



# POLICY BRIEF

## IN SEARCH OF A HABITABLE FUTURE

SCENARIO NARRATIVES TO EXPLORE FUTURE HABITABILITY AND MOBILITY IN CLIMATE-VULNERABLE AREAS OF ETHIOPIA, GHANA, KENYA, MALI AND THAILAND

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**Figures projecting future migration and displacement due to climate change are available, but the lived experience of people in climate-vulnerable areas is often lost in these discussions. This policy brief presents a set of scenarios, developed as part of the HABITABLE project, that aims to advance our understanding of the general themes related to climate and migration through the stories and the nuances behind these facts and figures. They aim to inform policy actions, in addition to top-level mitigation actions, that we can take in the present and near future to ensure a habitable world in 2050 where those most exposed to the impacts of the climate crisis can continue to live in dignity.**

### 1 Introduction

As the world has reached 1.1 degrees of warming since pre-industrial times (IPCC 2023), the alarming impacts of the climate crisis are increasingly in the headlines. Images of floods in the Horn of Africa following years of drought in 2024, the floods that covered a third of Pakistan in 2022, and impacts of successive record hurricanes in the Caribbean in 2020 show the impact not only on places, but also on people. **People are already moving due to an increase in extreme weather events driven by climate change**, with 26.4 million people internally displaced due to disasters in 2023 (IDMC 2024). Well publicised projections suggest that millions more could move internally due to slower onset climate change impacts in the coming decades (e.g. Clement et al. 2021). For some, migration may serve as an effective adaptation strategy, but it may also increase

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vulnerability for the migrants (IOM, 2024, and for many it may not even be an option, either by choice or due to a lack of resources.

As a result, scenarios examining future climate risks and climate-related human mobility<sup>2</sup> are in high demand, as policymakers in both developed and developing countries seek to prepare for a warmer world. As we enter the unprecedented era of the Anthropocene, our ability to predict the future on the basis of past trends fades. **“Scenarios are a useful decision support tool in the face of uncertain social and ecological conditions.** Scenarios offer a chance to scan the horizon for potential future challenges and start preparing for them. Going through this exercise, decision-makers are better equipped to face uncertain conditions and opt for robust adaptation options and “no regrets” measures that can perform under different scenarios. Furthermore, scenarios stimulate creative thinking and help overcome preconceived ideas about the future and rigid narratives that act as obstacles to forward-looking policymaking and societal transformation.” (Detges et al. 2022: 7).

A range of **scenarios and types of scenarios are required.** Predictive models aimed at using quantitative techniques to forecast future outcomes can support policy impact assessments and the formulation of policy options by providing indications of future migration patterns and disaster-related human displacement risk under climate change at different temporal and spatial scales (Hathaway 2024). These predictive models provide indications of how many people may move and where they may move to, and do offer insights into the “why” question there are limits to exploring the social-economic, political and cultural factors that influence migrations at the individual or household level, and then migration patterns more collectively. This is where qualitative scenario narratives can provide added value, **complementing “big picture” quantitative work to provide a more comprehensive insight into the underlying processes driving change and the evolving realities on the ground.** The qualitative scenario narratives presented in this brief, as opposed to quantitative models do not forecast, rather they backcast, creating histories for a future point in time (Bressan et al 2019). This allows for envisioning policy responses that can trace these histories to that future point in time.

The scenario narratives presented in this brief thereby aim to provide insights into the lived experience of people in areas exposed to climate impacts in four African countries – **Ethiopia, Kenya, Ghana and Mali – and Thailand**, and their decision-making around climate change, livelihoods, adaptation and migration now and in the future. They aim to explore the factors – both climate-related and not – that may make a place more or less habitable and ultimately lead to migration decisions, and what policy actions can be taken today or in the near future to reduce the impact of future climate hazards, to protect those most vulnerable, and to increase the resilience of those most exposed, including by facilitating migration as a means of resiliency, and to protect those who are particularly vulnerable.

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<sup>2</sup> In this report, the terms “human mobility” and “migration” are largely used interchangeably, although human mobility may be considered a broader term. Its use has increased in the field of migration studies in recent years due to it being “a more politically neutral ‘umbrella term’ to describe all forms of movement relating to environmental factors (voluntary migration, displacement, planned relocation)” and “an increased awareness among researchers of the linkages between environmental events and people being unable or unwilling to move as a response (‘immobility’).” (Flavell et al. 2020a).



## 2 Approaching scenario development for climate-related migration and displacement

Developing scenarios for future migration related to climate change is a complex endeavour. Migration patterns have their beginnings in migration decisions, and human decision-making is shaped by the complex interplay of multiple factors related and unrelated to climate change at the macro, meso and micro levels. However, at their core, **“mobility decisions are influenced by people’s perceptions of habitability, in other words their expectations of safety, wellbeing, and prospects to lead a dignified life in their area of origin or in the potential destination area”**. These expectations of wellbeing and perceptions of risk are shaped by a person’s access to opportunities and challenges tied to a range of social, political, environmental, economic, demographic and technological conditions. “For example, their access to education and other services, political freedoms, favourable soil conditions for agriculture, and other opportunities might act as incentives to move to a different place, while political tensions, violence, and food insecurity might motivate people to leave or avoid certain places.” (Detges et al. 2022: 10).

This has two important implications for developing scenarios. Firstly, it is clear that there is **systemic dimension** to climate-related human mobility (Adger et al. 2022). Individual decisions and these decisions collectively at the level of a household, a community and beyond are nestled in a system – a social-ecological system<sup>3</sup> – that is then impacted as a whole by climate change. Scenarios should therefore consider **existing patterns of inequality and vulnerability, how these will be shaped and potentially exacerbated by climate change**, and thus the resulting impact in terms of migration and displacement. In the development of these scenario narratives, experts participating in the research considered the social, political, environmental, economic, demographic (*SPEED*)

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<sup>3</sup> Social-ecological system (SES): Interaction of two equally important subsystems: natural (biophysical and resource environment) and human (life and livelihoods) subsystems [adapted from Colding and Barthel (2019)]. SES can further be broken down into sub-systems such as governance system, resource system and the climate system in which interactions between climate change and human mobility play out (see Adger et al. 2022).

