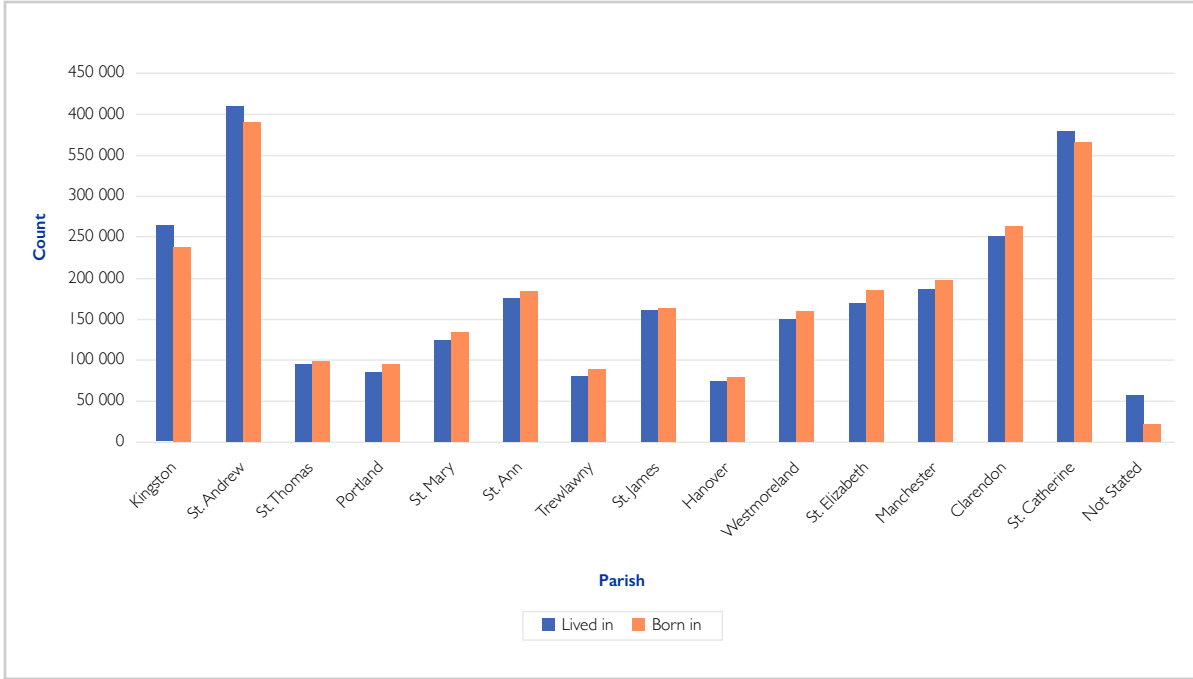


Figure 3: In/Out parochial migration trends, 2011

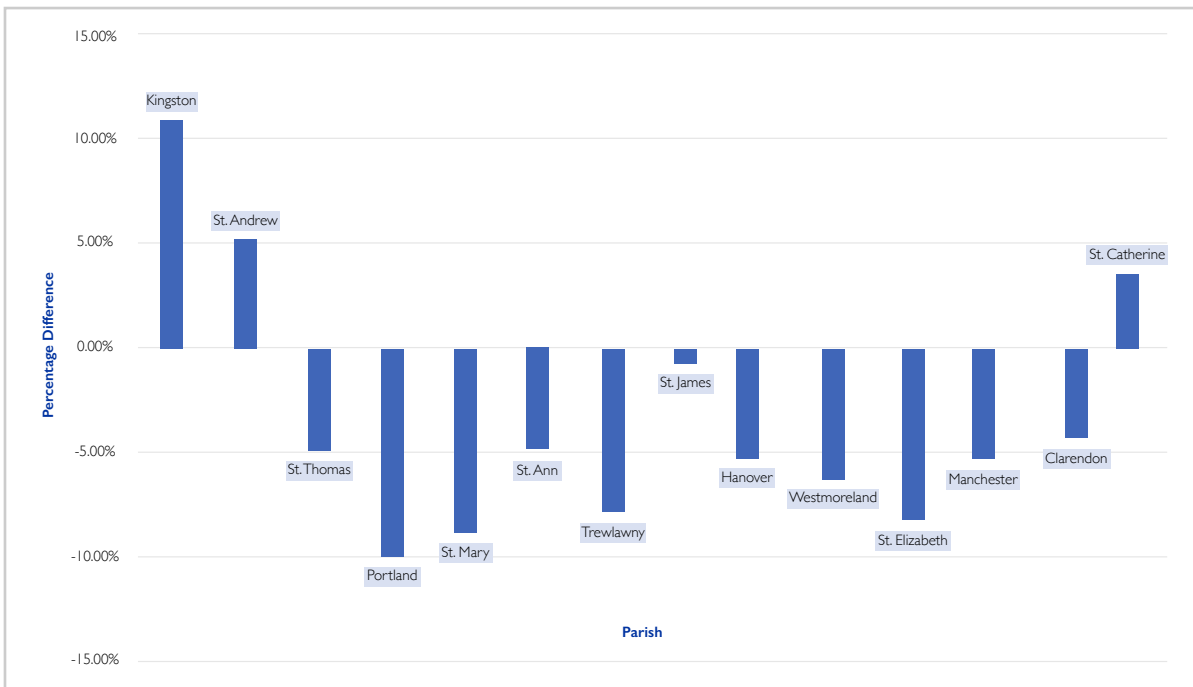


Figure 2 illustrates a net movement of people from the other parishes into Kingston, St. Andrew, and St. Catherine, with Kingston having the highest number of people moving in at 11.12%. Of the parishes that had a net outward movement of people, St. James had the lowest percentage difference between people born there and people living there (-0.7%) while Portland (-9.95%), St. Elizabeth (-8.24%) and St. Mary (-7.85%) had the highest (see Figure 3).

Over the years, Jamaica has also experienced urban sprawl and overdevelopment in major cities, leading to land use challenges and growing socio-economic disparities. Along with changing environmental conditions across the island, this has the potential to influence internal migration, which can negatively impact the environment. Though internal migration is seen as a response to changing environmental conditions, changing environmental conditions may also be seen because of internal migration. A study done by IOM (2021) found that there were no policies or practices directed toward planning for or managing internal migration (IOM, 2021), making it necessary to focus on understanding the conditions under which this phenomenon occurs so that adequate plans can be developed to ensure its sustainability.

ENVIRONMENTAL DRIVERS OF INTERNAL MIGRATION

Human migration and the environment have always been intrinsically linked, as both impact each other in areas of origin, transit and destination. Out-migration tends to be influenced by environmental and socioeconomic pressures (Massey et al., 2010), whereas in-migration tends to cause pressures on the environment and resources, which can lead to tensions in destination areas (Emily Wright et al., 2021).

Jamaica is heavily impacted by a variety of hazards which are exacerbated by climate change, including

