CLIMATE CHANGE, MIGRATION AND CONFLICT

Causes. Effects. Solutions.

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Causes. Effects. Solutions.

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Preface

Although other matters continually come to the fore and in turn dominate political and public debate, climate change is a thing which cannot be denied nor can its consequences be ignored. Climate change has made weather-related disasters both more frequent and more intense, and the damage they cause is increasing; even in Germany they have long been a fact of life, to the extent that even if radical countermeasures were adopted immediately, climate change would continue to determine future developments. Nevertheless, decisive steps must be taken in order to turn this insight into action and to ensure survival, at least in the medium to long term.

We have already presented two studies on this topic on behalf of Greenpeace. In 2007, with a different team including Chris Methmann, we offered "Climate Refugees. The Denied Disaster"; and then in 2017 we presented "Climate Change, Migration and Displacement: The Underestimated Disaster".

The 2007 study examined what is today known as "environmentally induced migration". Our intention was to draw attention to a phenomenon of which many people were not yet aware but which was already apparent to us from observing the developments in small island states, where it was clear both that a catastrophe was looming and that denying it would be futile. In our subsequent study in 2017 we discussed the developing differentiation within the scientific debate about the connection between climate change and migration; and we pointed out the growing pressure to act. Although many still underestimated the devastating consequences of the climate crisis, those consequences were already far more obvious and recognisable than they had been ten years earlier.

This current study – which we are presenting just before World Refugee Day – is intended to contribute to a better understanding of the complex factors linking climate change, climate- related destruction and disasters, displacement, migration and violent conflict. In the meantime, there is a security dimension to climate change, which has emerged because it has become even clearer that a full understanding of the complexity of security matters must include the challenges and threats posed by climate change.

We have summarised research findings to provide an insight into trends and developments in different parts of the world, and we have formulated recommendations to policy-makers and the public on how they ought to respond to those developments.

The urgency of the climate crisis and the consequent need for a decisive change of course mean that further delay would be intolerable. It is time to act, instead of simply giving up: we 3

owe our best efforts to those who are suffering more and more from developments for which they themselves are not to blame.

List of abbreviations

AES..... Alliance des États du Sahel
AF ..... Adaptation Fund
APC ..... Association for Progressive Communications
APRRN..... Asia Pacific Refugee Rights Network
CIF..... Climate Investment Funds
COP ..... Conference of the Parties
DAC ..... Development Assistance Committee (OECD)
DANA..... Depresión Aislada en Niveles Altos
DRK..... Demokratische Republik Kongo
ECOWAS .. Economic Community of West African States
EMDC..... Emerging Markets and Developing Countries
FAO..... Food and Agricultural Organization of the United Nations
FDI ..... Foreign Direct Investment
FEMA..... Federal Emergency Management Agency
FRLD ..... Fund for Responding to Loss and Damage
GCF ..... Green Climate Fund
GEF ..... Global Environmental Facility
GFZ..... Helmholtz Centre for Geosciences
IDMC..... Internal Displacement Monitoring Centre
IEA ..... International Energy Agency
ILO ..... International Labour Organization
IOM..... International Organization for Migration
IPBES ..... Intergovernmental Platform on Biodiversity and Ecosystem Services
IPCC..... Intergovernmental Panel on Climate Change
IS ..... Islamic State
ITU..... International Telecommunication Union
JMIM ..... Jama'at Nusrat al-Islam wal-Muslimin
MALE..... medium altitude, long endurance
MedECC... Mediterranean Experts on Climate and Environmental Change
MMC..... Mixed Migration Centre
NIKE..... National Interdisciplinary Climate Risk Assessment
NOAA..... National Oceanic and Atmospheric Administration
NRC..... Norwegian Refugee Council
ODA..... Official Development Assistance
OECD ..... Organisation for Economic Co-operation and Development
PRIO ..... Peace Research Institute Oslo
RSF..... Rapid Support Forces (Sudan)
SAF..... Sudanese Armed Forces
SCF..... Standing Committee on Finance
SDGs..... Sustainable Development Goals
SIDS..... Small Island Development States
SIPRI..... Stockholm International Peace Research Institute
UNDP..... United Nations Development Programme
UNDRR .... United Nations Office for Disaster Risk Reduction
UNFCCC... United Nations Framework Convention on Climate Change
UNHCR .... United Nations High Commissioner for Refugees
VAE..... United Arab Emirates
WMO ..... World Meteorological Organisation

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1. Introduction

"Climate change is rendering fundamental human rights null and void: the right to life, the right to health, the right to a roof over one's head."[1] The deadliest threat posed by climate change is heat. The Robert Koch Institute has estimated that 3,000 heat-related deaths occurred in Germany in 2023 and 2024,[2] with those particularly at risk including elderly people, children, pregnant women and people living in poorly insulated flats in urban centres. People working outdoors too face increased health risks.

This study looks at how climate change might affect migration and conflict. Migration is used as a generic term for various forms of human mobility. It covers single and repeated evacuations, short-term, long-term and repeated displacement, voluntary and involuntary resettlement, and emigration. The study addresses also the counterpart situation of those who remain in hazardous locations in precarious living conditions.

Many studies, papers, reports, books and journalistic articles have been published in the media on these three topics: climate change, migration and violent conflicts. Many people are seeking answers, too, in the practical fields of development and peace policy, designing corresponding programmes – and implementing them. This study, however, does not set out to provide a comprehensive overview, but rather to highlight different perspectives and to use case studies to illustrate connections.

The climate crisis is characterised by pronounced injustice and an unequal distribution of the consequences of climate change. All over the world, extraordinary weather events are becoming more frequent and more extreme as a result of anthropogenic climate change, and can be particularly dramatic in the Global South, although it has done least to contribute to climate change. That unequal impact applies at the individual level too: the poorest sections of all populations contribute very little to climate change through their way of life but are hit particularly hard by its consequences. Many such people live in areas particularly vulnerable to the effects of climate change but lack resources to protect themselves.

As the principal emitters of pollution from fossil fuel, it is the responsibility of wealthy industrialised nations to phase out the burning of such fuel as quickly as possible – and it is very much in their interest also to do so. At the same time, it is their responsibility also to support the countries of the Global South in adapting to climate change, and particularly in helping affected sections of the world's population in addressing any loss or damage caused by the effects of climate change.

When we look at the connection between climate change and conflict we see that two things stand out. First, most wars and conflicts take place in countries of the Global South, which are also suffering severely from the consequences of climate change. That then exacerbates humanitarian crises facing the people displaced by war, for it exposes them to all manner of things but especially floods, heat and water shortages. Secondly, wars destroy infrastructure, which only amplifies the impact of extreme weather events caused by climate change.

A striking example of that was the consequences of a storm over the Mediterranean in autumn 2023. Storm Daniel led to extreme rainfall in adjoining countries; very many people among a population already suffering greatly were driven from their homes, and in Greece a number lost their lives. However, the same storm had an even more dramatic impact in Libya, where in a country affected for decades by war and poverty, maintenance of a certain dam had perforce been neglected. Heavy rainfall duly led the dam to collapse, causing the deaths of some thousands of people.

Our second chapter looks at some of the results of climate research, showing how far extreme weather events such as heat, torrential rain and flooding are influenced by climate change, and how the climate crisis and loss of biodiversity reinforce each other. A look at what is in fact a double crisis shows that protection of nature and sustainable use of land and sea can help limit global warming to at least a tolerable level, always supposing burning fossil fuels can be successfully phased out.

Climate and environmental crises do not lead directly to migration, and to illustrate the point our third chapter uses a social science model to outline the many factors that influence migration decisions, whether of individuals, families or whole communities. The chapter centres on an overview of displacement and migration in the context of disasters, making a distinction between rapid-onset disasters, such as floods, storms, landslides and wildfires, and more gradual changes, such as prolonged heat, drought, soil degradation and rising sea level. Finally, the chapter focuses on the global warming crisis and its consequences, which are often underestimated.

The fourth chapter introduces the relationship between climate change and conflict, which is in fact highly complex, for while climate change can serve as a crisis multiplier, it does not create the mechanism for automatic escalation. "Climate wars" do not exist in the sense of simple causality with climate change as the central cause of war – at least, not yet.

The case studies in the fifth chapter highlight a range of different aspects. The devastating flash floods and inundations in the Valencia region of Spain are representative of many other cases. The Valencia case shows that displacement caused by disasters occurs in Europe too. Meanwhile, in the USA, protection against hurricanes and floods is being destroyed by the Trump administration. Indeed, climate research and climate policy are suffering considerable harm at global level. Bangladesh is presented as the most densely populated territorial state, with the world's largest refugee camp; and attendant disasters. Examples from Afghanistan and Myanmar illustrate how the humanitarian situation of people under armed conflict is further exacerbated by extreme weather, while the small island developing states are seeing their very existence threatened by tropical storms and the rising sea level. Those states have formed an alliance (AOSIS) whose voice in international climate diplomacy is of huge importance; they are committed to phasing out fossil fuels and ensuring that the countries of the Global South receive the support they need and to which they are entitled. Meanwhile, our detailed case study of Africa criticises stereotypical reporting on that continent. For example, most displaced persons in fact remain in their own countries or in nearby regions, and there are encouraging examples of local commitment showing creative ways of tackling the consequences of climate change on the ground.

Chapter six looks at questions of future development and is focused on two aspects. First it examines the development of mobility in the face of climate change; and then at the matter of financing the necessary adaptation to climate change as well as restoring loss and damage in the Global South.

The seventh and final chapter summarises the results of the study and offers recommendations for policy-makers and the public.

2. Climate change, extreme weather events and disasters

2024 was the warmest year on record. For the first time, the global average temperature surpassed the pre-industrial average by 1.5 °C.[3] Record-breaking weather was also seen in the preceding years, and Europe, too, is affected by regional temperature records. In fact, the latest European climate report shows that since the 1980s Europe has been warming at twice the global average rate.[4] This is partly due to the proportion of the European landmass that lies in the Arctic, the fastest-warming region on Earth, and to more frequent summer heatwaves. Germany too, experienced the warmest year ever in 2024.[5]

Climate researchers continue to debate individual aspects of the highly complex climate process; however, their key message is unanimous: The main cause of warming is human activity.[6] The composition of the atmosphere is of central importance to the earth's heat balance. Gases such as water vapour, methane and CO 2 have a special property when they are present in the atmosphere. They allow the sun's high-energy radiation to penetrate to the earth's surface relatively unobstructed, whereas they absorb a significant proportion of the long-wave radiation that is reflected from the heated surface of the Earth. The molecules of these gases are raised to an energetically excited state and emit infrared radiation when they return to their ground state. A large part of this heat radiation is emitted back towards the earth's surface. Without this natural greenhouse effect, the surface of the earth would in fact be covered in ice.[7]

In addition to the natural greenhouse effect, there is also a dangerous greenhouse effect, which is caused by human activities that have been increasing the concentration of greenhouse gases in the atmosphere since 1750.[8] By burning fossil fuels and engaging inintensive industry and agriculture, humans are releasing more and more carbon dioxide, methane and other greenhouse gases into the atmosphere. In addition, entirely new substances such as chlorofluorocarbons (CFC) and halons, which are almost exclusively of human origin, are entering the atmosphere. The concentration of greenhouse gases released into the atmosphere by human beings has risen in parallel with the increase in temperature. According to the WMO, these gases reached their highest ever concentration in 2023.[9] Current data indicates that this figure will have increased further in 2024.

While the natural greenhouse effect is vital to life, its amplification due to human activities threatens our very existence. Any change to one climate factor (such as the composition of the atmosphere) can lead to far-reaching changes in the entire climate system due to the large number of interlinked processes.[10]

Agricultural area used for rice production in the Philippines, which will be affected by the El Niño phenomenon in 2024.

2.1 Extreme weather events are becoming more intense

BOX 1: The difference between weather and climate, extreme weather events and natural disasters

Weather: Weather describes the state of the atmosphere at a particular time and place. It is characterised by the meteorological elements of radiation, air pressure, air temperature, humidity and wind, from which clouds, precipitation etc. are derived.

Climate: Climate refers to the average weather over an extended period of time, e. g. over several decades or even longer. A distinction can be made, for example, between the continental climate and the maritime climate, or the (regional or global) climate over different time periods.

From extreme weather to natural disasters: The catastrophic impact of an extreme natural event (such as a flood, storm, landslide, heatwave or volcanic eruption) depends on the extent to which people are exposed to it, whether their livelihoods and infrastructure are destroyed and the extent to which the people affected are able to prepare for and protect themselves against it. It is the vulnerability of the population and the threat to it that turn extreme weather into humanitarian disasters.

Climate research is increasingly able to determine and explain how anthropogenic global warming affects the highly complex climate system.

A more recent field of research, known as attribution research, has even developed methods that can be used to calculate the probability with which anthropogenic climate change has an impact on individual weather events.[11] Seven findings from climate research are outlined below:

1. Extreme temperatures are more strongly linked to greenhouse gas emissions than other weather extremes.[12] As a result of anthropogenic climate change, warm or hot days are becoming more likely worldwide and cold days less likely. The probability of ever more extreme heatwaves is also increasing. According to the 2021 Assessment Report of the Intergovernmental Panel on Climate Change, on a global average, a heatwave that occurred once every ten years before the beginning of industrialisation now occurs 2.8 times in ten years and is 1.2 °C hotter. An average global temperature increase of 2 °C would mean that such heatwaves would occur more than once every two years and be 2.6 °C warmer. Individual regions could be affected much more frequently and severely. Large-scale, long- lasting extreme heatwaves are also becoming more common. In the meantime, heatwaves are being observed that form simultaneously over different parts of the earth. Climate researchers have established that such synchronised weather extremes would be practically impossible without anthropogenic climate change. Heatwaves are the most dramatic weather phenomenon caused by anthropogenic climate change:[13] The increase in extreme heat leads to health hazards, which are often underestimated; it causes hundreds of thousands of deaths every year, destroys nature and is resulting in major economic losses in more and more regions.

2. Heat triggers other natural phenomena or intensifies them. High temperatures cause glaciers to melt and the permafrost, the icy cement that holds together mountains, to thaw. Meltwater and crumbling mountains lead to flooding, flash floods and landslides. As glaciers melt, millions of people lose their vital water reservoirs and rivers dry up. Heatwaves also increase the risk of forest fires and wildfires. Large fires can lower the air quality over distances of hundreds of kilometres, also resulting in an increase in illnesses and deaths.

3. In most regions, extreme rainfall has become more frequent and more intense since the 1950s. Precipitation durations are changing and becoming more unpredictable.[14] This is mainly because warm air can absorb more moisture than cold air. In addition, climate change can slow down the movement of storm systems. Consequently, more water is released from the sky in a shorter time when it rains, and the duration of intensive rainfall

is prolonged. This more extreme rainfall leads to more frequent and more severe flooding than we have seen before. However, climate change is not the only factor responsible for flooding-related disasters. The impact of heavy rainfall and flooding actually depends on the land use and the quality of the flood protection. Flooding becomes much more dramatic when wetlands are drained, houses are built on floodplains or when urban drainage systems are not designed to cope with large amounts of rain.

4. "The mean global sea level is rising, and the rate of increase since the 20th century has been greater than in any previous century in at least the past three millennia."[15] This is stated with great certainty in the IPCC Assessment Report cited above, which predicts a rise of 63 centimetres to one metre by the year 2100 if greenhouse gas emissions continue to increase unchecked. Sea levels are rising faster as a result of increasing meltwater from glaciers and polar ice, and because the water itself is becoming warmer.[16] Even a rise of a few centimetres will have significant consequences when combined with storm surges and storms. Flooding will extend further inland, soil erosion will increase and the soil and groundwater will become salinised.

5. While the overall number of tropical storms has not increased as a result of climate change, the number of particularly strong and destructive storms has risen.[17] Tropical storms can also occur in northern and southern latitudes that were previously unaffected. A warmer and more humid atmosphere leads to an increase in the amount of precipitation released by tropical storms. This has a huge impact, given that tropical storms are already the world's largest precipitation events. Warmer seas drive the storms and intensify them. Due to the rise in temperature at the surface of the sea, the storms can also extend into northern and southern regions where tropical cyclones have not occurred before.

6. On a global average, the probability and intensity of extreme cold and snowfall are decreasing as a result of global warming.[18] However, the natural variance in the weather means that extreme cold and extreme snowfall are still possible. In addition, other complex phenomena are also linked to climate change. A weakening of the jet stream, for example, which can in turn be attributed to the warming of the polar ice caps, can cause cold snaps in Europe. Climate researchers also suspect that the higher humidity in the warmer atmosphere will result in a shorter snow season in parts of North and East Asia, as well as in North America and Greenland. They predict that it will snow less often, but that individual snowfalls will be heavier.[19]

7. Global warming will accelerate the development of droughts in several ways, particularly by warming the atmosphere and altering the distribution of precipitation.[20] A warmer atmosphere leads to increased evaporation, making the soil drier. Heavier rainfall over a shorter period of time will run off quickly into rivers. This will lead to a lack of water to keep the soil moist and maintain groundwater levels. So even if the amount of precipitation remains constant in some regions, droughts could still become more severe. In regions that have long been affected by drought, such as the Mediterranean, the situation is being exacerbated by increased evaporation due to higher temperatures, sporadic heavy rainfall and a decrease in the overall amount of precipitation.

Even in regions where the average amount of precipitation is decreasing, events with extremely heavy rainfall are occurring as a result of climate change, especially after prolonged periods of drought. Drought and water shortages on the one hand and heavy rainfall with flooding on the other are two sides of the same coin.

However, not all droughts can be attributed to global warming. Other phenomena in the complex weather system also come into effect. For example, in addition to global warming, the weather phenomenon El Niño is contributing to the drought in East Africa.[21] Droughts are also caused by the destruction of ecosystems that absorb and store moisture, as well as the overuse of water resources by agriculture, industry and urbanisation.

It is clear that anthropogenic climate change is making extreme weather events more intenseand more frequent. However, geophysical events such as earthquakes and volcanic eruptionscan also be affected by climate change. According to geoscientists, climate change will lead to more and sometimes even stronger earthquakes, especially in coastal regions.[22] Rising sea levels and increasingly powerful storms will increase the mechanical pressure within the tectonic plates, leading to changes in the seismic cycles.

2.2 The twin crises of climate change and biodiversity loss

Industrialisation, industrial agriculture, environmental pollution and the steadily increasing consumption of resources and land – especially by wealthy countries – are accompanied by a dramatic loss of biodiversity. This loss of biodiversity, in other words the loss of natural habitats, ecosystems and plant and animal species, is jeopardising people's livelihoods. We depend on nature in order to produce food and to provide us with clean water and healthy air. Furthermore, more than half the global economic output depends on nature.[23] In other words, both climate change and the loss of biodiversity are jeopardising human well-being to the same extent. These two major crises are closely intertwined.[24] Nature plays a vital role in releasing and capturing greenhouse gases, as well as adapting to climate change. Land ecosystems and oceans together currently absorb more than half of the CO_2 emitted by humans.[25] On land, CO_2 is stored in plants and the soil. CO_2 is dissolved in seawater, which in turn has negative consequences for ocean ecosystems, such as ocean acidification.