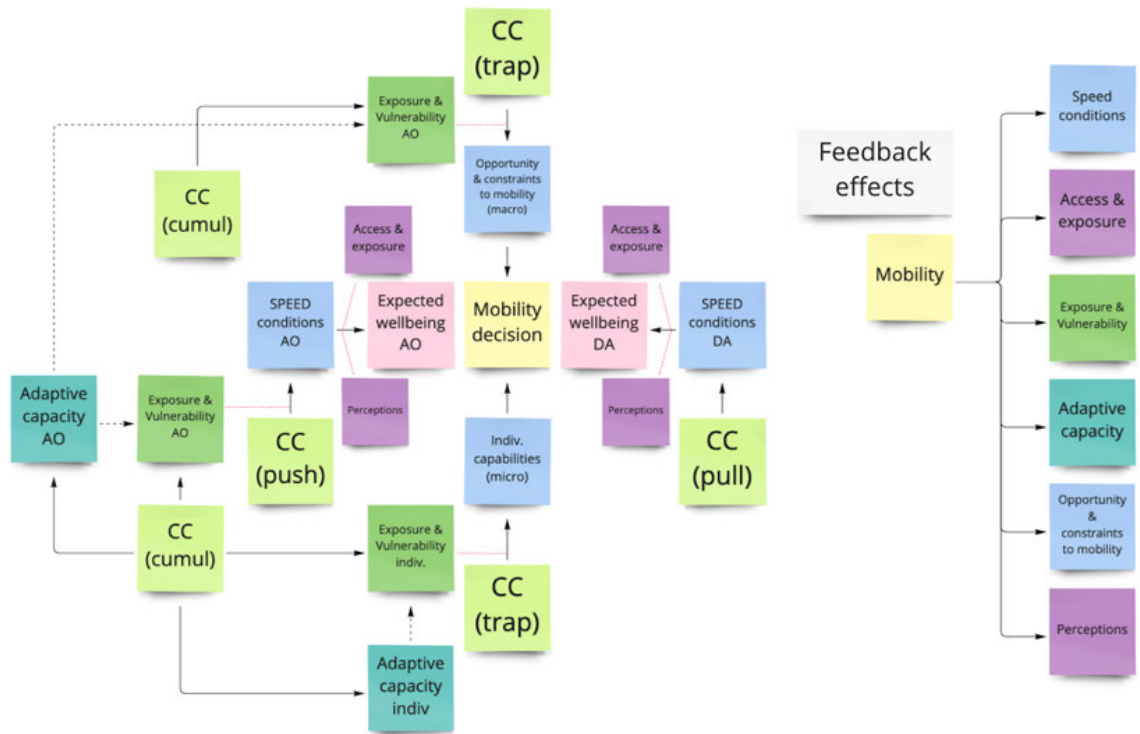
conditions in each context that raise or lower the prospects of wellbeing for potential migrants.

Secondly, there is also a very **individual dimension**, as each person will experience the impacts of climate change differently along intersectional lines (Betancourt et al. *forthcoming*). Expectations of wellbeing and perceptions of risk may, for example, be shaped by a person's **societal status and access to resources**, which is influenced by their **age, gender, ethnicity, and other factors**, with knock-on effects for their resilience and ability benefit from opportunities. For instance, research shows that it is generally easier for wealthier, better educated, and younger people to successfully relocate and live elsewhere (Bohra-Mishra et al. 2016; Gemenne et al. 2017; Rigaud et al. 2018; Nawrotzki and DeWaard 2018; Vigil Diaz Telenti 2019; Speelman 2021; Stojanov et al. 2021). Mobility decisions are also influenced by how people perceive SPEED conditions in origin and destination areas.

The **dynamics that climate change will bring into any given system or place are complex**. Climate change can act as a **push factor** by deteriorating SPEED conditions in areas of origin, leading to economic and social losses and livelihood risks. Climate impacts can also undermine individual capabilities to move, **trap people in at-risk situations**, or make certain areas inaccessible. In certain areas, positive effects of climate change may act as **pull factors** for mobility. Further, climate change impacts have a **cumulative effect**, eroding adaptive capacity over time and potentially leading to tipping points where small disruptions have significant effects. And finally, there are **feedback effects** to consider. Mobility can alter SPEED conditions, affect cultural norms, exacerbate social inequalities, and influence adaptive capacities. Mobility experiences shape perceptions and assumptions about living conditions and opportunities in both origin and destination areas. **Different types of climate hazards will have different effects** on mobility, and socio-economic, demographic, and technological factors moderate exposure and vulnerability to climate hazards and influence different modes of mobility.

As outlined in more detail in section 5 on research parameters, an **inclusive and creative approach was needed to develop the scenario narratives** presented in this report. They were **co-developed with the country teams** leading HABITABLE field work in each country, along with **other experts working across the fields** of climate-related migration, population studies, climate change adaptation, conflict prevention and others in each country. The development process **was organised in three steps**: the development of a conceptual model on challenges and responses to human mobility in the context of climate change (see the results of the refinement process of different variables in Figure 1 below), application of the model to explore possible futures in each country at **the macro, community, household and individual level** (using the personas approach to allow for a co-creation process) and the final step of **summarising the insights and integrating them into videos** on the **different scenario narratives in partner countries**.

Figure 1: Feedback effects of human mobility on different components of a system.



Source: Detges, Wright-O'Kelly and Bernstein, 2022



### 3 Exploring habitability through two sets of scenario narratives

The scenarios presented below explore future habitability and human mobility in the context of climate change through plausible future situations in the five primary HABITABLE research countries: Mali, Ethiopia, Ghana, Kenya, and Thailand. The scenarios are grouped into two sets – crisis scenarios and aspirational scenarios.

#### 3.a. Three crisis scenario narratives for Ethiopia, Mali and Ghana

The first set of scenario narratives shows the impact of **a severe climate-related shock in the year 2030** in Ethiopia, Mali and Ghana respectively, and examine to explore what forms **loss of habitability** may take.

The starting point for this set of scenario narratives was that **climate change is already increasing the frequency and intensity of climate-related shocks**, such as droughts and floods, in the three countries. In the face of these future climate-related risks, **crisis and crisis response scenarios** can serve as a useful decision-support tool. They allow communities, practitioners and policymakers to scan the horizon for future challenges, to envision different plausible possibilities to facilitate more robust contingency planning and adaptation, and to engage in forward looking policymaking to support preventive measures.

Questions guiding the scenario exercise included:

- What are the social, political, economic, environmental, demographic and technological **factors that shape vulnerability and resilience** in each context?