decreased annual precipitation and increased occurrence of droughts, more short-burst intense rainfall events, increased air and sea temperatures, as well as sea level rise and coastal erosion (USAID, 2010, 2017). Climate change projections notably predict “a warming trend, with the most severe warming occurring in the months from June to August, and an increase in the frequency of very hot days and nights with a concurrent decrease in cold days and nights” (Government of Jamaica, 2018, p. 19). These changes can affect Jamaicans who earn their livelihoods directly from the land or sea, leading some to migrate as a response to be able to earn their livelihood (Massey et al., 2010; Suckall et al., 2015). There is, therefore, a need for a greater understanding of environmental migration in Jamaica as a climate change adaptation strategy and as a response to climate change loss and damage.

The 2022 State of the Jamaican Climate (SOJC) Vol. III report considers climate change to be a development issue that has the potential to derail Jamaica’s progress toward achieving its Vision 2030 development goals (Climate Studies Group, Mona, 2022, p. 95), which have been aligned to the United Nations Sustainable Development Goals (SDGs) (Planning Institute of Jamaica, 2017, p. 21). The SOJC Vol. III report further states that “the continuous development of coastal infrastructure for housing settlement and road networks increases the country’s vulnerability to impacts of climate change due to the challenges posed by sea level rise and extreme storm events” (p.95). This points to the importance of environmental drivers to migration settlement patterns. For example, despite agriculture still playing a major role in the Jamaican labour market, the limited economic opportunities and infrastructure in rural areas are seen as critical factors driving people to the urban centres. This has been exacerbated due to changes in rainfall and temperature patterns, droughts, soil, and water quality. Therefore, internal rural-urban migration in Jamaica may have a direct correlation to the decline in agriculture due to rapidly changing environmental conditions across the island, which directly impacts agricultural productivity. This highlights the need to also consider objective 6 of the GCM – facilitate fair and ethical recruitment

and safeguard conditions that ensure decent work – in planning for internal migration in the face of climate change.

