

EXECUTIVE SUMMARY

CARE DANMARK

# FLEEING CLIMATE CHANGE

IMPACTS ON MIGRATION AND DISPLACEMENT



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# FLEEING CLIMATE CHANGE: IMPACTS ON MIGRATION AND DISPLACEMENT

## EXECUTIVE SUMMARY

Global temperatures have now risen approximately 1°C above pre-industrial levels. This has already led to significant climatic changes in many places on the planet, thus, challenging food and nutrition security by reducing the productivity of agriculture and negatively affecting small-scale food producers. Climate change is also an increasingly decisive factor behind today's growing number of people who migrate or who are forced into displacement from disaster and are in search of temporary shelter or options that are more permanent. **In 2015, weather-related disasters displaced around 14.7 million people, almost twice the number of people (8.6 million) that fled conflict and violence.**<sup>1</sup> The links between climate change and displacement are complex, but they are receiving increasing attention. Research points to climate change as an interrelated driver and threat multiplier that interacts with, and reinforces, other factors that push people away from their homes, such as environmental degradation, poverty, and conflict. Thus, tackling poverty and tackling climate change go hand in hand: an intertwined relationship recently highlighted in the Sustainable Development Goals and the Paris Agreement.

This report presents existing findings in order to review the linkages between climate change and displacement. The report shows that the level of climate change mitigation and adaptation undertaken will significantly affect future levels of climate change displacement. Unless governments take strong preventive action and invest in adaptation, climate change-related phenomena such as floods, droughts, famines, and hurricanes could push **the total number of permanently displaced people as high as 250 million people, between now and 2050.**<sup>2</sup> However, already by 2025, up to 2.4 billion people worldwide may be living in areas subject to periods of intense water scarcity, which may **temporarily displace as many as 700 million people by 2030.**<sup>3</sup>

<sup>1</sup>For reference, see "2. Extreme weather events" in the report.

<sup>2</sup>For reference, see "Future migration from climate change depends on mitigation and adaptation" in the report.

<sup>3</sup>For references, see "Short-term – climate change is already fuelling displacement" in the report.

On top of that, the risk of displacement from **extreme weather events is projected to grow globally to more than 40 million people per year**, up from a current five-year global average of 27.5 million. Such projections of climate-induced migration and displacement need to consider the uncertainties entailed in any such assessments, both those related to climate change and those related to socio-economic development and behavioural patterns.

### Climate-induced migration and displacement in the near future

Climate change has different impacts on migration and displacement. This report focuses on three key climatic changes: droughts and changing rainfall, climate-filled extreme weather events, and slow-onset events such as rising sea levels, desertification, and disappearing glaciers. Fourthly, the report looks at how such impacts might contribute to the outbreak or exacerbation of conflict and violence. This report presents findings in relation to the developing country regions of Sub-Saharan Africa, Middle East and North Africa, South East Asia, South Asia, and the Pacific Islands. It is important to remember, as we have seen from recent history, that migration and displacement in other world regions can also affect developed countries.

These five regions are already facing large climatic challenges and are going to be further impacted in the next one or two decades, as illustrated by the numbers above, since past greenhouse gas emissions have locked in additional temperature rise in the near term. Therefore, immediate adaptation and disaster risk reduction measures are crucial to reduce climate impacts that can force people from their homes. Various studies, including those of CARE's work, show that early investments into disaster risk reduction and adaptation, such as conservation agriculture and participatory weather planning scenario, pay off both socially and economically.

3°C

1,5°C

0°C

## Three scenarios of climate-induced migration and displacement in 2050 and beyond

While the level of global warming is to some degree locked in for the next 15-25 years, looking towards 2050 and beyond, the impacts from climate change on factors that cause migration and displacement still depend on the extent to which today's action will contain global warming. This becomes apparent in relation to three levels of global mean temperature increase above pre-industrial levels (and even higher regional increases) – namely 1.5°C, 2°C, and 3°C – and the associated impacts and adaptation needs within this century. Which of the warming levels we reach, and thereby which scenario comes true, is a matter of political will and choices. The three scenarios are interlinked in such ways that they build upon each other, so many of the consequences listed in the scenario of 3°C, e.g. regarding food and nutrition security, are also present in the two previous scenarios, however to a lesser extent or in fewer areas.

