

BEYOND PANIC?

EXPLORING CLIMATE MOBILITIES IN SENEGAL, GUATEMALA, CAMBODIA AND KENYA

CASE STUDY EXECUTIVE SUMMARY

**#CLIMATE
OFCHANGE**



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Methodological Note:

Numbers and percentages showed in tables are the result of rounding. Decimals are displayed only in the text.

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INTRODUCTION

Who is the climate migrant? And how can we discuss the complex nexus between the climate crisis and migration in a manner that is productive and beneficial to those whose lives and livelihoods are most at risk from the climate crisis? These are some of the questions that this report grapples with and that have been the focus of much discussion throughout the #ClimateOf-Change project, for which this report is produced. Questions that, sadly, as with all things related to discussions on migration, are deeply political in their nature. In seeking to answer them, we draw upon empirical research from **four case study countries: Cambodia, Guatemala, Kenya and Senegal**. Research was conducted by the interdisciplinary research team based at the University of Bologna, drawing upon combined sociological, agricultural and food systems, human-geographical and legal perspectives, together with partner organisations on the ground where we were unable to visit the case study countries due to the COVID-19 pandemic.

People have been moving in response to changes in their environment, often seasonally, for centuries. Indeed, *The Atlas of Environmental Migration* (Ionesco, Mokhnacheva and Gemenne, 2016), gives examples dating as far back as 45,000 years ago, when environmental changes and natural disasters played a role in how the population was distributed. Yet it is only in the last 20 years or so that the international community has begun to slowly recognize the wider linkages and implications that a changing climate and environment has on human mobility (Laczko and Aghazarm, 2009). More recently, increasingly alarmist narratives of ‘climate migrants’ as an invasive threat, moving in large numbers from the Global South to the Global North, have emerged. This despite the fact that **the vast majority of movements are internal**, or to neighbouring countries. There is also a growing understanding that some of the people most vulnerable to the climate crisis are, and will be, unable to move, as mobility also depends upon social and economic capital.

Again, these more nuanced messages are often lost in media discourses, and numbers are (mis)used to exacerbate fear narratives (Boas et al., 2019; Durand-Delacre et al., 2021; Lietaer and Durand-Delacre, 2021). As Baldwin and Bettini highlight, climate change itself is often portrayed as ‘a migration crisis in the making’ (2017, p.1).

There is significant critical scholarship of the nexus between the climate crisis and migration (Geddes et al., 2012; Baldwin, 2013; Bettini, 2013; Boas et al., 2019; Durand-Delacre et al., 2021) and scholars have shown that, ‘categorizing climate migrants as distinguishable from non-climate migrants is not empirically possible’ (Boas et al. 2019, p. 902). There is no direct link and for many people, migration can be a continual process rather than a one-off decision and action, and the factors that influence decision-making around migration are complex and numerous (Kelman, 2020). As yet, there are insufficient empirical studies and robust models to establish a set of unquestionable causalities between climate change and migration (Boas et al., 2019; Renou and Diallo, 2019; Durand-Delacre et al., 2021).

Nonetheless, it is clear that the impacts of the climate crisis are worsening and rendering the lives and livelihoods of many peoples increasingly untenable. In its most recent report the *Intergovernmental Panel on Climate Change* (IPCC) (2021) concludes that human activity is changing the climate in unprecedented and sometimes irreversible ways. Defined as a “code red for humanity” by UN Secretary General António Guterres, the report warns of increasingly extreme heatwaves, droughts and flooding, and a key temperature limit being exceeded in just over a decade. Yet whilst the climate crisis may be one across the globe, the impacts are not felt in the same manner.

The Centre for Research on the Epidemiology of Disasters (CRED) found that people in the poorest countries are on average six times more likely than people in rich nations to be injured, lose their home, be displaced or evacuated, or require emer-

gency assistance as a result of disasters (2018). Thus, the human cost of climate change falls overwhelmingly on low and lower-middle income countries: vulnerability to risk and degrees of suffering are determined by levels of economic development rather than climate per se (CRED, 2018). There is deep inequality in the impact of natural disasters, for example, researchers have shown that Hurricane Katrina and subsequent population displacements in the US had much more to do with social and political causes, including racial inequalities, than with narrowly natural ones.

Mobility too is experienced in dramatically different ways across the globe. As Hirst and Thompson pointed out in 1999, states still control their borders and the movement of people across them, and so, despite the rhetoric of globalisation, “the bulk of the world’s population lives in closed worlds, trapped by the lottery of birth”. Thus, the freedom to move has become a stratifying factor of today’s world (Bauman 1998; Mezzadra and Neilson, 2013) and those groups whose spontaneous mobility is considered suspect may be subject to enforced immobility (Musarò, 2019). The passport index¹ is indicative of the vast disparities in mobility experienced across the globe and its rankings are based on the number of destinations their holders can access. All four case study countries rank very low in this index. Thus, for example, whilst a young person from the European Union may travel across the globe with relative ease for work or study, to enhance their employment prospects, or life experiences, youth in these areas may not.

To ‘de-naturalise’ the climate crisis, often portrayed as natural disasters which invisibilise both the socio-political responsibilities and the global inequalities at the heart of the crisis, our research draws on sociologist Mimi Sheller’s concept of

‘mobility justice’ (2018). This expands the notion of climate justice, broadening our understanding to include climate change, unsustainable urbanisation and unsustainable bordering systems as a combined crisis.

The concept reflects the interconnecting strands that emerge from the project: the right to mobility, the right to live in a healthy environment, and the unequal access to such rights across the globe. This approach recognises the impact of colonialism on both mobilities and places, and that adaptive capacity is highly uneven, mediated by intersectional considerations, such as one’s position in relation to capital, gender, ethnicity, class, race (Boas et al., 2019). Indeed, **intersectional factors**² play a key role in the impact of the climate crisis: ‘Vulnerable communities are not homogenous; instead, they are gendered intersectionally (by class, race, Indigeneity, migrant status, etc.)’ (Sultana, 2021, p. 3). Engagement with intersectionality draws out the intertwined systems of oppression and exploitation that enhance vulnerabilities.

This report will unpick some of the realities behind the scaremongering headlines about so-called ‘climate migrants’ through focus on the **four case study countries**. The report draws on the perceptions and lived realities of climate vulnerable people in the four case study countries with the aim of centralising their views. In these countries, for the people on whom this report focuses, the climate crisis is not a future threat, as for many countries in Europe (although even here wildfires, droughts and coastal erosion are increasingly occurring). For the people in this report, the climate crisis is a reality of the here and now and demands attention and policy responses right now. Policy responses, however, that are nuanced and balanced and do not fall into crisis emergency narratives which risk framing people compelled to move as a threat.

1. <https://www.passportindex.org/>

2. The concept of intersectionality describes the ways in which systems of inequality based on gender, race, ethnicity, sexual orientation, gender identity, disability, class and other forms of discrimination “intersect” to create unique dynamics and effects (CIJ - Center for intersectional justice).

SENEGAL

CASE STUDY 1



SENEGAL

CASE STUDY 1

Senegal is highly environmentally fragile and faces concomitant sea level rise, coastal erosion, soil salinization, maritime storms and depletion of fish stocks and biodiversity. The country has a high incidence of climate-sensitive economic activities, including farming and fishing. This is due to the high population density and the concentration of almost all economic activities in coastal areas. About 65% of the population live in coastal areas, mostly concentrated around Dakar and other urban areas. Senegal is ranked as the world's eighth most at-risk country in terms of sea-level rise. Although the majority of the country has a tropical climate, Senegal's northern regions (located in the Sahel) are arid.

The case study areas (Dakar and St. Louis) were purposefully selected to capture some of the

complexities of mobilities and the interaction of the climate crisis with historical mobility patterns. Rural migrants from Senegal's internal regions migrate to these urban coastal areas to work, often in the fishing industry, to finance their agricultural activities. Once seasonal, these historical mobility patterns are shifting through the combined impacts of the climate crisis and socio-economic structural factors destroying agricultural livelihoods. At the same time, the local fishing industries themselves are impacted by urbanisation and the rural exodus, as well as the climate crisis. These fishing communities are thus simultaneously arrival and transit points for migrants from internal rural areas, as well as some neighbouring countries, and departure points for some seeking to reach a better life in Europe.



Ameth Sène Diagne visiting again his former village flooded by the sea in Languedoc (Saint-Louis) ©ElenaGiacomelli



A dwelling in Khara Yalla, emergency camp for people displaced due to coastal erosion ©ElenaGiacomelli

1. METHODS

The research was conducted by the interdisciplinary research team drawing upon combined sociological, agricultural and food systems, human-geographical and legal perspectives. A full desk analysis was carried out prior to fieldwork, together with remote interviews with key stakeholders. Field work was conducted by the UN-BO research team in Dakar and Saint Louis, who worked with two Senegalese facilitators, in May 2021.

Qualitative methods were adopted:

1. **A one-month climate diary** (Giacomelli and Walker, 2021): 30 participants (15 from rural areas - St. Louis, 15 from urban areas - Dakar)
2. **Focus groups**: 4 groups (5-10 people each, gender and age diverse): 2 in Dakar 2 in Saint Louis
3. **In-depth interviews**: 35



A one-month climate diary
30 participants



4 Focus groups
of 5-10 people each



35 In-depth interviews

2. RESEARCH FINDINGS

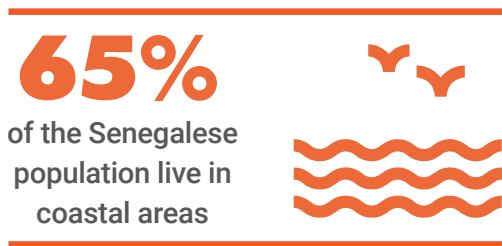
- Intertwining of social, economic and geo-political factors: climate change; migration; environmental degradation; urbanisation etc.;
- Climate change exacerbates pre-existing conditions;
- Climate change as hegemonic and instrumental discourse: risk of legitimising the current situation, devolving political responsibilities and de-politicizing mobility issues = Climate Change as symptom not cause;
- Those with least social/economic capital most vulnerable to impacts of climate change
- Major risk factors: climate change; political intervention; foreign fishing agreements (mainly EU)- ocean grabbing;
- Rapid and unplanned urbanisation, fuelled by growing rural exodus;
- Lack of waste management (+ EU dumping waste in Senegal);
- Mobility patterns shifted due to the climate crisis (major internal movements from rural to coastal areas such as Saint Louis and Dakar, and some onwards to Canary Islands, Spain).
- Desire for mobility justice – to go and return. Limited by the current border regime.



Mamadou Khary Seck and his family staying in Khyar Yalla after the destruction of their house along the coast ©ElenaGiacomelli

2.1. HOSTILE ENVIRONMENT

Senegal has a high incidence of climate-sensitive economic activities, including **farming and fishing**. Climate sensitivity is exacerbated by the fact that *over 65% of the Senegalese population live in coastal areas*, mostly concentrated around Dakar and other urban areas (Ndour et al., 2018).



Senegal's coastal areas are highly environmentally fragile and face sea level rise, coastal erosion, soil salinization, pollution, maritime storms and depletion of fish stocks and biodiversity (Amara et al. 2019). **Senegal is ranked as the world's eighth most at-risk country in terms of sea-level rise** (Amara et al. 2019). In Senegal, urban expansion is also partly based upon a capitalist extractivist system rooted in colonial histories of exploitation (Bernards, 2019, 2020).