Environment-induced migration can, however, be difficult to isolate from other causes due to how intricately intertwined environmental factors are with political, economic, and social factors (Black et al., 2011; Morrissey, 2008). For example, whereas rising sea levels will eventually lead to permanent migration inland from coastal areas in countries like Jamaica, it is more difficult to ascribe causality to any one specific environmental factor, such as reduced rainfall or reduced land productivity in rural towns. Notwithstanding this issue, environmental degradation (including climate change) can exacerbate living conditions especially for those who are most vulnerable, leading to out-migration (Barrios et al., 2006). For example, it has been noted that internal and cross-border displacement of approximately 3 million people in the Caribbean over a one-month period took place during the 2017 Atlantic hurricane season (Bleeker et al., 2021, p. 19). According to the report, displacement and migration are expected to occur at potentially higher rates as weather events continue to worsen and place more economic and social stress on communities in the wake of climate change.

There have been several studies that assess the environmental dimensions of (internal) migration. Within the Caribbean, Gonzales (2020, p. 16) recognizes internal migration in Haiti to be generally from rural to urban and is classified as an emergency response to climate change arising from impacts of disasters, such as flooding related to hazards like hurricanes. Hope (1989) showed that out-migration from rural areas in the Caribbean was linked to agricultural decline between 1950 and 1990, with urban populations growing as much as four times the rate of rural populations. In the study, Hope (1989) showed that the rate of urban population growth was similar across four different Caribbean countries. Alverio et al. (2023) noted the cross-cutting similarities with climate change impacts on migration across different geographically diverse countries. As an example, they note that Honduras, Jordan, and Pakistan, for example, are all experiencing

rapid growth in urban populations as conflict and climate-induced disasters push people from rural areas into cities. Suckall et al. (2015) assessed environmentally induced migration patterns in Malawi and found that accelerated urbanization is a potential outcome of climate change response that can lead to additional stress on existing urban infrastructure. All these studies point to a need to update our understanding of the drivers and impacts of internal migration in Jamaica.

It has been well established that sudden-onset events such as floods may cause loss of property and livelihood and may force rural dwellers to seek alternative livelihoods, which ultimately leads to rural out-migration as in the case of Haiti (Gonzalez, 2020). However, the less studied urban to rural migration may also become possible in different climate change scenarios. For example, Suckall et al. (2015) noted that as climate change continues to threaten rural livelihoods through slow-onset processes linked to climate change, such as droughts and water shortages, this may lead to a collapse of food supply systems which can ultimately lead to large numbers of people migrating from cities to rural areas to secure their livelihoods. This “reversal” in migration patterns, though not dominant, points to an opportunity to take a more expansive view toward policy development for addressing climate migration as a complex environmental problem.

GENDERED ASPECTS OF INTERNAL MIGRATION TO URBAN CENTRES

A Country Assessment Report for Jamaica by the United Nations Development Programme (UNDP) identified poverty in Jamaica as an example of feminized occurrence; that is, among people living below the national poverty level, women are represented at a higher percentage (United Nations Development Programme, 2009, p.5). A recent IOM and ECLAC report (Bleeker et al., 2021) highlighted that within disaster scenarios, women serve as active agents and leaders in their communities, while being at higher risk due to gender-differentiated roles.

Climate change exacerbates already existing inequalities faced by women and further impacts how they experience migration in terms of their ability to move and how they can make those decisions based on prospects and resources they have access to (Bleeker et al., 2021). The agricultural sector, for example, is responsible for high employment in rural areas across Jamaica and women play an important role in this sector. However, this sector is highly vulnerable to environmental disasters which impact agricultural yield and the participation of women in income earning activities, which is a possible push factor for internal migration and also makes internal migration a feminized problem. For example, women are traditionally responsible for water collection, but increased instances of drought and water shortages place additional pressure on women and girls (Bleeker et al., 2021). Women thus have different relations with water compared to men which, paired with land-tenure issues and access to banking services and loans, place women at a higher risk of displacement from climate change (Bleeker et al., 2021). These impacts of climate change on agricultural and water resources impact women's livelihood hindering their ability to remain in these rural areas, forcing them to migrate. Reversely, due to gender differentiated roles and the lack of resources, women may face immobility and being trapped in their own environment. Therefore, some are able to remain in the affected areas and

adapt or even not have the option to move, while others either move to different rural locations to restart their farming practice or to urban areas to explore alternatives.