Ecosystems, including the ocean, are mitigating climate change. However, their ability to do so is reduced when nature itself is destroyed, oceans are polluted and the seas are heated up. Conversely, if nature is protected, ecosystems are restored and land and seas are used sustainably, this can help keep global warming at a tolerable level, provided that the burning of fossil fuels is phased out at the same time.

Experts from the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) are jointly calling for the twin crises of climate change and biodiversity loss to be considered together. In the past, this has often not been the case.[26] Political and economic solutions should focus on three goals: good living conditions for people, a balanced climate and (as far as possible) self-sustaining biodiversity. Ad hoc measures are less useful than long-term measures for the protection and restoration of natural and modified ecosystems.

Solutions that serve only one of these objectives while exacerbating the crisis in other areas are often ineffective or even harmful. Large-scale bioenergy plantations or afforestation in ecosystems in which forests do not naturally occur are detrimental to biodiversity and to the population, because they result in the loss of land for food production and housing and jeopardise water supplies. Invasive species can cause secondary damage that is not initially foreseen, even if they are propagated in the interests of climate protection.

Ecologically protected areas have a positive impact. However, there are too few of them, and they are often too small, not sufficiently interconnected or not managed effectively. It is also important to protect and restore nature outside these protected areas. Studies and projects clearly demonstrate that nature-based solutions and ecosystem-based approaches can play a significant role in adapting to climate change, and these approaches must be implemented far more widely than has been the case to date if we are to avert the multiple crises.

Urban planning, for example, is about greening and de-sealing cities. Urban greenery alleviates urban heat, improves the quality of life and facilitates the infiltration of heavy rain. Restoring mangrove forests provides coastal protection and serves as a nursery for fish, while absorbing four times more CO_2 per unit area than rainforests.[27] Agroecological approaches that counteract the ongoing soil degradation are important for achieving a more resilient food supply. They enable water- and resource-saving management, as well as the restoration of sinks for absorbing greenhouse gases.[28]

Climate protection and nature conservation and restoration should be considered together at all political levels – out of self-interest. In Germany, the Natural Climate Protection Action Programme of 2023[29] offers a suitable approach, and the European Regulation on Nature Restoration of 2024 performs a similar function for all EU member states.[30] The latter requires member states to take measures to restore all habitats – from terrestrial and coastal to freshwater and marine ecosystems – and to plan these measures as part of a binding national restoration plan.

Mangrove planting campaign by residents on Pari Island, Jakarta, Indonesia. Coastal communities are the most severely affected by the climate crisis.

Agricultural area used for rice production in the Philippines affected by the El Niño phenomenon in 2024.

BOX 2: Exposure and vulnerability to natural disasters, natural and environmental degradation

The extent to which certain people and communities are affected by an extreme natural event or the destruction of nature depends not least on the extent to which these people are exposed to the event and the extent to which they are able to prepare and protect themselves. Poor people living in the Global South, who have no means of protecting themselves, are particularly vulnerable.[1] This group includes, in particular, marginalised segments of the population who are subject to war, violence and displacement; people without access to early warning systems against extreme weather events; rural populations living by subsistence farming; people with illnesses and disabilities, young children, elderly people (whose mortality rates are particularly high in hot weather) and women. The risk of being affected by a natural disaster can therefore be expressed by a simple formula:

Risk = natural event or extreme weather × exposure × vulnerability

The Netherlands is an example of high exposure with low vulnerability. Its geographical location in a river delta exposes the Netherlands to particularly severe flooding risks. However, the population lives much more safely than people in other river deltas in other parts of the world thanks to dykes and modern flood protection technologies that significantly reduce their vulnerability. Nevertheless, exposure and vulnerability are not evenly distributed within the population of the Global North either. Those who have to work outdoors doing heavy labour or who live in poorly insulated flats in urban centres are particularly vulnerable to heat risks. In the north, too, poor people lack the means to move away from areas at risk and suffer when the cost of living rises as a result of climate and environmental crises. Climate justice means focusing on protecting the needs of poorer sections of the population in both the South and the North.

3. Climate change and migration

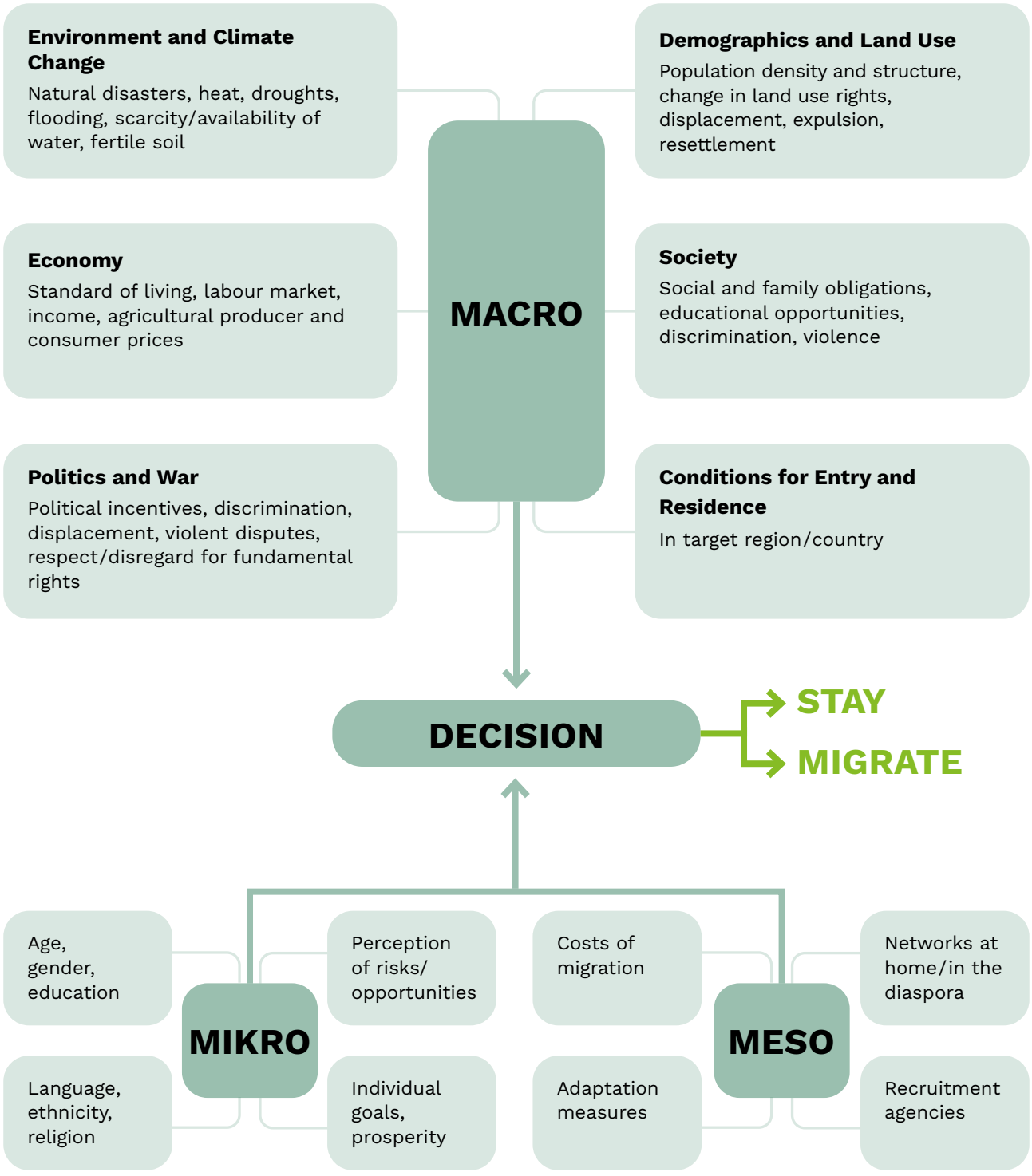
3.1 Migration patterns and migration decisions

The causes of migration are complex. Migration movements can often be traced back to decisions made by individuals, households or small groups of people. These decisions are not always voluntary; they are often an attempt to ensure survival, escape extreme poverty, lead a life in dignity or leave behind violence, persecution and war.[31]

The following diagram illustrates the three levels at which factors influence the decision to "stay or leave". The macro level deals with framework conditions relating to politics, the economy, society, the environment, demographics and land use, as well as conflicts, rights of residence and conditions for entry. At the meso and micro levels, factors

influencing decisions include the ability to adapt to changing conditions, networks at home and in the diaspora, individual prosperity, age, gender, education and perceived risks and opportunities. People's decision to leave or stay in their home country are often affected by many different factors.

Figure 1: The complexity of migration decisions



Source: Own illustration, inspired by UK Government Office for Science 2011 (Foresight Report).

BOX 3: Forms of human mobility due to climate change, environmental degradation and natural disasters

Various different forms of human mobility and immobility can be distinguished:

Environmental migration: In the literature, migration is often used as an umbrella term. Environmental migration refers to mobility that is at least partly motivated by climate or environmental changes. The term does not imply whether the people concerned leave their place of habitual residence voluntarily or involuntarily. A distinction is made between short-term and long-term migration, circular migration (repeated departure from and return to the home country) and return migration (returning after an extended period of time).

Displacement: Displacement refers to the forced departure from one's homeland.

Evacuation: The short-term relocation of people from a risk area which has been organised centrally by a government agency or aid organisation.

Planned relocation: This term refers to resettlement that is enforced due to untenable circumstances or on the orders of a national or local authority.

Forced or voluntary immobility (trapped population): People remaining in a place where they are exposed to extreme danger because they lack the resources or escape routes to migrate, or because safe havens are blocked; or people remaining in the place of danger for cultural or personal reasons.

Climate-forced displacement (climate refugees): This term is rarely used in scientific discussions any more. According to the legal definition of the refugee status under the Geneva Refugee Convention, people fleeing a region solely because of environmental or climate-related changes do not belong to a group of people who are fleeing war and conflict or who are persecuted because of their race, religion, nationality, membership of a particular social group or political opinion, and who must therefore be recognised as refugees within the meaning of the Convention. The term also gives the impression that climate change-related causes of fleeing can be clearly distinguished from other causes, such as drought due to soil degradation.

Internal displacement: Internally displaced persons (IDPs) are persons or groups of persons who are forced to leave their place of habitual residence. This could be due to war, violence, natural disasters or disasters caused by humans. People are referred to as internally displaced persons as long as they have not crossed internationally recognised state borders (UN Guiding Principles on Internal Displacement, 1998). The vast majority of those displaced by natural disasters and environmental change remain inside their country or seek refuge in the same region.

International environmental migration and international disaster displacement: These terms include cross-border mobility.

Clearly, the transition between voluntary migration and displacement is often a fluid one. Disasters, climate change and environmental degradation result in people having to leave their familiar community; they lose their land, work and property and potentially part of their cultural identity, putting an enormous burden on people and societies. However, timely voluntary migration can help to avoid later displacement or involuntary immobility. Forced immobility becomes a humanitarian disaster when a trapped population is unable to escape or receive outside aid.

UN organisations and the UN-related International Organisation for Migration (IOM) are increasingly taking on tasks to protect both internally and internationally displaced persons. Although protecting internally displaced persons is in fact the duty of the state concerned, nations do not always fulfil their duty.

There is no binding international convention that explicitly governs the protection of international environmental migrants and persons displaced by disasters. Nevertheless, existing conventions

do at least offer potential scope from which state responsibilities, obligations and options for action may be derived.[32] Attempts are being made in the courts to exploit this scope. There is a broad debate as to how the legal framework can be improved. Negotiations are also taking place with regional organisations with regard to taking in the people who are affected. Many of these initiatives are driven by the Platform on Disaster Displacement, an intergovernmental initiative established in 2016.[33] Progress is hindered by the general reluctance of nation states to accept displaced persons. Reluctance and resistance are even greater when it comes to binding agreements on migration issues.

3.2 Estimates of the number of people displaced by disasters and conflict

The number of displaced persons has risen sharply in the last ten years. According to UNHCR estimates, 123.2 million people were displaced by conflict and violence at the end of 2024.[34] This figure rises even further, if the number of displacements as a result of disasters, which is almost impossible to determine, is included. At least 70 percent of displaced people live in countries that are particularly exposed to climate change, meaning that many people are affected by both conflicts and disasters. A large majority of the people forced to leave their familiar surroundings because of disasters or violent conflicts migrate within the borders of their own country (internally displaced persons) or to neighbouring countries. Internally displaced persons (IDPs) are defined as individuals or groups of individuals who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalised violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognised state border.[35]

It is difficult to determine how many people are displaced by war, violence and disasters. Nevertheless, the databases and analyses of the Internal Displacement Monitoring Centre (IDMC) provide particularly comprehensive information in the global report on internally displaced persons when it comes to gaining an overview of how many people are forced to leave their place of habitual residence and for what reasons.[36]

International, national and local organisations all contribute their own data to the IDMC report. In addition, reports from aid organisations and media reports on major incidents are evaluated. The number of internally displaced persons (IDPs) provides a snapshot of the total number of people at a given time who have been displaced within a year and who have been unable to return to their homes or find somewhere else to live, as well as people displaced in previous years who have not found a permanent solution. The data on internal displacement says nothing about whether people will remain inside the country or cross its borders at a later time.

In 2024, the IDMC recorded 45.8 million documented new displacements due to disasters and a further 20.1 million documented new displacements due to conflict and violence. As the data is collected on the basis of individual events, people who have been displaced multiple times may also be counted more than once. The IDMC estimates that the total number of internally displaced persons, i.e. the sum of newly displaced people and those for whom no permanent solution has yet been found after several years of displacement, is 83.4 million. In 2018, the estimated number of internally displaced persons was only half this.

The dramatically high number of internally displaced persons can be attributed to the escalation of war and violence, as well as advancing climate change. In addition, not enough is being done to help affected individuals find long-term solutions. For a number of reasons, the IDMC suspects that the actual number of internally displaced persons is even higher than suggested by the data collected. A large number of smaller events are not documented and therefore do not appear in the database. Furthermore, precise documentation is almost impossible when people are forced to migrate with a certain time delay and in smaller groups due to multiple crises, gradual environmental changes or gradually escalating conflicts.

Data on the whereabouts of internally displaced persons is also patchy. It is impossible to determine from the data whether the displacements or evacuations were temporary or permanent. Studies suggest that a relatively large proportion of those displaced and evacuated due to disasters return to their familiar surroundings within a year. In contrast, displacement due to war and violent conflict tends to last longer. These figures provide no information about living conditions after their return, nor about whether the people in question were repeatedly displaced.

3.3 Displacement due to rapid-onset disasters

Taking a closer look reveals the multi-layered and complex nature of mobility in the context of climate change and environmental degradation. The type of disaster affects the form of mobility it may trigger. A distinction can be made between rapid-onset disasters, such as floods, storms, landslides, heatwaves and wildfires, and gradual changes, such as prolonged heat, droughts, soil degradation and rising sea levels. Rapid-onset disasters are associated with short-term evacuation measures and the movement of large numbers of people within a relatively short space of time. Comparatively good data is therefore available on displacement in connection with this type of disaster.

Since data collection began, in 2008, the IDMC has documented an annual average of 24.5 million displacements worldwide due to disasters, whereby most of this data pertains to rapid-onset disasters.[37] Every year, storms and floods, which are increasingly linked to global warming, are key triggers for displacement. Many displacements have also been caused by major earthquakes, particularly in 2015 and 2023.

The highest annual figure for disaster-related displacement ever recorded was reported for 2024, with 45.8 million people displaced by disasters in 163 countries.[38] That year, tropical cyclones were responsible for more than half of the displacements (25.2 million people), followed by floods (19.1 million people). In addition, the IDMC reported 425,000 displacements due to forest and bush fires, 397,000 due to landslides, 387,000 due to drought and 21,000 due to other weather-related events (extreme heat, soil erosion and extremely high waves) in 2024. On top of this, 178,000 people were displaced by geophysical events, in particular earthquakes and volcanic eruptions.

In 2024, 29 countries reported record numbers of people displaced by disasters. The largest numbers were reported by the USA, followed by the Philippines, India, China and Bangladesh. Hurricane Milton alone displaced almost 6 million people, most of them in the USA. Severe flooding with refugee movements occurred on all continents. In ten European and Central Asian countries, floods caused the highest disaster-related displacement ever recorded. Kazakhstan was one of the places where the situation was dramatic. Rapidly melting snow and heavy rainfall caused the worst flooding in 80 years. The flooding was further exacerbated when floodwater was released by reservoirs in neighbouring Russia. The number of evacuations and independent refugee movements in Kazakhstan was estimated at 120,000.[39]

Germany, too, must invest more in flood protection. This was demonstrated in southern Germany in June 2024. Heavy rainfall, which is set to continue to increase due to global warming, soil sealing and a lack of floodplains and retention basins, led to widespread flooding. Six people died. In Bavaria, 3,200 people had to be evacuated and in Baden-Württemberg almost 1,600.[40]

As in other years, it was low- and middle-income countries that bore the brunt of the disasters and displacement. The poorest members of society were particularly badly affected because they often live in vulnerable areas without reliable infrastructure and in unprotected accommodation. This was also evident in the floods that hit the Brazilian state of Rio Grande do Sul.[41] An area the size of the UK was flooded; around 775,000 people were forced to flee. Black and indigenous communities were obliged to flee more frequently than other, often more affluent, population groups.

The Indian state of Assam, which is severely affected by climate change, provides an example

of the overlap between disasters, environmental degradation, poverty and displacement.[42] The flooding of the Brahmaputra river is increasing due to the accelerated melting of snow from the Himalayas and ever more intense heavy rainfall. Deforestation is causing increased soil erosion and riverbanks are breaking up as a result. People living on the riverbanks and on islands often have to flee several times a year. Each time they flee, they become more impoverished and more vulnerable. The government has drawn up a disaster prevention plan that includes an early warning system for flooding and the provision of emergency shelters, and it is receiving international support. However, the limits of the disaster relief system were reached when 2.5 million people were displaced in spring and summer 2024.

One piece of positive news: significant progress has been made worldwide in recent years in developing and expanding early warning systems.[43] Millions of lives have been saved because people were warned by their governments of approaching storms and floods, they were evacuated or they were able to flee in time by themselves.

BOX 4: The Early Warnings for All initiative

Four organisations are working together in the 'Early Warnings for All' initiative, with a view to reaching and protecting everyone by 2027. They offer governments advice on the development of early warning systems.[1] The UNDRR provides information on disaster risks. The WMO is responsible for evaluating data for monitoring, analysing and forecasting weather events, the International Telecommunication Union (ITU) for disseminating warnings and the International Red Cross and Red Crescent Movements for organising relief efforts on the ground. The initiative relies on financial support and national data collection in order to continue its work.

Source: WMO 2025

Resident of the flooded neighbourhood of Canoas, Rio Grande do Sul, Brazil, 2024.

3.4 Migration and displacement due to gradual environmental changes

The UNFCCC lists increasing desertification, melting glaciers, rising temperatures, the degradation of forests and soil, loss of biodiversity, acidification of the oceans with salinisation of floodplains and groundwater, as well as rising sea levels as examples of the gradual environmental changes associated with anthropogenic climate change.[44] These factors contribute to the increasing deterioration of living conditions in affected regions. Crops fail, fish stocks are depleted, sources of income dry up, water and food become scarce. Health hazards increase and traditional habitats become uninhabitable. The likelihood of additional extreme weather events such as droughts, floods and storms may also increase.