### 1.5°C

1.5°C is the level of warming that countries agreed to aim for in the Paris Agreement and which is still regarded as achievable with rapid emission reduction action. In this scenario, climate impacts will still be significant in many areas, and downright destructive in others, but uncontrollable and self-accelerating climatic changes may still be contained.

Even at a 1.5°C increase, the global sea level rise will, in the long term, inundate vast areas of land, including some of the world's largest cities, such as Bangkok, and thus affect the lives of several millions of people. Salinization of soil will make large tracts of farmland unsuitable for food production and climate change impacts will put stress on other areas and livelihood systems. However, with sufficient financing and appropriate governance frameworks, the need to migrate because of climate change can be limited and based mainly on free and informed choice. In most areas, migration could remain primarily within national boundaries and be voluntary in nature. Volumes of migration would be manageable for national authorities and addressed through development and adaptation plans.<sup>4</sup>

<sup>4</sup> For references, see "1.5°C warming – moderate, but manageable migration impact" in the report.

### 2°C

At 2°C warming, research points to more significant adverse effects, which for many places could cause a hostile, new reality with levels of climate change that would be dramatic and leave no part of the world untouched. The costs of adaptation and unavoidable impacts would be significantly higher. 2°C will exceed the limits to adaptation on a number of fronts; thus, costs related to impacts of climate change that occur despite efforts to reduce mitigation and adapt to climatic changes (loss and damage) will mount. Climate change impacts will be a much stronger contributing force to displacement at this level of warming.

Some research suggests that a 2°C warming will lead to a 50 cm sea level rise, which – without any adaptation efforts – could force 72 million people to flee their homes over the century; additionally, many more will be forced to evacuate due to floods, storms, heat, drought, desertification, and conflict over resources. Poverty is likely to increase and become entrenched. As impacts mount, people become more desperate and increasingly choose to relocate – history shows this is the case when two droughts in a row or multiple extreme events have caused people to leave their homes. Migration will shift from temporary to permanent and will be less of a choice: it will become forced displacement.<sup>5</sup>

<sup>5</sup> For references, see "2°C warming – a new, hostile reality and significant migration" in the report.

### 3°C

3°C is the order of warming we are heading for with current pledges on climate action from governments, if they are actually met. Even higher increases are still a possibility.

This scenario should be considered catastrophic climate change, with adverse impacts in many areas that would force large numbers of people in developing countries to flee their homes. There is likely to be a significantly greater number of international migrants, as some areas of the Middle East and Africa could become largely uninhabitable due to rising temperatures. Moreover, increasing droughts and desertification in Africa will further threaten food and nutrition security. Rising sea levels, changing monsoons, and extreme storms would have severe impacts across Asia. Domestic and near-country migration will likely increase, as well as fuel tension, which could cause increased climate-induced insecurity and conflict. Many parts of the world are at risk of entering into permanent crises, as the gap between the level of support provided to poorer countries and what poor countries need could become much bigger.<sup>6</sup>

<sup>6</sup> For references, see "3°C warming – catastrophic climate change forces people to flee" in the report.

“When I was younger, droughts and floods still had names. Now they have become so frequent that we don’t even bother anymore.”

Qadan, Ethiopia.



(Foto: ©CARE 2015 - Johanna Mitscherlich)

Qadan and Ubahe, a 28-year-old single mother and her 6-year-old daughter, stand in front of their house, which has recently collapsed in a big storm. They live in a camp for internally displaced people in Burao in the North of Somaliland. She has experienced droughts and storms before, but she could still recover and prepare. Now, she tells, she rebuilds her house just to see it collapse a few months later.