Land tenure is also a factor that can lead to internal migration. In Jamaica, many households tend to not own the land on which their houses are built (Collins, 2018). However, this is predominantly common among vulnerable people, many of whom are women, who do not have access to bank loans and mortgages and so commission their own construction (Collins, 2018). This poses a serious risk especially in environmentally sensitive areas, where people who earn a low income typically live in construction that tends to be subpar. In urban settings, this presents a planning and management problem, such as in the context of unplanned migration that can take place in the wake of rapid onset climate related disasters such as flooding or landslides forcing people to relocate. In these scenarios, migration can be a passive decision not guided by rational thought and planning, as in the case of slow onset changes that allow for planning, but by one's instinct to survive (Hope, 1989).

URBANIZATION: BENEFITS AND ENVIRONMENTAL RISKS

Whereas urban growth was projected to be centered primarily in the KSA region, trends since 1996 showed rapid urbanization of several towns across the island with internal migration and intra-parish movements being the main drivers (Government of Jamaica, 2016). There is no data indicating whether these migration patterns were due to climate change or other factors. The drivers of these changes need to be understood for the development of effective policy solutions to plan for and manage internal migration.

More than half of the world's population – approximately 4.4 billion people – live in cities today, and 80% of global Gross Domestic Product (GDP) is generated in cities. But of these 4.4 billion city dwellers, almost a billion live in slums and informal settlements and are facing some of the worst forms of poverty and deprivation. Another two billion people (roughly 183,000 people each day) are expected to join these ranks over the next 30 years (World Bank, 2023). As such, understanding urbanization is a necessary component of planning for development within the context of climate change adaptation and environmental migration. The rapid urbanization in Jamaica since the 1970s has impacted urban centres all over the island, with the most prominent impact observed in Kingston and St. Andrew. One of the major push factors for rural to urban migration is thought to be the downturn in agricultural output with the consequent reduction in prospects for rural livelihood. Other push factors include “lack of alternative jobs, declining local economy, and denied access to basic facilities” (Zabbey et al., 2019). Additionally, there is a dominant perception that production sectors located in urban areas tend to have higher rates of productivity and offer higher rates of remuneration relative to traditional agriculture and presents a pull factor for in-migration to urban centres (Barrios et al., 2006).

Whereas urbanization has been linked with more “development” and higher standards of living for urban dwellers, the negative impacts of urbanization remain. Some of these include “inappropriate and haphazard development, inadequate basic services, poor physical infrastructure, urban congestion, inadequate waste management, environmental degradation and susceptibility to natural hazards” (USAID, 2010, p. 4, 2017). Coupled with these is the issue of squatting, which has seen stark increases alongside urban growth. Zabbey et al. (2019) noted the declining returns of migration caused by “the population explosion” that negatively impact the usefulness of migration as a solution to local issues. The impact is that squatter settlements that develop as “free space(s)” within (or near to) urban centres are exploited. This ultimately leads to unplanned compact settlements, which bear their own risks

and challenges. The Jamaica Informal Building Sector Study (2018) found internal migration to be common at both the parish and the district level with survey results indicating that 61% of respondents were born in the same parish they were living in and 60% migrated to their present home from another district (Collins, 2018). This was accounted for in part by movement of rural families into the city. Out-migration of urban families from dense “downtown” areas as well as government relocation also accounted for the observed migration. Despite the risks and challenges highlighted, planned relocation remains a valuable strategy for adaptation and vulnerability reduction by relocating citizens from the exposure to natural hazards as a last resort option (IOM, 2021).