Data on mobility in connection with these environmental changes is difficult to collect because of the time lag between the gradual environmental changes and people migrating, and because they migrate in many small increments. Nevertheless, meta-studies indicate that migration movements caused by gradual environmental changes are at least as large as those caused by rapid-onset disasters.

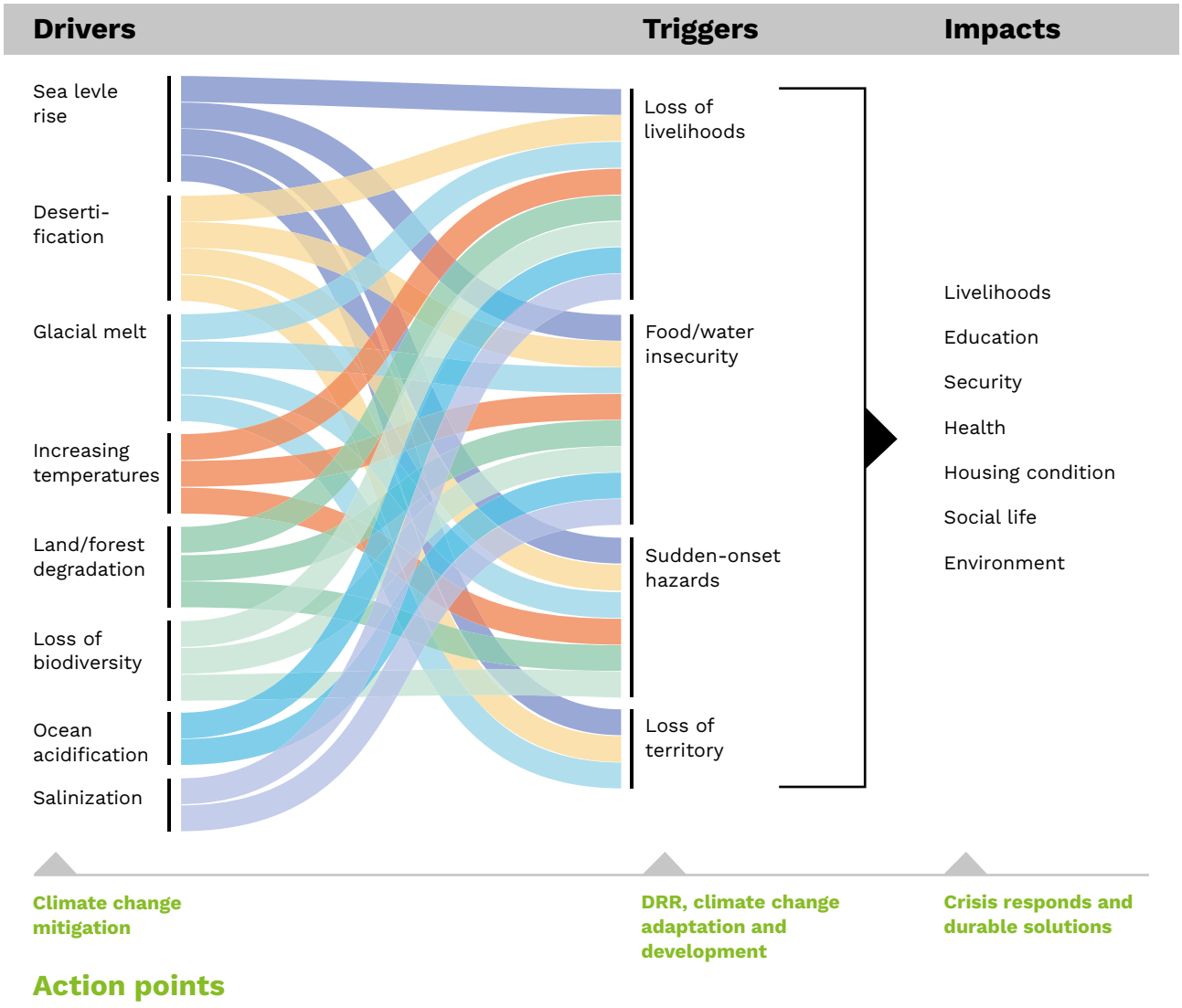
In the following, the focus lies on the different drivers and triggers of migration and their consequences and the question how the situation can be improved for the people affected. The IDMC has developed a model that illustrates this: the slow onset of the effects of climate change (drivers of migration) leads to a deterioration in living conditions. Under certain conditions, this can lead to some of the people affected leaving their homes after a period of time. Migration, in turn, is associated with many dangers and losses, ranging from the loss of social cohesion, education and healthcare to defencelessness and homelessness.

Nevertheless, the communities, states and international aid organisations that are affected can influence this development, mitigate social hardship and delay or even prevent the need to emigrate.[45] This can be achieved through effective climate adaptation strategies and disaster prevention plans, providing alternative income opportunities for those affected and affording special protection to particularly vulnerable groups. Safe migration routes must be established, and sustainable solutions are needed for migrants and the societies that accept them.

Those affected have every right to be involved on an equal footing in the negotiations about any measures to be taken. This is the only way to safeguard their rights and utilise their expertise. The following sketch illustrates the IDMC's model of the relationship between gradual environmental change and migration.

In addition to global warming, the situation is often exacerbated by the overuse and misuse of natural resources. Conversely, a shift towards a more sustainable, ecological way of life and economy could mitigate many crises. The model is therefore intended to encourage action.

Figure 2: Links between drivers, triggers and impacts of displacement in the context of climate change and starting points for political action



Sources: Own representation of the IDMC model, see IDMC 2021 and Cazabat 2021.

3.5 Extreme heat: An underestimated danger

The following chapter focuses on the consequences of extreme heat, because extreme heat is a global crisis that is often underestimated. Extreme heat and heatwaves are the main causes of weather-related mortality.[46]

Heat exacerbates chronic illnesses such as cardiovascular and respiratory diseases, mental health problems and diabetes. It is particularly problematic for the elderly.[47] High temperatures become critical more quickly in humid conditions than in dry ones. A particularly serious threat arises when temperatures no longer cool down at night, preventing the body from recovering from the heat.

Heat puts a strain on public health systems, reduces labour productivity, damages the ecosystem on which we depend and exacerbates water scarcity and droughts.

Climate researchers estimate that by the end of the century about a third of the world's population will live in regions with challenging climates and more than a fifth will be frequently exposed to dangerous levels of heat.

What effect do prolonged periods of extreme heat and increasingly hot heatwaves have on the mobility of these population groups? Different studies come to different conclusions. An analysis of 32 recent studies found a correlation between heat events and migration in half of them, but not in the other half.[48] What is beyond dispute is that social inequality increases with heat stress and environmental degradation, meaning that opportunities to protect oneself and migrate to a safe place, if necessary, are unequally distributed.

A wide range of migration movements are directly related to heat. Examples include city dwellers travelling to the countryside, cooler mountain regions or the coast during hot months, and pensioners emigrating from northern Europe to Spain or Portugal in search of sunshine. On the other hand, people from rural regions such as Bangladesh, Ghana or Mexico, move to cities when crop failures and water shortages occur during periods of heat and drought, hoping to find shelter and better supplies. These migration movements can be temporary or circular, or they can take the form of long-term emigration.

A study analysing the mobility of 850 Ugandan families in relation to land degradation and heat shows that during short-term heatwaves, family members increasingly move to cities temporarily, whereas long-term heat stress leads to emigration from agricultural areas.[49] Often, only individual family members move to cities to find work and support their families in the countryside. However, entire families also relocate. Extreme heat can favour or reduce people's mobility in conjunction with other drivers such as poverty, disease, water and food shortages, violence and conflict.[50]

People who have no means of travelling and no prospects of finding accommodation elsewhere, or who are deeply rooted in their home country, or whose immobility is exacerbated by their cultural and traditional conventions, can become trapped in a precarious living situation. It is not easy to determine the size of this trapped population in different regions of the world. However, it is feared that vulnerable and marginalised groups will descend into this precarious situation almost unnoticed.[51]

Austrian Greenpeace activists in kayaks spread a large banner over the Old Danube River in 2022. The Old Danube was severely affected by the heat this year.

Heat poses a threat to people who are fleeing, in refugee centres and in host communities. Migrant workers who work in construction or agriculture are affected particularly severely because they are often less well protected than the local population.

The level of protection against heat varies enormously around the world, depending on the country, social status and working and living situation.[52] Over the past ten to twenty years, many countries and municipalities have developed heat adaptation programmes and heat action plans. However this often only happens after particularly deadly heat events which people have faced virtually without protection, such as the 2003 heatwave in Europe which resulted in 70,000 deaths. India and Pakistan have also adopted similar policies. Given the big challenges involved, such policies need to be further improved everywhere. Important measures include heat forecasts and heat warnings that actually reach everyone, as well as modified health and safety rules with extended breaks or days off when it is particularly hot. In cities, this includes creating fresh air corridors, greening and shading squares, improving the insulation and ventilation of buildings, providing cool rooms as refuges and making drinking water freely available.

In India, civil society groups are calling for more nuanced heat action plans that involve them in the planning process. Another issue is providing heat-related compensation for agricultural workers and insurance against crop failures.[53] Heat mapping of individual neighbourhoods is already being carried out in India's major cities, so that people in the worst-affected areas can be provided with water or evacuated in the event of a heatwave. Often, insufficient financial aid is available to fund such measures.

For aid projects to be effective, the data situation must be improved, precise information about people at risk from heat must be available and adequate financial resources must be acquired. Different forms of mobility will have to form part of the adaptation process. In future, evacuations in the event of heatwaves and safe relocation options will have to be planned for.

BOX 5: Heat hazards for women farmers in Uganda

The situation is particularly dramatic in most African countries, where there is very little or no state-organised protection against extreme heat. Local weather stations lack the resources to collect any heat data at all. Without heat data, there can be no heat warnings and adaptation policies. Heat hazards are underestimated in African countries and heat-related deaths go uncounted.

Social injustices and discrimination against women lead to particularly precarious situations in extreme heat, as has been documented in a project involving women farmers in Uganda. The men work in the fields of large corporations or in cooperatives. Women must cultivate the fields for their own consumption alone and are solely responsible for feeding their families. Climate change is particularly harsh on them: harvests are deteriorating and the heat reduces the women's work output. Pregnant women in particular suffer from heat-related illnesses. Gender-based rules prevent men and sons from reducing the workload on pregnant women, because subsistence farming is women's work alone. This leaves pregnant women in a dramatic position, especially if they have no female family members to support them. In addition, strict dress codes for women make it difficult to work hard outdoors in the heat.

Source: Otto 2023: 96–102.

4. Violent conflicts in climate change and migration

Scientific research and empirical observations both show that the connection between climate change, (environmentally induced) migration and violent conflicts is extremely complex.[54] Research into the causes of war points to a multitude of variables which – when combined in specific ways, in different proportions and with different weightings – may lead to an escalation of violence, but do not necessarily have to.

However, during the first decade of this century, studies using Africa as an example argued that the frequency of wars would increase and the number of victims would rise as a result of climate change.[55] Advocates of this hypothesis – that climate change triggers conflict – have recently found themselves on the defensive, but they are not giving up.[56] They are shifting their focus to warning about future developments. Their hypothesis may not be provable "yet" or "so far", but if climate change becomes more severe and certain tipping points are reached, even societies that now view themselves as being stable and resistant could quickly reach their limits.

BOX 6: Were or are the civil wars in Darfur/Sudan and Syria the first "climate wars"?

The "climate war" thesis will be discussed in the context of two countries. While the term is catchy and grabs the attention, it does not stand up to scrutiny. It is too easy to lose sight of other circumstances and escalation processes.

The civil war in Darfur, which was fought with varying intensity between 2004 and the peace agreement of August 2020, continues to this day, but is now part of the devastating wider civil war throughout the country. In Darfur, the duration and intensity of droughts have played a role in land use conflicts between nomads and sedentary farmers as have conflicts over water use. Many other factors contributed to the outbreak and duration of the escalating violent conflict in the region: the existence of a "conflict resource" (gold) needed to finance weapons and equipment; ethnic-religious antagonism between Arab and non-Arab sections of the population; economic stagnation and lack of development in the region; political marginalisation of non-Arab sections of the population in the state as a whole; ambitious military forces and militias who want to advance their political ambitions as "entrepreneurs of violence"; early external interference (Libya) – the list goes on and on and shows that the monocausal categorisation as a "climate war", in which climate change is seen as the direct and central trigger and driver, is questionable.

In Syria too, before the violence escalated, there were initially peaceful protests in 2011, as part of the "Arab Spring". The Assad government responded with great severity and violence on the part of the security forces. This set in motion a spiral of violence that has still not ended completely, even after the fall of the Assad regime at the end of 2024. The argument for labelling the civil war in Syria as a "climate war" is based on a chain of causation in which environmental migration in the country also plays a role. The starting point was the major drought between 2006 and 2011, which led to a massive exodus from rural areas to the cities, fuelled tensions between sections of the population and, in conjunction with the sharp rise in food prices, created an explosive atmosphere and increased the propensity for violence. This attempt at an explanation ignores a number of factors. The Syrian rentier economy had already begun to lose its oil revenues from the mid-1990s due to declining production volumes; its economic development stagnated and created hardly any prospects; the administrative capacities of the state were overstretched; corruption continued to increase; the agrarian reform that had been introduced proved to be a failure; and Assad's Alawite power base in western Syria, backed by Russia, ensured military superiority for a long time, enabling the regime to survive but permanently antagonising all other sections of the population.

Sources: Ban Ki-moon 2007, Welzer 2010 and Lelieveld 2016.

More recent analyses explicitly contradict the older thesis of a quasi-automatic causal link between climate change, migration and conflict. There is no empirical or theoretical evidence to support the hypothesis that climate change must inevitably lead to wars over scarce resources, which in turn would trigger a rapid increase in refugee movements from the Global South to the Global North.[57]

The only generalisation that can be made is that climate change, anthropogenic environmental degradation and the overexploitation of resources can lead to a shortage of resources or exacerbate existing shortages. How a society deals with this and whether increasing competition for resources and shortages lead to violent conflicts depends on the specific context and the political, economic and social conditions.[58] Where contracts, agreements and institutions mitigate the consequences of scarcity and where societies are willing and able to distribute the burden of shortages fairly, the likelihood of violent conflict is lower. This is where international aid organisations can provide support and contribute to de-escalation, prevention and constructive management of shortages and conflicts.

The situation becomes more problematic when the military reacts to the buzzword "climate war" and develops security policy strategies to deal with climate change and its consequences. An approach based on development and peace policy should take precedence.

4.1 Wars exacerbate climate change

So far, the focus has been on the question how climate change can lead to or contribute to conflicts. However, reversing this question also provides valuable insights. This is because the impact of armaments and war on the climate and the environment is often overlooked. At best, this impact is discussed on the sidelines when security and defence policies are being debated. In any case, figures released by the Peace Research Institute in Oslo (PRIO) are extremely worrying: 2024 saw the highest number of active conflicts since 1946, with 61 active conflicts in 36 countries.[59]

A robust and lasting peace order only requires limited armaments and military personnel because the burden of deterrence and defence is shared within a collective security order with sufficient potential for deterrence. Taxpayers' money that goes into the production of defence equipment could be put to better use in other policy areas. The security and defence sector therefore competes with other state and societal objectives. In a democracy, the sovereign power, in the form of the people, decides which priorities to set and which policy areas should receive what share of the state budget. The problem lies in the latent uncertainty surrounding the question whether, when, by whom and to what extent a state is threatened from outside and how to respond appropriately. Different political parties propose different answers to these questions.

Defence equipment ties up planning and working time, uses large quantities of raw materials and produces considerable amounts of climate-harming emissions during its manufacture and use. Violent conflicts and wars are not only destructive and devastating for people (both military personnel and civilians), they also cause emissions and contaminate and pollute the environment. The more intense and prolonged a military conflict, the more and the longer the environment suffers. The consequences remain tangible and linger on long after hostilities have ended.

In all major wars in recent decades, landmines and explosive remains left behind by war have posed a major threat to the population and they continue to do so today, limiting the land available for agriculture and other uses. Such danger zones exist in over 50 countries worldwide. Regions particularly badly affected include former Yugoslavia, especially Bosnia and Herzegovina, as well as Afghanistan, Iraq, Ethiopia and Ukraine.

BOX 7: The consequences of Russia's war of aggression on the environment in Ukraine

Russia has been waging its war of aggression against Ukraine since February 2022, in south-east Ukraine since April 2014. The front line is currently 1,200 kilometres long, and in some areas fighting is very intense. War does not stop in the face of an intact ecosystem. The rockets, artillery shells and drones fired have a long-term impact in addition to their immediate devastating effect on the battlefield. They cause forest fires and release pollutants, and the explosive residues contaminate the soil. In June 2023, the destruction of the Kakhovka Dam caused severe flooding downstream along the Dnipro, and large areas of land have been contaminated by the landmines deployed along the front lines.

The Ukrainian authorities are gathering extensive evidence to prove that Russia has committed environmental war crimes. In some countries, "ecocide" is already codified in criminal law. In international law, initiatives exist to include "ecocide" as a fifth crime (alongside genocide, crimes against humanity, war crimes and crimes of aggression) in the Rome Statute of the International Criminal Court

Sources: Harding 2025, and Hoffman and Riabenko 2025.

4.2 Violence against indigenous peoples and environmental activists in the Global South

The international NGO Global Witness documents and monitors violence against environmental activists and others around the world who resist forced evictions and land grabs linked to agriculture, mining or the timber industries. Between 2012 and 2022, the organisation recorded over 1,900 murders – most of them in Latin America but also across other continents. These acts of violence are often deliberate attempts to silence protest and force people off their land.

Indigenous peoples are disproportionately affected.[60] The inhabitants lose their living environment and humankind loses areas of ecological value. Biodiversity loss is progressing and precious sinks that can absorb greenhouse gases are being destroyed. With the help of non-governmental organisations, these crimes are becoming better known and receiving more attention. For example, along with numerous non-governmental organisations, the UN High Commissioner for Human Rights explicitly called on member states to protect indigenous peoples and environmentalists on the sidelines of the global climate change conference in Baku in 2024.[61]

If it is conceived in a participatory manner and implemented prudently, the ecological transformation, with a phase-out of fossil fuels and the expansion of renewable energy sources, can be a win-win situation for everyone in the Global South. However, when fossil fuels constitute a large part of public revenues or when the extraction of critical minerals is creating massive ecological and humanitarian problems, this transformation poses a massive challenge. The needs of everyone involved and the interests of nature must be taken into account and reconciled with each other. Nevertheless, differences in interests lead to conflicts, which are often waged at the expense of economically disadvantaged sections of the population and nature in the Global South.

Examples include evictions to make way for large wind and solar farms and even more so for reservoirs that supply hydroelectric power plants. It is estimated that by the mid-2010s 80,000 people had been displaced to make way for hydroelectric power plants.[62] Those displaced are often indigenous peoples, and many lose their land and income without any compensation, along with their access to housing, health and education. Often their cultural identity is closely linked to the areas in which they used to settle.