- What kind of cascade of events could be triggered by **a major climate shock in the year 2030** in the communities that have been of interest to the HABITABLE project in Ethiopia, Mali and Ghana?
- How might **different people** in the community be impacted differently by the climate shock and ensuing crisis in light of their specific capabilities, resources and vulnerabilities?
- What action can we take in the present to strengthen **resilience and responses** to such a crisis in the future?

Although the scenarios were largely developed separately, there are common themes that emerge across the three narratives. All three focus on the negative impacts of increasing rainfall variability, culminating in longer spells of drought and/or floods. All groups emphasised the **vulnerability of households dependent on agriculture and pastoralism** to such shocks, while all highlighted the **importance of community bonds and solidarity in these contexts where the government has limited capacity** and can only offer a limited social safety net. However, the scenarios vary in scope and contain details that are specific to each context, with the storytellers in the three accompanying videos picking up key differences at the micro, meso and macro levels. Potential responses that were identified for each scenario are also highlighted. Some policy entry points are common to all the scenario narratives – such as **improving access to credit and microinsurance, or access to education and reskilling** – even if their exact implementation in terms of community needs would vary in each context in practice.

## I: ETHIOPIA

### RAINFALL VARIABILITY IN THE OROMIA REGION

**Rural communities across Ethiopia are already experiencing drops in their agricultural production due to increasing rainfall variability (Bedane et al. 2022).<sup>4</sup> This scenario zooms in on two individuals from a village in the East Shewa Zone of the Oromia region in Ethiopia, and explores how and why they may fare differently in 2030, and what role migration can play in strengthening their coping capacities.**

Despite rapid economic growth, Ethiopia remains one of the world's poorest countries. Its development is hindered by poverty, food insecurity, ethnic conflicts, and high gender inequality, which are compounded by environmental degradation and climate change (Mekonnen and Gerber 2016). Around 75 percent Ethiopians are projected to live in rural areas in 2030, with many dependent on rain-fed agriculture for food and their livelihood. Due to the already limited capacity of the governmental structures and economies in the region, adaptation and prevention mechanisms are limited in their scope and are often unable to provide the necessary protection and assistance needed by the growing and youthful population. The lack of economic prospects in rural areas is resulting in large waves of youth migration to towns and cities (Pankhurst and Piguet 2009).

### Scenario

<sup>4</sup> Bedane, H.R., Beketie, K.T., Fantahun, E.E. *et al.* The impact of rainfall variability and crop production on vertisols in the central highlands of Ethiopia. *Environ Syst Res* 11, 26 (2022). <https://doi.org/10.1186/s40068-022-00275-3>.

The year is 2030 and in a rural village in the East-Shewa zone of the Oromia region, a farming community is struggling to cope with the increasingly unpredictable rains. They have longer dry spells and more heavy downpours, and the rainy season comes later and is shorter. This has lowered their yields and put pressure on their livelihoods.

On the outskirts of the village, 37-year-old Almaz has found the last years very difficult. Her husband was killed five years ago during one of the many conflicts over land, leaving her **socially isolated** and having to look after their five children by herself. When she and her husband were married, their small plot of land had been enough to grow crops for their growing family's own consumption, with a little left over to sell, but in recent years she has struggled even to feed her family. Despite her efforts, she often **cannot pay to provide her children with education or healthcare**. Unable to find work in the village, her two eldest boys have left to find work in a nearby town. However, due to their lack of education and the competition for jobs in Ethiopia's rapidly growing urban centres, they have neither been **unable to find stable employment nor send money back to support their mother and siblings at home**. With limited labour, no access to a mobile phone or social networks, Almaz struggles to manage her farm and one ox. Her **livelihood is very unstable and she is vulnerable** to any changes in the environment. This year her yields fell again and her children have become malnourished. She has become **dependent on the food distributed by the government and aid agencies** to survive.

By contrast, her 55-year-old neighbour Abdi and his family have been better able to cope. Although they have also seen their yields fall, they have been able to increase their income in other ways. His three eldest children, who completed school, send some of their earnings from Addis Ababa and the Middle East. These **remittances help cover living expenses and farm inputs like fertilizers and improved seeds**. Abdi benefits from **strong community ties**, sharing labour, information, and resources with others in the village. Through these connections, Abdi attended **training** on improved farming technologies, and his wife, Sifan, has been able to **set up a small business**. Their combined efforts enable them to keep two children in school and afford healthcare, so they are not so reliant on government support.

## Responses

**The scenario shows the importance of strengthening development support as a way to increase resilience and reduce the need for humanitarian responses when the crisis becomes acute. Key responses include:**

- **Increase public support from the government or international aid** to improve access to basic services and social safety nets, and provide the resources communities and households require for adaptation (Cattaneo et al. 2019; Birkmann et al. 2022; Detges et al. 2022: 19).
- **Empower communities:** When provided with long-term, predictable funding, and information on climate risks, communities are well placed to understand local needs and develop the types of community mechanisms that can effectively boost adaptive capacity and disaster preparedness, and



mitigate or overcome conflicts after climate shocks (Birkmann et al. 2022; McNamara and Buggy 2017; Ngin et al. 2021; Detges et al. 2022: 19; IIED n.d.).

- **Improve access to microfinance, capital, and insurance** provides a safety net for farmers and others dependent on climate-sensitive livelihoods, enabling them to invest in and sustain their livelihoods. It may also enable them to diversify their income (Bachmann et al. 2019; see also Detges et al. 2022: 19).
- **Broaden access to education and training** to provide information and skills to support sustainable agricultural practices, climate change adaptation, and financial planning, as well as diversification into other types of livelihoods.
- **Access to remittances:** Migration by household members to find alternative work can serve as an important adaptation strategy. Remittances can then allow the remainder of the household to remain in situ (IOM 2017; see also Detges et al. 2022: 32).

### Abdi's story



Meet Abdi, a farmer from the Oromia region in Ethiopia. After years of working the land, he is well aware that the rains are less predictable than they used to be and has seen production from his farm suffer as a result. He and his family try a variety of strategies to adapt their farm and increase income. His elder children leave to work elsewhere and send money back, and he and his wife also diversify into other crops and selling drinks. How well they can manage will depend on many factors, including having access to education, training and healthcare, social support networks, and the amount of remittances their children can send.