## Outcomes of migration

The backdrop for this report is the increasing number of migrants who cross international borders in search of protection and a better life. **In 15 years, the global number of international migrants (persons living in a country other than where they were born) has soared from 173 million in 2000 to 244 million in 2015.**<sup>7</sup> Yet, this is only a small portion of the people who are displaced – the vast majority of displaced persons are displaced internally, within their own countries. Most people forced to flee do not want to leave their homes or their communities. Attachment to home and to place dominates decision-making and encourages people to stay, to migrate locally when forced out by events like storms and floods, and to return back quickly.

Migration is very complex to understand and always has a big impact. It can be successful when individuals and communities use migration to increase their resilience. Successful migration can be considered a necessary and

positive adaptation strategy. However, migration, and in particular forced displacement, is erosive when households are made more vulnerable and forced further into poverty. Additionally, the households who cannot engage in migration and are left behind are significantly worse off because they are exposed to the worst impacts of climate change and have few resources to cope with them.

Even when migration is successful, people face the loss of their ancestral lands, their traditional way of life, their language, community relationships, and sovereignty. In CARE’s experience, women are often more negatively affected than men from migration and displacement. For these reasons, where climate change contributes to displacement and exacerbates other factors, in CARE’s view, it often contains an element of loss and damage that includes severe human costs. Simply portraying displacement as an adaptation strategy, as is often done, is inappropriate in this context.

<sup>7</sup> For reference, see “Introduction” in the report.

## CARE'S RECOMMENDATIONS

CARE Denmark urges governments to address the root causes of displacement and forced migration. This includes stepping up efforts to manage and resolve conflicts, combat poverty and gender inequality, and provide timely and sufficient humanitarian assistance.

However, **the important lesson from this report is that effectively addressing the root causes of migration and displacement also requires specific and determined actions towards tackling climate change, especially adaptation measures and finance.** Based on the findings of this report, CARE Denmark has developed a number of recommendations, primarily to governments, on how to avoid going down the path of the 2°C and 3°C warming scenarios and thereby minimizing the human and economic costs of migration and displacement:

### 1 Enable poor people and countries to prepare for and adapt to climate change

Climate resilience is essential to keep the Sustainable Development Goals achievable and to keep climate change from wiping out all progress. Giving financial and technical support to communities in developing countries, for planning and implementing solutions that are appropriate to climate change impacts in their ecological, economic, and social contexts can make an enormous difference. Either people are able to stay at home and keep their livelihoods and communities intact or large numbers of people will be forced to flee from their homes, creating the circumstances for conflict and further displacement.

A key contribution from richer countries is technical and, in particular, financial support for countries most affected by climate impacts. Support to set up early-warning systems, improve the use of climate information services, and building capacity among vulnerable groups are central to the solution, along with tackling the underlying causes of marginalization and inequality, including gender inequality. Gender-equitable, pro-poor community-based adaptation is key. Therefore, **governments must:**

**1.1** Put in place a roadmap for rich countries to ensure that from 2020, at least USD 50 billions of adaptation finance is provided each year, of which a minimum of USD 35 billion must be grants, not loans;

**1.2** Channel the majority of climate finance into funding mechanisms that give developed countries a voice in decision-making, such as the Green Climate Fund, the Adaptation Fund, and the Least Developed Countries Fund, and provide larger shares to civil society organisations that work with the poorest and most vulnerable segments of the population in developing countries;

**1.3** Integrate climate change into the development-funding portfolio and into international finance institutions such as the Green Climate Fund, the World Bank, etc. This integration should support the use of gender-responsive climate vulnerability and capacity analyses and promote (or prioritize) gender-transformative adaptation approaches;

**1.4** Use quality standards and principles for good adaptation practice to guide investments to

where they have the most benefit, such as community-based adaptation, and to avoid so-called maladaptation that increases the vulnerability of the poorest and most vulnerable populations by choosing short-sighted, or otherwise wrong adaptation solutions;

**1.5** Provide political, financial, and technical support to governments in implementing disaster risk reduction measures in line with the Sendai Framework on Disaster Risk Reduction while placing communities and gender equality at the centre;

**1.6** Developing countries (with adequate financial and technical support) should apply gender-equitable participatory approaches to all relevant planning instruments, including Nationally Determined Contributions, National Adaptation Plans, and plans in highly climate-sensitive development sectors, such as agriculture. Such approaches should be implemented to ensure respect for the human rights of those most at risk and to avoid actions, which may cause displacement or undermine sustainable development.