Coastal erosion in Senegal is determined by both **natural processes** (swell wave regime, meteorological events, and rising sea levels, and also by **human actions**, particularly unplanned rural migrations and **rapid urbanisation**, much of which was caused by the drought that affected the hinterland of Senegal during the 1970s (Gueye, Fall,

and Tall, 2015), as well as illegal sand mining for construction (Ndour et al., 2018).

The drought also caused the loss of many trees that provided protection along the shore. People living in Senegal's coastal areas, like those interviewed in this report, are living on land that is disappearing before their very eyes. Interviewees reported how the impact of coastal erosion and sea-level rise is destroying not only the physical landscape but also **livelihoods and memories**.

St. Louis is particularly vulnerable to the climate crisis also as a result of its geography.

The city's historic centre is located on an island in the Senegal river, on the other side of the Atlantic Ocean. A peninsula known as La Langue Barbarie, a narrow sand spit of almost 30 km in length, protects it from the Atlantic.

Sea level rise and **two major storms** surges in 2017 and 2018 which destroyed houses, left more than 3,200 people homeless in Saint Louis. However, there are also human interventions which have worsened the environmental situation. As a quick fix to protect Saint Louis from the risk of flooding from a rapidly rising river in 2003, the local government dug a **four-metre-wide breach**, or canal, cutting through La Langue Barbarie. This had dramatic consequences, notably by acting as a new river mouth that underwent rapid and significant widening (Anthony, 2015).

Ameth Sène Diagne, former chief of Doun Baba Dieye, a village that was submerged under the sea as a result of the breach, notes how:

“ There is not even a house anymore! Only one building remains standing and then you can only get there by pirogue.”

Ameth Sène Diagne

He maintains that indigenous knowledge was overlooked, leading to the imposition of technocratic knowledge from outside - the breach - which led to the loss of many lives.

Floods are one of the most serious hazards in Senegal. Dakar is particularly vulnerable to flooding, predominantly due to high urban density and lack of planning (Gueye, Fall, and Tall, 2015). Flooding was a common discussion point in the climate diaries from Dakar and Saint Louis, with

many photos depicting flooding. A combination of extra intense and heavy rainfalls caused by the **climate crisis**, but also poor drainage and sewage systems in a city of **rapid and unplanned urbanisation**.

The images shared reveal the wider impacts and causes of the climate crisis and the interconnections between urbanisation and climate vulnerability.

2.2. WASTE

Waste management is both a behavioural and structural issue. Most of the waste is household waste and people lack waste infrastructures, but management also requires a top down approach (Hutson, 2021). Waste, predominantly plastic, but also clothing, is strewn everywhere, except the tourist beaches, magically cleaned of this detritus. This causes health and sanitation issues, and is also problematic for ocean biodiversity. Indeed, in the urban areas, an increasing amount of waste is visible, which affects both the process of disposal and purification of water as well as the rainwater runoff (Armando, LVIA, remote interview). It also has problematic impacts on marine life.

Waste emerged strongly in the climate diaries from Dakar, where many participants chose to share pictures of the **rubbish deteriorating their local environment**. They also shared images of their numerous 'clean up' activities and awareness raising to try and stem the flow of rubbish littering their beaches and streets. They revealed change over time from beaches such as Hann Bay that '*used to rank second on the classification of the nicest bays of the world*' (Fakalè, Hann Bay, Dakar), that has now become a place where it is no longer possible to swim due to water pollution. Hann Bay is now among the most polluted in West Africa and is the first industrial zone in West Africa, accommodating about 70 - 80% of Senegal's industries (Lewis, 2016).

Large cities like Dakar do not have any professional sanitary disposal sites and *almost 70% of the solid waste is deposited in unauthorised waste disposal sites*.

70% OF THE SOLID WASTE
*is deposited in unauthorised
waste disposal sites*

One of the largest landfill sites in Africa, **Mbeusse** is found in Senegal. Mbeusse is a site constructed on top of mountains of rubbish. Plastic is highly visible, but also clothing: remnants of the fast fashion industry and its damaging impact on the environment. A report by the Ellen MacArthur Foundation (2017) estimates that more than half of fast fashion produced is disposed of in under a year. Whilst efforts to recycle and re-use clothing do occur in the Global north, much of the clothing collected is then exported to countries with no collection infrastructure of their own, such as Senegal, and ultimately most of these clothes end up in landfills (Ibid.), such as Mbeusse. Indeed, many EU Member States continue to send their waste to the Most Affected People and Areas (MAPAs), including countries such as Senegal, which are unable to manage their own waste (Hutson, 2021).

2.3. FISHING

In Senegal, the fishing industry is the major source of employment in coastal areas, such as Dakar and St. Louis. **Fisheries** are estimated to employ, directly or indirectly, 600,000 people in Senegal, representing 15% of the active population¹, including the thousands of jobs in fish processing plants in which most workers are women (Daniels et al., 2016), and other activities such as market trading related to fishing.

15% 600.000 PEOPLE
are employed in fishing

The **fishing ecosystem** is being destroyed by the climate crisis as changing currents cause fish to migrate elsewhere, but also coastal erosion, pollution and ocean grabbing as large industrial boats take the more expensive fish under agreements Senegal has with countries in the Global North, including the European Union (Kaczynski and Fluharty, 2002; Allison et al., 2009; Daniels et al., 2016; Okafor-Yarwood and Belhabib, 2020).

The bigger boats he refers to are industrial boats from the Global North, including EU Member states. Overfishing by large industrial trawlers is contributing to the collapse of artisanal fishing. Illegal, unreported and unregulated fishing is also a major part of the problem in Senegal (Daniels et al., 2016).

“As you can see, the beach is full of rubbish, which chases the fish because they are unable to breathe. If the fish are unable to live in an appropriate environment, at the right temperature, they will move elsewhere. The fishermen then have to work harder to reach the fish that move to places that are the domain of the big boats. That is the problem.”

Abdoulaye Diouf, Thiaroye sul mer, Dakar

1. <https://spcsrp.org/en/senegal>



2.4 MOBILITY

Mobility has long been a key element of livelihood strategies in Senegal, a historical means to diversify revenues and adapt to a resource-poor environment. Over the last few decades however, environmental degradation has increased owing to natural and human interventions, exacerbating the vulnerability of local households. A **rural exodus** towards urban centres in Senegal, particularly Dakar, has been prominent since the late 1960s. However, there is no direct link between periods of drought and the rhythm of departures, instead the link between climate variability and migration to cities is a complex one and it is important to integrate other **vulnerability factors** (e.g. liberalisation of agricultural and trade policies, lack of bank credits, post crop losses, and limited resources diversity) (Gueye, Fall, and Tall, 2015). This reflects other findings (e.g. Geddes et al., 2012), that, given the large role economic motives have to play, migration may then be towards environmental risk in cities like Dakar.

Additionally, the declining fishing industry is leading some fishermen to feel they have **no choice** but to try to migrate through irregular means and so try to cross the Atlantic Ocean via pirogue (small wooden boats) and find better opportunities in Europe. It is important to remember here that this is a small minority of movements. Most are internal. However, for the fishermen losing their livelihoods, the porous border of the sea is a pull. As a fisherman observed: ***“The fishermen follow the fish: if the fish go to Europe, then the fishermen go there too.”***

Boat migration is heavily gendered with most migrants being male.

Women do not consider this journey, but rather, invest hope in their male relatives or partners to make the journey and help support the family. It is mostly young men who migrate, and whilst those with the most social and economic capital do not need to risk their lives in such a dangerous journey, some level of economic capital is required to fund the journey.

At the same time, participants were recognizant of the **unjust border system** rendering opportunities to travel elsewhere very limited. The border system keeps them in place, and forces people to take dangerous journeys across the Atlantic, knowing full well the risks. The low passport ranking of Senegal in the passport index⁴ (rankings are based on the number of destinations their holders can access) and a highly restrictive visa system, which has exorbitant costs (Sow, Marmer, and Scheffran, 2016), was recognised by participants.

This means that **regular channels to migrate are extremely limited** and leave little mobility options. Many people wanted simply the option to go (to work or study) and return, yet the **restrictive nature of the visa system** has created a class of ‘excluded people’ (Sow, Marmer, and Scheffran, 2016, p. 239) and they are unable to access these legal pathways to access the EU.

The issue of visas led to animated discussions in all the focus groups, where all agreed how hard it was.

“ Getting a visa is “like trying to climb a mountain. It’s too difficult and expensive [...] Everyone knows it is bad to take the pirogue, but there is no choice”.

Omar

3. CONCLUSIONS AND SOLUTIONS

The portraits that emerge from the coastal fishing communities around Dakar and in Saint Louis are of places that are becoming less and less habitable, challenged and choked by **ecological precarity, excess waste and mobility injustices**.

Local inhabitants in fishing communities who, owing to their marginalised position within unequal power structures of the global economy, are unable to access freedom of movement and thus regular, safe, channels of migration and instead risk death in perilous journeys across the Atlantic to escape this lack of habitability.

However, these movements whilst perilous and tragic are a minority of movements, most are internal. These movements are not directly related to the climate crisis, but rather stem from a number of interrelated factors.

The damage of the current extractivist model and capitalist consumer society is strikingly apparent in these areas of Senegal.

The circular nature of mobilities from rural to urban, and the complexities of the destruction of the fishing ecosystem and its devastating impacts on people's lives beyond the fishing communities, given its importance in Senegal's economy and providing livelihoods for so many people.

In Senegal, it is possible to go behind the mirror of the capitalist production system and see the real damaging results of the resulting climate crisis on people and the environment. Just as the environmentalists and activists in this report call for, they have the right to live in a safe, clean, healthy and sustainable environment. Additionally, they also require the right to mobility and enhanced legal channels to go and return, which would alleviate the deaths of the perilous crossing across the Atlantic.

The global disparities highlighted by the crisis are starkly evident in the lives of those in urban coastal areas of Senegal living on land that is disappearing before their very eyes.



An overview of the fishermen's boats in the Dakar beach ©ElenaGiacomelli

GUATEMALA

CASE STUDY 2

Massive expansion of oil palm plantations in the community of Sechaj, Alta Verapaz ©RobertoCuxil

GUATEMALA

CASE STUDY 2

Guatemala is consistently listed among the world's 10 most vulnerable countries to the effects of climate change. The impact of climate change is worsening in Guatemala where, due to its geographical location in the tropical belt, natural disasters are increasing in frequency and intensity and are more likely to have significant negative impacts when combined with lack of adaptive capacity. Guatemala belongs to an area particularly vulnerable to climate change, owing to its location in a semi-arid region known as the Dry-Corridor. Climate risks in the Dry Corridor are mainly represented by recurrent droughts, excessive rains and severe flooding affecting agricultural production, with greater intensity in degraded areas.

More than half of Guatemala's population lives in rural areas, and of that, 70 percent live in poverty.

70% OF RURAL POPULATION
lives in poverty

Indeed, climate change can be perceived as a multiplier of pre-existing vulnerabilities, such as poverty, lack of resources, food insecurity and so on. Hence, people, especially those working with, and dependent upon, the environment (i.e. the agricultural sector) exposed to the impacts of climate change are more prone to migrate as an adaptation strategy.