→ [CLICK HERE TO WATCH ABDI TELL HIS STORY](#)

## II: MALI

### A FLOOD IN SIKASSO PROVINCE

**The countries of the Sahel are increasingly having to contend with floods when heavy rains fall after a period of drought. This scenario explores how rainfall variability and drought might successively erode livelihoods in a village in the Cercle of Bougouni in the Sikasso Region in Mali, making them vulnerable to a major flood in the year 2030.**

Mali is one of the world's most climate-vulnerable countries, with the impacts of climate change exacerbating multi-dimensional challenges related to poverty, food insecurity, political instability, conflict, youth unemployment and environmental degradation (Nagarajan et al. 2022). Although ethnically diverse, it is a patriarchal society, where young people and women are largely excluded from decision-making at all levels. The population is growing steadily and, in 2019, 55% of the population was under the age of 18 (UNICEF 2019: 1). Women have limited access to education, healthcare and economic opportunities. They also cannot own property and have limited decision-making power over land, even though they are most active in natural resource management.

## Scenario

### 2025-2030: Increasing rainfall variability

**Agriculture remains a productive pillar of the regional economy**, despite changing rainfall patterns linked to climate change negatively impacting agricultural yields, including those of key **cash crops such as cotton**. Attempts to adapt, for example by adopting early sowing practices and commencing planting at the onset of the first rains, have had mixed results. As crops are often sold and not consumed, **food insecurity and malnutrition** are still on the rise. The area also remains marked by stark inequalities. Poverty is pervasive with most still engaged in **subsistence farming and petty trading** as their main livelihood. In particular, young people and other vulnerable groups with limited access to land or capital have been **forced into migration as they search for alternative sources of income**. Many young men increasingly seek work at the goldmines near the border of Côte d'Ivoire over agricultural labour as they had done in the past. Nearby towns and Bamako, the national capital, are also common destinations for young people migrating from rural areas in search of better opportunities. The departure of young people is leading to labour shortages, **placing a higher burden on women and the elderly, and putting them at further risk of malnutrition**.

**People continue to rely on support from the community and family** during poor harvests, but there are signs that **increasing competition over land and resources is leading to grievances and weakening community solidarity and social cohesion**. Despite young people migrating out, the population is growing and fertile land is at a premium. Pastoralism and agro-pastoralism are also common, leading to incidents of conflicts between farmers and herders. **Instability in the northern and central parts of the country continues to displace people in the region**. Armed groups are also becoming more visible in Sikasso. Displacement means the area is becoming more ethnically diverse as a result. For example, beyond the majority Bambara ethnic group, Peul (Fulani) herders are an increasing presence in the area, as they seek new rangelands for their cattle or settle to practice agro-pastoralism.

### 2030: A major flood

After a particularly long period without rain, the area experiences heavy rainfall and a **flood that destroys crops, kills animals and badly damages homes**. Many are compelled to leave in search of safety, with most moving on foot. The **roads, already in a poor state**

**beforehand, are rendered impassable** by the flood, and this also significantly slows the delivery of humanitarian aid, including food and medical supplies, from the government. As international aid agencies are less active in this area of Mali, they are slow to react. Overall, **government aid is not sufficient or does not reach those who are most vulnerable**. These include people who had already been displaced to the region due to conflict or other reasons, as well as the elderly, children and women, who cannot travel as freely as men. This can also be traced to the exclusion of these groups from decision-making procedures over disaster response.

Overall, the flood intensifies many of the challenges the area was facing in terms of poverty, food insecurity, competition over land and other resources, as well as gender inequality and marginalisation of vulnerable groups. As communities and households are forced to sell important assets (such as livestock) in order to rebuild or even just survive, their resilience and capacity to adapt to climate change and prepare for the next disaster is reduced.

## Responses

**Government and donors at all levels must work together to strengthen conflict-sensitive and climate-sensitive development measures, as well as anticipatory action and disaster risk reduction to respond better to climate-related disasters. Responses include:**

- **Government support and international aid:** When floods and other sudden disasters occur, there is an urgent need for government support and international aid to help with emergency response efforts and later with rebuilding and recovery. Rapid-response financing measures in the form of forecast-based financing and risk pools, among others, can quickly unlock funds to support response and recovery efforts (Tänzler and Bernstein 2022).
- **Investment in disaster risk reduction,** like improving infrastructure and implementing early warning systems, can greatly reduce damage and fatalities. This approach is also highly cost-effective when compared to the potential economic costs and losses from disasters (Desai et al. 2021; Detges et al. 2022: 25).<sup>5</sup>
- **More inclusive decision-making and planning around disaster response** to ensure more targeted interventions and stronger protection of vulnerable or marginalised groups, such as youth, women, and internally displaced people and people living in temporary settlements, ensuring the protection of fundamental rights in the process.
- **Investment in early childhood development:** Malnutrition in infancy can have severe development impacts. Investing early on in education and healthcare provides more choices in life and a better chance of building coping capacities for climate change adaptation.

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<sup>5</sup> Desai et al. 2021, See Detges et al. 2022: 25.

## Amina's story



Meet Amina, a teenager from the Peul (Fulani) community in central Mali, as she and her family seek to cope with the impacts of increasing rainfall variability, drought and flooding on their lives and livelihoods in the years up to 2030. As her family grapples with dwindling resources, she is married off early and goes to live with Peuls who are practicing agro-pastoralism in the south. Her story illustrates how children will face numerous challenges due to the direct and indirect effects of climate change.

→ [CLICK HERE TO WATCH AMINA TELL HER STORY](#)

## III: GHANA

### A SEVERE DROUGHT IN NORTHERN GHANA

**The scenario revolves around the premise that the Northern Region of Ghana will be hit by a severe drought in 2030, and assumes that the drought would present a crisis for the region. However, the worst effects can also be averted if robust action is taken in the present and near future to prepare.**

The people in the semi-arid Northern Region of Ghana are deeply connected to their land. These are mainly farming communities that rely on crops such as millet, maize, yams, and groundnuts, and also raise livestock. It is a patriarchal society, where the elders hold the decision-making power. Women in the community marry young and usually have four to five children, and many also have no or very little education. Polygamous marriages are common. Extended and community support has generally been strong, but extended family support systems are becoming more fragmented due to rural-urban migration. The poorest families receive some government support.

### Scenario

#### 2025-2030: Increasing rainfall variability in northern Ghana

There is widespread recognition that the rainy season they rely on to grow their crops is becoming more unpredictable. When the rains do come, they come later and the rains are heavier, leading to flooding. They also face longer, more intense dry spells during the growing season. As a result, the production from their farms and the quality of their produce is falling. They look to agricultural inputs to increase yields, but price fluctuations in international markets mean that they are not always economical. Some see results from the farming techniques shared via associations and extension officers. Many also engage in petty trading to diversify their income.