## 2 Address climate-induced displacement in the context of loss and damage from climate change impacts

The UNFCCC Warsaw International Mechanism for Loss and Damage is set to become the key instrument in international cooperation to address loss and damage where adaptation efforts are insufficient. At the Paris climate summit, all governments agreed to set up a Task Force on Climate Change Displacement under the Warsaw Mechanism, which is tasked to determine recommendations in the next two years. **Governments, in particular from developed countries, must:**

*2.1 Provide political and financial support to the work of the Warsaw International Mechanism for Loss and Damage in general, and the Task Force on Climate Change Displacement specifically, in addressing capacity, regulatory, financial, and coordination gaps related to different types of climate-induced displacement;*

*2.2 Promote and invest in local and national level capacity and mechanisms to understand, assess, and respond to loss and damage in a pro-poor manner, including potential approaches to compensate affected communities and countries as part of comprehensive risk management strategies;*

*2.3 Acknowledge that loss and damage will require finance over and above the current commitment to the USD 100 billion in climate finance, and that funding sources must reflect the underlying responsibilities for causing the problem of climate change;*

*2.4 Proactively establish a working group on new sources of finance for loss and damage (and adaptation) that include options such as a global levy on the fossil fuel industry;*

*2.5 Strengthen linkages with other international migration and displacement mechanisms, such as the UNISDR etc., at the international and local level.*

## 3 Keep global warming below 1.5°C

Serious action required to meet this limit must start now. All countries must increase and meet emission reduction targets and phase out fossil fuels, especially coal. Rich, developed countries must provide leadership at home and climate finance abroad so that poor countries can take mitigation action. The rapid transitions, that we need to initiate immediately in order for them to be effective, also have the potential to provide multiple development benefits from avoided climate change impacts, better health, and economic opportunities. **Governments, with a lead role from developed and other similarly capable, historically and currently responsible countries, must:**

*3.1 Revisit their climate action contributions and immediately reduce emissions towards globally almost zero before 2050, to be in line with 1.5°C pathway, while avoiding or minimising any reliance on potentially harmful negative emission technologies;*

*3.2 Put in place a target, regulations, and investments to phase out fossil fuel use in electricity and transport by 2040, at the latest, by employing renewable energy and energy efficiency opportunities, including managing a just transition of the workforce from polluting industries;*

*3.3 Developing countries should take lead on rapid and just transition processes to low-emission economies with adequate financial and technical support from developed countries;*

*3.4 Insure investments are pro-poor, climate resilient and not maladaptive and that they adhere to the Paris Agreement preambular principles, in particular to human rights, food security, and gender equality.*

## 4 Rethink and rebuild systems for refugees, migrants, and displaced people

When people are forced to leave their home and community, it is essential that they have rights and that those rights are protected. The current protection and migration system is dysfunctional and in need of revision. Those who are trapped because they lack the resources to leave are often in need of significant support. **Governments must:**

*4.1 As a starting point, women must be recognized as agents of change, having their rights to organize supported, and be allowed participation in decision-making processes at all levels, in accordance with SDG goal 5;*

*4.2 Allocate timely and adequate needs-based assistance to internally displaced persons and those displaced to neighbouring countries, and support local communities in host countries, with specific attention to social cohesion, gender equality, and livelihoods;*

*4.3 Clarify the legal status of climate-related displacement, recognizing that current UN refugee conventions do not offer any protection to those displaced by climate change;*

*4.4 As part of the above, actively support and work towards implementing the Protection Agenda developed by the Nansen Initiative, at home and abroad;*

*4.5 Develop targeted approaches to “migration in dignity” for climate-displaced people, both in the context of the Warsaw Mechanism displacement task force and the UN negotiations on a global compact for safe, orderly, and regular migration, to be concluded in 2018.*

### TAKE ACTION NOW!

It is perilously close, but not too late, to keep climate change within 1.5°C of warming. Even at this level, some people are already being forced to flee the impacts of climate change. We cannot turn our backs on these people. They have suffered a form of persecution in that their livelihoods have been disrupted and torn apart by climate change caused by a world economy and way of life based on fossil fuels.