The mining boom for the extraction of rare earths, which are needed for the expansion of renewable energy systems and digitalisation, is also problematic.[63] Although rare earths are also available in the Global North, extracting them requires large areas of land and is associated with serious environmental problems. Consequently, mining mainly takes place in the Global South. The booming mining industry in countries such as the Philippines and Myanmar points to worrying consequences.[64] The local population is being displaced and is defenceless against the contamination of water and soil in the vicinity of the mines.

Measures for adapting to climate change also have the potential to cause conflict. For example, (forced) resettlement can lead to conflict between new arrivals and long-established residents, as well as within the individual groups. Adaptation measures are particularly prone to conflict when their costs and benefits are distributed unevenly. For example, in the context of coastal protection, this can occur when parts of a slum or individual residential streets are cleared to make way for flood basins or dams in large Asian cities. If these flood protection measures only benefit the residents of other neighbourhoods, while those personally affected are displaced, adapting to climate change creates new displacement and inherently new conflicts. Unfortunately many of these conflicts are likely to increase at the expense of the poorest and most vulnerable members of society.

4.3 Environmental Peacebuilding

Environmental peacebuilding combines natural resource management with conflict prevention, mitigation, resolution, and recovery in order to improve the resilience of communities affected by conflict.[65] The term encompasses both national and transnational projects organised by non-governmental organisations, states and international organisations.

Although environmental peacebuilding deals with very different conflicts at different levels, there is a common assumption:[66] the hope that environmental challenges and interdependencies can provide an opportunity for proactive peacebuilding measures. Environmental problems and the scarcity of resources often extend beyond the social, ethnic and political boundaries around which conflicts have arisen. They require joint action. Mutual understanding and tolerance can develop when all the social groups affected are brought together and they establish their common interests and come up with proposed solutions to an environmental problem or a scarcity of resources. This, in turn, can have a positive impact on the management of larger conflicts. Trust in government institutions can also be strengthened if, for example, the supply of clean water can be guaranteed as part of a project. Ideally, a downward spiral of ever-increasing conflict can be broken.

Environmental peacebuilding is about local approaches to conflict resolution with the participation of all societal groups involved. The needs and expertise of those most directly affected should be given special consideration. The traditional local knowledge of indigenous peoples must be given a higher priority than has previously been the case in development cooperation.

Several UN organisations have adopted this concept in their missions and set up a joint institution in 2018 to train Climate, Peace and Security Advisors. These can be deployed in UN missions.[67] The focus is on both the destruction of the environment through armed conflicts and the impact of climate change as a possible intensifier of conflicts.

While the perspective of environmental peacebuilding is interesting and important, the actors and researchers involved are sceptical about the scope of this approach.[68] Environmental peacebuilding cannot solve the deep-rooted and widespread causes of conflict: economic inequality, political marginalisation, transnational criminal networks, high rates of gender-based violence and violence against environmental activists, and institutional mistrust. Nevertheless, this instrument should continue to be utilised and expanded.

5. Case studies

5.1 Spain: An example of disasters in Europe

Spain will be used as an example to demonstrate that, in Europe too, extreme weather events resulting from climate change are increasingly leading to major destruction and displacement. Adaptations to climate change are being made, and early warning systems and disaster risk reduction measures are being established. However, these adaptations are inadequate and to some extent counteracted by settlements in floodplains. Furthermore, insufficient consideration has been given to the fact that known weather events are becoming more destructive as a result of warming.

Spain is part of the Mediterranean region, which is experiencing the second fastest rate of warming after the Arctic.[69] By 2020, the average temperature in the region had already risen by 1.5 °C compared with pre-industrial levels. The first assessment report for the Mediterranean region summarises the results of future scenarios:[70] If greenhouse gas emissions are high, the countries bordering the Mediterranean will experience an annual average warming of 3.7 to 5.6 °C by the end of this century. In the summer, the future warming of the Mediterranean region will exceed the global average by 50 percent. Heatwaves will become more frequent, more extreme and more protracted. The average annual precipitation will decrease throughout the region. Virtually all parts of the Mediterranean region face the threat of water shortages, drought and wildfires. Increasingly severe extreme weather events are becoming more likely. As climate change makes precipitation times more variable, the frequency and intensity of heavy rainfall increases and sea levels rise, the risk of flooding is increasing sharply. Heat, drought and wildfires on the one hand and flooding on the other are two sides of the same coin, as demonstrated by the situation in Spain between 2021 and 2024.

Since the beginning of the 21st century, Spain has struggled with increasingly hot weather, as well as more frequent and more severe droughts and wildfires. A particularly severe drought from 2021 to 2024 led to water shortages with significant crop failures and restrictions on water consumption. In Catalonia, the typical autumn rains largely failed to materialise and water reservoirs emptied rapidly.[71] To some extent, the impact was mitigated by means of a water management plan, one of Europe's largest water desalination plants and the recycling of treated water from large wastewater treatment plants. This water is partially used to replenish the groundwater in order to counteract salt water intrusion. Some of it is discharged back into the Llobregat River where it can be reused in the drinking water treatment plant 8 km downstream. Every year there are numerous forest and bush fires which can only be extinguished after large-scale operations and which lead to evacuations and hundreds of thousands of hectares of scorched earth in Spain between April and September.

The long drought was followed in October 2024 by the wettest October since records began. Extreme rainfall in the space of just a few hours led to catastrophic flooding, devastating entire towns in southeast Spain.[72] Municipalities in the provinces of Valencia and Castellón were the worst affected. The Andalusian provinces of Málaga and Cádiz as well as the provinces of Albacete and Cuenca in Castilla-La Mancha were also hit by flooding. In the worst-affected areas, more than 400 – 500 litres of rain per square metre fell within a few hours. That is approximately ten times the average rainfall in Spain for spring or summer. This catastrophic weather was caused by a phenomenon that arises in the Mediterranean and is known as "Depresión Aislada en Niveles Altos" (DANA), a Spanish term that translates as isolated upper-level depression. A DANA occurs when a mass of warm air over the Mediterranean Sea collides with a stagnant mass of cold air at an altitude of around 9,000 metres. The warm air becomes saturated with moisture and rises. The contrast in temperature combined with moisture and energy from the Mediterranean, which is very warm after the summer months, leads to heavy storms and torrential rainfall. The winds of a DANA may not be as violent as those of a hurricane, but in

terms of precipitation and intensity, a DANA can be equally destructive. Numerous climate researchers have emphasised in the media that the extreme severity of the weather event must definitely be seen in the context of climate change.[73] The Mediterranean had been unusually warm for several months and the air temperature was very high for the time of year.

According to Jorge Olcina, a climate expert at the University of Alicante, the warmer Mediterranean Sea and the warmer season fuelled the torrential rainfall in a dramatic cocktail caused by climate change.[74] As the climate changes, strong DANAs may become more frequent and more extreme.

The enormous impact of the torrential rains in Valencia in 2024.

For those affected, the extent to which anthropogenic climate change played a part in the disaster will have been irrelevant.[75] Muddy water rushed down the streets, tearing down walls and houses, sweeping away people, furniture and refrigerators and washing away cars. People were trapped in their homes or cars. Streams that had almost dried up in summer experienced flash flooding. In the municipality of Utiel, west of Valencia, a stream swelled to around three metres, flooding nearby homes. Those living on the ground floor were unable to escape. Within a few days, 236 people had died in the floods in southeast Spain. Homes, infrastructure, businesses and farms were destroyed. Important transport routes, including motorways and railway lines, were badly damaged. Regional roads and bridges became impassable. Some areas were completely cut off and could only be reached by helicopter. Thousands of people were rescued from destroyed and flooded houses and cars.

For the whole of 2024, Spain reported 14,000 internally displaced persons as a result of flooding and wildfires in the IDMC database.[76] The database also lists 4,000 internally displaced persons who were still being housed in emergency accommodation at the end of December in Valencia alone. The IDMC itself estimates that the actual number of displacements is higher. Given the tremendous destruction caused by the floods, it will be months before many people can return home or move into a new residence. Personal accounts show the extent of the losses and the suffering experienced by those affected, even months after the disaster. More than two months after the floods, residents of Catarroja explain: “We are rebuilding everything from scratch –

not just the houses, but our entire lives" and "I wish it was all over and erased from my mind. I just spent an entire night dreaming that my eldest daughter was drowning."[77]

Politicians and government authorities have been heavily criticised after the flooding disaster.[78] The population was warned far too late, with fatal consequences.[79] The relevant authorities did not pass on the warnings issued by the meteorological service for hours, by which time many people were already trapped by the flash floods. The inadequate coordination of the disaster management has been criticised, as have major deficits in urban and land-use planning. The region has plenty of experience with heat and drought as well as flooding caused by the dangerous weather phenomenon DANA. Despite this, the region's cities were permitted to expand largely unchecked during the construction boom between 1997 and 2007. Building regulations were circumvented. Buildings were constructed in areas designated as prone to flooding and in wetlands, and the surfaces were extensively sealed. Transverse structures (roads and motorways) that impede the flow of water were also built.

Like other countries, Spain faces major challenges in adapting to anthropogenic climate change. As urbanisation and the influx to coastal cities continues to increase, solutions must be found to address increasing heat stress, drought, water scarcity, flooding and rising sea levels. This task is even more challenging for countries in the Global South, where large parts of the population are already living in precarious conditions.

5.2 USA: Multiple setbacks and institutional damage under the new Trump Administration

The USA is responsible for the largest share of global cumulative CO_2 emissions,[80] and every year it experiences disasters. Despite this, the Trump administration, which has been in power the since January 2025, is denying anthropogenic climate change, banning the collection of relevant data and demolishing the established early warning and emergency response systems. This means that the US government is acting in diametric opposition to the global trend of expanding early warning and emergency response systems.

Severe storms, floods, droughts and forest fires cause major damage. Rising sea levels are also clearly noticeable in the US, particularly on the east coast. In 2024, a year with particularly strong tropical cyclones that caused major destruction in the US, the United States reported a record number of over 11 million evacuations and displacements.[81]

The USA has established early warning systems and comprehensive disaster response systems in response to the extreme weather events and invested in research that has contributed to a better understanding of weather and climate phenomena far beyond the USA. This research has provided detailed data for forecasting extreme weather events, which is of fundamental importance for a proactive disaster response.

One example of the successful and nuanced early warning system in the USA:[82] In early April 2025, the states of Mississippi, Arkansas, Missouri, Illinois, Indiana, Kentucky, Tennessee and Alabama experienced an extremely dangerous, complex and unusually powerful weather event with more than 100 tornadoes, heavy rainfall, flash floods and widespread flooding. This event was unprecedented in the region.[83] Nevertheless, the National Weather Service was able to issue highly specific local warnings several days in advance, as well as a record number of tornado warnings on individual days. Twenty-four people died. The economic cost of the destruction is estimated to be between 80 and 90 billion US dollars. Without the advance warnings, which allowed protective measures to be taken and timely evacuations to be carried out, many more people would have died or been injured and the costs would have been much higher.[84] However, the National Weather Service has warned that, due to the job and budget cuts imposed by the new US administration, it will no longer be able to maintain this level of early warnings.

Since taking office on 20 January 2025, Trump has been violating democratic procedures and US law at

a breathtaking pace. He has weakened ministries, federal agencies and research institutions through mass redundancies and by replacing senior management with compliant supporters. He has cut long-approved funding, revoked environmental laws and forced a reversal back to the age of fossil fuels. Trump has also submitted an official notice of withdrawal from the Paris Climate Agreement to the UN. He and his administration are systematically endeavouring to remove climate change and climate protection from the American agenda. No only has the government had the terms "climate crisis" and "climate science" removed from government websites, it is also attacking the relevant institutions directly.[85] There have been mass redundancies, budget cuts and nonsensical new regulations for all government institutions involved in climate research, data collection and disaster relief.

The government is no longer collecting data on the major sources of greenhouse gases and the impact of emissions on the economy, employment, agriculture, health and other aspects of American society. In spring 2025, more than 500 employees were obliged to leave the National Oceanic and Atmospheric Administration (NOAA), the government's main agency for climate and weather research. Due to government cutbacks, the National Weather Service, an agency within NOAA, will have to significantly reduce the scope of its early warning system. The Trump administration is not interested in the high economic costs of climate change either and has explicitly stated that it no longer wants to take them into account. "We're not doing that climate change crud,"[86] Agriculture Secretary Brooke Rollins told Fox Business on 8 May 2025.

Radical cuts have also been made in the field of emergency management. The Federal Emergency Management Agency (FEMA) is at the top of Trump's list for abolishment. This federal agency has in the past organised disaster relief and provided damage assessment and financial aid for reconstruction in the USA. Since taking office, Trump has refused to pay reconstruction aid to federal states, causing great indignation.[87] Reconstruction aid was cancelled after Hurricane Helene as well as after the flood disaster in April 2025. Neither the loss of homes by thousands

The aftermath of Hurricane Milton on the beaches of Florida's west coast, 2024.

of people nor the wrecked infrastructure and the high costs for the economy are considered sufficient reasons for the state to provide assistance. The US administration is planning to shut down FEMA altogether and give the states sole responsibility for emergency management. However, the federal states lack both the personnel and the resources to do this. When the head of FEMA spoke out in favour of keeping FEMA, at a Congressional hearing in May 2025, he was summarily dismissed. The new head of FEMA, a former military officer and Trump loyalist with no specialist knowledge, has seen it as his primary task to rigorously implement Trump's orders from the moment he took office.

With its destructive policies, the US administration is weakening the country's ability to understand global warming, to prepare for its consequences and to protect its population from ever-increasing disasters. The government has already undermined the resilience of large sections of the population by making radical cuts to state services in the health and social sectors. Will the American people successfully fight back when the upcoming hurricane season reveals the government's betrayal of the people more starkly? Or will Americans continue to be distracted and blinded by the administration's hatred, baiting and fake news?

The consequences of the US administration's anti-science policies, its ignorance of anthropogenic climate change and its focus on rapidly expanding the use of fossil fuels extend far beyond the USA. US greenhouse gas emissions are already very high and will continue to rise sharply if Trump gets his way with his plans to expand the use of fossil fuels. On a positive note, renewable energies are continuing to expand in many states, including those governed by Republicans – despite the Trump administration.

The USA has until now been a mainstay of international climate research. However, the US administration's fight against climate science has led to the cancellation of research projects. This has resulted in large gaps in the regularly collected data. Scientists around the world are trying to salvage what they can, for example by transferring data records from US servers to European servers.[88]

5.3 Afghanistan: Defenceless against violence and disasters

Afghanistan has suffered from decades of war, widespread destruction and the brutal Taliban rule it has been under since 2021. At the same time, the country continues to be threatened by a large number of natural hazards. The war destroyed the infrastructure and prevented the country from preparing for the consequences of climate change and investing in disaster response management.[89] The Taliban terrorise the population with arbitrary arrests, enforced disappearances, torture, executions and the gender-based persecution of women and girls.[90] The population is defenceless in the face of both the terror of the Taliban and the numerous disasters.

This arid, mountainous country is severely affected by climate change. The overall amount of precipitation is decreasing, and precipitation seasons are shifting. Heat, drought, heavy rainfall and landslides are increasing. The country is also exposed to geophysical disasters. In 2023, the country was shaken by severe earthquakes. At least 1,400 people were killed and 20,000 buildings destroyed.[91] At the same time, the country suffered four consecutive years of severe drought, crops failed, rivers dried up and groundwater levels sank in many regions. In spring 2024, as people were still struggling with the consequences of the earthquake and the crop failures due to the drought, the drought was followed by flash floods. Flood disasters in 32 of the 34 provinces once again destroyed thousands of houses and fields. Farmers had only just used the first rainfall to begin cultivating their fields, when the floods demolished everything once again.

With 70 per cent of the population living in rural areas and depending on agriculture for their livelihood, it is easy to get a sense of just how many people keep losing their means of existence. One of the characteristics of Afghanistan is that a large proportion of its population has been displaced multiple times, sometimes by war and violence, sometimes by disasters. Several million people are living in the country as long-term displaced persons with no prospect of resettlement.

Effects of extreme monsoon rains in the greater Sylhet area in eastern Bangladesh.

Rapid urbanisation with increasing water consumption, a lack of a water infrastructure and low rainfall are leading to an unprecedented water crisis in the capital Kabul.[92] Groundwater levels in Kabul have fallen sharply in recent years, sometimes by as much as 30 metres. The city's water supply largely comes from its groundwater. The fear is, therefore, that the water supply could collapse completely within a few years unless a pipeline project is quickly implemented with international assistance, which would allow the use of surface water.

Afghans' ability to recover from 40 years of conflict continues to be undermined by shrinking protected areas, inadequate access to basic services, a fragile economy, natural hazards and climate-related shocks, and by the overall political dynamics. People are weighed down by poverty, unemployment and high household debt. The World Bank estimates that almost half the population – around 22.9 million people – will need humanitarian aid in 2025 in order to survive. More than a third of the population faces acute food insecurity.[93] The country is on the brink of famine.

In recent decades, millions of Afghans have fled to neighbouring countries. Between autumn 2023 and spring 2025, more than 3 million Afghans returned to Afghanistan from Iran and Pakistan. Many of them were forced to return without their belongings. The UNHCR has strongly criticised the forced return and demands that any return to Afghanistan should be voluntary, safe and humane. Meanwhile, the German government's reception programme for former local aid workers and human rights activists has stalled.[94] Several thousand Afghans, who had already received a provisional letter of acceptance from Germany, are now stranded in Pakistan, facing deportation to Afghanistan.

5.4 Bangladesh: The most densely populated country with disasters and the world's largest refugee camp

Countries in South and Southeast Asia are particularly hard-hit by climate change and have the highest rates of disaster-related displacement in the world. This study takes a closer look at Bangladesh because it is the most densely populated country in the world as well as being home to the largest refugee camp.

Bangladesh and Myanmar have a tropical to subtropical monsoon climate with three distinct seasons: a hot and dry period from mid-February to mid-May; a southwest monsoon bringing 95 percent

of the country's annual rainfall from mid-May to the end of October; and a cooler, drier northeast monsoon lasting until February.

Climate change is making weather extremes more pronounced and more erratic. The increasing melting of the Himalayan glaciers is causing rivers to burst their banks. During the monsoon, the amount of rainfall increases rapidly and leads to major flooding and landslides. The drainage of the water is slowed down by rising sea levels, soil sealing and overstretched sewage systems, prolonging and extending flooding. Rising sea levels and an increase in particularly extreme tropical storms are causing tides to rise higher and higher and the soil and the groundwater to become salinised, while the coastal infrastructure is increasingly under threat. The average temperature is rising, extreme heatwaves are becoming more frequent, night-time cooling is decreasing and droughts are becoming more common.

Its topography alone makes Bangladesh one of the countries most at risk of flooding and inundation worldwide. Except for the northeast and southeast, the country is flat. The Ganges-Brahmaputra Delta, which is criss-crossed by countless rivers and canals, occupies much of the country. Around 10 percent of the country's total area is just one metre above mean sea level, and a third of the territory lies below the tidal range. On average, one fifth of the territory is flooded every year. Until now, the extensive mangrove forests in the coastal zone have offered some protection from storms. However, if sea levels rise by one metre, the mangroves themselves will be at risk. A rise of this magnitude would result in almost 30,000 square kilometres of land being flooded, leaving almost 15 million people homeless and making them environmental refugees in their own country.