## 2030: Severe drought takes hold

By 2030, a severe drought takes hold, causing significant hardship. Crops fail, incomes drop, and food insecurity rises. Families depend more and more on government aid and remittances from family working elsewhere. Migration increases, but middle-aged women are often expected to stay to care for the elderly. School attendance drops, as families cannot afford the fees, increasing malnutrition among children who miss out on the meals they would have had at school. The drought also triggers outbreak of the heat-related disease, cerebrospinal meningitis (CSM), worsening the situation. Community support systems break down as resources dwindle. Thefts and accusations fly, even in previously tight-knit communities.

## 2030-2035: The crisis deepens

Other migrants migrate down from the Sahel, as the drought there intensifies too. When the rains do come, they are intense and as the ground is so dry, it cannot absorb it. Homes are flooded and animals perish. Desperation forces families to sell their ancestral land or migrate, leaving the old and infirm behind. As most people have only ever worked in farming, they find it hard to find decent work elsewhere. They are pushed into a precarious existence. Some go to work in the gold mines that increasingly dot the northern region of Ghana, but the work is hard and there are health risks. The mines also degrade the environment, destroying nearby crops and farmland. Many dream of returning to their village, but its future looks bleak, with only the old and infirm, and those that care for them, remaining in many cases.

## Responses

**There are numerous entry points for building resilience to such a crisis and to putting in place protections to shield vulnerable groups from its worst effects. Key responses include:**

- **Partnerships for implementation:** The rollout of existing policies for drought response and climate change adaptation can be improved by strengthening collaboration between actors in government and beyond. For example, between national, regional, local, and traditional authorities, and between government and the private sector and civil society. Closer cooperation between researchers and district authorities can address local knowledge gaps and support tailored solutions that also sync with local decision-makers' priorities. Farming associations and NGOs are important partners for small-holder farmers.
- **Adapting agricultural production:** Introducing climate-smart seed varieties and improved cultivation practices can result in marked increases in production<sup>6</sup>. Collectively, communities may invest in better storage facilities or solar-powered drip irrigation systems. Initiatives to reduce dependence on chemical fertilizers

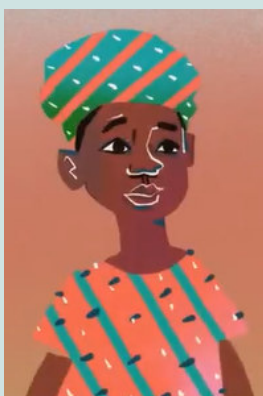
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<sup>6</sup> see CGIAR 2020 see <https://www.cgiar.org/news-events/news/hand-holding-outgrowers-to-produce-certified-seed-in-drought-stricken-ghana-a-model-to-emulate/>.

through composting and agroecological practices can strengthen agricultural resilience.

- **Enhanced connectivity and access to markets**, along with better-coordinated distribution networks, can ensure the efficient sale of surplus produce and increase income. “For example, access to food markets makes it easier to substitute for crop yield losses and access to labour markets can open avenues for pursuing livelihoods that are less sensitive to the effect of climate change. (Detges et al. 2022: 26).
- **Prioritizing prevention in healthcare and education:** Healthcare systems are bolstered to anticipate heatwaves and related diseases, including their effect on the vulnerable groups like the elderly and children. Annual mass CSM vaccination programmes and public health education campaigns can prevent outbreaks. School meals programs ensure children receive nutritious meals and continue their education. There are increasing interventions to build up care services and infrastructure for the elderly.
- **Emergency planning and anticipatory action:** Established early warning systems and contingency plans are vital to respond swiftly at the onset of the drought, ensuring for example additional grain and food aid deliveries to affected regions, and cash-based transfers support household spending on food. Tailored support, informed by disaggregated data, can address the needs of different demographics, including women and the elderly.

### Fuseina's story



Meet Fuseina and her family as they seek to cope with the impacts of increasing rainfall variability and then drought in northern Ghana. Her family can initially rely on community support and try different strategies to cope, but eventually her husband Khalid, son Issah (see p. 18) and daughter Fatimah leave to find work elsewhere to support her, the younger children and her husband's parents back on the farm. Her story shows that as climate change impacts intensify, not everyone will be able to move out of harm's way. Those for whom migration is not an option, and those who care for them, may find themselves in increasingly vulnerable situations.

→ [CLICK HERE TO WATCH FUSEINA TELL HER STORY](#)

## 3.b. Three aspirational scenarios for Ghana, Kenya, and Thailand

The three aspirational scenarios for Ghana, Kenya, and Thailand aim to explore **how habitability may be strengthened** and take a point of departure the following questions:

- What is a realistic but aspirational setting 25 years from now?
- What does the world look like socially, politically, economically, and environmentally, demographically, and technologically in the three countries?
- What does this say about policies needed to achieve these futures?
- How are individuals in these futures making decisions given these changes?

Based on the assumption that climate change impacts have not improved, and indeed worsened, the scenarios create a history for the future in the time leading up to 2050. They look at to some extent differentiated, though also overlapping major themes identified as part of the interviews, desk research, and expert workshops conducted to both narrow the focus and scope of the scenarios and also ground them in individual stories. The year 2050 was chosen to pick a point in time that was far enough to allow for longer policy mechanisms to have had their impact and near enough to not be unimaginable. This makes them useful for designing strategies and roadmaps to achieve the aspirational future conditions described in them.

The scenarios for Kenya, Ghana, and Thailand have common themes that underlie their aspirational futures. The countries all suffer from more severe effects of climate change ranging from flooding to irregular rainfall to drought and riverbank erosion. They all are regional economic powerhouses with growing and resilient economies, which when coupled with the worsening climate effects has allowed them to pursue and strive for climate-resilient agriculture and the shift to more sustainable communities. Lastly, they all benefit from the so-called triple win of migration, where through remittances, all three of migrants, sending and receiving communities are benefiting from migration. Below these common future themes are described and complement the further more context-specific themes detailed in the following sections covering the individual countries.