This report documents how climate change amplifies other drivers of migration and displacement. It will also serve as justification for greatly increased support to adaptation to climate change. Such adaptation is meant to avoid, or at least mitigate the human, social, cultural, and economic losses and damage stemming from forced displacement by climate change. Our common humanity, and shared future, demand that we act swiftly and justly and that we invest in long-term solutions that avert climate change migration and displacement.

### GLOSSARY

**Adaptation:** Adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change (UNFCCC).

**Loss and damage:** The adverse effects of climate variability and climate change that occur despite global mitigation and local adaptation efforts. It can be broken down into economic and non-economic losses. Non-economic losses include human life, meaningful places, cultural artefacts, biodiversity, ecosystem services, communal sites, production sites, intrinsic values, identity and agency (WIM ExCom 2016a).

### CONTACT INFORMATION

**Sarah Kristine Johansen**  
Head of Advocacy

Email: [skjohansen@care.dk](mailto:skjohansen@care.dk)  
Tlf: +45 35 200 143  
Mobil: +45 27 141326

Download the full report from CARE Danmark at  
**[www.care.dk/fleeingclimate](http://www.care.dk/fleeingclimate)**



# ADAPTATION THROUGH NEW AGRICULTURAL TECHNIQUES



Photo: ©2016 CARE - Cathy Riley

*A participant of one of CARE's farmer field schools in Mozambique showing intercropping of cassava with jackbean as a green manure cover crop.*

There are no rusty tractors, or other agricultural remnants from large-scale European agriculture, in sight. Instead, CARE is introducing new, simple agricultural techniques to smallholder farmers in Mozambique, so they can adapt their farming to climate change.

Four out of five smallholder farmers in Mozambique depend on the same practices as their ancestors. Such farmers have no irrigation systems or machines and produce only enough for their families to eat. Extension services and inputs useful for improving productivity, such as fertilizers, pesticides, and improved plant varieties are rare.

In addition to outdated farming practices, climate change, specifically, irregular rainfalls, cyclones, and high temperatures are putting farmer's livelihoods and

food security at risk. In 2016, more than two million people in Mozambique lacked food due to the weather phenomenon El Niño, which – exacerbated by climate change – was particularly severe.

### **Live demonstrations through the seasons**

In Angoche District of Nampula, in northern Mozambique, smallholder farmers struggle with poor soils, limited access to water, poor infrastructure and transport, reduction in fish stocks, and shortened fishing and farming seasons. CARE International and the National Association of Rural Extension (AENA) use Farmer Field Schools to help smallholder farmers in the area adapt to climate change through conservation agriculture.

Farmer Field Schools focus on participatory and experimental training methods and are specially adapted to adult learning. Farmers regularly visit a training field,



/Photo ©2016 CARE - Cathy Riley/

*Three women from a farmer field school, where the participants in practice learn to adapt their agriculture to climate change.*

which provides a live demonstration throughout the different seasons. Here, the farmers experiment with different farming techniques and crop varieties in order to test how they can produce better harvests. Through regular discussions on their current techniques and local knowledge, as well as the value of new practices introduced by the project based on scientific research and new experience, the project promotes farmers' own experimentation and innovation. As a result, farmers are able to make informed decisions about their own farming techniques, and many even help their neighbours to get started as well.

There are five CARE and AENA projects, which are implementing 50 Farmer Field Schools with about 1,250 farmers in vulnerable coastal and inland communities in Nampula Province. There are also several social and group benefits integrated in the project, such as organized access to inputs and markets, savings and credit, and more effective linkages to agricultural extensions services needed by farmers.

### **Farmers prepare for climate change**

The Farmer Field School model provides a platform for learning, which directly relates to the practices farmers depend on for their livelihoods. Better techniques and increased knowledge improve the ability of smallholder farmers to adapt their agriculture. Thus, the farmers are far less vulnerable to the new circumstances that climate change brings after participating in a Farmer Field School.