Bangladesh is home to almost 170 million people, living in an area of just under 148,000 square kilometres (around 40 percent of the area of Germany). This makes Bangladesh the country with the highest population density in the world. It is currently one of the world's least developed countries, with 18 percent of its population living below the poverty line.[95] For almost a quarter of the population, a regular, good food supply is uncertain, not least due to crop failures caused by flooding and heat. Nevertheless, Bangladesh has managed to develop economically in recent years, particularly through the expansion of its garment industry. Its economic centres lie in the cities, where per capita income is four times higher than in the rural areas.[96] Politically, despite the many adverse circumstances, there are signs of a new beginning. In the summer of 2024, student demonstrations led to the overthrow of the authoritarian government, which was responsible for corruption, nepotism and serious human rights violations. The interim president is preparing to hold elections and is calling on international players to invest in Bangladesh, a country with many young, well-educated people.

Human mobility takes many forms in Bangladesh. For decades, many Bangladeshis have been leaving their country temporarily or for long periods as labour migrants to urban centres, especially in India and the Arab world, but also in North America and

In March 2023, a fire destroys shelters in a Rohingya refugee camp in south-eastern Bangladesh, leaving around 12,000 people homeless.

Europe. The remittances that migrants send back to their home country are an important pillar of support for those living in the country. Bangladesh is also home to 1.3 million Rohingya refugees from Myanmar, living in the world's largest refugee camp. Seasonal or long-term labour migration and displacement due to inland flooding, tropical storms, storm surges and coastal flooding have also led to pronounced internal migration. The main destinations are the country's cities, which are growing rapidly.

Due to tropical storms, the flooding of inland rivers and storm surges, the number of disaster-related displacements in the last six years has risen to unprecedented levels since records began. 2.4 million new displacements are estimated to have occurred annually between 2021 and 2024.[97] At least 150,000 homes were destroyed across the country, leaving 172,000 people displaced by the end of 2024. Evacuations and resettlements account for a significant proportion of these refugee movements. With the support of aid organisations, Bangladesh has invested heavily in early warning systems and disaster risk reduction. Nevertheless, the humanitarian and socio-economic consequences of these disasters are enormous, including homelessness, water and food shortages, destroyed infrastructure and shortages of medical care.[98]

BOX 8: Adaptation to climate change in Bangladesh

Various forms of adaptation to climate change are being developed and tried out in Bangladesh. These include the construction of multi-purpose cyclone shelters, for example, which are used as schools; the development of combined dyke systems, which are used to grow vegetables and cereals as well as for fish farming; floating vegetable patches; solar-powered irrigation systems; the use of rainwater catchment basins when fresh water is scarce; the cultivation of rice varieties that are more tolerant to salt water and heat; switching from rice to vegetable or quinoa cultivation; and the development of sustainable agroforestry. By integrating trees into agricultural systems and marketing fruit and timber, farmers are combating soil erosion, improving biodiversity and creating a natural defence against floods and hurricanes. The government, international organisations, NGOs and local initiatives are contributing to the development and funding of model projects. Additional funding, closer cooperation with the local population and more research are needed to further increase the resilience of the population and to secure food production in line with global warming.

Work is also being done in Bangladesh to determine how cities can become both more resilient to climate change and more migration-friendly. It is hoped that, in future, more resilient medium-sized cities with new job opportunities will be able to absorb migrants from rural areas, so that fewer migrants will move on to the already very densely populated capital Dhaka. To this end, a model programme is currently being developed for the seaport city of Mongla, which will later be transferred to other cities. Several international institutions are supporting the local government in the search for solutions, while maintaining a dialogue with the citizens and with new arrivals. These solutions must address the development of the housing and labour market as well as protection against flooding and an overheated urban climate.

They could include fresh air corridors, urban greening and the maintenance of ponds, which would serve both recreational purposes and as water reservoirs in the event of fires. Account should be taken of the fact that a nuanced understanding of the local context is crucial for success. Later, funds from the Asian Development Bank will be used to implement the ideas in Mongla and other medium-sized cities in Bangladesh. Ban Ki-moon, the former UN Secretary-General who now chairs one of the organisations involved in the project, has high hopes for this interactive planning initiative and views Bangladesh as a global pioneer in preparing for climate migration in the future. The project is part of a global effort to plan climate-resilient cities where life is worth living.

Quellen: Hossain 2024. Mehr dazu bei der in Bangladesch gegründeten internationalen Nichtregierungsorganisation BRAC auf ihrer homepage.brac.net, Verkooijen und Ban Ki-moon 2023, Meilinger 2024.

Crop failures lead to farm labourers losing their jobs and farmers losing their income. As a result, food prices are rising. Survival strategies include selling one's own labour in advance, selling land, or temporary migration, especially by men, to the cities in search of additional income. The decision for entire families to migrate to the cities permanently is often only made after struggling for a long time to maintain their livelihoods locally, once the situation has become unsustainable. It is not uncommon for migration to begin when the debt burden becomes too large, or when people have to sell their land in order to buy food or pay their taxes. The number of landless farmers in Bangladesh is increasing. In the aftermath of several successive disasters, the decision to migrate is also affected by increasing impoverishment and the loss of family members.

Over the generations, people living on riverbanks or islands in the delta have learnt to cope with monsoon rains and floods. However, the increasing loss of land is becoming a problem: every monsoon season sees the loss of further riparian zones, and more and more land and settlements are being swallowed up. People rescue their corrugated iron huts from the flooding in order to rebuild them in another place and grow crops at the new site. Every time they move, the risk of further impoverishment increases. A research project followed 2,000 people over a number of years.[99] It emerged that most people were staying near their river as long as possible rather than migrating elsewhere. The researchers suspect that this pattern also applies to other societies affected by climate change.

Densely populated Bangladesh, of all places, is home to the world's largest refugee camp: Cox's Bazar refugee camp in the southeast of the country. There are now 1.3 million Rohingya refugees living there in extremely precarious conditions, having fled from neighbouring Myanmar.[100] The Rohingya are a Muslim ethnic minority who have been persecuted in Myanmar since the 1960s. In Bangladesh, they are not issued work permits and their freedom of movement is restricted. Nevertheless, the local population has supported and integrated these people for a long time.[101] In 2017, almost one million Rohingya fled to Bangladesh after the Myanmar military killed thousands of Rohingyas and burned down their villages. Since then, the Bangladeshi government has increasingly sealed off the refugee camp. People are only allowed to leave the camp with special permission and must carry biometric ID cards outside the camp; if they are found outside the camp without permission, they can be imprisoned. The refugees depend almost entirely on aid from the Bangladeshi government and international aid organisations to survive. Aid projects need to involve the host society. The extremely crowded conditions mean that managing the water supply and waste disposal inside and outside the camp is becoming increasingly difficult.

The environmental conditions in the region are not at all suitable for the operation of a large refugee camp.[102] A dense forest once stood on the site of today's refugee camp. Deforestation and the increasingly extreme weather conditions caused by climate change are putting everyone in the region at risk. For example, during the monsoon in June 2024, a torrential downpour and mudslides killed 10 people and destroyed over 1,000 shelters, as well as health facilities, latrines, water points, bathing cabins, education centres and mosques in the refugee camps.

In an interview, a Bangladeshi declared: "I am proud of my country for taking in so many refugees. But we don't have enough work or space for this many people. I don't understand why the international community is doing nothing."[103] Interviews show[104] that many Rohingyas would prefer to move back to Myanmar if only they could obtain Myanmar citizenship, which the government has so far denied them, and live there without danger and fear of persecution. However, for many refugees, this dream has been shattered as international attempts to mediate have failed and the Rohingya continue to be persecuted in Myanmar. The refugees' second choice seems to be to settle in the region. A third option would be to find some place, anywhere, where they can live in dignity. As is the case elsewhere in the world, anti-migration and anti-migrant propaganda seems to be making it more difficult to find sustainable solutions for the Rohingya. Government-aligned media outlets in Myanmar and networks sympathetic to the government in the region are spreading disinformation and inciting hatred against the Rohingya, portraying a vulnerable segment of the population as a threat and seeking to justify their exclusion and expulsion.[105]

In its search for a permanent solution for the refugees, the UNHCR has been pursuing various approaches in parallel, including settling the people in the region and in more distant countries.[106] It is hoped that providing refugees with educational opportunities will also open up a path to regulated international labour migration for them.

5.5 Myanmar: Civil war, poverty and disasters

Myanmar is the poorest country in Southeast Asia. Its population is suffering from a decades-long civil war between the army and various armed groups. The military seized power in 2021 and has been ruling by force ever since. The Rohingya ethnic minority has been subjected to brutal persecution and displacement since the 1960s.

Floods are the most frequent disasters, with 3.4 million people displaced by floods between 2010 and 2023.[107] About half the population lives in areas at risk of flooding. Heatwaves are becoming more protracted and more extreme.[108] During a heatwave in April 2024, local authorities, aid organisations and undertakers reported a sharp increase in the number of deaths, with the number of heat-related deaths estimated at 1,470 in April alone. Radio Free Asia reported: "The heatwave has been so hot in the last few days that people have died while they were walking or driving their motorbike."[109]

In March 2025, Myanmar was also shaken by an earthquake measuring 7.7 on the Richter scale. Its epicentre was near the country's second largest city. Thousands of people were killed. 17 million people were impacted by the earthquake. The military regime obstructed relief efforts and even continued fighting immediately after the earthquake.[110]

Even before the earthquake struck, there were already 3.5 million internally displaced persons in Myanmar. The number of people newly displaced as a result of the earthquake is estimated at 200,000. The earthquake destroyed houses, temporary refugee accommodation, infrastructure, health centres, sanitary facilities and the drinking water supply in urban areas. The people affected by the earthquake and displacement were confronted with a deadly heatwave and then, from April onwards, with heavy rainfall and flooding. The heat, heavy rainfall and contamination of water supplies pose a major risk for the spread of malaria and dengue fever, as well as acute respiratory and gastrointestinal diseases – particularly in overcrowded emergency shelters.

Unsurprisingly, the food crisis is increasing under these conditions. Flooding, heat and armed conflicts had already limited food production in previous years, leaving around a third of the population dependent on food aid. The earthquake may have damaged dams already softened by the heavy rain. This further increases the risk of flooding. In addition to the further destruction of houses, infrastructure and agriculture, there are other dangers. During a typhoon in 2024, flooding swept away land mines, which are increasingly being used in the war in Myanmar, thereby adding to the lethal dangers for human beings. Myanmar is therefore a particularly striking example of the overlap between armed violence, disasters and mass refugee movements.

Disaster relief and rescue operations following the earthquake in Mandalay, Myanmar, in March 2025.

5.6 The small island developing states: Leading the way in international climate policy in the face of existential threats

The thirty-nine small island developing states (SIDS) play an important role in the international climate debate. Although they are among the lowest greenhouse gas emitters in the world, they are particularly severely affected by the consequences and are among the strongest international voices for climate protection.[111] They form a joint negotiating group, the Alliance of Small Island States (AOSIS), at the international climate negotiations. With the support of friendly states and non-governmental organisations, the alliance is fighting to make industrialised countries finally live up to their global responsibility, develop an effective climate policy, phase out fossil fuels and provide sufficient financial resources both for mitigation as well as for adaptation action and to address loss and damage. The SIDS are also heavily involved in international negotiations on marine conservation.

The SIDS are making their voices heard in the fight for climate justice. At the 2019 COP 25 of the UNFCCC, Hilda Heine, the president of the Marshall Islands, summarised the struggle of the SIDS: "The most vulnerable atoll nations, like my country, already face death row. Water covers much of our land at one or other point of the year as we fight rising tides. As we speak, hundreds of people have evacuated their homes after large waves caused the ocean to inundate parts of our capital in Majuro. It's a fight to the death for anyone not prepared to flee. As a nation we refuse to flee, but we also refuse to die. … To force our country to die. That's an injustice, if only because we know these governments can act. We know it is not impossible … It's quite the opposite. It's why climate change is a major human rights issue … Climate is the most serious human rights issue we have ever faced."[112]

In the same year, law students from the Pacific University and the island nation of Vanuatu launched a campaign for climate justice. Four years later, they secured the backing of 130 countries at the UN General Assembly, asking for an advisory opinion on the obligations of states with respect to climate change.[113] The International Court of Justice subsequently published its advisory opinion on the matter in July 2025. The court ruled that a clean, healthy and sustainable environment is a human right.[114] The obligation of all states to effectively protect the climate can be derived from international law. States must prevent significant environmental harm, cooperate internationally and uphold fundamental rights in the face of escalating climate risks. Environmental lawyers hope that this advisory opinion will provide important new impetus for climate lawsuits.

The SIDS have a number of features in common. They are spread across the world's oceans, some are located in remote areas far from the nearest land mass, making access and transport difficult and expensive. The countries have very small populations and very small land masses, limiting the development of diversified economies and making them dependent on imports. In total, 64 million people live in these small island nations. This is substantially less than one percent of the world's population. The marine areas of the SIDS are on average 28 times larger than their land areas. Tourism and fishing are particularly important economic sectors. International migration has a long history in these small island states and is an integral part of their social, economic and cultural life. The SIDS are home to 3.81 million international migrants and the countries of origin of almost 10 million migrants worldwide. In addition, intraregional mobility is very pronounced.[115]

Rising sea levels pose a major threat to the populations, economies and cultures of these nations.[116] Almost 22 million people in the Caribbean live less than six metres above sea level. As the number of extremely powerful tropical storms has increased, flooding is extending further and further inland, endangering human lives and destroying homes and infrastructure. The warming and acidification of the seawater is decalcifying the coral reefs that used to protect the coasts of many islands and served as nurseries for fish. Heatwaves, land degradation, earthquakes and volcanic eruptions contribute to the fact that many inhabitants are under extreme stress. The situation for fishing and agriculture is deteriorating. Jobs are

disappearing, and more and more food has to be imported.

The shallow atoll states of the Indo-Pacific, such as Kiribati, the Marshall Islands and Tuvalu, are threatened in their very existence. These states are often less than 5 metres above sea level, in some cases just 1 or 2 metres, and their infrastructure is located close to the coast. Sea levels in Pacific island nations are expected to rise by at least 15 centimetres over the next 30 years, and the number of days of flooding will increase many times over.[117] It is estimated that by 2050 half of Tuvalu's capital will be flooded by the tides. The atoll states already have the highest percentage of population displacement caused by disasters worldwide.[118] For years, more and more inhabitants of the atoll states have been moving from the outer, low-lying islands to more central, slightly higher islands and to the densely packed urban centres.[119] The growing informal settlements in urban areas present their own challenges and threats, especially for women, children, older people and people with disabilities. Entire villages have already been relocated. When flooding, coastal erosion and storms wash brackish water into the freshwater lenses of an island, its freshwater supply collapses. Such islands become uninhabitable long before they sink into the sea.

The SIDS and their societies are fighting hard to maintain a sustainable life on their islands today and in the future. They have developed various regional and national policies and programmes, which focus on climate change mitigation and adaptation as well as on disaster risk reduction and social economic development.[120] However, there is far too little international aid to implement these policies and programmes.

Climate change-induced migration is also on the agenda. Inclusive dialogues in the Pacific countries led to the Pacific Regional Framework on Climate Mobility in 2023.[121] This notable document serves as a guide for regional governments, communities, non-state actors and partners to ensure rights-based, people-centred movements in the context of climate change. These include staying in place, planned relocation, migration and displacement, using a proactive, inclusive and collaborative regional approach. The document prioritises staying in place and continuing to protect life on the islands, rather than abandoning them: "We recognise the desire of Pacific people to continue to live in their own countries where possible and our people's deep, ancestral connection to land and sea. For Pacific people, loss of land is not just about loss of place. It impacts the foundations of our individual and collective identities and well-being, and may threaten our customary practices and traditions, and complicate our ability to respond to climate change and related hazards and disasters. Helping our people stay in their homes with safety and dignity is a fundamental priority for the Pacific."[122]

This is in line with the Eastern Caribbean Declaration on Migration, Environment and Climate Change. It also emphasises the need to "a) Take action to avert, minimise and address displacement in the context of climate change and disasters both across and within borders. b) Strengthen the support for countries and communities most vulnerable to climate change impacts, to access new and additional scaled-up climate financing."[123]

The SIDS are continuing to fight for more financial assistance to help them adapt to climate change, as well as assurances as to where their populations can relocate – preferably within the Pacific region – should their own islands become uninhabitable.[124] So far, international support has been inadequate. Until now, Australia has only issued visas in connection with employment contracts, which are usually limited in time.[125] The bilateral agreement between Australia and Tuvalu of 2023 is an exception. It provides for 280 Tuvaluan citizens per year to be granted a permanent visa to Australia. Time will tell whether these visas mark the beginning of a rethink in Australian immigration policy and whether other countries will follow suit, or whether it is just another example of the unfair incremental approach of industrialised countries to climate-induced migration.[126] Recognising dual citizenship could give many people in the atoll states a degree of security in the future. Dual citizenship would also allow the states to continue to exist as states for decades, if the islands should become increasingly inhospitable and fewer people live there permanently.[127]

5.7 Africa: On the "postcolonial view", self-healing powers and the scourge of violence and conflict

The "postcolonial view" of Africa remains unbroken. Instead of acknowledging the continent's dynamics, opportunities and new beginnings, and appreciating its self-healing powers and willingness to embrace displacement and migration, international media reporting on Africa still implicitly perpetuates five central stereotypes: corruption, disease, poor leadership, violence and poverty.[128]

This distorted view is particularly evident when it comes to migration. Africa is seen as a "population bomb"[129] with people heading inexorably towards Europe or the Global North, like an avalanche of refugees, fleeing war and "overpopulation" caused by climate change – whereby the continent that is least responsible for climate change is being hit hardest by its consequences. The supposedly unavoidable consequence of the fear of the "great exchange", which is central not only to conspiracy theorists on the far right, is that ultimately the only solution is strict isolation because all efforts at development cooperation in Africa have come to nothing anyway and are ultimately counterproductive.[130]

As with many other issues, Donald Trump, the 'great populist and simplifier', serves as an example of this assessment of Africa, though he is not alone in this view. For Trump, migration is the mother of all problems, climate change does not exist, development aid is a waste of money and the countries of Africa are "shithole countries",[131] on whose soil one should never set foot and which should be kept as far away as possible.

Just how short-sighted, contradictory, inhumane and racist this is became clear during the visit by South African President Ramaphosa to the White House in May 2025 and the simultaneous arrival of the first contingent of refugees in the US: allegedly threatened white farmers from South Africa ("white genocide").[132] Instead, it should be clear that the negative clichés and distorted perceptions are simply a transparent attempt to create or confirm a uniform and simplistic image of Africa that serves people's own prejudices but in no way does justice to the diverse realities of the continent.