- **A changed, more hazardous climate:** Temperatures have increased significantly, and the world over countries are experiencing more severe impacts of climate change. In Ghana, Kenya, and Thailand this reflects a combination of longer dry spells and more erratic, heavy rains, leading to more intense droughts, more frequent flash and coastal flooding, and riverbank erosion. Sea level rise has led to saltwater intrusion into coastal waterways and groundwater, and damage to coastal infrastructure and communities.
- **Regional rocks and powerhouses:** Kenya, Ghana, and Thailand remain the most stable and democratic countries in East Africa, West Africa and Southeast Asia respectively. Successive governments have engaged in long-term planning to overcome systemic risks, including the climate crisis, and to improve policy implementation and public service delivery. The countries' stability compared to their regional neighbours continues to make them destination countries for migrants within their respective regions.

- **Growing and resilient economies:** While the economies have experienced fluctuations due to domestic and international crises, the trajectories have overall continued upwards and the expanding economies have provided decent work for a growing proportion of the population, both in urban and rural areas. Government and development partners bet on green-tech as an engine of growth and invested strategically in rapidly growing sectors, including digital services, renewable energy, and sustainable agribusiness.
- **Striving for climate-resilient agriculture and sustainable communities:** The rural regions in the respective countries remain substantially more affected by the impacts of climate change, experiencing searing heatwaves, droughts and flash floods. While many are drawn to the less climate sensitive opportunities in the urban areas, the increasingly robust implementation of successive rural development masterplans has reduced poverty, secured rural livelihoods, improved transport connections and catalysed adaptation efforts in rural communities. Agriculture looks very different from 30 years ago, due both to the impacts of the climate crisis and the substantial strides made in adopting climate-resilient agricultural practices. Far fewer people work in the sector now, as it was increasingly mechanised and thus less labour intensive.
- **“Triple win” migration and remittances as a key facilitator:** The developments above connect into a wider “triple win” strategy to ensure internal migration and remittances create a virtuous circle, with benefits for migrants, sending and receiving communities. Migration and remittances have served as driver of sustainable development and strengthened abilities to cope with the costs of external shocks and crises, including climate-related adaptation, losses and damages. However, the amount and regularity of remittances have also fluctuated with global and domestic economic conditions, underlining the continuing need for more comprehensive safety nets.

Each scenario with core additional themes and policy points for achieving the aspirational futures is presented below and at the end of the respective sections there is a summary box of the corresponding scenario video, which tells the story of an individual in the built context.

## IV: GHANA

### “TRIPLE WINS” AND THE GREEN ECONOMY BOOST SUSTAINABLE DEVELOPMENT

The year is 2050 and Ghana's development in recent decades is a testament to the long-term planning, commitment and partnership of a wide range of actors in the face of numerous challenges, including the climate crisis. The nation's journey towards resilience and prosperity has been marked by progress that, although not without hurdles, has significantly exceeded expectations from the 2020s. The focus on “triple win”



interventions that bring benefits to migrants, as well as sending and receiving communities, has been one important factor in the country's success in adapting to challenging climatic conditions.

## Scenario

Key themes for the scenario, in addition to those mentioned in the introduction of Section 3b, include:

- **A larger population with greater needs:** Ghana has seen major population growth and demographic change, with its population growing from around 34 million in 2023 to 37 million in 2030 to over 50 million in 2050 (CIA 2023; World Bank Group 2021). Around half of Ghanaians are still aged under 25, creating political pressure to expand education and provide decent work opportunities.
- **Cities' constant challenge to provide for the youth and migrants:** In 2050 over 70 percent of Ghanaians live in urban areas (Kebede et al. 2018; UN DESA 2018). Inequality between the rural north and more urbanised south, compounded by climate change impacts, drives migration towards Accra and Ghana's southern urban centres. These vibrant hubs of economic opportunity attract particularly younger people in search of decent work and a better life. Urban life is busy and chaotic, but there has been significant progress in addressing the challenges of congestion, sprawl, air pollution, flooding, social exclusion and lock-in of high carbon development pathways that seemed formidable in the 2020s.

## Policy entry points for achieving the scenario:

- **Long-term planning to tackle systemic risks:** Strategic, long-term planning and investment is required, with a focus on putting in place the necessary governance, investment and stakeholder buy-in for the implementation of key policies. Horizontal and vertical coordination and policy coherence. Building on/renewing efforts towards a long-term vision.
- **Investing in cities and the growing urban population:** Government and development partners work effectively and in partnership at all levels to increase investment, create jobs and expand housing, sanitation, basic services and utilities to meet the needs of this rapidly growing urban population. Public transport networks are introduced to ease congestion.
- **Increasing urban resilience:** implementation of urban planning is successively strengthened to provide robust, low cost housing and climate-resilient infrastructure, and ensure effective early warning systems and disaster management. Migration to inland communities away from the eroding coastline is incentivised.

- **Support for those dependent on farming, fishing and other climate-sensitive livelihoods:** Increasing access to capital to invest in climate change adaptation / mechanisation to increase food production, while also investing in education and vocational training to increase opportunities for livelihood diversification.
- **Strategic support for future-oriented industries:** The country's green tech industries focusing on agricultural equipment tailored to the climatic context require support on numerous levels, for example, in terms of public and private sector support for green-tech innovators, and in terms of ensuring Ghanaians have the skills to enter these industries. One example would be to increase digital literacy and harnessing the power of digital tools to boost climate action and sustainable development. Relevant vocational training courses can be expanded, and STEM (science, technology, engineering, and math) prioritised in higher education to support key sectors, including the adaptation of climate-sensitive areas of the economy, such as agriculture.

### Issah's story



Meet Issah, a man from northern Ghana who migrated to the coastal city of Accra as a young man to earn money to support to his family on the farm. While always longing for home, he builds a life in the city. He is able to access a training course for basic computer skills and eventually finds work with a start-up supporting farmers with digital services. In 2050 he is living in one of the inland towns built in the 2030s to offer affordable, cool housing and offices to nurture Ghana's growing green and digital services sectors. His story shows that when migrants have the opportunity and capacity to engage in decent work, it can result in a triple win, benefiting not just them, but also their home and destination communities.

→ [CLICK HERE TO WATCH ISSAH TELL HIS STORY](#)

## V: KENYA

### EDUCATIONAL ACCESS TO ENABLE ALTERNATIVE LIVELIHOODS

In 2050, Kenya will be considered as a regional powerhouse. Social development and economic growth have been enabled thanks to long-term planning, commitment and collaboration among diverse stakeholders. This development has been and will be at risk due to numerous challenges, including the climate crisis with more hazardous climate impacts expected. The nation's path to resilience and prosperity, however, has been characterized by strong progress, surpassing expectations from the 2020s. The focus on education as a cornerstone for human and economic development, mainstreaming of property rights as a means to facilitate access to economic institutions, and the streamlining of remittance transfers have been important factors in the country's success in adapting to challenging climatic conditions.