There is much to be considered in planning for and managing mobility within Jamaica, especially with the effects of climate change being actively felt by the nation. As stated earlier, Kingston was projected to hit climate departure in 2023. Climate change impacts in Jamaica can range from sea level rise and flooding to drought and decrease in rainfall patterns with severe consequences on migration trends. The downturn in agricultural output has been cited as having a negative impact on the livelihood of rural folk, especially women, driving them to seek employment and alternatives which are typically available in the city. This contributes to rural-urban migration. Continued and disproportionate capital investments in the KSA and surrounding communities continue to drive development in these areas and, as such, continue to attract internal migrants to these areas, adding to the risk of urban sprawl and overpopulation within these urban centres. Meanwhile, with coastal erosion and sea level rise, amongst others, urban areas, which are mainly located in coastal areas, are at high climate risk, which may lead to other migration trends. As the government seeks to alleviate the pressures on the city, any approach at planned or encouraged relocation should be accompanied by an appropriate, contextual and climate sensitive approach. This approach should also be extended to existing urban centres and climate change adaptation measures considering current internal migration trends.

CLIMATE CHANGE AND ENVIRONMENTAL CONSIDERATIONS FOR NEW MIGRATION TRENDS

The National Population and Sustainable Development Policy of Jamaica – Final Draft (2021) includes five objectives under Goal 6: “Internal population movement and distribution are inter-linked with developmental policies and strategies for ensuring a balanced rural-urban development” (Planning Institute of Jamaica, 2021). This shows the importance of coupling development goals with their environmental context by including climate-smart/sensitive considerations in developing policies and strategies to address internal migration driven by the adverse impacts of climate change. While migration to urban centres may bring about new challenges, there are opportunities as well, which policymakers can maximize by implementing planning, development, and construction rules that ensure new urban developments do not replicate the environmental issues currently present in urban centres, all while bolstering the adaptation measures of the latter. This is important as with Jamaica’s mountainous interior terrain, economic activities are primarily concentrated within 10km of the coast with rapid urbanization also occurring near these high activity economic centres. Policy integration and cross-sectoral collaboration among communities, NGOs and local industries can aid in knowledge sharing and leveraging of other resources to build resilience.

With increasing risks from sea-level rise and storm surges in the event of hurricanes, migration inland is anticipated to occur. The UWI Mona Climate Studies Group has published findings showing coastal area loss due to sea level rise in both Negril and St. Thomas (Climate Studies Group, Mona, n.d.). According to the Jamaica National Profile, done by the United Nations Human Settlements Programme (UN-Habitat) following the passage of Hurricane Dean in 2007, several areas were identified as being severely damaged (University of the West Indies and University of Technology, 2012). These were all coastal and near-coastal

areas. Around 300,000 people were said to have been displaced during this hurricane (Helps, 2007).

The threats of damage from climatic events have been experienced by coastal and urban areas several times in Jamaica. Prior to Hurricane Dean, Hurricane Ivan in 2004 caused significant damage to “housing and household property, hotels and other tourism attractions, schools and colleges, public and private hospitals and health centres, and agricultural crops and livestock” with a significant portion of the damages occurring along the coast (University of the West Indies and University of Technology, 2012, p. 29). Along this same line of observation, it has been noted that urban centres continue to suffer from greater flood risks (Glas et al., 2017). Further, Collalti and Strobl (2022) predicted the economic costs of direct damages for Jamaica that would arise from a five and 40 year return period hurricane event. The value of the projected damages were in the order of 0.9% and 1.9% of Jamaica’s GDP, with coastal areas accounting for the highest proportion of damages (Collalti and Strobl, 2022, p. 2075). Continual experiences of these kinds of events may compel people to migrate to areas within the country where the risk of damages and losses is perceived to be less.

The interior of Jamaica also experiences slightly lower temperatures than the coastal regions (Climate Studies Group, Mona, 2022). Since most of Jamaica’s development, including urban centres, occur within 10km of the coast (Climate Studies Group, Mona, 2022; Planning Institute of Jamaica, 2017), it can be inferred that urban centres are, on average, hotter than internal rural areas. This has also been confirmed in other areas based on the urban heat island (UHI) effect (United Nations Environment Programme, 2021)⁸ due to the removal of natural vegetation and wide scale concretization. However, there is no disaggregated

⁸ “Urban heat islands” occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality” (EPA, 2023).

CONCLUSION

temperature data available for urban concretized centres viz rural forested areas to assess the impact of concretization on the temperature and comfort of residents in urban areas in Jamaica.