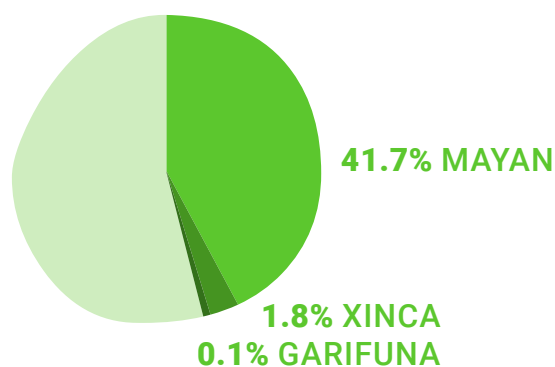
The departments of **Totonicapán and Sololá** were selected as communities. Here practice intensive agriculture and the area is suffering from extensive deforestation, making these territories particularly vulnerable to climate change.

Guatemala has been recognized as a multicultural, multiethnic and multilingual nation, made up of three indigenous peoples (Mayan, Xinca and Garífuna). According to the 2018 census, 43.56% of the population is Indigenous including 41.7% Ma-

yan, 1.8% Xinca, and 0.1% Garífuna (Mixed African and indigenous).

44% OF THE POPULATION
is indigenous

including



In Totonicapán this percentage increases to 98% (INE 2018).

98% OF THE POPULATION
is indigenous in Totonicapán

Guatemala has adopted a number of measures to address the effects of climate change that deserve to be mentioned.

In 2009, Guatemala approved several policy strategies like the National Policy on Climate Change (MARN, 2009), the National Action Plan on Climate Change (PANCC) (CNCC, 2016) to address the priority actions to reduce vulnerability, improve adaptation, tackle deforestation and reduce greenhouse gas emissions within the context of the Framework Law on Climate Change (CNCC, 2016). In addition to national political strategies, there are also a large number of meso and micro-level initiatives and activities organized by NGOs working in the territory that focus on natural resource management to increase resilience to climate change effects.

In September 2016, the Congress of the Republic of Guatemala approved the Migration Code repealing Decree 95-98. Important and valuable points of the new code include the right of every person to emigrate or immigrate to Guatemala, as well as to temporary and permanent residence. At the regional level, Guatemala is Party to the **1984 Cartagena Declaration on Refugees** and, alongside other States, it supported the adoption in 2014 of the **Brazil Declaration and Plan of Action** (BPA), aimed at reinforcing cooperation and providing protection solutions for displaced and stateless persons (including those displaced for climate change, natural disasters) to be performed by 2024. In addition, since 2005, Guatemala has been a party to the Convention on the creation of the single Central American visa for the free movement of foreign nationals between the Republics of El Salvador, Honduras, Guatemala and Nicaragua (C A4).

While the most significant migratory movements are towards the United States, **no specific agreement between Guatemala and the US regulating migration exists**. In 2019 an agreement between the United States and Guatemala, the US-Guatemala Asylum Cooperative Agreement (ACA) was concluded. It enables the United States to rapidly expel non-Guatemalan asylum seekers (especially from Honduras and San Salvador) to Guatemala without allowing them to lodge asylum claims in the United States, but also leaves them without access to effective protection in Guatemala. As a result, they are effectively compelled to abandon their asylum claims, and some who have a well-founded fear of persecution appear to be returning to their home countries where they are at real risk of serious harm (HRW, 2020).



The farmer Matilde Alonzo, in front of a pineapple monocropping field in El Jocotillo ©RobertoCuxil

1. METHODS

Information in this chapter is taken from a combination of different methods and research phases. First, a desk analysis of documents from scientific and gray literature was integrated with semi-structured interviews with key stakeholders and experts working on migration and/or environment in Guatemala. These interviews were conducted remotely via video calling systems (Skype, Zoom) in June-July 2020. Results were integrated with empirical data from fieldwork focus groups, climate diaries, semi-structured interviews conducted by Socialab between April-May 2021 with selected local people affected by the climate crisis in Totonicapán and Sololá.

A survey was also conducted by a specialized company, Kantar-Mercaplan, with a representative sample of the Totonicapan population between April-May 2021:

1. **A one month climate diary** (Giacomelli and Walker, 2021): 30 participants (15 from rural areas, 15 from urban areas).
2. **Focus groups:** 4 groups (5-10 people each, gender and age diverse), 2 in an urban area (Guatemala city) and 2 from a rural area (1 in Chuicullil Village, Nahualá, Sololá and 1 in Vásquez Village, Totonicapán).
3. **In-depth interviews:** 11 participants.
4. **Household surveys:** 400 households, male and female, from 18 to 65 years old, representative of the rural population of the province of Totonicapán having experienced climate change and/or having one migrant member within the HH.



A one-month climate diary

30 participants



4 Focus groups

of 5-10 people each



11 In-depth interviews



400 household surveys

2. RESEARCH FINDINGS

- Intertwining of environmental degradation and climate crisis:
- Deforestation, inefficient waste management and water scarcity are the main issues identified with environmental degradation
- Flourishing of monocultures (sugar cane, palm oil industry) by agroindustries cultivated for export, and lack of political actions and commitment, especially at the local level, are considered as aggravating factors and among main reasons for environmental degradation
- Uncontrolled urbanisation
- Rainfall variability (both floods and droughts) is identified as a major concern regarding climate change
- Responsibility for climate change is attributed primarily to the national government in following the interests of large (sometimes foreign) companies and in facilitating a corrupt system
- Individuals are responsible when acting in their daily life without full awareness and sufficient education
- Consequences:
 - Decrease in crops/food production for small farmers
 - Perception of not being at all prepared for coping with sudden events
- Migration is mainly due to economic reasons/better life opportunities/lack of jobs. Climate change is not perceived as an autonomous driver of migration, but as an one element influencing individual desire.



2.1. HOSTILE ENVIRONMENT

“Guatemala is in one of the most vulnerable regions in the world. We experience all the impacts of this climate change, such as tropical storms, such as earthquakes, such as changes in the climate that affect especially production.”

Luisa, Local Researcher

The physical-geographical conditions of Guatemala make it extremely vulnerable to hurricanes, storms and other extreme weather events, especially in the Dry Corridor. The El Niño phenomenon magnifies vulnerability in the region, in particular, causing frequent severe droughts in the eastern portion of Guatemala. Climate change has changed the duration of the seasons normally characterised by the rainy season. The reduction in the superficial water flow reaches between 10 and 50% for some areas which, along with the predicted temperature increases and precipitation reduction, will result in lower water supply for population use, human development, and irrigation.

Results from the survey showed that in Totonicapán heat waves are perceived as the most threatening (31.4% of the sample consider the risk of occurrence to be very likely or almost certain) followed by storms (21.7%) and droughts (12.0%). People in Totonicapán perceive the risk of floods to be the least probable. The risk of heat waves is perceived to have increased the most in the last 5 years (35.8% of the respondents).

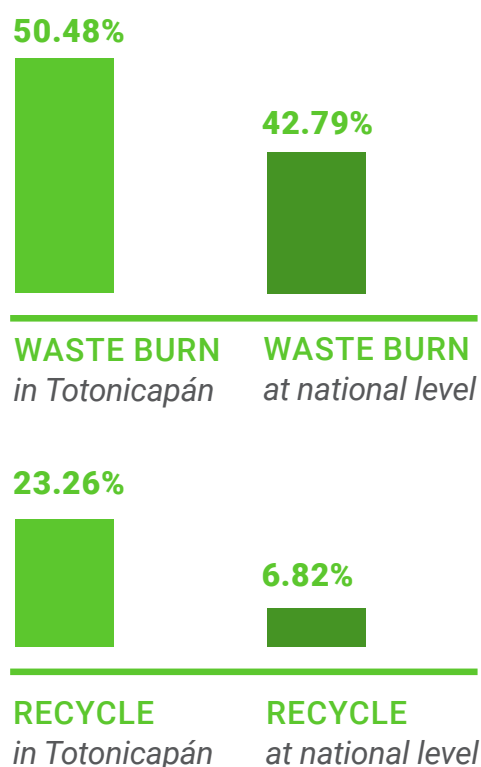


El Jocotillo village in Villa Canales constantly threatened by wildfires and deforestation ©RobertoCuxil

2.2 THE (MIS)MANAGEMENT OF NATURAL RESOURCES: EXACERBATING THE PROBLEM

While in urban areas major problems arise from the uncontrolled urbanisation and consequent accumulation of waste that also impacts upon the adequate draining of water, those living in rural areas are the most affected. Indeed, deforestation and water scarcity are seriously affecting the population (Gleditsch et al. 2006, Brown and Funk 2008, Hanjra and Qureshi 2010). This is worse when combined with the expansion of monocultures by agroindustries, thus undermining food and, more in general, human security, especially that of indigenous people living in rural areas who have limited access to adaptation and mitigation strategies (Barnett and Adger, 2007).

Waste disposal practices are not environmentally sustainable: half of the population in Totonicapán burns it (50.48%), with a similar percentage at national level (42.79%). Only 10.2% of households use municipal or private services but, on the other hand, and in contrast with national data, in Totonicapán households compost and/or recycle waste more often (23.26% against national average of 6.82%) (INE 2019).



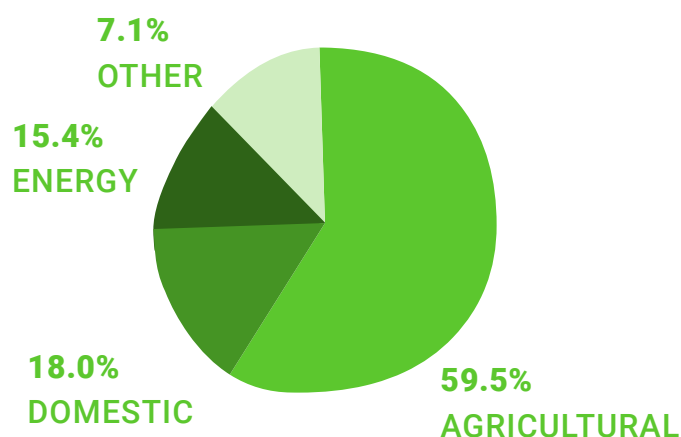
Many interviews and focus group discussions reported this attitude towards waste disposal as problematic. Indeed, the accumulation of waste may also exacerbate the impacts of irregular floods that are worsened by poor drainage systems. The lack of sewage systems in many regions and the discharge of waste into water bodies during floods present serious environmental and health risks. Local authorities are perceived as failing to educate people about good practice regarding waste management.

Regarding **water**, in Guatemala around 58% of households have access to water through pipes within the house. 27.5% of the sample reports that they had experienced shortages of drinking water in the 12 months prior to the interview.

58% HOUSEHOLD ACCESS
to drinking water
.....
of which
27.5% EXPERIENCED shortages
in the last 12 months

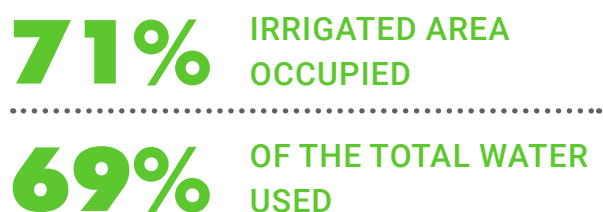
Water resources in Guatemala are used mainly for agricultural activities (59.5%), domestic use (18.0%) and energy production (15.4%) (MARN, 2016).