Migration movements have been and continue to be a constant feature in the development of Africa, the "cradle of humankind". Reactions to changing environmental conditions, such as searching for water outside the rainforest or following herds of wild animals as an important source of food, were already important during the earliest human development, beyond the desire to explore new frontiers. Slavery too was one of the practices of social coexistence from very early on, although evidence of enslavement only dates back to the early advanced civilisations. In addition to the Arab slave trade in East Africa and on the trans-Saharan routes to the MENA region, the transatlantic slave trade in particular led to an immense bloodletting between the 16th and 19th centuries. Exact figures for the total numbers do not exist, not least because of the high number of fatalities during transport, but in the more than 350 years of the transatlantic slave trade, around 12 million slaves arrived in America.[133] With the end of slavery, the strong demand for seasonal labour for the production of typical "colonial goods" (cocoa, coffee, etc.) has played a role in the migration movements in West and Central Africa to this day, as has the demand for labour for mining in southern Africa and the general attractiveness of large urban centres, including those beyond the countries' borders.

Following an overview of the development of the latest figures on displacement and migration in sub-Saharan Africa, this sub-chapter will analyse key problem areas and individual countries in the Sahel region, going from west to east. From rising sea levels on the West African coast, the consequences of transnational terrorism, political instability and flood disasters in Mali, Burkina Faso, Nigeria and Chad, to the civil war in Sudan and the impact on the conflicts in the Horn of Africa – the situation in the Sahel Belt is characterised by numerous overlapping crises and clusters of causes. Displacement and flight are widespread and have many causes, but they are certainly not leading to a "mass migration to Europe".

Disaster relief and rescue operations following the earthquake in Mandalay, Myanmar, in March 2025.

According to IDMC data, the number of displaced persons in sub-Saharan Africa reached 38.8 million by the end of 2024, corresponding to 46 percent of all globally displaced persons.[134] The majority, 33.1 million people, have been displaced by conflict and violence, while disasters account for 5.7 million. The number of new displacements registered per year has fluctuated greatly in recent years, whereas the number of people displaced at the end of the year has increased steadily over the last decade. In 2024, the "ranking" was led by Sudan (11.56 million), followed by the DRC (6.89), Somalia (3.86), Nigeria (3.7) and Ethiopia (3.13). Whereas displacement in Sudan is almost exclusively due to conflict and violence, disasters also contribute in the other four countries, although conflict and violence account for the vast majority of displacements.

The latest data from the UN Department of Economic and Social Affairs[135] (UN DESA 2025) provides information on the number of migrants who were born in Africa but have since left their countries of birth permanently. Despite the media and political fixation on "irregular" migration from Africa to Europe via the Spanish exclaves in North Africa and across the Mediterranean and to the Canary Islands in boats that are often unseaworthy, the majority of these migrants (55 percent) actually live in other African countries. In 2024, Africa accounted for 15 percent of all migrants worldwide, almost 50 million people, compared with 13 percent in 1990. In Europe, the number of migrants from Africa increased significantly from 4 million in 1990 to 10.6 million in 2024. France accounts for the highest share, over 4 million, followed by the United Kingdom and Portugal. In Germany, by contrast, just over 500,000 people are migrants from Africa, only 0.63 percent of the total population and 15.49 percent of the total number of migrants.[136] More than a third of migrants in Germany are Ukrainians who have fled the Russian war of aggression in their country over the past three years.

In the last decade, the USA has overtaken France as the most popular destination for migrants from Africa.[137] The vast majority of these people arrive in the USA and Europe legally, particularly because the life-threatening routes for "irregular" migration have recently become subject to increasingly severe restrictions. After rising significantly between

2019 and 2023, to around 170,000, the number of registered attempts at crossing the border into Europe "illegally" is estimated to have dropped to just under 100,000 in 2024.[138] However, this contrasts with the number of registered victims (almost 5,000) who died on the perilous journey to Europe. This number is still scandalously high and decreased by just 15 percent over the same period. The number of unreported cases is probably far higher if the transit routes through the Sahara are also taken into account.

Apart from the dominance of migrants from North Africa among those registered as attempting to enter Europe "illegally", most such migrants came from the sub-Saharan region, in the last two years from Guinea, Mali and Senegal. Despite the low and apparently decreasing overall numbers: What brings these predominantly young migrants to expose themselves to the often deadly dangers of crossing the tightly secured border fences into the Spanish exclaves in northern Morocco or to set out in overcrowded and unseaworthy boats from Libya and Tunisia or from Senegal and Mauritania, in order to reach Europe?[139] And what role do climate change and its consequences play compared with other potential explanations?

The rise in sea levels that has occurred to date is already shaping the reality on the ground in many parts of West Africa. In the words of Professor Kwasi Appeaning Addo from the University of Ghana: "We are sitting on a time bomb."[140] Fishing villages near the coast have to be abandoned, hotel complexes in Gambia and Senegal have to be relocated, and the coastal fortifications and ramparts dating back to the colonial era – which played an inglorious role during the slave trade as collection points along the former Gold Coast and are now UNESCO World Heritage Sites in Ghana – have to be protected separately or abandoned. Coastal capitals such as Nouakchott (Mauritania), Dakar (Senegal), Accra (Ghana), Cotonou (Benin), Lomé (Togo) and Lagos (Nigeria) have also been directly affected, with houses and streets in the suburbs being flooded regularly and surrendered to the sea. The densely populated coastal areas of West Africa, which stretch 6,000 kilometres from Mauritania to Cameroon, are home to around a third of the population of the coastal states and account for over 50 percent of their economic output. Comprehensive coastal protection would require a tremendous effort. However, adapting to rising sea levels by relocating settlements inland and rebuilding the necessary infrastructure would cost national economies between 5 and 10 percent of their gross domestic product. Millions of people are paying a high price for a problem for which they cannot be held responsible.

Two case studies from Sierra Leone and Senegal show that the local population and national administration remain undeterred by the challenges and, in cooperation with transnational and international players, they are jointly working to combat climate change and its consequences.

BOX 9: Rising sea level in Sierra Leone

According to UNDP estimates, over 2 million people in the coastal areas of Sierra Leone are affected by rising sea levels.[1] Plantain Island, off the west coast of Sierra Leone, is (now) only 0.24 square kilometres in size and home to around 5,800 people. It used to be a tourist destination, because of the remains of fortifications dating back to the slave trade in the 17th and 18th centuries, but has shrunk considerably in recent decades due to rising sea levels and coastal erosion. In the meantime, thousands of inhabitants have left the island, heading for the mainland. Those who remained, have had to retreat further and further into the interior of the island. The construction of dykes is out of the question for cost reasons, among others, however other coastal towns have had favourable experiences with lorry tyres, which can be tied together to serve as artificial reefs, binding the sand that is washed up at every high tide. This creates favourable conditions for plants to colonise and can at least mitigate the impact of rising sea levels. However, it remains doubtful that this will be enough in the medium term..

Sources: UNDP 2024a, cited here after IDMC 2024a: 5 and The Economist 2025: 44 and Rühl 2025.

Nyangei Island, Sierra Leone, 2023. One of the eight Turtle Islands is sinking into the sea.

Rising sea levels have also become a key problem in Senegal. The country is particularly impacted because of its long, predominantly sandy coastline. Rising sea levels are costing the country one to two metres of its coastline every year and leading to the salinisation of fertile farmland, for example on two islands in the Saloum River delta, 150 kilometres southeast of the capital, Dakar.[141] Here too, though, the local population is fighting the consequences of climate change with a high level of personal commitment and the help of an NGO, consequences that include longer periods of drought and more frequent heavy rainfall events. Instead of cultivating rice, which is susceptible to climate change, the focus has returned to traditional millet. This requires less than 10 percent of the water needed by rice. In an attempt to defy the dangers posed by the climate crisis and malnutrition and improve their living conditions, people are reforesting mangrove forests that serve as natural breakwaters, planting trees on land and implementing agroecological reform approaches.

The direct link with migration is illustrated by the example of local and artisanal fishing along the coastline of Senegal. Catches are steadily declining, while at the same time demand to reach the Canary Islands is increasing. It is no wonder therefore that the small, open boats are now being used to make the high-risk crossing to the European Union.

The declining size of the catches is due not least to the fact that deep-sea fish factories from the EU (Spain) and China have dramatically reduced stocks in territorial waters close to the coast.[142] The victims are the local fishermen, who are deprived of their livelihoods. Although the EU pays for the right to send trawlers into Senegal's coastal waters as part of the existing fisheries agreements, this money does not reach the fishing villages. Furthermore, Senegal's small navy is unable to monitor all fishing activities rigorously. The new Senegalese government has recently taken a first step by implementing something that civil society has been demanding for many years.[143] Transparency criteria have been introduced for the first time in the form of a published list of authorised national and international trawlers. However, numerous other measures are still necessary if the long-term management of national fish resources is to be improved.[144]

In the countries of the Sahel region without access to the sea (Mali, Burkina Faso, Niger, Chad), the main problem in 2024 was not drought, as in many previous years, but heavy rainfall and flooding, which claimed many lives.[145] Here, climate change with prolonged periods of drought interrupted by sudden heavy rainfall confronts societies characterised by severe poverty, a renewed national debt crisis, high population growth,[146] lack of prospects for young people, the spread of transnational terrorism (IS – Islamic State and Boko Haram),[147] the presence of internationally coveted raw materials (gold, uranium), criminal networks, rivalry between international players for influence and access to

In 2023, Senegalese activists draw attention to industrial overfishing and demand action from the government.

resources, weak statehood and governance, military seizure of power, ethnic-religious tensions and the ongoing conflict between nomads and sedentary farmers.[148]

After decades of French dominance and military presence in the region, a shift in power has taken place in terms of foreign policy. Since 2022, France has been withdrawing its military from all Sahel states, starting with Mali and most recently from Chad, at the beginning of 2025. In the wake of anti-Western sentiment in the region, fuelled by the many failures of state and international development cooperation, not least the lack of success in the fight against transnational terrorism,[149] the USA and the EU have also withdrawn. Along with other new donor states, Russia and China have capitalised on the resulting gaps and now play an important role in the region.[150]

Solar modules are now ubiquitous in the countries of the region, underlining the fact that China's rapidly growing involvement in Africa is also mobilising important self-healing powers.

BOX 10: Solar boom in Niger and Nigeria

In Niger, solar energy is booming, not only in the urban centres but also in rural regions, where solar energy is used to operate water pumps. With the support of the World Bank and civil society organisations from the Arab world, hospitals and schools are being equipped with photovoltaic systems to keep vaccines and medicines cool and continuously available.

In Nigeria, the national power supply only reaches 20 percent of the population more or less reliably. As a result, it must be backed up by generators fuelled by petroleum. More and more often, electricity from photovoltaic systems combined with battery storage systems (mini-grids) is now also being fed into the grid. The countries in the region have ideal conditions for producing renewable energy. This opens up the possibility of "leap-frogging", skipping steps in the development of today's industrialised countries, to accelerate the process of ecological transformation.

Sources: News24 2025 and Aminu et al. 2025.

In mid-2024, the military governments of Mali, Burkina Faso and Niger established a defence pact, the confederation Alliance of Sahel States (AES), and they are now in the process of leaving the regional Economic Community of West African States (ECOWAS). The previous free movement of people in the region could well become a thing of the past – or at least more difficult. However, the Kampala Convention, signed in 2009, which obliges the 34 African states that have ratified it to support and protect people who have been displaced by natural and anthropogenic disasters, including climate change, is not affected by this. The Kampala Convention is the world's first and only binding, continent-wide legal framework that protects the rights of internally displaced persons.[151] Africa is thus a pioneer whose example should be followed by other continents. Although all Sahel states, with the exception of Eritrea, are party to the convention, including Sudan, Somalia and Ethiopia (but not Eritrea, Mauritania and Senegal), the impact of this convention remains notoriously limited when conflicts escalate into civil wars and the international community largely ignores them.

Sudan currently tops the list of countries with the highest number of people displaced by violence and conflict worldwide.[152] But compared to the dreadful situation in Ukraine and the Gaza Strip, the ongoing humanitarian catastrophe in Sudan since 2023 has received little to no global media or public attention. After more than two years of civil war, it is estimated that around 150,000 people have lost their lives, almost 12 million people are on the run from the escalating violence in the country, almost 4 million Sudanese have fled to neighbouring countries and almost half of the population is affected by severe to catastrophic food insecurity. The Sudanese Armed Forces (SAF) and the so-called Rapid Support Forces (RSF) are two irreconcilable factions that are clearly indifferent to the suffering of the civilian population and have repeatedly broken the negotiated ceasefires.[153]

The war has much in common with other conflicts in Africa and around the world. General Abdel Fattah al-Burhan, the head of the SAF, and General Mohamed Hamdan Dagalo, known as "Hemeti", the leader of the paramilitary RSF, are bitter rivals, ruthless warlords who are claiming all power for themselves and who will stop at nothing to achieve this – and they have external supporters (including Egypt, the UAE and Russia). The conflict resource in Sudan is gold, which replaced oil as the most important export following South Sudan's independence in 2011. The gold mines are worth several billion US dollars a year, money that reaches the world market mainly via the UAE, and whoever controls them has the financial resources to secure the supply of weapons and equipment and to continue the war.

The civil war in Sudan is an example of the increasing and devastating use of relatively inexpensive drones in Africa, including against the civilian population. These drones are imported from China, Iran and Turkey.[154] In the Horn of Africa they have already been deployed in Ethiopia and Somalia.

The extent to which the civil war in Sudan threatens to destabilise the entire Horn of Africa recently became clear in South Sudan. The constellation was similar: two irreconcilable political opponents; a struggle for economic and political access to oil, the country's key resource, which can no longer reach the Red Sea by pipeline because of the civil war in Sudan; rival militias with ethnic differences; and the opponents in Sudan, who are keen to cut off or control potential areas of retreat of their rivals in South Sudan.[155] A political firestorm is threatening to spread across the Horn of Africa, and the humanitarian catastrophe and the associated displacement could quickly take on even greater dimensions and spiral completely out of control.

Examining the situation in the Sahel reveals that there are many causes and forms of displacement due to sudden and gradual disasters. Nevertheless, conflicts and wars often play a more important role in terms of the number of displaced persons and migrants.[156] At the same time, it is remarkable how the locals affected are taking the initiative, mobilising self-healing powers and adopting new technologies to help improve their situation. However, without massive support from outside the region, it will not be possible to end conflicts and wars and to adapt to climate change. This continent has been responsible for less than 3 percent of global CO_2 emissions since the beginning of the industrial revolution, yet it is being left largely on its own when it comes to dealing constructively with the consequences of climate change.

Women displaced by drought queue to fill their water containers at the Kaam Jiroon camp for internally displaced persons in Baidoa, Somalia, in 2022

In contrast, discussions about Africa in the Global North are characterised by a continued fixation on the alleged hordes of environmental and poverty-related refugees originating in Africa. This ignores the fact that most migrants fleeing armed violence or disasters seek safety in other parts of their countries of origin. When they do cross national borders, this displacement usually ends in a neighbouring country. The number of predominantly young migrants who actually make the perilous journey from Africa to Europe is negligible compared with the total number of displaced persons and migrants. The main burden of displacement and migration in Africa is not borne by Europe, but by Africa itself.

The "migration partnerships" that the EU and Germany have entered into with African countries since 2007 are intended to educate people about the dangers and opportunities of migration and to help recruit workers who are in short supply in Europe. The partnerships allow these workers to migrate by conventional means for work purposes.[157] However, the "postcolonial view" remains. Because these agreements also involve the biometric registration of potential migrants on the ground and the acceptance of repatriation agreements for "illegal" migrants from Europe.

6. Looking into the future: Scenarios and challenges in financing

6.1 Projections, forecasts and scenarios for the future of mobility in the climate crisis

Because the future is so open, it is extremely challenging to produce convincing projections, forecasts and scenarios of future developments. The public tends to pay particular attention to alarmist results, whereas the scientific debate often gets bogged down in disputes about methods and methodologies. These observations also apply to the study of the links between climate change, migration and conflict.

Ever since climate-related mobility has been a subject of research, questions have also been asked about what can be said about future migration due to climate change. Alarmist projections and forecasts have repeatedly caused a stir since the 1990s, outdoing each other and predicting high levels of climate-related displacement. In his widely cited 1997 study, Myers predicted that there would be over 200 million "environmental refugees" by the middle of the 21st century.[158] However, the methods used are not scientifically sound.[159] Nevertheless, the figure of 200 million is still often quoted, now in reference to a study by the World Bank in 2021.[160] The abridged reporting in the media often fails to distinguish between internal migration and international migration. This can give the impression that these are predicted refugee movements from countries in the Global South to Europe. In fact, however, the aforementioned 2021 World Bank study is limited to scenarios of internal migration and regional migration.

The World Bank study suggests that if climate change is not slowed down, global warming could force around 216 million people to migrate within their countries or regions by 2050.[161] Sub-Saharan Africa, which is home to up to 86 million people, could be hit particularly hard. However, the report also offers hope, stating that sufficient reductions in greenhouse gases, the restoration of ecosystems and other measures could reduce this figure by up to 80 percent. The reasons cited for possible migration include water shortages, rising sea levels and poor harvests.

The World Bank study is one of several recent studies that have used complex quantitative models to come up with scenarios.[162] Each study is based on specific assumptions about which social and economic developments and weather-related crises will accelerate or slow down migration movements and by how much. Assumptions are then made about how these variables will evolve over a certain period of time and placed in the context of climate models. Although climate models now have a comparatively high explanatory power thanks to many years of intensive development, research into computerised scenarios that model the relationships between social, economic and weather-related crises and human mobility is still in its infancy. The complexity of social developments poses greater challenges than calculating possible futures based on long series of historical data.

At the moment, the newer climate migration models are scarcely comparable. They already differ in their choice of weather data and in the weighting of the chosen factors. Current studies generally abstract from other possible influences, such as epidemics, technological developments, civil war or changes

in the willingness of the target region or countries to accept refugees. More recent computer models are constantly being expanded to include additional variables and factors; some now also incorporate the potential escalation of conflicts using AI and machine learning techniques.[163] It remains to be seen whether this will give future scenarios greater explanatory power.

Jiang et al., for example, are investigating the spatio-temporal dynamics of conflict risks in sub-Saharan Africa and estimating how many people will be exposed to these risks by the middle of the century. Climate change will increase the risk of conflict, but the spatial distribution of conflict risks depends on specific conflict types and climate scenarios. They estimate that 500,000 to 1.7 billion people in Africa will be living in zones with a high risk of conflict by 2050, which is a significant increase on current figures. This would probably also be accompanied by significant migration movements, although the authors are not concerned with predicting these. Their aim is to highlight the growing risks and their intertemporal distribution at an early stage, thereby making time for countermeasures and de-escalation strategies to be implemented. Adding the conflict risk dimension as a further, highly complex area of research is likely to trigger debates about the data used, the methods applied, the results and their interpretation.

Overall, the recently developed scenarios describing the connection between climate change and migration come to contradictory conclusions.[164] Most models indicate that certain climate-related factors have some influence on migration movements. However, the results differ, and there is no consensus on the strength of this effect or whether climate change will actually lead to more migration or less. This is because, despite adverse and deteriorating conditions, there are also opposing effects.

People can be bound to a particular location for a number of reasons, resulting in a trapped population. They lack the opportunities and minimal resources to leave their homes. Reception and refugee camps in their own country or in neighbouring countries can unintentionally become places to which no realistic, long-term alternatives exist. A simple causal model or contracted hypothesis – such as: the greater the climate change, the greater the number of climate migrants to Europe – is certainly not tenable.