Jamaica has numerous settlements located in high-risk areas. Ishemo (2009) cites this reality along with the lack of capacity of the Jamaican government (both central and local) to provide “appropriate and effective solutions to vulnerability problems” (p. 454). With the cost of displacement and damages to property increasing, it is necessary to understand the capacity of the government to address these issues within the context of the drivers of mobility within the country. For example, Ishemo (2009) explained that local governments with their very limited financial capital are responsible for managing the bulk of local development sectors including, inter alia, public health, public markets, fire services and water supplies. A study done by the OECD and the United Cities and Local Governments (UCLG) showed that local government expenditure accounts for only 1.9% of national GDP with no information on the breakdown of those expenditures (United Cities and Local Governments and OECD, 2016). The study also showed that the revenue stream of local governments in Jamaica is made up primarily of grants and subsidies (~58.7%) noting that “Jamaican parish councils in general are lacking revenues necessary to be able to provide the necessary services to the citizens, despite increasing improvement of tax collection”. Woode (2021) further explores how the dearth of resources and capacity of the Jamaican Government hinders sustainable progress stipulating that said lack can result in more instances of corruption or misuse of said resources. Additional issues arising include the limited autonomy of local governance with regard to their natural resources, as well as a lack of transparency in decision-making processes throughout government. Ishemo’s (2009) and Woode’s (2021) works point to challenges with how government services are structured and funded around vulnerability reduction as well.

There is much to be considered in planning for and managing mobility within Jamaica, especially with the effects of climate change being actively felt by the nation. As stated earlier, Kingston was projected to hit climate departure in 2023. Climate change impacts in Jamaica can range from sea level rise and flooding to drought and decrease in rainfall patterns with severe consequences on migration trends. The downturn in agricultural output has been cited as having a negative impact on the livelihood of rural folk, especially women, driving them to seek employment and alternatives which are typically available in the city. This contributes to rural-urban migration. Continued and disproportionate capital investments in the KSA and surrounding communities continue to drive development in these areas and, as such, continue to attract internal migrants to these areas, adding to the risk of urban sprawl and overpopulation within these urban centres. Meanwhile, with coastal erosion and sea level rise, amongst others, urban areas, which are mainly located in coastal areas, are at high climate risk, which may lead to other migration trends. As the government seeks to alleviate the pressures on the city, any approach at planned or encouraged relocation should be accompanied by an appropriate, contextual and climate sensitive approach. This approach should also be extended to existing urban centres and climate change adaptation measures considering current internal migration trends.

RECOMMENDATIONS

In 2021, Caribbean countries, through the Caribbean Migration Consultations continued work done at a 2016 non-binding regional forum, addressed issues around human mobility within the context of climate disaster. A report⁹ that was a result of these consultations contains a series of recommendations, such as policy integration and the need to harmonize regional approaches which will enable coherence between climate policies, disaster risk reduction strategies and sustainable development goals.

The climate emergency calls for a change in urban planning as it supports the need for a long-term approach. Having an effective climate strategy implies increasing urban resilience through more than just control of land use change, addressing the infrastructure needs and the way in which land should be used in terms of resource consumption and flows (Mycoo et al., 2023). Migration driven by climate change must be acknowledged as an active process within Jamaica that comes with a myriad of challenges and is influenced by a system of diverse and interconnected drivers. Policymakers should seek to expand policies that support the integration of internal climate migrants into the local economies. This legitimization can further be developed through investing in data collection and monitoring systems that will enable better understanding of drivers, impacts and migration patterns.

While developing a policy and national and municipal plans, the following recommendations considering internal migration driven by the adverse impacts of climate change should be considered. The recommendations cover the areas of data collection, planning, and legislative frameworks. These recommendations should be implanted using a systems approach guided by three frameworks:

1. A whole-of-government approach between national and local/municipal levels,
2. A whole-of-society approach (see GCM, 2018) to engage all relevant stakeholders, such as, inter alia, CSOs, migrants, private sectors,
3. Aligning action to global and regional agendas to help improve local urban governance.



DATA COLLECTION

The importance of engaging in more robust data collection on internal climate-induced migration with special considerations for vulnerable groups, including cross-sections such as socio-economic class, disability, and gender:

Data collection should be conducted with the goal of establishing a baseline of disaggregated data to

understand mobility patterns as well as real and perceived reasons for migration. The extent of climate change impacts on vulnerable groups at the city/municipality level leading to migration should be a central feature of the data collection. The drivers of Jamaica's internal migration disaggregated by gender, for example, may offer critical insight into the current issues around squatter settlement and harsh living conditions that exist in these unplanned communities which are attributable, in many cases, to migration. Data collection should be participatory, including perspectives and views of those internally displaced.