USE OF WATER RESOURCES:



Products for export from agroindustry - **sugar cane, palm oil and banana** - together occupy 71% of the total irrigated area using 69% of the total amount of water for irrigation (Solano Garrido and Ochoa 2019).

SUGAR CANE, PALM OIL AND BANANA



In addition to agroindustries, the expansion of the mining sector also exacerbates the excessive use of water that is causing river deviation, crop losses, and damage to artisanal fishing, while communities remain without access to water. Communities are also subject to illegal and legal land dispossession (PNUD 2016) reflecting a general resource mismanagement. Hence, small farmers in rural areas experience scarcity of water, and thus soil dryness, due to a failure to appropriately manage the water supply. Political authorities both at local and national level fail to carry out effective actions and or make commitments to adequately manage natural resources.



2.3 INEQUALITIES AND VULNERABILITIES RELATED TO GENDER AND ETHNICITY

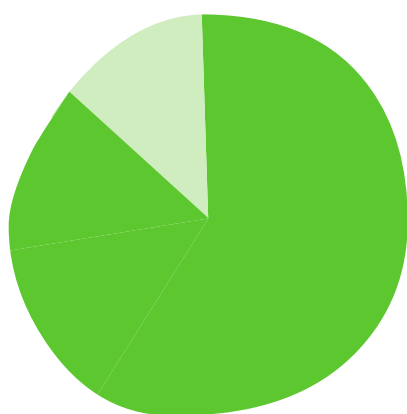
In Guatemala there is a serious degree of horizontal (and vertical) inequalities across ethnic divisions (Thorp, Caumartin and Gray-Molina, 2006) and genders. This was also reported in both remote and field interviews. Juan José Hurtado Paz y Paz refers to a “racist and discriminatory structure of the State that has justified the exploitation of native peoples” (Juan José Hurtado Paz y Paz, Director of the association Pop No’j).

Because indigenous peoples frequently do not have an equal voice in national and departmental decision-making, they experience unequal access to healthcare, educational opportunities, nutritious food, and jobs. Women also face discrimination in access to education, labour participation and in general to public services, and this enhances vulnerabilities.

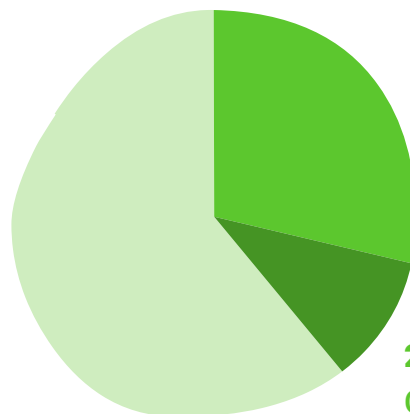
Only 37% of women participate in the formal labour market (as opposed to 85% of men), 27% own their own business, and 28% have access to financial markets (as opposed to 66% of men) (INE 2020b).

Women also struggle to access social services, such as education and health, and are more often the victims of violent crime. The loss caused by natural disasters directly affects the more vulnerable populations, the elderly, women, especially indigenous women, children, and particularly those who live in poor rural areas.

FORMAL LABOUR MARKET:



85% OF MEN
PARTICIPATE



37% OF WOMEN
PARTICIPATE

27% OF WHICH
OWN THEIR OWN
BUSINESS

66% ACCESS TO
FINANCIAL MARKETS

28% ACCESS TO
FINANCIAL MARKETS

2.4 HUMAN MOBILITY IN GUATEMALA: PATTERNS AND TRENDS

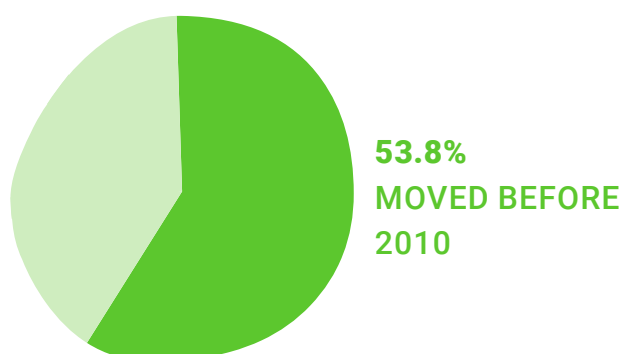
Immigration: 3.25% of the survey sample was born outside Totonicapán⁵ of which 53.8% moved into the region before 2010 and 42.2% moved for reasons related to jobs.



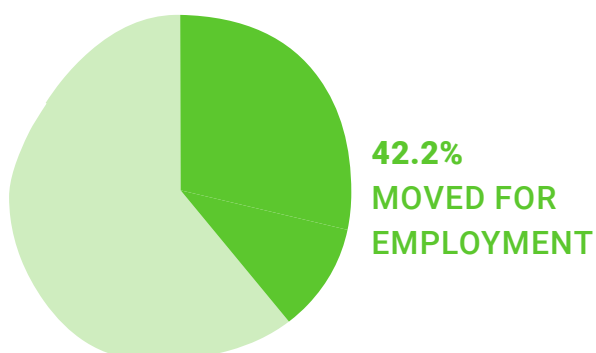
SURVEY SAMPLE

3.25% BORN OUTSIDE
TOTONICAPÁN

of which



53.8%
MOVED BEFORE
2010



42.2%
MOVED FOR
EMPLOYMENT

Outmigration: On the other hand, 10% of the sample (in line with national data) reported that they live or have a relative that lives elsewhere some time of the year for work reasons, the majority of which (75%) move for less than 4 months: 22.5% of them move abroad and 77.5% move within Guatemala, often to a large urban centre (60%).

SURVEY SAMPLE

10% LIVE ELSEWHERE
some time of the year

of which

75% MOVE FOR LESS THAN
4 MONTHS

3% MIGRATED PERMANENTLY
in the past 10 years

22.5% MOVE ABROAD

77.5% MOVE WITHIN
GUATEMALA

5. The sample of the survey included people only from Totonicapán.

2.75% of the sample have a household member that permanently migrated for labour in the past 10 years. Of these permanent migrants 72.7% were male and 27.3% were female.

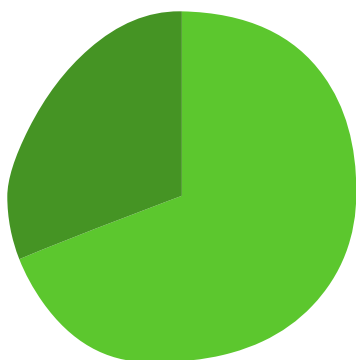
Future aspirations: When asked if they plan to move in the near future from the place they currently live in, only 7.2% responded that they are planning or wish to.

SURVEY SAMPLE

2.75% MIGRATED FOR
LABOUR
in the last 10 years

of these

27%
WOMEN



73%
MEN

7% PLAN TO MOVE
from the place they live

Among these, the three reasons that scored the highest levels of agreement (from 1 “completely disagree” to 10 “Totally agree”) were:

- Lack of initiatives supporting agricultural and rural activities (mean: 4.86)
- Success stories from other migrants (mean: 6.03)
- Lack of opportunities for achieving personal aspirations (mean: 7.01)



Poverty and unemployment are indicated as the most common reasons for internal and international migration, meaning that those who migrate often belong to the most vulnerable categories.

There is no specific gender or age-related connotation:

“Women and men and young women, young people and adults, there is no age to migrate”

Maria,, Housewife, Farmer, Activist

As for the nature of the migration patterns, literature and interviews highlight how the largest movements are **internal** from rural-to-rural communities: people move both permanently or temporarily (for seasonal jobs, such as in coffee or sugar plantations). The mono-culture production forces seasonal internal migration, mostly of indigenous people. Young people, however, have different aspirations also in terms of **personal development**, which leads to increased migration to Guatemala City.

Guatemala's urban population has increased from 31% (1960) to 51,8% (2020) of the total population (World Bank, 2017).

INCREASE OF URBAN POPULATION

from **31%** (1960)

to **52%** (2020)

Cross-border migration is mainly to Southern Mexico, in the form of temporary agricultural migrants for low-wage jobs, and to the United States, indicated as the most desirable international destination. Considering the geographical proximity of the two countries, migration to the United States constitutes a significant social and economic phenomenon over the past 30 years⁶. Adults still constitute the majority of emigrants (around 80% of men and 20% of women), but the proportion of accompanied and unaccompanied children has increased in recent years.

Successful migration, while often perceived as something negative that brings disruption of family ties, can become a source of support for family members who stay behind. Interviewees confirmed the important role of **remittances** for families and the economy of Guatemala overall.

However, since 2004 Guatemala has seen a steady number of Guatemalans being forcibly returned from other countries. According to the IOM, migrants that are forced to return face myriad difficulties and obstacles to their successful reintegration, such as limited economic opportunities and the lack of access to social services and credit. Failed debt-financed migration attempts may then increase the necessity and desire to attempt a new journey. Families that experience multiple migration attempts by a member are likely to worsen their condition with each new attempt, given the high emigration costs, and the fall into a crushing cycle of migration and deportation.

6. According to IOM, in 2016 the annual remittances to Guatemala reached USD 7.27 billion, 97.1 percent as remittances from people living in the United States (IOM, Guatemala Remittances - 97 Percent from USA: IOM Study, 17 February 2017). In 2020, remittances increased by 7.9 percent and were equivalent to 14.6 percent of GDP. See, 2021 Investment Climate Statements: Guatemala, <https://www.state.gov/reports/2021-investment-climate-statements/guatemala/>.

2.5 INTERTWINING ENVIRONMENT/CLIMATE CHANGE AND MIGRATION

The majority of the interviewees identified an “environmental migrant” as a person moving internally from rural-to-rural areas of the country “looking for better job and life opportunities” (Luis Rodriguez, Founder and Director of GuateAmbiente). In Guatemala, “climate change intensifies already existing migration flows” (Laura Hurtado, Guatemala Country Director for Action Aid). In this sense, **climate change** aggravates other structural national factors, such as poverty, and acts as a **vulnerability multiplier**. Climate change is not identified as an explicit driver of migration but rather as an element that influences the individual desire to migrate.

Due to the multi-causal and multi-connected drivers inducing local people to migrate, Guatemala is characterised mainly by mixed migration flows (e.g. both short and long term, internal and to other countries). This increases the number of people who consider **migration as a vulnerability mitigation strategy**. Climatic shocks like floods can also act as a trigger for the decision to move.

Additionally, interviewees underlined a strong connection between indigenous communities, climate change and migration. Indigenous people face disproportionate impacts as a result of climate change in comparison to nonindigenous people.

As a result of the mono-cultural expansion and the upsurge in (metal) mining activity (van de Sandt, 2009), indigenous communities have experienced an increase in land exploitation over the past decades. In a vicious circle, these activities have contributed to environmental deterioration, which has accelerated and fostered climate change, which then results in heavy negative social and environmental impacts in indigenous communities and territories. As a result, the mainly indigenous populations living in rural areas find themselves forced to migrate. As environmental and economic issues are heavily intertwined, individuals did not acknowledge the need to establish an international instrument of legal protection.