### **EXAMPLES OF CONSERVATION AGRICULTURE**

- » Protecting and building soil fertility through for example rotations of plants between the stable crop and using green manures
- » Introducing a wider diversity of crops and crop varieties that are more resistant to drought or disease



/Photo ©2016 CARE - Cathy Riley/

*Three women from a farmer field school, where the participants in practice learn to adapt their agriculture to climate change.*

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# CLIMATE FORECASTS HELP PREPARE FOR THE SEASON



/Photo: ©2014 - Eric Aduma/

*An agro-pastoralist in Garissa, Kenya, reading a Participatory Scenario Planning climate advisory*

**Seasonal forecasts and participatory workshops help farmers and authorities in Kenya predict and prepare for the coming season.**

Many countries on the African and Asian continents have seen a change in rainfall patterns attributed to climate change. Often, this has detrimental consequences for smallholder farmers, who no longer know when and what to plant on their fields. At the end of the season, farmers often stand empty-handed. For every dried-up or flooded field, there is a family without food or money until the next harvest, which might not bring better luck.

**New times require new solutions**

However, for smallholder farmers in Garissa District in Kenya, luck is no longer the only factor to rely on. CARE has introduced Participatory Scenario Planning

workshops. These are meetings over one or two days, where local farmers, meteorologists, local government departments, service providers, and local NGOs share their knowledge - both local and scientific - on climate forecasts for the coming season. These meetings occur before each rainy season in the particular area. For Garissa District, this is twice a year.

Based on their assessment of available knowledge, participants develop scenarios for how the season could turn out and match every scenario with a plan that responds adequately to the likely hazards, risks, and opportunities. For example, this can be introducing different seeds or plants that are more drought-resistant if the scenario predicts lower than usual precipitation.

The workshop not only provides knowledge on the weather, but also on market information, extension



/Photo: ©2011 - CARE/

*A Participatory Scenario Planning workshop in Garissa, Kenya.*

services, and more. Local media channels disseminate the outcomes, and, thereby, make them available to the entire area.

#### **A joint effort to adapt to climate change**

One of the greatest benefits from the workshops is that they strengthen collaboration between all participating groups and create a cohesive effort to adapt to the changes in the climate. For example, farmers have much better access to right kind of seeds, because the extension services have been part of the scenario planning.

The district government also has better access to localized seasonal climate information and, thus, is better equipped to provide timely support for the communities, including giving early warnings for flooding. As a result, farmers have then been able to minimize the loss of livestock and equipment during floods, and, by harvesting early, farmers are even able to save some of their harvests.

At the end of the project, the local government and civil society representatives in the area responded to the success by forming a task force that has continued the work with the participatory workshops.

# NATURE PROVIDES THE BEST PROTECTION



/Photo: ©2009 - Cathrine Dolleris/

*The local communities in Thanh Hoa-province in Vietnam plant mangroves seedlings in the water to protect their villages from storms and typhoons.*

Vietnam's 3500-kilometer long coast lies exposed and unprotected from typhoons, storms, and flash floods, which occur every year. When seawater comes crashing in onto land, it destroys houses and rice fields and leaves the land infertile for several years. It means that families have no income from agriculture for years to come. This problem, exacerbated by climate change, will only grow if villages do not adapt to the challenges.

### **Ancient climate proofing**

The most effective protection against nature's force is nature itself. Adult mangrove plants of 200 meter width can limit the force of a flash flood by up to 75 per cent. Historically, mangrove forests have protected Vietnam's long coast, but many years of shrimp farming have contributed to the loss of most of the mangrove forests. In the last 70 years, humans have cut down

more than 80 per cent of the original mangrove forests along Vietnam's coast, and today, the villagers feel the consequences.

### **Mangrove parenting**

From 2006 to 2014, CARE was part of a project to plant mangroves in an area the size of 600 soccer fields in 20 villages in Nga Thuy and Da Loc communes in the Thanh Hoa-province, south of Hanoi.