Sustaining robust data collection and monitoring systems will adequately inform policy decisions. For instance, tackling the drivers of internal migration may include best practices such as adequate land use planning and natural resource management in rural and coastal communities to build resilience and, therefore, address out-migration from rural to urban areas.



PLANNING INTEGRATION

Integrating climate change adaptation and mitigation into urban planning needs to be prioritized within policy development and practices of urban planning and development agencies (Mycoo, 2022).

Further mapping of unplanned settlements, especially those in and around heavily populated areas that are underserved in basic amenities:

Understanding the spatial extent of unplanned settlements is important to understand the drivers of their establishment. This information will help the government provide adequate housing and employment solutions and urban planning measures with possible planned migration from these areas. Guided by a National Spatial Plan¹⁰, planning development initiatives for both urban and peri-urban settlements need to be developed with close attention to climate change impacts as well as other impacts on the environment. The aim of this is to prevent similar effects on peri-urban areas as are currently being experienced in developed urban centres.

¹⁰The government of Jamaica has allocated \$116,686,000 for the development of a national spatial plan for the 23-24 fiscal year (Ministry of Finance and the Public Service, 2023).

Using evidence driven approaches to implement necessary strategies for planned relocation:

Data obtained should be relevant to the local and national contexts of climate impact. These data should be incorporated in the expansion of local policy frameworks to include planned relocation undergirded by equitable disaster risk reduction processes. Planning must include various actors across many different sectors to ensure that: 1) well-defined and appropriate legal frameworks based on human rights law are implemented, 2) affected populations are meaningfully engaged and their needs, as well as the impact of planned relocations on them, are taken into account, 3) land tenure issues are addressed and 4) adequate monitoring, evaluation and accountability mechanisms are implemented at all stages of the process.

To ensure that Jamaica continues to build its resilience to climate change while simultaneously fulfilling its promise of affordable housing and an improved quality of life for its people, adequate plans need to be in place to guide development in these upcoming and potentially new urban areas. Planning for these developments should ensure that their sensitivity to the impact of climate change is minimal while meeting the goals of affordability and comfort for the most vulnerable citizens. This can only be possible with adequate injection of capital to drive planning and development of urban centres in different local jurisdictions.



STRENGTHENING EXECUTIVE/ LEGISLATIVE FRAMEWORKS

Strengthening policies and practices directed toward planning for/managing internal climate-induced migration:

There needs to be a systematic evaluation of the capacity of different levels of government, for example local governments, to handle the different local sectors as well as the population movements that are occurring alongside national and local development. In doing this, the government should seek to create opportunities to bring about alignment and consistency of policies, strategies and actions across

all government ministries, departments, and agencies at different levels to achieve the common objective of climate change adaptation through smart and resilient development and to avoid conflicting outcomes. Policies such as the Climate Change Policy Framework, which is the national policy guiding multi-sectoral collaboration for climate action in Jamaica, should become top priority for action by the Government of Jamaica. Since its development in 2015, there have been several policies that have focused on building resilience through areas such as energy efficiency and conservation within the energy and transportation sector and their infrastructure, including the National Energy Policy, which details the government's intention to develop more climate-resilient policies focused on energy conservation and efficiency for public building. The implementation of these policies will be an important part of Jamaica's development strategy in the face of climate change and increased urbanization fuelled by internal migration. Any policy to tackle urbanization in lieu of low impact but frequent climate events should also explore, broadly, planning around the social needs of women and other marginalized groups to maintain just outcomes. This can be achieved through continuous stakeholder engagement, public consultations, and education.

Further promulgate climate-sensitive regulations:

To ensure adequate and streamlined climate planning to guard against the negative impacts of population movement and urbanization, in addition to the completion of the National Spatial Plan to guide land parcel use and development, the relevant authorities should also promulgate the necessary regulations to support existing policies, such as the Building Act of 2018. These regulations should mandate the use of green building technologies such as grey water harvesting and reuse, renewable energy use and low flow technologies for water conservation. Other considerations include the development of climate resilient infrastructure in new developments that can withstand the effects of climate change and contribute to a reduction in energy use and waste production. Additional considerations should be made to bolster the water supply systems and allow for better solid and liquid waste management even with rapidly increasing populations.

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