HOW HAS CLIMATE CHANGE INFLUENCED PEOPLE’S DESIRE TO MIGRATE?

“ Yes, they are forced to leave their communities to Guatemala City to look for a job there and to other countries, mainly to the United States. That it has been a country that has provided support to many migrants, but things have become difficult lately to get there. So that [migration] has helped the communities in a way because only what we have here is no longer enough to survive. It would be a lie if I told you, I would be as I am right now, if there was not someone who had migrated there. Because, unfortunately, it is already difficult to survive here or we have to migrate to the city, find a job there, even if it is for a miserable payment and those who cannot find it in the city, have to look for other options.”

Maria, Housewife, Farmer, Activist

3. CONCLUSIONS AND SOLUTIONS

Climate change increases unpredictability in weather patterns leading to **climate variability** resulting in irregular rain-patterns and extreme events (especially heat waves and floods) which impacts weather-dependent livelihoods.

Guatemala is also experiencing rural environmental degradation, for a number of reasons, including the depletion and **exploitation of natural resources**, especially due to mono-cultural expansion and deforestation. Most environmental migration is **internal** and predominantly **rural populations**: people can either move permanently or temporarily (seasonal jobs, as in coffee or sugar plantations). There is a strong connection between indigenous communities, climate change and migration. Indigenous people face disproportionate impacts as a result of climate change in comparison to nonindigenous people. The role of the supranational context (especially bilateral relations with Mexico and USA), as well as the patterns that have historically characterised the migration flows were highlighted as (non)facilitating factors of mobility.

Interviewees confirmed that migration is not usually linear, but may be a **two-step process**: from rural to urban and then from urban and, eventually, but less often, to third countries, in particular Mexico and USA.

Migration is mainly due to economic reasons/better life opportunities/lack of jobs. Climate change is not perceived as an autonomous driver of migration, but as one element influencing individual desire.

To cope with these challenges, interviewees encouraged improved environmental knowledge and improved community engagement around the protection of the environment. They also ask for better implementation of laws on water, waste disposal, and land usage, in particular for mono-culture cultivation to avoid exploitative practices.



The aftermath of a long period of rainfalls and floodings in Huehuetenango Village ©SergioLópez-SenderMérida

CAMBODIA

CASE STUDY 3

Many construction sites in Phnom Penh are leading to drying out of the wetlands and changing the ecosystems ©Rounky



CAMBODIA

CASE STUDY 3

Cambodia is consistently ranked among the top ten countries most vulnerable to climate change, predominantly due to lack of adaptive capacity. It remains highly susceptible to climate change as a large part of the population is still dependent on the farming and fisheries sectors, which are predominantly rainfed, and the mainly rural population is largely dependent on natural resources for food, shelter and income which makes them highly vulnerable to climate change. The country has one of the fastest growing economies in the world, but growth has been very unequal across the population and is characterised by widespread land-grabbing, significant environmental destruction, and marginalisation of the poor, minorities, and indigenous peoples.

Many Cambodians would prefer to stay in Cambodia and remain closer to their families, but as

there are insufficient job opportunities in Cambodia's urban areas and the climate crisis and socio-economic factors are reducing agricultural livelihoods, many Cambodians are compelled to migrate.

In the selected area of Battambang, people migrate predominantly to Thailand, often irregularly, increasing the risk of exploitation. Battambang province borders Thailand along its western border. At its eastern tip, it is connected to the Tonle Sap Lake. Rain-fed agriculture is the main economic activity. Research participants mainly engage in farming, but supplement their incomes by fishing, depending on how near they are to the lake. Battambang is at high risk from drought and medium risk from flooding, mainly due to heavy rainfall, but also poorly planned drainage systems and increased urbanisation.



Mr. Chem Oeurn, fisherman and former migrant, looks for fish in the morning in Sangke River, Pouk District (Siem Reap) ©RounRy



A man cleaning a buddisht monastery after it was hit by a flood in Battambang ©RounRy

1. METHODS

Findings derive from a combination of different methods and research phases. First, a desk analysis of documents from scientific and grey literature was integrated with semi-structured remote interviews (via video calling systems) with key stakeholders and experts working on migration and/or environment in Cambodia in June-July 2020. Results were integrated with empirical data from fieldwork focus groups, climate diaries, and semi-structured interviews conducted by the Royal University of Phnom Penh (RUPP) in July-August 2021.

A household survey was also conducted in September 2021 by a specialist company, Angkor Research.

- **A one-month climate diary** (Giacomelli and Walker, 2021): 30 participants.
- **Focus group:** 1 group (5-10 people, gender and age diverse)
- **In-depth interviews:** 12 participants.
- **Household surveys:** 250 households, male and female, from 18 to 65 years old, with some experience of migration



A one-month climate diary

30 participants



1 Focus group

of 5-10 people each



12 In-depth interviews



250 household surveys

2. RESEARCH FINDINGS

- Intertwining of environmental degradation due to socio-natural causes and climate crisis:
- Deforestation, caused by
 - clearance for timber by large corporations - often illegally
 - farmers expanding agricultural land
 - corruption and poor forest management/ protection
 - poor implementation of the law
- Rainfall variability (both floods and droughts) identified as major concerns regarding climate change
- Lack of adaptive capacity is a large problem
- Reduced flooding in floodplain
- Consequences:
 - Decrease in crop/fish production for small farmers
 - Perception of not being at all prepared for coping with sudden events
 - Debt, owing to falling into a cycle of debt with MFI, is a major issue, often linked to migration
 - The impact of drought and erratic rainfall patterns leaves families facing food and income insecurity
 - Gendered dynamics exacerbated as grandmothers left with children to care for as parents migrate to work in Thailand. This causes social pressures and difficulties for families
 - Migration is mainly due to economic reasons/better life opportunities/lack of jobs. Climate change is not perceived as an autonomous driver of migration, but as one element influencing individual desire/ necessity to find alternative income sources to farming.
 - Most people would prefer to stay in Cambodia but maintain there are insufficient opportunities for employment which is why they seek work in Thailand, often not via legal channels which can be expensive and complicated. this exacerbates risks to migrant workers who are more exposed to exploitation



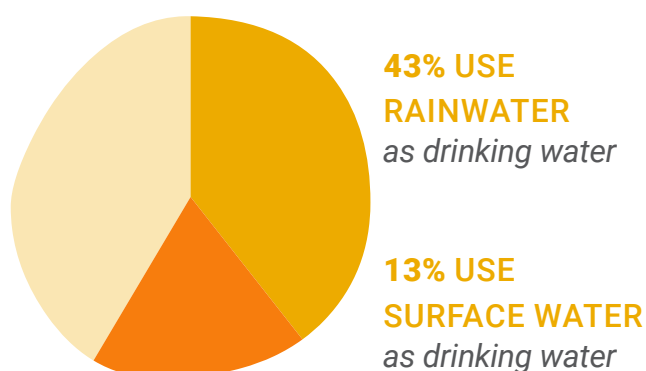
Pon Pinn, 30, cooking lunch in his home after his morning work shift in Phnom Penh ©RounRy

2.1 HOSTILE ENVIRONMENT

According to survey findings, 64% of households rely on the sale of agricultural and fishery products among other sources of income, while 42.9% declared rainwater to be the main source of drinking water (followed by 12.6% using surface waters).

SURVEY SAMPLE

64% SELL AGRICULTURAL AND FISHERY PRODUCTS



Unfortunately, over the last 12 months, 23.2% of the sample reported that they did not have sufficient drinking water for an average of nearly 4 months (3.9) while 13% reported that they did not have sufficient food for an average of more than 4 months (4.2).

SURVEY SAMPLE

23% NOT HAVE WATER for 4 month

13% NOT HAVE FOOD for more than 4 month

Nearly half of the sample (42.5%) reported that they had experienced more than one natural event out of storms, floods, heat waves and drought. In particular, 20.5% reported that they had been affected by storms, 59.1% by floods, 22.4% by heat waves and 48.8% by droughts.

SURVEY SAMPLE

43% EXPERIENCED NATURAL EVENT

21% STORMS

60% FLOODS

22% HEAT WAVES

49% DROUGHTS

Land (lack of) was raised by all remote interviewees as a significant problem. Most households have very small parcels of land which can be inadequate to maintain livelihoods, particularly with increased climate change impacts and increasing family size. Land grabbing was also cited as a concern, as well as the need to sell off land in order to cover debts incurred to cover essential costs, or the costs of migration.

“ I think I should go to Thailand because my family has no land for rice farming and I decide to stop learning more because I have no money to pay for going to school every day.”

Mr.Chea Seila

2.2 WATER GOVERNANCE AND IRRIGATION

Respondents depend upon the flood-pulse aquatic system of the Tonle Sap Lake. Unique among all rivers in the world, the Tonle Sap river has a bi-directional flow depending on the season. Each monsoon season massive rains reverse its directional flow, sending water, fish, and fish eggs from the Mekong River system into the lake; whereas in the dry season the Tonle Sap Lake drains into the river (Eyler and Weatherby, 2019).

However, this delicate ecosystem is under threat from habitat loss and flow change, due largely to dam development, unregulated timber collection, climate change and unregulated human activity

around the lake (Pool et al., 2019; Eyler and Weatherby, 2019; Sourn et al., 2021; Chua et al, 2021).

As participants observe, the flood-pulse aquatic system is altering both in terms of a reduction in the number of days of floods, as well as water levels.

This is damaging soil diversity and also reducing fish catch. Of the few participants who mentioned fishing, all referred to how how fish catch had decreased due to the irregular weather patterns, reduced rainfall and the reduced flood-pulse of the floodplain.



Chem Oeurn ponders about the future of his family. Por Treay Commune, Puok District (Siem Reap), Cambodia ©RounRy

2.3 HOSTILE ENVIRONMENT

Lack of technology and know-how makes it difficult to address the issues.

As one remote respondent explained

“ Now we don't have irrigation systems, everything is based on rainfall. No rain, no production. It is very very risky for the agricultural sector.”

Min Sophoan, ASVF, remote interview

There is a circularity in the vulnerabilities of rural populations in that the impacts of climate change render subsistence-oriented agriculture a wholly inadequate livelihood strategy, and the lack of social protection mechanisms enhances the vulnerabilities of rural populations to climate change (Brickell et al., 2018).

Field interviewees agreed that the key impacts of climate change relate to water:

“ Some even destroy the flooded forest. In the village as more flooded forest is lost, we also lose natural fish, which is replaced by the aquaculture fishery such as catfish.”

Mr. Voen Socheat



Chhoeuth Vansy, 17, working in the household rice field affected by the effects of climate change ©RounRy



Preath Nakri, a former migrant, carrying her son to her house before the rain (Puok District, Siem Reap) ©RounRy

2.4 DEFORESTATION

Cambodia's economic growth has also led to substantial **decline in forest coverage**, which from 2010 to 2016 shrank from 57.07% to 46.86% of national territory (UNDP, 2019).