## Scenario:

Key themes for the scenario, in addition to those mentioned in the introduction of Section 3b, include:

- **Impact of changing climate on rural livelihoods and agricultural production** will be significant cause for concern in Kenya. Rainfed agriculture remains the main source of livelihoods for rural communities, meaning that expected declines in agricultural productivity will lead to food insecurity in some areas of the country in 2050. Despite overall economic development the agricultural sector will still employ between 75% and 80% of the entire rural population.
- **Impact of land ownership on access to credits and enabling climate change adaptation:** Examples across Kenya show the importance of land ownership, access to agricultural loans and adoption of climate resilient systems. With individual land tenure, small farmers are in a better position to implement the necessary practices and have access to finance to make their – often leased – land more resilient to climate shocks and invest in anticipatory action and early warning forecast technologies.

## Policy entry points for achieving the scenario:

- **Facilitation of remittances: diaspora and internal remittances** will form an important source of socio-economic development and resilience strengthening in the years up to 2050. Already in 2020, diaspora remittances surpassed 3 billion USD or 3% of national GDP. Estimations normally refer to remittances sent through formal channels, if informal channels were to be considered, then the value of remittances would double according to ILO. Because of the importance of remittances, already back in the 2020s the Central Bank of Kenya had lowered transaction costs, thus facilitating a growing number of financial transactions as a driver of development in the following decades.
- **New ways in agricultural production:** One way to deal with the increased occurrence of droughts is to change agricultural production patterns such as shifting to less water intensive crops such as cowpeas instead of beans or use more drought-resistant maize varieties. The income generated by farming has consequences for migration decisions which in turn are influenced by roles and responsibilities at the household level relating to gender and age.
- **Access to insurance or credits schemes:** Access to insurance or credit can help to meet the high costs of rebuilding and recovery after the extreme weather events expected in Kenya from 2025 to 2050. By enabling investments in in situ adaptation responses, resilience and preparedness can be strengthened. New forms of insurance need to be developed in Kenya to address emerging climate risks from the micro to the macro-level. This refers to affordable micro-insurances to help

people avoid or recover from livelihood loss to regional catastrophe risk pools like the African Risk Capacity. Further supporting recognizing land-ownership additionally facilitates financial inclusion, thereby enabling small-holder farmers access to different financial models.

- **Further improving access to education:** Access to education has been improved already in Kenya in recent years and will open up alternative livelihood opportunities for people dependent on climate sensitive activities in the next decades. The progress was caused by reforms implemented thanks to high government spending on education. Already in 2020, 19% of the government budget was reserved to the education sector. Increasing access to education and vocational training can therefore serve as an important long-term adaptation strategy, particularly in countries where a large proportion of the workforce is employed or engaged in agriculture and pastoralism as in Kenya. Education will also support sustainable development by providing access to information (including on climate change) and empowering vulnerable groups by providing them with options for alternative livelihoods.

### Faith's story



This video tells the story of Faith, a young woman from a rural village in Makueni County in southern Kenya. Her story begins in the year 2030 when her parents are doing their best to adapt their farm to recurring drought and provide their children with a better future. We then jump to an aspirational scenario in 2050 when Faith has returned to work as a teacher and her village is thriving. Her story shows that while drought and other climate change impacts reduce income and restrict other potential sources of revenue for rural communities, providing access to credit and investing in education has the power to open up new opportunities so that they are less affected by climate change.

[→ CLICK HERE TO WATCH FAITH TELL HER STORY](#)

## VI THAILAND

### VOCATIONAL OPPORTUNITIES AND REGULARIZED MIGRATION

In the year 2050 Thailand has diversified its economy and regularised regional migration to ease pressures linked to stagnating birth rates. The climate crisis has worsened with increased rainfall variability, more flooding, and extended periods of drought but investments in smart agriculture, with the adoption facilitated in part by social and economic remittances, have helped rural communities reduce labour intensive practices, increase productivity, and better manage available resources. This has allowed for economic diversification which is coupled with the

country's push to increase ecotourism. With the recognition of the social impacts of migration, active measures were taken to reduce the social costs associated with migration including stronger social safety nets potentially reducing the need for internal migration, and options for family reunification for migrants coming from neighbouring countries who have spent the requisite number of years/seasons working in Thailand.

### Scenario:

Key themes for the scenario, in addition to those mentioned in the introduction of Section 3b, include:

- **A harsh environment asks for protection measures:** Environmentally, Thailand will be especially prone to flooding, as well as extreme heat and droughts. Rainfall variability is increasing, as well as coastal erosion. Pollution of water and air is an additional environmental factor impacting the lives of individuals. Rice farming, among other agricultural practices, is no longer an option for sustaining livelihoods of rural populations and families have to make difficult migration decisions to diversify household income.
- **A contested economic sector needs a sustainability push:** The Thai government's proactive approach to climate change included supporting retraining programs, particularly in sustainable practices and ecotourism. By 2030, the government begins to recognize the need for new skill sets to adapt to the changing climate. By 2050, extensive government programs offer training in water management, sustainable agriculture, and ecotourism, enabling individuals to return to their communities with valuable skills. The support fosters economic diversification, promotes sustainable development, and provides new opportunities for rural populations.
- **Improved social safety nets and working conditions:** In response to economic instability and the migration of workers, Thailand's social safety nets and working conditions are critical focal points. By 2030, many workers endure long hours under challenging conditions, with insufficient support. By 2050, improved social safety nets and regulatory reforms have led to better living and working conditions, ensuring that both local and migrant workers have access to essential services, healthcare, and fair wages. These improvements help mitigate the socioeconomic impacts of climate change and create a more equitable workforce environment.