The mangroves are first cultivated in a nursery garden, where they grow strong enough to endure the winds along the coast. The project is entirely dependent on volunteers, who nurse the plants in the nursery and plant them in the tidal zones along the coast. The mangroves need caring for, as plastic remains from the sea and barnacles damage the plants while they are still young. The volunteers, who every week endure the



/Photo: ©2010 CARE/

ankle-deep mud and sharp barnacles to help the mangroves grow big and robust, do this work. They nurse the mangroves, so that the plants, in turn, can protect their houses and fields.

In addition to protection, the mangroves provide a spawning area for fish and shellfish, and, in the long term, this can provide the locals with a more varied diet and an extra source of income.

As a result of these efforts, the locals are already seeing a difference, as areas that are still unprotected by mangrove forests have suffered larger damages than those behind nature's own wall of protection. With the help of CARE and the many volunteers, local organizations and authorities now plan to implement this successful project in other areas along Vietnam's coast.

# SELECTED KEY NUMBERS FROM FLEEING CLIMATE CHANGE

## WHAT HAS ALREADY HAPPENED

- » In 2015, weather related disasters displaced around 14.7 million people across 113 countries, almost twice the number (8.6 million) who fled conflict and violence (IDMC 2015 and IDMC 2016);
- » From 2008 to 2015, close to 175 million people in developing countries were displaced by floods, storms, and other extreme weather events (IDMC 2016);
- » The number of people displaced by weather related disasters has quadrupled since the 1970s (IDMC 2016);
- » People in developing countries account for 95 percent of total global displacements (Advisory Group on Climate Change and Human Mobility 2015);
- » The majority of people displaced by extreme weather events are in Asia. In 2015, some small Pacific Islands had roughly half their population displaced by cyclones (IDMC 2016);
- » 10-20 percent of current migration from Middle East and North Africa has been estimated to be caused by climate change impacts, mostly drought (Woden et al 2014);

## WHAT CAN HAPPEN AS A RESULT OF CLIMATE CHANGE

### In general

- » Unless governments take strong preventive action and invest in adaptation, climate change-related phenomena such as floods, droughts, famines, and hurricanes could push the total number of permanently displaced people as high as 250 million people, between now and 2050 (Christian Aid 2007).

### Sea level rise, glacial retreat, and desertification

- » At 1.5°C warming, long-term sea level rise (beyond 2100) would be approximately 2.9m and inundate land currently occupied by 137 million people (Strauss et al. (2015).
- » At 2°C warming, from a 50 cm sea level rise (Schleussner et al 2016), without any adaptation efforts, 72 million people could be forced to flee their homes over the century, 53 million of them from Asia (Nicholls et al, 2010). Long-term sea level rise (beyond 2100) could submerge land currently home to 280 million people globally (Strauss 2015);
- » At 3°C warming, long-term sea level rise (beyond 2100) would be approximately 6.4m and inundate land currently occupied by 432 million people globally (Strauss et al (2015).
- » For the next 15-25 years, it is estimated that 135 million people worldwide are at risk of being displaced by desertification (UNCCD 2014a);
- » At 3°C warming, by 2050, 200 million people may be permanently displaced due to desertification in sub-Saharan Africa (UNCCD 2014).



### **Extreme weather events**

- » Displacement from extreme weather events is expected to grow globally; more than 40 million people per year are at risk of displacement from extreme weather events for the next ten years, up from a current five-year global average of 27.5 million. The majority of the people at risk live in South and South-east Asia (IDMC 2015);
- » At 2°C warming, in the summer of 2050, temperatures in some areas will not fall below 30 degrees at night, and during daytime, they are projected to rise to 46°C. By 2100, midday temperatures on hot days could climb to 50°C. In Mecca, for example, annual maximum temperatures may approach and exceed 55°C (Pal & Eltahir 2016);