DECREASE OF FOREST COVERAGE

from **57%** (2010)
to **47%** (2016)

Cambodia has one of the fastest rates of forest loss in the world; much of the forest has been cleared for rubber plantations and timber (NASA Earth Observatory, 2017), including via illegal logging activities⁷. **Flooded forests** are protected areas, where fishing lots were allocated and it is illegal to clear trees. However, lots were abolished by the government in 2012 and allocated as community fishing grounds and with certain areas reserved for conservation.

In spite of this, much of the forest has been illegally cleared, which has led to a decline in fish stocks, as flooded forests are spawning areas for fish.

What was also evident from responses, is the interlinkage between the ability to make a living and the impact of the climate on this. As such, both remote and field interviewees' responses highlight the complexity of the nexus: the economy and the environment cannot be disentangled. As scholars have also outlined, for small scale and subsistence farmers it is their pre-existing vulnerabilities, which have been socio-politically shaped, and not just their exposure to risk, which makes them particularly exposed to the impacts of the climate crisis (Vigil, 2019).

7. <https://earthobservatory.nasa.gov/images/89413/cambodias-forests-are-disappearing>

2.5 DEBT AND MICROFINANCE

At household level **Cambodians have become increasingly reliant upon microfinance (MFI)** borrowing to cope with gaps in public service provisioning (Brickell et al., 2020; Crang et al., 2020). MFI loans are taken on by smallholder farmers from rural villages across Cambodia to cope with the destructive impacts of climate change on agrarian production. Debt may also be incurred to finance migration. Remittances are often used to pay off debt (Brickell et al., 2018; Jacobson et al., 2019; Pak and Saing, 2019) and there is a positive correlation between household debt and migration (Pak and Saing, 2019). The high interest rates on loans mean that many rural people end up losing their land as they become forced to sell to cover the debt when they are unable to make repayments, this results in debt bondage and detrimental impact on living standards. **In January 2020 the UN's independent debt lead Juan Pablo Bohoslavsky reported that Cambodia had a microfinance crisis** (Brickell et al., 2020).

This issue was highlighted by remote interviewees as a significant problem: “when households cannot farm, as they are dependent on rainfall, then their rice production is really low. So many access loans from MFI and then they have to pay the loan back. This causes people to migrate to other locations and find jobs for income” (Anon, IGO, remote interview).

Interviews conducted in the field confirmed these findings. The majority (8 out of 10) of interviewees had had to turn to MFI to finance the migration of family members and/ or to cover agricultural costs. Many explained that their family members had been forced to migrate to Thailand to find work to repay debt incurred via MFI to pay for agricultural improvements. The circularity of the problem is expressed by **Mrs. Keo Rath** (52).

“ Her family took out a loan of \$500 with a MFI “to recover my peanut and soybean crops. Unfortunately, we did not get enough yield from my planting. So, my husband decided to go to Thailand with our daughter to find money to pay back the MFI debt... We also borrowed money to facilitate legal documents and the working permit.”

Mrs. Keo Rath

2.6 MOBILITY

In response to the large numbers of Cambodians entering the labour market and the fact that job creation cannot keep up with those entering the market, Cambodia has increasingly relied on the migration of Cambodian workers abroad, especially to neighbouring countries. Indeed, from a state perspective in Cambodia overseas migration is promoted as one measure to alleviate poverty and unemployment/underemployment, especially among its young citizens. Interviewees confirmed that many travelled to Thailand irregularly and then sought work/regularisation once there. Thailand is seen as a place where work is possible and an income can be gained, as opposed to farming and/ or fishing in Battambang province where all expressed increasing difficulty in making a living.

Remote interviews conducted pointed to the fact that migration has been a way of life for improving livelihood in Cambodia for many years – it is very difficult to make direct links between climate change and migration - however, all agreed there is a correlation. People in Battambang are dependent upon agriculture and small-scale fishing, and the climate crisis is making it increasingly difficult to make a living. It was also felt that the

number of people having to move due to climate change is “increasing a lot because of the impact of the long drought and also flooding” (Mr. Sorn Sunsopheak, NCDD, remote interview). Climate change is not the only factor pushing people to move - people move for a number of reasons, primarily economic, education, or other, and it is difficult to disentangle the factors. However, climate change is seen to interact with these multidimensional causes and exacerbate livelihood vulnerabilities leading people to migrate.

This was reflected in fieldwork interviewees, all stressed that the situation had worsened over the past five years, with increased irregularity in rainfall and sudden intense floods.

Interviewees expressed that they did not wish themselves or their families to have to engage in migration, often irregular, to Thailand. In focus groups and interviews, the consensus was that people did “not want to migrate if there is easy irrigation for planting or decent work is possible”. This confirms scholarship that evidences how many Cambodians would prefer to stay in Cambodia if there were sufficient employment opportunities (Vigil, 2019). People migrate owing to the lack of these opportunities.

“ I do not wish to allow my husband and daughter to work in Thailand as migrant workers once we have paid back the loan and the COVID-19 outbreak is over. We want to find work in our country, not cross the border with security risk.”

Mrs. Keo Rath

In Battambang, as in other rural sites in Cambodia, rural women face issues such as limited access to education, gender-based violence, and pressure to work while maintaining domestic roles (Spires and Tost 2017). **Floods and droughts exacerbate women's existing vulnerabilities**, such as lower

levels of education, income, mobility, health, and power in decision-making (WFP, 2019). Many interviews conducted with **grandmothers** revealed they were taking care of their grandchildren, as parents had left to work in Thailand.

“ I stayed at home to take care of my grandchildren because their parents went to Thailand for a few years and they left the children to live with me. [...] I think migration to other countries is not good because we are separated from each other. My son was not happy because he was separated from his children”

Mrs. Kuy Rin

3. CONCLUSIONS AND SOLUTIONS

Many people felt that solutions should involve improved water management and irrigation systems. As well as the importance of community initiatives to share knowledge and monitor illegal deforestation. Replanting forests is seen as an important element in mitigating the effects of the climate crisis, as well as the importance of taking local people's views into account.

“ *I ask the government not to destroy any more forest, to restore the flooded forest, which is the source for biodiversity, and a fish spawning ground.*

We need better and cheaper visa access; legal documents; and we need to have documents to ensure better safety while working in Thailand.”

Ms Tong Panha, Bak Rotes

“ *We need to include local people's voices in decision making [...] then it can be sustainable.”*

Moeu Chandara - environmental activist, remote interview

Participants are heavily dependent on livelihoods that are susceptible to the environment and therefore the climate crisis is being keenly felt. Increasingly irregular rainfall, floods and droughts are devastating agricultural livelihoods, making it difficult to make a living. Deforestation is exacerbating problems and leading to a reduction in biodiversity. It is also reducing the fishing catch from the lake and surrounding waters. The flood-pulse aquatic system of Tonle sap is changing due to the climate crisis and human intervention. Debt bondage is a significant problem for rural populations as households struggle to guard against increasing climate variability, and loans are also used to fund migration.

This can create a cycle of debt as most loans are with MFIs which have extremely high interest rates. Migratory patterns depend on specific geographical locations and may be cross-border, predominantly (irregular movements) to Thailand, or rural to urban within Cambodia, as households seek to diversify income streams. Migration is viewed as a necessary means to diversify income owing to lack of opportunities in Cambodia, but the barriers to regular migration pathways, as well as the social difficulties of separation from family, including small children, is also recognised by many people.

KENYA

CASE STUDY 4

A dried river bed in Millimani area (Isiolo County). ©ArtfulEyesProduction

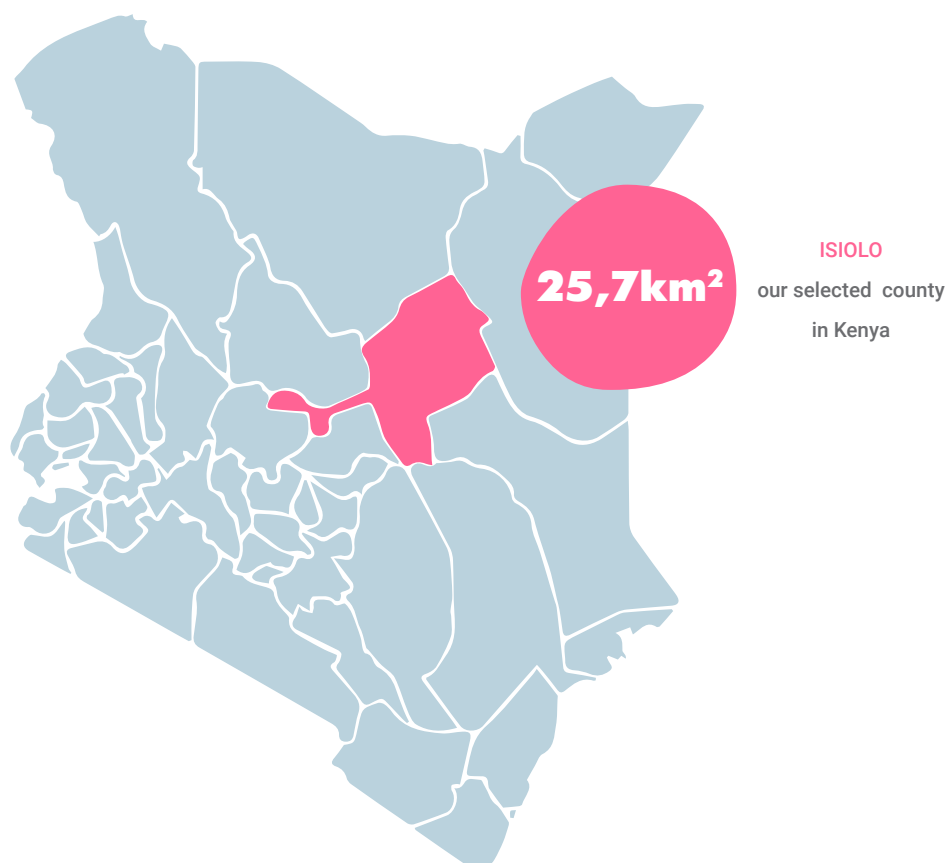
KENYA

CASE STUDY 4

Kenya is recognized as **highly vulnerable** to climate change impacts and a strong rural–urban migration trend is due to various factors including internal conflicts and natural disasters. In particular, drought and floods are causing significant displacement especially among pastoralists who experience frequent loss of livestock and limited access to land, resources, and markets. The use of evictions to realise development and environmental protection projects have also contributed to displacement, driving people off private, public, and communally owned land in both urban and wilderness areas. Although Kenya is considered a lower middle-income country, key challenges remain in the country's inequality and poverty levels, which has increased its economic vulnerability to shocks. This may also induce people to migrate either internally or beyond Kenya's borders towards the neighbouring States or Europe.

Isiolo County was selected as a case study because it is both a destination for internal migra-

tion and a good example of environmental degradation due to extreme events, especially drought. Moreover, the presence of WeWorld in the field facilitated the research. Isiolo County covers an area of approximately 25,700 square kilometres (km²) and is located in the lower eastern region of Kenya. It has the smallest population among Kenyan counties with groups of Turkana, Borana, Meru, and the Somali people. Principal urban centres are Isiolo, Garbatulla, Modogashe, Kinna, Merti and Oldonyiro. The county is characterised by arid or semi-arid low plains with six perennial rivers that cross through the county and partly bind it. In particular the semi-arid areas have become places for sedentarized agro-pastoral activities. The weather is hot and dry in most months of the year with two rainy seasons. The short rainy season occurs between October and December with the peak in November, while the long rains occurs between March and May with the peak in April, with strong in-county differences according to the topography⁸.