### Policy entry points for achieving the scenario:

- **Providing legal certainty around regional migration:** Migration can be an effective adaptation strategy to deal with the economic vulnerabilities associated with increased climate extremes, though often comes at a high social cost. Recognising this and either offering alternatives or facilitating safe and orderly migration and movement, and ensuring social protection standards can increase choice, safety, and lead to desirable futures.
- **Advancement of social protection mechanisms:** Migrants are especially vulnerable due to their irregular status. Any social safety net which is to be created, must therefore include both the local, as well as migrant populations. In the face of increasing climate hazards, vulnerabilities are only exacerbated and social protection is only becoming more important.
- **Investments in social security:** Thailand will need to improve implementation and focus on social protection to reduce social inequalities and promote a narrative of solidarity, with basic human rights of all protected. Investments required in the realm of social security includes education and healthcare, e.g. through trainings and skill development programs.
- **Ecotourism and other elements of a green economy:** Investments into the green economic sector can help to establish a green solidarity. Assisting migrant workers into the green economy will be an essential step to advancing the sustainable transition, as well as ensuring migrants are directly integrated. Further changes in the economic system which would be desirable include a diversification of the tourism sector, as well as a stronger focus on the circular economy, with local production for local consumption, whilst maintaining strong international trade relations.
- **A choice for the young population:** Closely related to establishing a diversified green economy will be a focus to increase mobility and choice within the economic sectors themselves. Giving the young population a choice regarding whether to stay or leave rural areas includes providing better opportunities in rural areas, which requires investments and economic subsidies in the agricultural sector. This is also essential to transition the sector to a more sustainable one.



This video tells the story of Somsak, a Thai farmer from Chiang Rai province, and how climate change plays into the decisions he and his wife make for their family. We follow their story up to the year in 2050 in an aspirational scenario for Thailand, where social, political and economic conditions have evolved to support adaptation to climate change. Their story shows that migration can be an effective adaptation strategy to deal with the economic vulnerabilities associated with increased climate extremes, although this often comes at a high social cost. Recognising this and either offering alternatives or facilitating safe and orderly migration, while ensuring social protection standards, can increase safety and choice.

[→ CLICK HERE TO WATCH SOMSAK TELL HIS STORY](#)

### Samnang's story



This video tells the story of Samnang, a Cambodian immigrant into Thailand, and how climate change affects her decision-making. We follow her story up to the year in 2050 in an aspirational scenario for Thailand, where social, political and economic conditions have evolved to support adaptation to climate change. Her story shows that migration can be an effective adaptation strategy to deal with the economic vulnerabilities associated with increased climate extremes, although this often comes at a high social cost. Recognising this and either offering alternatives or facilitating safe and orderly migration, while ensuring social protection standards, can increase safety and choice.

[→ CLICK HERE TO WATCH SAMNANG TELL HER STORY](#)



#### 4 Policy Implications and Recommendations

These scenario narratives showing how climate change may plausibly influence future migration patterns have been developed in a co-creation processes with experts from different disciplines. By looking at possible future development paths for Ethiopia, Ghana, Kenya, Mali and Thailand, it becomes clear how strongly mechanisms of solidarity determine expectations of habitability at an individual and collective level.

By 2030 and then 2050, the consequences of climate change will be increasingly apparent – both in the crisis scenarios and in our hopeful, aspirational visions for the future. More frequent and severe floods and periods of drought will put livelihoods at risk, particularly those that are dependent on natural resources. The scenarios suggest that one coping mechanism will often not be enough to deal with the daily challenges that people and their families face as a result. In a few scenarios, resilience is achieved by ensuring that people can access alternative livelihoods and sources of income.

In the affected countries, family, villages and community, and to a lesser extent (as of now) the government (though the government has the most room for manoeuvrability in terms of increasing social safety nets), are seen to form a network of solidarity and support, albeit one whose limits are becoming increasingly clear when it comes to the consequences of climate change.



The scenario narratives highlight a variety of factors that will continue to support better outcomes in the future, including:

- the transmission of remittances back to families, and by consequence communities;
- land ownership, even in cases of severe climate change;
- education and training as levers for self-empowerment;
- further social support within the family by diversifying the income base or ensuring that support structures within the family are well established to generate more and better income.

These arrangements describe different entry points for interventions and illustrate how supportive policies and actions could influence the way in which climate change and migration will ultimately interact.

### **What are some of the resulting recommendations for decision-makers?**

- Analysing vulnerabilities to inform climate adaptation planning should systematically consider how migration and displacement in the context of climate change may reduce social capital and how development of public goods can in turn support resiliency.
- Policy approaches to human mobility in the context of climate change should be rooted in a human right's-based approach that in lock-step also considers fundamental rights.
- Considering the perceptions of relevant local population groups is essential to ensure a holistic understanding of existing vulnerabilities. And thereby ensuring adequate participation of the people and communities for which the policies are being created is essential in enabling their successful implementation.
- To further capitalize on the benefits of the solidarity networks described above, climate adaptation should consider and strengthen the different levels of support in planning and implementation. For example, fostering vertical linkages between national and local adaptation planning, with attention to the importance of human mobility as a coping mechanism and adaptation strategy.
- Developing a multi-level financing structure that strengthens existing support resources, such as remittances, can improve opportunities for self-determined migration choices.
- Investing in education and training can support livelihood diversification, open up new sources of income and increase resilience.





## 5 Research Parameters

These scenarios were co-developed with the country teams leading HABITABLE field work in each country, along with other experts working across the fields of climate-related migration, population studies, climate change adaptation, conflict prevention and others in each country. The development process had three stages:

**Step 1:** Development of a conceptual model to underpin the scenario building (Detges, Wright-O’Kelly and Bernstein 2022), based on desk research, interviews and workshops exploring the cause-effect relations between climate change, human mobility, and relevant intervening and moderating variables within the climate-mobility nexus.

**Step 2:** In desk research and two further workshops – one dedicated to each set of scenarios – the research team and experts applied the model to explore possible futures in each country at the macro, community, household and individual level.

- At the macro level, participants discussed and mapped the relative importance and certainty of the different social, political, economic, environmental, demographic and technological conditions shaping each country.
- At the micro level, the personas approach was used to create one or two (time allowing) fictional person(s) living in each future, using a set of ten questions to form a picture of their key characteristics, daily routine, capacities and aspirations.
- Workshop participants then considered, depending on the scenario set, a) how this person might respond to a major climate shock or b) what turns their life might take in an aspirational future. The different country groups also presented their personas and reflected together on the differences and similarities between the different contexts.

**Step 3:** The research team analysed the scenarios, summarising the discussion of macro-level drivers of change in short background briefs, and the outcome of the personas exercise in a short video script. The team facilitated an iterative co-development process between the experts, the animator and the voiceover artists to arrive at final version of the videos that was culturally appropriate and reflective of the results of the workshop.



## 6 Further Reading

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<b>For more information</b>	<a href="http://www.habitableproject.org/">http://www.habitableproject.org/</a>

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