Forecasting climate-induced migration and displacement at a national or international level is still subject to great uncertainty. Such forecasts should therefore be viewed with a degree of scepticism. However, this must not be used as an excuse to reduce our efforts to mitigate and adapt to climate change, or to stand idly by while the climate crisis progresses.

6.2 Climate finance: Switching to renewable energies and loss & damage

Action to reduce emissions, adapt to the effects of climate change and address loss and damage caused by climate impacts requires public finance from taxes and other sources. Self-help and the wide-ranging global commitment of civil society and the private sector are necessary but not enough on their own. According to IEA estimates, some 9 trillion dollars per year will be needed by 2030 to finance the necessary investments for the transition to renewable energies in emerging and developing countries outside China, if the 1.5-degree target of the Paris Climate Agreement is to be achieved.[165] Just under a third of this funding should come from public sources. Based on expenditure at the beginning of the 2020s, this funding must increase at least sixfold by 2030. At the same time, these figures also emphasise the value of what has already been achieved, because the energy transition has indeed picked up speed.

Until now, most of the investment into switching to renewable energies has taken place in industrialised countries and China. These investments totalled around 1.8 trillion dollars in 2023. By contrast, emerging and developing countries excluding China (EMDC) accounted for less than 15 percent of the total, even though they are home to 65 percent of the world's population and generate around a third of global GDP. The capital costs for a private-sector redirection to the Global South are still too high.[166]

In the wake of Super Typhoon Karding, farmers in Tarlac, Philippines, protested in 2022 alongside activists from the Rice Watch Action Network and Greenpeace on a storm-damaged farm.

The target of just under 3 trillion dollars per year from public sources, required in the medium term to close the funding gap by 2030, appears less dramatic when considered in relation to four major existing areas of expenditure:

- According to the IMF, governments worldwide spent around 7 trillion dollars on fossil fuel subsidies in 2022.[167]
- According to SIIPRI data, global defence spending came to 2.7 trillion dollars in 2024.[168]
- In 2023, remittances sent by migrants to their home countries in the Global South totalled 647 billion dollars.[169]
- And the official development assistance (ODA) of the 24 OECD countries in the Development Assistance Committee (DAC) totalled 212 billion dollars in 2024.[170]

Nevertheless, nobody should be under any illusions:

- The oil and gas lobby and its profiteers will defend "their" subsidies with all their might and vehemently oppose any attempt to factor the true cost of fossil fuels into prices.
- The Russian war of aggression against Ukraine cannot be ignored, but the scale of the new arms build-up should also give pause for thought. The Trump administration has announced plans to increase defence spending by a further 13 percent to over 1 trillion dollars in the 2026 financial year. At the summit in The Hague in June 2025, NATO is expected to decide to increase military spending to 5 percent of GDP. This will channel a further 650 billion dollars per year into defence contracts for NATO's European members. In Germany, where the debt brake has been suspended for this sector, there is potentially no upper limit ("whatever it takes" 2.0). The EU intends to allocate an additional 800 billion to defence spending by 2030. The logic of war has once again supplanted the logic of peace. Instead of resolutely fighting climate change, it is being boosted enormously by forced global armament.[171]
- Although migrants' remittances to their home countries in 2023 comprised more financial resources than the expenditure by DAC countries on development cooperation and private foreign direct investment (FDI) combined, these remittances depend heavily on economic developments, labour markets and access in and to the Global North, and they are subject to strong fluctuations. Decisions about transferring resources are reached individually. They can be channelled into a wide variety of projects and areas of expenditure – ranging from consumption to locally adapted projects – and are concentrated in specific countries

(India, Mexico, China, Philippines), although their share of GDP is very high in individual developing countries (Tajikistan, Tonga, Nicaragua).[172] Remittances are enormously important as a self-help instrument, providing decentralised and direct support for individual families and municipalities, and they can be seen as a prime example of "aid without conditions".[173] However, they cannot be reliably planned or controlled for investments in climate protection in the Global South.

This leaves the area of official development assistance provided by important donor states in the Global North, the ODA. Right-wing populist views are setting the agenda in a very different kind of "historic turning-point", declaring the funds earmarked for development aid to be up for grabs, not only in the USA. In 2024 alone, the ODA of all OECD countries dropped by over 7 percent compared with the previous year. But that was probably just the beginning.

One of Donald Trump's first actions after taking office in early 2025 was to dismantle the development agency USAID and freeze more than 90 percent of American aid projects. At the same time, the US is threatening to withdraw as the primary financial supporter of numerous UN organisations. Many other DAC countries, including France, Switzerland, Germany, the Netherlands and Sweden, are also reducing their ODA spending. Given its weak economic development, Germany's priorities are now to invest in funding start-ups at home, a new focus on armaments and defence, as well as turning away asylum seekers and repelling and deporting "illegal" migrants.[174] The increased attacks on NGOs and critical civil society groups, which previously only occurred in authoritarian states, are another form of "collateral damage" of this development.[175]

The ground for the attack on official development assistance had already been prepared beforehand: in Germany, for example, through discussions about the alleged sum of "315 million paid by Germany for cycle paths and buses in Peru"[176]. This demonstrably false or misleading claim was circulated on social media and by individual politicians at the end of 2023.

The decline in ODA from many key OECD countries will undoubtedly leave significant gaps for the world's poorest people.[177] This will affect food and emergency aid, as well as the education and the health sectors (e.g. HIV medication and vaccination programmes), and the protection of internally displaced persons and migrants. With regard to sub-Saharan Africa, it is estimated that about a third of the previous subsidies, which are particularly important for Africa in terms of development funding, will fall victim to the cuts.[178]

These dramatic developments have sparked some intensive discussions. One reaction is to "bury one's head in the sand". The underlying hope is that things won't get that bad and that the troubles will be resolved by the mid-term elections to the US Congress at the end of 2026 at the latest. This approach displays great naivety in pointing to the successes and proven recipes of development cooperation. Secondly, think tanks and academic debates are considering whether the cuts have ushered in a "post-aid" era and, if so, what the consequences will be.[179] Questioning the future of bilateral and multilateral ODA has a long tradition. It has always adapted to changing conditions and has repeatedly developed new strategies for the survival of the policy field. Thirdly, some people in Africa believe that the cuts will finally enable the continent to transition away from aid dependency, which has long been demanded, and that the "new donors" now offer alternatives to ODA from the Global North.[180] However, this fails to recognise that new donor nations put their own interests first, too, not those of the poorer groups in Africa. And fourthly, remittances are seen as the new key to an additional financial influx. However, this overstretches the capabilities of this instrument and fails to recognise its limitations and weaknesses, as described above.

Financing the energy transition in the Global South is challenging enough, but the deep crisis in official development assistance raises the question of how people in the Global South should be compensated for existing and future environmental damage. Even with local resilience, creativity and self-healing powers, it will not be possible to adapt to climate change without additional private and public resources from outside the region. While civil society engagement via NGOs and social partnerships are important, not least for sensitising and motivating societies in the Global North, this does little to change structures in the Global South. This type of assistance remains isolated.

Nevertheless, displacement and migration must not remain the only options. If they cannot be prevented, compensation is required for the loss and damage incurred.

Where are the "new and additional" financial resources that the Global South demanded at the beginning of the international climate policy debate supposed to come from? What we definitely don't need are more funds. Over the past three decades, more than 60 multilateral funds have been created, 19 of which are monitored by the UNFCCC Standing Committee on Finance (SCF).[181] These include the Green Climate Fund (GCF), the Global Environment Facility (GEF), the Adaptation Fund (AF) and various Climate Investment Funds (CIFs). Apart from their institutional proliferation – more and more funds, each with their own bureaucracy, application procedures, staff, etc. – these funds are all struggling with the fact that the financial inflows from public coffers for a just energy transition, adaptation and resilience, loss and damage and for the conservation and restoration of nature have so far remained comparatively low – even before recent cuts by public-sector donors.

The negotiations for establishing and financing the Fund for Responding to Loss and Damage (FRLD) were particularly arduous. [182]Vanuatu and the small island states (SIDS) had already introduced a compensation mechanism for their group at the beginning of the 1990s. However, this was followed by decades of delaying tactics by the industrialised nations, who feared that establishing such a fund would be tantamount to recognising a legally binding liability. This could have led to extensive compensation claims. It was not until the Paris Climate Agreement that an article on loss and damage (Art. 8) was formally enshrined. The agreement that payments would only be made on a voluntary basis and explicitly without liability or compensation obligations was reached in the early 2020s. The FLRD was finally launched at COP 28 in Dubai in 2023.

The financing tasks that the FLRD is meant to pursue include providing crop insurance for farmers, emergency aid after extreme weather events, reconstruction aid for destroyed houses and damaged infrastructure, as well as aid in the event of displacement and migration for permanently displaced persons, such as retraining to facilitate integration into the labour market in their new place of residence. While these are undoubtedly important areas of responsibility, the current financial resources of the FLRD are far from adequate. At COP 29 in Baku in 2024, the financial pledges made by donor countries fell far short of the announced targets.[183]

This brought to the fore a provision in the statutes which states that the capitalisation of the fund can also be bolstered by "diverse sources, including innovative sources"[184] in addition to public ODA. This refers to financing instruments that serve as taxes or levies on the production of fossil fuels, in line with the "polluter pays principle", and/or are aimed at saving or redirecting subsidies in this area, that are levied on shipping containers and air traffic, that are aimed at high profits in individual industries (e. g. the defence industry) or that focus on very high levels of wealth (taxing the rich). These measures could potentially achieve environmentally sensible steering effects and generate substantial financial resources.

However, with limited funds available, considerable political attention is needed to advance these innovative financial instruments and generate increased public finance at scale. There is no realistic alternative to applying social and political pressure to mitigate the consequences of climate change, promote adaptation in the Global South and provide resources to compensate for loss and damage.[185] The commitment of many individual actors, civil and community activists (associations, church communities, etc.) as well as small and large foundations in the Global South to the aforementioned goals remains essential and must be expanded in order to multiply partnerships on an equal footing. Ultimately, however, this will not work without a substantial increase in public finance at the national and international level. The private sector also continues to play a crucial role, but this must be in line with and supplementary to critical, scaled-up international public finance support, not a substitute for it.

7. Conclusion and recommendations

Human well-being and even our existence depend upon both a stable climate and an intact natural environment, and both are being jeopardised by climate change and loss of biodiversity – which includes the loss of ecosystems as well as simply of plant and animal species. These are in fact two major crises which are closely intertwined and which reinforce one another, meaning that more than ever they need to be considered together.

Political and economic solutions should be committed to three goals: good living conditions for people, a balanced climate and biodiversity – all of which must be self-sustaining as far as possible. Protecting nature, restoring ecosystems and sustainable use of land and sea can help to limit global warming to a tolerable level, but only if fossil fuels can be successfully phased out at the same time.

Conditions of life in the Global North and the Global South are clearly unequal, as they are within individual societies in both spheres, and that too makes the search for sustainable solutions more difficult and leads to great injustice. However, the consequences of climate change are particularly dramatic in the countries of the Global South, which have done the least to cause climate change; moreover those are the very countries whose resources are insufficient to protect their populations from the consequences of climate change and to adapt to them.

Disasters are becoming more frequent and more extreme all over the world as a result of the destruction of nature and the environment by human beings and by anthropogenic climate change. Lack of understanding, ignorance and errors of planning, such as building settlements in high-risk areas, are increasing the destructive effects of extreme weather events, as is the lack of early warning systems and inadequate disaster response management. Throughout the world, the deadly dangers of heat and heatwaves in particular are still underestimated.

Wealthy industrialised nations have considerably more financial resources at their disposal to protect themselves against disasters and to adapt to climate change than do the countries of the Global South. Historically the ones responsible for the emission of most of the greenhouse gases, it is surely right that the industrialised nations accept their moral obligation to support the countries of the Global South. Ultimately, of course, it should be obvious that protecting our planet from destruction is in their interest too.

Wars or any violent conflict always tend to affect livelihoods adversely and can lead to large-scale destruction of nature and the environment. That too contributes significantly to global warming, particularly through the manufacture and use of advanced weapons. The global community therefore faces a fourfold crisis in the shape of life inequality between rich and poor, ongoing violent conflict and war, climate change and loss of biodiversity.

Displacement resulting from violent conflicts and disasters has doubled worldwide in numeric terms since 2018, with the vast majority of displaced people continuing to live as internally displaced persons in their own or neighbouring countries. In 2024 more than 83 million people were displaced within their own countries, many surviving only under precarious conditions.

Little robust data is available on the duration of displacement and the medium to long-term fate of those people. A large proportion who have fled their homes or been evacuated for environmental reasons will presumably wish to return soon, whereas conflict is much more likely to lead to long-term displacement. In countries particularly affected by tropical storms and floods, many people have to flee on numerous occasions, becoming more vulnerable and poorer every time they are displaced.

Climate change exacerbates the dangers for all refugees who find themselves living in camps, and anyone lacking the power and means of mobility (trapped populations) faces an uncertain fate and a reduced chance of a timely return. Refugees in camps continue to be exposed to heat, flooding and violent storms, and in the absence of support or any alternatives, their lives in camps might even become permanent, leaving them effectively trapped. Many displaced people move to rapidly growing cities in search of work, many ending up living there in precarious conditions in informal settlements where they remain exposed to disasters, gang violence or renewed displacement. Overall, migration is more likely to lead individuals into areas of risk, rather than out of them.

Conflict, violence and displacement are linked to climate change by complex and multifaceted connections. Climate change does indeed serve as a crisis multiplier, but it does not create a mechanism for automatic escalation, so that we can say that, for the time being, there are no "climate wars". However, as underlying variables, climate change and environmentally induced migration are undoubtedly moving to the forefront, and their relevance must be analysed case by case; but in any case a reasoned view of security that fails to take into account climate change and its consequences is no longer conceivable.

When the argument is reversed – by looking not at how climate catastrophes and migration contribute to the escalation of violence but at how wars and violence affect the environment – the devastating and long-lasting effects become apparent on soil and water and so on, and deserve more comprehensive attention. The more weapons are used and the longer fighting lasts, the greater their impact on the environment and on human beings both during and after a war.

Contrary to what is often believed, increased competition for resources such as land, food and water, which are sometimes made more scarce by climate change, does not automatically lead to further displacement nor to escalation of violent conflict. How a society deals with such challenges and whether in themselves they actually lead to violent conflicts, as is sometimes speculated, depends on many other political, economic and social conditions and factors. The likelihood of escalation is less where agreements and institutional arrangements facilitate the management of scarce resources and/or external financial support significantly mitigates shortages, than if that is not the case.

Another facet of conflict and displacement in climate change takes the form of violence against and expulsion of environmental and land conservationists, as has been documented in Latin America, Asia and Africa. Threats and murder are used quite deliberately to end protests, and people might be displaced when unscrupulous companies forcibly acquire land for agribusiness, mining or logging. Indigenous populations are affected disproportionately in many such cases, many going on to lose their living environments and with them their cultural identity. In fact all of humanity is losing ecologically valuable areas as loss of biodiversity progresses and precious sinks, that absorb greenhouse gases, are destroyed.

Measures intended to facilitate adaptation to climate change can themselves increase the potential for conflict. Although often seeming necessary, forced resettlement contains the seeds of many conflicts, whether between new arrivals and long-established residents or within the individual groups involved. Conflict is especially likely when the costs and benefits of adaptation measures are distributed unevenly, which is what happens in the context of coastal protection, for example, when a residential area in a large Asian city is cleared for the construction of flood basins or when dams are built to improve flood protection. The result is that one section of the population benefits directly, while another is simply displaced; and it can be observed that elsewhere too many similar conflicts will be decided at the expense of poorer or particularly vulnerable sections of the population.

Non-governmental organisations, states and international aid agencies are making efforts to mediate through environmental peacebuilding projects, but are forced to acknowledge that many such projects fail in the face of deep-rooted causes of conflict, such as economic inequality, transnational crime and gender-based violence.

Case studies indicate that every part of the world – including the Global North – has now been affected by displacement caused by climate change, such as heatwaves, heavy rainfall and drought. The worldwide population is not adequately protected, early warning systems and disaster response management must be improved: for example public warnings of the flash floods in Valencia in 2024 went out far too late. The Spanish floods were in fact another disaster exacerbated by typical mistakes seen all over the world, in that case rapid urbanisation resulting from the decision to build over and seal floodplains.

In the Global South, where even without extreme weather events large sections of the population live precariously, disasters have even more dramatic consequences because the financial capacity for reconstruction is much less than it is in wealthier countries. If European weather becomes even more extreme in the future, migration movements within the EU may be expected to be cushioned by freedom of movement, but in densely populated Bangladesh, by contrast, there are no such alternatives. Bangladesh is a striking example of how developing countries, themselves severely affected by climate change, are having to accept particularly large numbers of people seeking protection.

In Myanmar, the adverse humanitarian situation of the people caught up in the civil war there is being exacerbated by extreme weather conditions, and places of refuge are consequently becoming increasingly hazardous. Small island states threatened by the rising global sea level and tropical storms have been struggling for decades to secure international financial support for their protection and for improvement of arrangements for hosting their populations in other countries.

The case of the USA shows how quickly a government – like that of Trump – can destroy existing protective structures that were only just being established in other parts of the world. As a denier of climate change who is also Head of State, Trump himself is hostile to climate research, a consequence of which is large gaps in weather data.

The migration debate is an example of the continuance of the "postcolonial view" held by Europeans of the neighbouring continent of Africa. A detailed study of Africa's case in fact empirically refutes fears of an impending surge of "poverty and climate refugees" flooding into Europe, for although Africa is being severely affected by rising sea level, by heatwaves, drought and heavy rainfall, there has been no mass migration to the Global North. The majority of displaced Africans remain in their own countries or go to neighbouring countries, from where they usually attempt to return home as quickly as possible. Africa has been the continent left shouldering the bulk of the burden imposed by climate change. The major waves of displacement there today (Sudan, DRC), which have barely come to the attention of the Global North as major humanitarian disasters, have been triggered primarily by violent conflicts and civil wars, not by the effects of climate change. At the same time, people are tackling climate change in their home countries with tremendous commitment and creative ingenuity, but still they need more outside support if they are to implement broadly effective countermeasures.

The forecasts and scenarios dealing with future numbers of environmentally induced migration suffer from a tendency to alarmism and methodological weakness. Nevertheless, there is broad consensus that without decisive countermeasures and more and better adaptation, advancing climate change will force more and more people to flee their homes and add to the number of displaced persons as both internal and international migration are expected to increase. However, only a small proportion of international migrants are expected to be drawn to Europe, for the greater number of them will surely prefer to remain in their regions of origin.

Efforts to finance the phase-out of fossil fuels, to adapt to the consequences of climate change and to compensate for the existing consequences (loss and damage) have recently stalled, and the outlook remains enormously challenging. At least the switch to renewable energy is now advancing more rapidly in industrialised countries and in China, but elsewhere it is still progressing far too slowly because external support for the Global South has become very uncertain. Funds for official development assistance have shrunk due to the extensive cuts

made by the Trump administration, but also due to austerity measures and budget shifts in other industrialised countries where in the wake of a turn towards right-wing populism, other priorities now apply. Hopes that remittances and "innovative financial instruments" might have been able to fill the gaps have so far proved overly optimistic, although political momentum is building around proposals for progressive taxation, such as taxing the rich to generate funds for the public benefit.