8. Isiolo County Integrated Development (CIDP) Plan 2018-2022.



Hussein Huka, shepherd from Merti village, standing inside his goat loafing shed. ©ArtfulEyesProduction

1. METHODS

Information in this chapter is taken from a combination of desk analysis integrated with empirical data from fieldwork focus groups, semi-structured interviews and a survey conducted by the WeWorld team located in Kenya between October and November 2021⁹. Target groups are local households that have moved to Isiolo county in a period between 1 month and 5 years and are affected by the climate crisis. The aim was to examine the lived experiences of climate change impacts on the pastoral population of Kenya. As the research was conducted by WeWorld staff, we used non-probabilistic sampling (i.e. the NGO liaised with local authorities and leaders to gather interested people to collect data).

- **A one-month climate diary** (Giacomelli and Walker, 2021): 30 participants (Merti and Isiolo).
- **Focus groups:** 2 groups (7 people each, gender and age diverse), 1 in Merti, 1 in Isiolo
- **In-depth interviews:** 10 participants (Merti and Isiolo)
- **Household surveys:** 200 households, male and female, from 18 to 65 years old, representative of the rural population of Merti with experience of climate change and/or one migrant member within the HH.



A one-month climate diary

30 participants



2 Focus groups

of 7 people each



10 In-depth interviews



200 household surveys

9. The survey was delivered on paper in December 2021. Digitalisation of data and data cleaning are still ongoing. Quantitative results from the survey are not included in this chapter but will be integrated later on in 2022.

2. RESEARCH FINDINGS

- Rainfall variability (especially persistent droughts) is identified as the major concern regarding climate change.
- Environmental degradation is recognised in the increased uncontrolled deforestation and sand collection on rivers.
- People most affected by these conditions are pastoral families that in the last 5 years have seen their livestock decrease and decided to move in search of water and pastures.
- The loss of livestock usually causes a severe decrease in family income, an increase in food insecurity and children to drop-out of school.
- The journey to move livestock from one county to another is often perceived as very risky because of lack of food, wild animals, and robberies.
- Pastoralists usually arrive in Isiolo with the whole family and already have relatives and acquaintances in the county that provided information prior to the journey.
- The search for better living conditions and opportunities is always behind the reasons to migrate, even though it is acknowledged that lack of rain is the cause of deteriorating living conditions.
- Kenya has developed a number of strategies for coping with environmental issues and migration at state level, especially with regard to land management, but Counties and local governments play a major role (especially in Isiolo).



2.1 HOSTILE ENVIRONMENT

Isiolo's Integrated Development Plan (2018-2022) recognizes that the county is one of the most vulnerable counties to climate change in Kenya. The county has a generally hot and dry climate throughout the year and **has recently suffered a severe period of drought that has affected the whole population's livelihood**¹⁰. In February 2017, the National Drought Management Authority (NDMA) indicated that up to 80,000 residents of the county needed food aid as a result of drought,

and cases of conflict over water and pasture were reported during the period as a result of their scarcity (CDIP, 2018).

Drought and unpredictable rainfall negatively impact crop yield, livestock productivity and livestock mortality, causing loss of income for farmers, and consequently food security issues.

“ Climate Change is related to food insecurity, lack of income and starvation of livestock because of droughts ”

Moeu Chandara - environmental activist, remote interview

As emerged from the respondents' climate diaries, there has been a remarkable variation in the climatic conditions in Isiolo County over the past few years. The most common changes cited include warmer temperatures, unpredictable rainfall, water scarcity and prolonged drought periods. In terms of perceptions of long-term change in climate, an overwhelming majority of farmers perceived an increase in average temperatures and a decrease in average precipitation.

The effect of climate change has seen an increasing number of families lose their entire herds to droughts, forcing them to settle for relief food. The heat stress suffered by animals also reduces the rate of animal feed intake and results in poor growth performance and low production of milk and meat, thus bringing significant changes and stress to pastoral life.

10. The National Drought Management Authority issues monthly reports on the impact of drought in Kenya. For insights on Isiolo County, see <https://www.ndma.go.ke/index.php/resource-center/category/15-isiolo>.

2.2 PASTORALISM AND CLIMATE CHANGE

Over the last 5 years, pastoralists have experienced the increasing effects of climate change. Indeed, climate change-related events like drought

For pastoralists, the lack of water represents a serious problem due to the fact that they cannot sustain their livestock.

“ Today, the drought has worsened because there is less rain and the soil is becoming dry.”

Sarah

For pastoralists, the lack of water represents a serious problem due to the fact that they cannot sustain their livestock.

“ Because of the drought in our area the animals move far from one place and other to look for pasture and water and some of our animals were dying because there is no rain in our area.”

Safia Maicha

This not only impacts the family budget but also the **education of children**: when farmers cannot produce enough, they do not have money to take children to school and support their education.

For these reasons, many pastoralists decide to migrate towards other lands or to towns.



Mary Lumuria on her tomato farm in Millimani area. ©ArtfulEyesProduction

2.3 CONFLICTS FOR NATURAL RESOURCES

Isiolo is the County of destination for many migrants who are fleeing conflicts in their territories of origin, such as Turkana County, a site of protracted border and resource disputes.

Participants in the Focus Groups (Urban) reported that climate change was exacerbating insecurity in some areas of the country (for example, Turkana County) affected by **internal conflicts** among

local communities because of the lack of resources, especially water due to widespread drought. Indeed, conflicts have reduced crop farming and livestock, affecting market business and also the educational progress of children, thus pushing people to move towards other territories (A. Paul et al., 2022; F. Maelo, 2021). The persistence of conflicts and violence prevents people from returning to their territory of origin.

2.4 MOBILITY

The main features of migration in Kenya can be described as consisting of nomadic pastoralism, a strong rural–urban migration trend, internal displacement due to various factors, including political violence, natural disasters and forced evictions due to development and conservation

activities, cross-border labour migration, as well as refugee movements. In some cases, respondents perceive migration to close countries or higher-income States (such as Israel) as a temporary solution for elaborating further adaptation strategies when returning to their lands.

“ *I would like to go to Israel to learn about their farming techniques and how they adapt to climate change. Then, to come back to Kenya and spread my knowledge.”*

Judith

“ *I would like to go to Tanzania because there is a lot of business, a lot of farming and the living standards are very high. I went there with a government program. They do things differently there”*

Abibi

According to the majority of interviewees, neighbouring countries should not necessarily guarantee protection to climate migrants, because they also have a lot of challenges, but people should be treated according to a humanitarian and cooperative approach.

“ *Not open the borders but to cooperate for protecting vulnerable people”*

Judith

2.5 ADAPTATION

“ Climate change is mainly due to human activities resulting in high levels of air pollution. Moreover, people are cutting trees and mismanaging the soil thus demonstrating not being able to respect the environment and nature”

Judith - Urban area

According to some interviews, high-income countries hold the main responsibility for the climate crisis. The Kenyan Government is not doing enough in either practical or educational terms: for example, the grass seeds granted are not sufficient for pastoralists and, furthermore, it is not adopting stable strategies for educating the community. The Government is not active in making people accountable and responsible for their behaviour: **“human beings are mainly responsible for climate change” (Focus Group - Urban area).**

On the contrary, the County Government is a little more engaged in helping people cope with climate change effects by, for example, planting trees and providing for water. However, according to farmers, more work needs to be done with regard to disseminating information and education on new techniques for farming, as well as financial instruments in order to guarantee major resilience. In Isiolo County people are struggling to prepare to cope with the effects of climate change, especially droughts.

“ When we talk about agriculture and preparedness we have to talk about water storage”

Judith

Local activists are working hard to help people adapt to climate change. Much work is being done by local activists to help people adapt to climate change. The main adaptation strategies

used in Isiolo to cope with or mitigate against risks associated with agricultural production and food security include the use of drought resilient crop varieties and afforestation¹¹.

“ When there is no water you can think about another idea about your activity”

Judith

Indeed, preparedness is perceived as a decisive step which also means avoiding migration:

“ If people learn to be prepared, it is not necessary to migrate”

Judith

11. The notion of afforestation is different from that of reforestation. Afforestation means converting long-time non-forested land into forest and refers to the establishment of forests where previously there have been none, or where forests have been missing for a long time. Instead, reforestation refers to the replanting of trees on more recently deforested land.

3. CONCLUSIONS AND SOLUTIONS

More frequent and prolonged droughts and variable rainfall have major consequences for the environment and the livelihoods of the research participants who are heavily dependent on crop production and pastoralism. The effects of such extreme events impact food security and nutrition, and ultimately also children's education as family income decreases as there are insufficient funds to cover the costs of attending school, such as books or uniforms. However, Isiolo County is at the same time a destination area for those migrating from other territories at risk, such as Turkana County, where conflicts over resources are frequent.

To cope with such challenges and to meet the SDGs, the local people involved in the case study seem to be more prone to resilience-building interventions going beyond conventional emergency response strategies, seeking to build a long-term vision for addressing the underlying vulnerabili-

ties. Cross-border migration is not perceived as a long-term solution; rather, for some of those interviewed, it could represent a way to get best practices and good examples of coping strategies from more resilient countries to then reproduce them in Isiolo.

At a governance level, ultimately, the enhancement of a broader governance mechanism, as well as the formulation and implementation of county-level climate change action plans grounded on assessment of local needs and resources could represent an important step towards the operationalization of the country's climate strategy. At the same time, **the implementation of the IGAD Protocol envisaging the development of safe and legal migration pathways** towards other countries for the exchange of professional competences and skills would be desirable in order for migration not to be a definitive solution but a proactive strategy.



RECOMMENDATIONS

These recommendations are developed in line with the aims and objectives of the #ClimateofChange project within the DEAR programme and thus directed towards the international community, the European Union and the national governments of EU Member States, as well as case study countries. Recommendations are based both on reflections on the global unequal ecological relations and the specific asks and solutions suggested by research participants who are seeking to make their own environments habitable again.