### **Droughts**

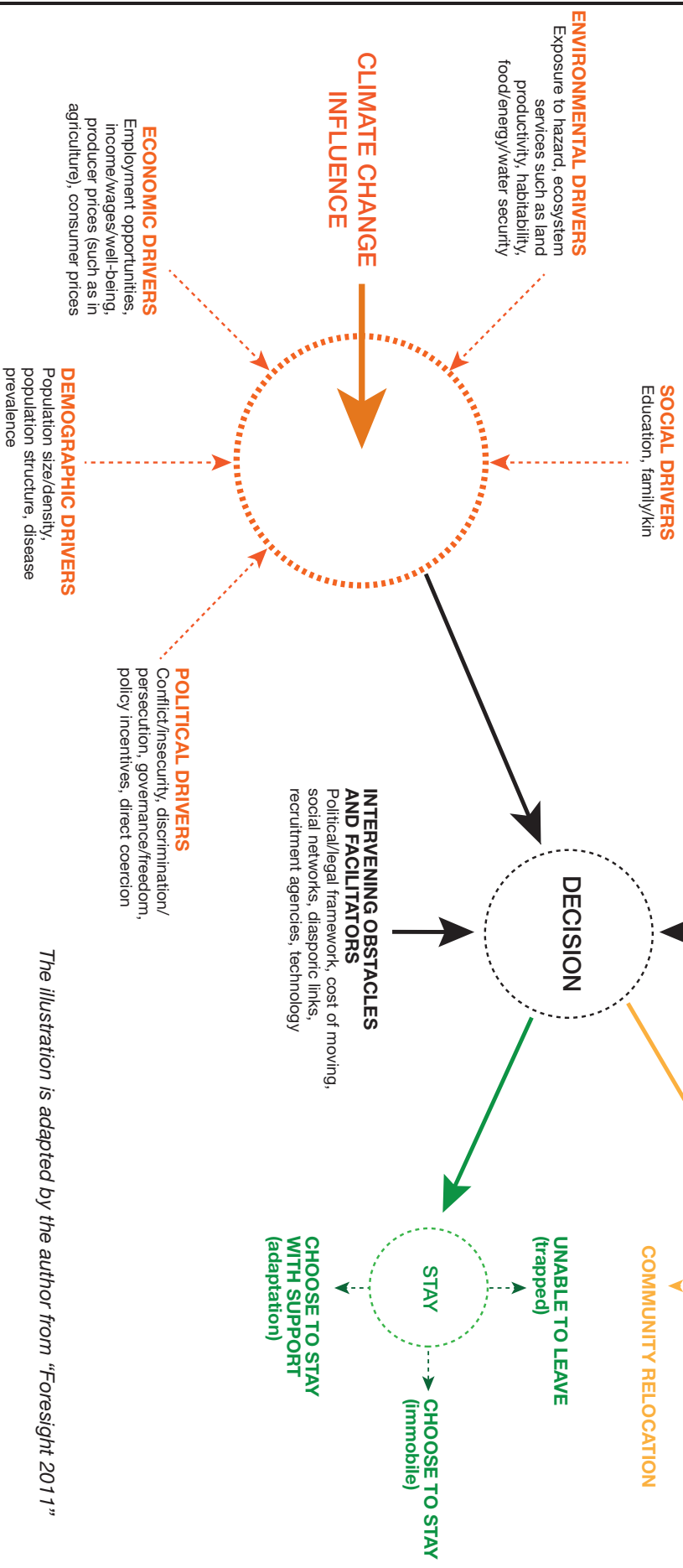
- » By 2025, up to 2.4 billion people worldwide may be living in areas subject to periods of intense water scarcity, which may displace as many as 700 million people by 2030 (UNCCD 2014a);

### **Climate change and conflict**

- » It is estimated that a 5 percent change in rainfall in Sub-Saharan Africa increased the likelihood of conflict in the following year by 50 percent (Miguel et al 2004);
- » At 1.5°C warming, the risk of violent conflict is expected to increase by more than 14 percent, forcing many people to flee their homes (Hsiang et al 2013);
- » Over a 60-year period, 40 percent of intrastate conflicts are associated with land and natural resources (UNCCD 2014).

# THE DRIVERS OF MIGRATION AND DISPLACEMENT

Many factors influence whether a person or family will migrate.



The illustration is adapted by the author from "Foresight 2011"