The international community should:

- Reinforce and utilise the pre-existing range of high-level commitments, policy instruments, stakeholder partnerships, and mechanisms that provide guidance on how to address internal and cross-border displacement related to the adverse effects of the climate crisis.
- Create new regular migration pathways which can provide relevant protection for migrants affected by the climate crisis and facilitate migration strategies in response (for example statuses could be provided for people who move in the context of climate change impacts, such as humanitarian visas, temporary protection, authorization to stay, regional and bilateral free movements' agreements, among others).
- Uphold the universal right to a safe, clean, healthy, and sustainable environment and enhance mobility rights (temporary visas or facilitated means to travel that overcome passport index, unjust border controls) and enforce recommendations made by the UN Special Rapporteur on human rights and the environment and the UN Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance.
- The UNEA (UN Environment Assembly) should kick-start negotiations toward a legally binding agreement on plastics (see <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=28143&LangID=E>)
- Draw attention to and dismantle global unequal (ecological) relations through giving back the land to indigenous communities and reasserting the sovereignty of formerly colonised peoples, including access to and control over natural resources and other means of production and reproduction.
- Adopt new ecological thinking, which revisits and overturns colonialist understandings of the relationships between peoples, places, and their ecologies. Thinking which recognises the mutually affective connection between humans and nature, that is that we are inherently entangled with the lives of nonhuman creatures and the future of the planet we share.
- Enhance and share climate adaptation technologies.
- Call for the responsibility of States who have contributed the most to climate change to provide financial support to fund the mitigation and adaptation policies of MAPAs

National and/or local authorities of Senegal should:

- Revise the EU-Senegal Agreement on a sustainable fisheries partnership in the light of the adoption of the Post-Cotonou Agreement, as well as of the principle of sustainable development and the precautionary principle;
- Create protected marine zones to promote fish reproduction;
- Encourage plans for reforestation: planting mangroves, filao and other species which help fix the soil and protect against coastal erosion;
- Assist and enable activists on the ground to raise awareness on the climate crisis;
- Monitor waste that is sent to Senegal from other countries;
- Expand programmes reusing plastic bags to make hard paving stones, such as that developed at the Université Cheikh Anta Diop de Dakar (UCAD) University;
- Include local voices in decision making;
- Improve climate change knowledge and coping, mitigation and adaptation strategies.

National and/or local authorities of Cambodia should:

- Regulate forest clearance, to regulate and fine those who clear the flooded forest;
- Enhance water availability and irrigation schemes with additional technical support to improve cultivation and productivity;
- Promote and increase public awareness raising on the importance of flooded forests, and technical training on agricultural production;
- Reduce land grabbing and forced eviction;
- Improve protection for environmental activists;
- Include local voices in decision making;
- Improve climate change knowledge and coping, mitigation and adaptation strategies.

National and/or local authorities of Guatemala should:

- Better regulation on monoculture cultivation to avoid exploitative practises;
- Encourage environmental knowledge and improve community engagement in the protection of the environment;
- Implement adequate policies to promote an equal development;
- Implement and enforce laws on water, waste disposal and land usage;
- Improve protection for environmental activists;
- Improve climate change knowledge and coping, mitigation and adaptation strategies;
- Fight discrimination in access to land and violence against indigenous population.

National and/or local authorities of Kenya should:

- Develop and improve irrigation systems;
- Invest in alternative agricultural technology by also providing knowledge exchange with third countries to enhance good practise;
- Include local voices in decision making;
- Enhance security for pastoralists' movements;
- Cooperate with neighbouring countries for fully implementing the IGAD Protocol envisaging the development of safe and legal migration pathways at the regional level;
- Improve climate change knowledge and coping, mitigation and adaptation strategies.

The European Union and Member States should:

- Develop a robust political language defining the right to move, but also must defend the right to dwell, to remain and provide climate reparations to assist with this.
- Improve policy on media representations, moving away from othering and alarmist, depoliticised representations and narratives of resistance should be flagged rather than presenting people as (victims) purely succumbing to the unequal/ unhealthy status quo.
- Recognise diverse environmental knowledge - and seek to include different voices in climate activism/solutions and incorporate local people in decision making and climate solutions as well as enhance channels of communication and education/knowledge sharing.
- Cultivate solidarity alliances and collective action with people in the Most Affected People and Areas (MAPAs).
- Create regular migration pathways at the EU (temporary visas) and national level.
- Confront and overcome capitalist extractivism and climate colonialism. Thus to move away from fossil fuels to a more acute environmental awareness and responsible modes of production, and, importantly, to draw upon diverse epistemologies, away from Eurocen-

tric extractivist modes of production. It is the existing order that is the threat to long-term environmental security.

- Revise the EU-Senegal Agreement on a sustainable fisheries partnership in the light of the adoption of the Post-Cotonou Agreement, as well as of the principle of sustainable development and the precautionary principle
- Introduce mandatory measures to reduce plastic usage via ambitious targets, including scaling-up reuse and repair of equipment and products, which is proven to be more economically and technically effective than recycling and scale up Extended Producer Responsibility and corporate social responsibility as fundamental tools to tackle global plastic pollution

EU NGOs:

- Should create solidarity networks with those most directly affected to allow for the voices and opinions of those on the frontline of the climate crisis to be built into their strategies and agendas

CONCLUSIONS

Often portrayed as a future crisis, this report outlines how **the climate crisis is instead a powerful phenomenon in the here and now of the everyday lives** of our participants in Cambodia, Guatemala, Kenya and Senegal. Yet, this force is not purely 'natural', but instead intertwined with structural political, economic and cultural factors that worsen the impacts of the climate crisis upon everyday lives. The climate crisis today is impacting landscapes that have already been significantly restructured by the processes of neoliberal agriculture and colonialism (Parenti, 2011). It is important to stress here that those who participated in this research project are people who are particularly exposed to the impacts of the climate crisis in the selected countries as their livelihoods are heavily dependent on the environment (agriculture, predominantly rain fed, or artisanal fishing). Thus, they are far more exposed to the impact of the climate crisis. There is a growing threat from climate change to community and individual livelihoods, and yet States are failing to address this threat.

As research findings show, climate change is perceived to increase the variability of weather patterns and, hence, the unpredictability and intensity of the weather. This is particularly evident in irregular rain-patterns and related extreme events resulting in slow or sudden climatic events, such as drought and flash floods. Uncertainty about seasonal rainfall also impacts water availability and quality. **The negative impact of human activity stems from the mismanagement or over-use of natural resources leading to deforestation** (illegal logging in Cambodia and Guatemala), desertification (in Senegal and Kenya) and disruption of ecosystems, such as the mangrove forests close to the Senegalese coast. Fishing in Senegal is being devastated by the climate crisis, but also waste mismanagement, pollution, and ocean grabbing. Flooding in Cambodia is both caused by erratic rainfall and the intensity of rains, but also poor infrastructure and damming projects further down the Mekong river, mainly by China, but also

Laos, worsening the impacts of the climate crisis. Land grabbing emerged as an issue in all four case studies.

The impact of the climate crisis is intertwined with **intersectional factors**: age, disability, gender, being part of an indigenous or minority group, or having a lower income, may also influence the degree of impact. Age is a key factor in all case study countries which have very youthful populations. It is the youth that are remaining without hope and opportunities, and youth that seek to migrate to assist their families and/or for personal aspirations. **Climate change** can be understood then as a **multiplier of pre-existing vulnerabilities**, such as poverty, lack of resources, and food insecurity, that interact with and influence each other. In Guatemala there is a serious degree of horizontal (and vertical) inequalities across ethnic divisions, the Maya in particular face severe discrimination and exclusion. Since indigenous people live mainly in rural areas and base their livelihood on subsistence farming they are also the most exposed to climate change impacts. Drawing upon anti-racist and intersectional perspectives in analysing the climate crisis and migration enables the underlying historical causality and the entangled nature of inequalities to be exposed, drawing attention to the interconnecting nexuses of the capitalist extractive economy which feed into the climate crisis and its unequal impacts globally.

In sum, as a vast body of scientific literature has demonstrated, the climate change and migration nexus cannot be recognised in absolute terms. Rather, environmental factors - that exacerbate levels of personal vulnerability - are intertwined with other drivers that, depending on the country in question, emerged as more prominent than others. Results, particularly from remote interviews, confirmed that **a real and effective implementation into effective national policies of existing binding instruments and guidelines adopted at the regional level is often lacking, thereby decreasing the level of protection of vulnerable people.**

In all four case studies, climate change was considered a symptom not cause of difficulties. Further, its weight in the migration decision-making process varied across countries and individuals. **The climate crisis interacts with pre-existing and traditional migratory movements.** For example, in Kenya, with respect to the other three countries, climate change played a stronger role in decision making due to the specifics of pastoral conditions. In general, migration itself is perceived as an adaptation strategy for participants and as a way to improve personal living conditions as well as those of their families thanks to remittances. However, it was recognised that this was often in the absence of other possibilities. Additionally, many spoke of the difficulties of migration, particularly the separation of families. These are places where making a livelihood otherwise is increasingly difficult, hence migration is seen as the only way to make a living. Indeed, whilst it might not be possible to identify direct casualty, it is evident that the climate crisis both directly and indirectly shapes human mobility and that the negative impacts of the crisis are increasing. Further, in Senegal, we see how patterns of movement are deeply complex, and may also be towards climate risk in urban areas. Importantly, as demonstrated by our four case studies and a vast body of research, **intra-regional migration is far more prevalent than inter-regional migration.**

The low passport ranking of case study countries in the passport index¹² (rankings are based on the number of destinations their holders can access), and a highly restrictive visa system, which has exorbitant costs, means that regular channels for cross border migration are extremely limited, leaving little mobility options for research participants. As research has shown, border controls have, in many cases, simply rerouted migrants towards alternative, often more dangerous routes (De Genova, 2018; Squire, 2017). This was particularly apparent in the lives of people in Senegal and Guatemala who faced dangerous journeys to the Global North, across geographies that have become deathscapes as a result of unjust border controls. People in Cambodia were exposed to high visa costs and exploitation owing to their

undocumented status when migrating illegally to Thailand. In Senegal, Guatemala and Cambodia remittances play a strong role in the country's economy, and this reduces the State's incentive to regulate migration. This leaves regular channels for migration less likely, and thus people engaging in cross-border migration face increased likelihood of exploitation and large costs in securing passage via irregular means.

In this sense, mobility justice (Sheller, 2018) is one of the crucial political and ethical issues of our day. In Sheller's view, power and inequality inform the governance and control of movement, creating an overarching mobility (in)justice in the world. Thus, there is clearly a need for a more balanced and nuanced approach which recognises the intertwined nature of humans and the globe and inequalities in access to resources, including movement. In effect, **broadening the concept of climate justice to mobility justice** reveals how the climate crisis includes a broadened set of civil rights issues, with far-reaching implications beyond the environmental, directly understood. In line with emerging case law trends, both individual States and the international community as a whole should deal with the effects of climate change upon individuals by assuming a **human rights-based approach** and also ensure a governance of migration that is responsible and respectful of the existing legal instruments of protection of human rights (see Introduction).

What is clear is that the right, as recognised by the UN Human Rights Council in October 2021, to a safe, clean, healthy, and sustainable environment is not being exercised by the inhabitants in the research sites. **This calls for urgent action.** The everyday lived experiences of research participants show how the climate crisis is exacerbated by the underlying socio-natural causes. We concur with Achille Mbembe (2020) who calls for the universal right to breathe, meaning not just biological breathing, but full enjoyment of the human experience. We see this as embedded in the right to a healthy environment for all in the widest sense. To adopt instead a politics of care, rooted in feminist and anti-racist praxis, to enable us 'to render the world habitable for all, again' (Mbembe and Goldberg, 2018).

12. <https://www.passportindex.org/>

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The project “End Climate Change, Start Climate of Change” is co-funded by the European Commission in the framework of the DEAR programme (Development Education and Awareness Raising) and aims to develop young EU citizens awareness and critical understanding of climate change induced migration, as one of the biggest challenges of the globalized world.

Our main goal is to build a better future both for climate induced migrants and for young people who will face the worst effects of the climate crisis. Through the engagement of youth in the #ClimateOfChange campaign we will highlight the interdependencies of local and global inequality to empower them not only to change their everyday lives, but also to become advocates on global justice issues.

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