It is time to act, instead of giving up

Twelve recommendations derived from the study are presented below.
Awareness of the climate crisis and its consequences should be enough to stimulate everyone to action. There is no real alternative to the rapid phasing out of fossil fuels, integrated protection of the climate and nature, and support for those people worldwide who are most affected, in order to prevent the worst from happening and respond by adaptation to such effects as are largely inevitable and to make good loss and damage where they have already occurred. Unfavourable developments and bad news can be dispiriting, but this is no time for resignation: every tenth of a degree of global warming we can avoid amounts to lives saved.

Strengthening innovative solutions and developing better narratives

Despite all the bad news, committed people and communities around the world are demonstrating that crises and conflicts can be mitigated, mobility and migration movements can be recognised as more or less normal, and innovative solutions to climate change can be found. As a society, we need to come up with better narratives once again and show that acting together and respectfully towards the environment improves everyone's lives – including our own.

Accepting and promoting mobility as an adaptation to climate change

Circular and long-term mobility within a region and worldwide promotes learning and the mutual exchange of new information. When environmental degradation and armed conflict destroy livelihoods, migration opens up new perspectives, while remittances from migrants can improve matters for family members who remain at home. Circular and long-term migration can reduce the demographic pressure on fragile ecosystems.

Ageing societies need the immigration of skilled labour, but the Global South is not a self-service shop

Anti-migration policy in Europe fails to recognise the challenges of rapidly ageing societies with increasing labour shortages. Fears that are being stoked of a threatened flood of "poverty and climate refugees" are completely misplaced, as is the notion that all migrants might or would wish to go to Europe. What is needed instead is a nuanced migration and integration policy that focuses on balancing interests. For example, poaching of qualified experts and personnel must be tied to an obligation to provide greater support for such individuals' home communities.

Using humanitarian admission programmes to protect victims of climate change

Federal and state governments take in civil war refugees via humanitarian programmes; their quotas should include particularly vulnerable people whose livelihoods have been destroyed by climate change and disasters.

Preventing displacement and protecting vulnerable people on the ground

People living in precarious conditions must be encouraged to exercise their right to stay. Ways must be found to improve adaptation but always in collaboration with those affected. Among the things needed are disaster prevention, climate-resilient infrastructure, the restoration of nature, compensation for crop failure and the development of new sources of income, as well as the protection of particularly vulnerable groups such as women, children, the elderly and so on.

Refusing to accept the decline in funding for official development assistance

Official development assistance, essential for adapting to climate change in the Global South, is in its worst crisis for decades. Private investment has been inadequate. The Global South is not responsible

for climate change but the people living there suffer its effects more than anyone else. Industrialised countries have caused most climate change and it is their responsibility to help, and their duty

Cancellation of subsidies for fossil fuels, introducing new financial instruments with an ecological steering effect and avoiding dramatic increases in defence spending

Subsidies for fossil fuels must be consistently reduced in order to promote energy transition and to release public funds for sensible use. Additional funds can be generated with the help of new financial instruments. Although Russia's war of aggression against Ukraine is forcing a rethink of security and defence policy, it is essential to retain a sense of proportion. Other goals must not be neglected: manufacturing defence equipment significantly increases CO_2 emission, and wars exacerbate climate change.

Ensuring continued collection of weather and climate data and strengthening early warning systems and disaster response management

In order to protect people, investment must continue to be made in the global collection of weather and climate data, in the further development of early warning systems and in disaster response management. The scientific understanding gained over recent years should be seen as an obligation and should provide the incentive to do even more. The aim is to close as far as possible the gaps that are being forced open by the Trump administration. Only with precise data can people be warned of and protected from disasters in good time.

Preparing cities worldwide for climate change and immigration, and advising cities in the Global South and supporting them financially

Climate change is leading to deadly heatwaves and flooding in cities and is accelerating influxes of people into urban centres. Migrants are already living in precarious conditions in megacities in the Global South, often without protection from extreme weather. Convincing concepts for growing, climate-resilient cities do exist, but implementing them depends on exchange of ideas and advice and can be successful only with financial support from the Global North.

Withdrawing support from energy, mining and land use projects that lead to displacement

The construction of hydroelectric power plants and mining projects has led to the displacement and impoverishment of many tens of thousands of people worldwide. However, the development of a hydrogen economy and the building of large solar parks must not be allowed to cause that to happen again. European investment should cover only such socially responsible projects as will safeguard the livelihoods of local populations and which will positively rule out displacement. The hydrogen economy must take particular account of its consumption of large amounts of water, a resource that is already scarce in many regions.

Strengthening civil society's commitment to building global bridges

The Global North must give more support to the Global South's great knowledge of climate change and its commitment to adapting to it, which should receive much more publicity. Apart from official development assistance, committed individuals and civil society groups are making important contributions and they must be supported and strengthened. Above all they must not be impeded.

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Endnote

1 Otto 2023a.

2 Robert Koch Institute, 2024.

3 WMO 2025. The temperature record of 2024 is an alarm signal and shows once again how urgently fossil fuels need to be phased out.

4 Copernicus Climate Change Service and WMO 2025.

5 “The mean temperature across Germany in 2024 was approx. 10.9 °C, which is 2.7 °C above the mean during the reference period 1961 – 1990. This makes 2024 the warmest year since 1881 and the fourteenth consecutive year that was warmer than the multi-year average for 1961 – 1990,” see Federal Environment Agency 2025.

6 IPCC 2023. Climate researchers around the world are working together on the Intergovernmental Panel on Climate Change (IPCC), and every six to eight years they publish a report on the findings of their climate research, see WMO 2025 and Latif 2020.

7 Federal Environment Agency (Umweltbundesamt) without year.

8 IPCC 2023.

9 WMO 2025.

10 IPCC 2023 and WMO 2025.

11 In weather attribution research, measurements associated with an extreme weather event, such as temperature or precipitation, are related to existing data records. In addition, a number of different computer-based weather simulations are run, some including greenhouse gases and others excluding them. For the following, see Clarke and Otto 2022.

12 For the following, see IPCC 2021, Clarke et al. 2022 and the website of the World Weather Attribution Initiative, https://www.worldweatherattribution.org/.

13 Otto 2023: 70 – 106.

14 Clarke.

15 IPCC 2021.

16 Huang and NASA's Sea Level Change Team 2025.Warm water occupies a larger volume than cold water.

17 Clarke and Otto 2022.

18 Clarke and Otto 2022: 25.

19 Clarke and Otto 2022: 25.

20 Clarke et al. 2022.

21 Clarke et al. 2022.

22 GFZ Helmholtz Centre for Geosciences 2024.

23 Will 2022.

24 UFZ 2024. Cf. also the whole report of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change 2021. IPBES 2021.

25 UFZ 2024: 3.

26 UFZ 2024.

27 UFZ 2024.

28 28 German Society for International Cooperation 2024.

29 Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (2023) Source: Cazabat 2021.

30 Regulation (EU) 2024/1991 of the European Parliament and of the Council of 24 June 2024 on nature restoration and amending Regulation (EU) 2022/869 (Text with EEA relevance), http://eur-lex.europa.eu/eli/reg/2024/1991/oj/eng.

31 Kuhnt 2019.

32 Schraven 2023: 105–138.

33 Platform on Disaster Displacement 2024.

34 UNHCR 2025b.

35 UN Guiding Principles on Internal Displacement 1998, cited at United Nations Human Rights Office of the High Commissioner (without year).

36 IDMC 2025.

37 IDMC 2025 and IDMC 2024.

38 IDMC 2025: 10 – 11. World Weather Attribution Initiative 2024b. Many of the extreme events that occurred in early 2024 were also influenced by the natural weather phenomenon El Niño. Climate research shows that the consequences of anthropogenic climate change are now having a greater impact than the influence of El Niño and La Niña.

39 IDMC 2025: 93. Most of the following data and examples are also based on the comprehensive analysis of the IDMC (IDMC 2025).

40 IDMC 2025: 10, Greenpeace 2024 and for a meteorological and climatological classification of the flooding in Central Europe in summer 2024, see Cesca 2024.

41 IDMC 2025: 81.

42 IDMC 2025: 71.

43 Cf. ibid.

44 Cazabat 2021.

45 United Nations Office for Disaster Risk Reduction 2024.

46 World Weather Attribution 2024 and Global Heat Health Information Network 2025 and 2025a.

47 enton et al. 2023 and Vecillo et al. 2023. Human beings can only withstand humid heat up to a maximum limit of 35 °C with 100 percent humidity, like in a steam bath. However, there are also signs that these limits may be significantly lower. The temperature may be slightly higher in dry air.

48 Issa et al. 2023 and Chazalnoël et al. 2017.

49 Gray 2020.

50 Gray 2020.

51 For more information on forced or voluntary immobility in precarious conditions, see Escribano et al. 2024: 206.

52 J Jay et al. 2021. When conventional air conditioning systems are used, providing heat protection for some can result in additional heat stress for poorer sections of the population and people working outdoors: the exhaust air from the air conditioning systems increases the ambient temperature. The power consumed by these systems can lead to blackouts, especially during heatwaves, as already happens in India, Pakistan and Australia. Last but not least, the electricity required is often still provided by fossil-fuelled power stations, which release greenhouse gases and thus contribute to global warming. ay et al. 2021. When conventional air conditioning systems are used, providing heat protection for some can result in additional heat stress for poorer sections of the population and people working outdoors: the exhaust air from the air conditioning systems increases the ambient temperature. The power consumed by these systems can lead to blackouts, especially during heatwaves, as already happens in India, Pakistan and Australia. Last but not least, the electricity required is often still provided by fossil-fuelled power stations, which release greenhouse gases and thus contribute to global warming.

53 All India Disaster Mitigation Institute 2024.

54 Conca and Dabelko 2024.

55 Burke et al. 2009.

56 Jiang et al. 2025.

57 For more details, see Brzoska and Fröhlich 2024.

58 Brzoska and Fröhlich 2024.

59 Rustad 2025.

60 Amnesty International 2023.

61 Natural Justice 2024.

62 IDMC 2017.

63 Conca and Dabelko 2024.

64 Global Witness 2024.

65 Definition by the Environmental Peacebuilding Knowledge Platform. https://www.environmentalpeacebuilding.org/

66 Conca 2024 and Higuera-Florez 2024.

67 See the UN homepage: UN Climate Security Mechanism. Climate Security Mechanism Bridging Climate Action, Peace and Security. https://www.un.org/climatesecuritymechanism/en/article/addressing-link-between-climate-peace-and-security.

68 Higuera-Florez 2024.

69 Mediterranean Experts on Climate and Environmental Change (MedECC) 2020: 8.

70 Mediterranean Experts on Climate and Environmental Change (MedECC) 2020: 10 and Mediterranean Experts on Climate and Environmental Change (MedECC) 2025.

71 TORETI et al. 2024: 145.

72 Phys. Org 2024a and Finsterbusch 2025.

73 The Guardian 2024, Hodgson 2024, De los Ángeles Orfila 2024, World Weather Attribution Initiative 2024a Pausas 2024 and Phys. Org 2024a.

74 Phys. Org 2024, de los Ángeles Orfila 2024.

75 De los Ángeles Orfila 2024 and Finsterbusch 2024.

76 IDMC 2025b.

77 La Caixa 2025.

78 Galvez-Hernandez et al. 2024.

79 Pausas 2024.

80 Statista 2024. In 2023, CO_2 emissions in the USA were 14.45 tonnes per capita, making it the fifth largest emitter worldwide. On average, 4.7 tonnes of CO_2 were emitted per capita worldwide in 2023. Per capita CO_2 emissions in 2023 were 42.6 tonnes in Qatar, the largest emitter, 8.35 tonnes in China, 7.16 tonnes in Germany and 2.14 tonnes in India. When emissions due to imported products are included, the data for industrialised countries become even worse. Statista 2025.

81 WMO 2025a and IDMC 2025.

82 Holthaus 2025 and World Weather Attribution 2025.

83 A case-based study of attribution research carried out by researchers from the USA and Europe shows that this event was related to climate change. World Weather Attribution 2025.

84 World Weather Attribution 2025.

85 Gelles 2025.

86 Cited in Gelles 2025

87 Brown 2025.

88 Baraniuk 2025.

89 World Bank 2025.

90 Amnesty International 2025.

91 UNHCR 2025.

92 Der Spiegel, 2025.

93 World Bank 2025.

94 Krüger and Reuter 2025.

95 World Food Programme 2025.

96 Ministry of Environment, Forest and Climate Change et al. 2024.

97 IDMC 2025a. In addition, the IDMC counts more than 580,000 people, most of whom have been displaced for a long time due to conflict and violence.

98 Bilak 2021.

99 Brackel 2024.

100 Rohingya Refugee Response 2025, ACAPS 2025[a] and World Food Programme 2025.

101 Salehin 2025.

102 Rohingya Refugee Response 2024.

103 Background discussion with Sami in Hamburg on 18 May 2025.

104 Salehin 2025.

105 APCNews 2024.

106 APRRN 2025.

107 ACAPS 2025 and Welthungerhilfe 2025. For climate and disasters in Southeast Asia, see also 5.3.

108 World Weather Attribution Initiative 2024.

109 Radio Free Asia 2024.

110 ACAPS 2025 and Welthungerhilfe 2025.

111 A list of SIDS and associated states can be found on the following UN website: https://www.un.org/ohrlls/content/list-sids. Despite its name, not all countries that belong to this group are actually islands. The low-lying coastal countries, Belize, Guinea-Bissau, Guyana and Suriname are also included. For general data, see UNDP 2024.

112 Rikimani 2024.

113 Tigre and Bönnemann 2025 and Gounden 2024.

114 International Court of Justice 2025 and Tigre and Bönnemann 2025.

115 IOM 2024.

116 UNDP 2024.

117 Brennan 2023.

118 IDMC 2021: 53.

119 Böge 2016.

120 Organisation of Eastern Caribbean States (without year), Pacific Climate Change Portal (without year) and UNDRR, United Nations Office for Disaster Risk Reduction (without year).

121 Pacific Islands Forum 2024.

122 Pacific Islands Forum 2024, p. 12 (Core areas for action).

123 Member States and Associates Members of the Eastern Caribbean States 2023.

124 IOM 2024.

125 McAdam 2025.

126 McAdam 2025 and Francis 2023 come to different conclusions.

127 Corresponding considerations can be found in McAdam 2024.

128 Africa Practice 2024. These five stereotypes exist for a continent consisting of 54 nations, but they also apply to other parts of the Global South and not just there. It is important to take a far more varied and nuanced view of the continent.

129 Ehrlich and Ehrlich 1968.

130 For radical critics of development cooperation, see for example Bauer 1976, Moyo 2009 and Shikwati 2012.

131 Fram and Lemire 2018.

132 French 2025.

133 Speitkamp 2022 and Badawi 2024.

134 IDMC 2025.

135 UN-DESA 2025.

136 Cf. Statista, Number of foreigners in Germany by nationality on 31 December 2024.

137 The second Trump administration is already doing everything it can to change this.

138 Williams 2025 based on figures supplied by Frontex. The majority of these migrants came from Guinea in 2023 and Mali in 2024. The decline continued at the beginning of 2025, see MMC 2025.

139 The results of the Afrobarometer 2024 survey indicate that in 2024 almost half the Africans surveyed in 24 countries were considering the option of migrating, a significant increase compared with the 2016/2018 survey. However, considering is not the same as actually following through.

140 Cited in Fagotto 2016. See also The Africa Report 2023.

141 Rühl 2025.

142 Gutierrez and Lemma 2024.

143 The Maritime Executive 2024.

144 Feukeng 2024.

145 Most recently also in Nigeria, see Egbejule 2025. According to UN figures, more than four million people in West Africa were affected by flooding in 2024. This corresponds to a threefold increase compared with 2023. More than 1,000 people were killed, see tagesschau 2024.

146 According to UN forecasts, Africa's population will increase by 70 percent to 2.4 billion people by 2050 – a quarter of the world's population will be African by the middle of this century. In African countries, half the population is currently under the age of 15, the so-called "youth bulge", see The Economist 2025a.

147 Alongside IS and Boko Haram, the Jama'at Nusrat al-Islam wal-Muslimin (JNIM) has recently come to the fore as the militarily strongest terrorist organisation in the region, see Sunday Trust 2025.

148 Wentworth 2024

149 Transnational terrorism and military conflicts are a central reason for migration in Mali, when people are forced to seek protection in neighbouring countries.

150 Ibeh 2025.

151 Menikwidela and Betancur 2024.

152 Armed conflicts and wars are still one of the main scourges in Africa today. Apart from Sudan, the civil war in the Democratic Republic of the Congo (DRC) is currently claiming numerous victims and leading to mass displacement. In the ranking of the ten most neglected displacement crises worldwide, compiled by the Norwegian Refugee Council (NRC), eight regions were in Africa in 2024.

153 For the situation in Sudan, see Soliman and Baldo 2025, Hasan and Kodouda 2025, as well as Craze 2025.

154 Drone Wars UK 2025. "Medium altitude, long endurance" (MALE) drones are used. The SAF is also accused by the US of having used chemical weapons against the RAF twice in 2024. Because of this, the USA wants to impose economic sanctions on Sudan, however these are likely to affect particularly the civilian population, see Holleis 2025.

155 Perras 2025.

156 Incidentally, this also applies to the large migration movements to Europe from Ukraine, Afghanistan, Syria and Iraq.

157 Prange de Oliveira 2024. The EU has signed around 50 partnerships since 2007, Germany's most recent partnerships in Africa were with Morocco, Nigeria and Kenya.

158 Myers 1997.

159 Jakobeit and Methmann 2012, and Schraven 2023.

160 Clement et al. 2021, often cited as the World Bank's Groundswell Report.

161 Clement et al. 2021.

162 Beyer and Milan 2023.

163 Jiang et al. 2025.

164 Beyer and Milan 2023.

165 IEA 2024 and Naran et al. 2024.

166 IEA 2024.

167 Black et al. 2023. Direct subsidies accounted for 18 percent of this, while 60 percent was due to the failure to take into account the consequential costs (externalities) of global warming and local air pollution.

168 Liang 2025.

169 Ratha 2024.

170 OECD (2025). The expenses of countries outside the DAC and the OECD, the so-called "new donors" (e.g. China, India, oil-rich Arab states, etc.), whose contributions also include partial grants (concessionality), are not included here.

171 Conflict and Environment Observatory 2025.

172 Ratha 2025.

173 “Untied aid” and “aid without strings attached” are important issues in the debate within development theory.

174 In Germany, the upcoming budget decisions for 2025 and 2026 specifically raise the question of whether or not to abandon the country’s previously pioneering role in climate finance, see Kowalzig 2025.

175 Semsrot 2025. Germany is a case in point. Whereas such attacks used to be a “privilege” of the right-wing AfD, at the start of 2025 and still being part of the opposition at the time, the CDU/CSU faction submitted a minor interpellation to the Bundestag with the aim of delegitimising civil society organisations. With 551 questions, the CDU and CSU wanted to know from the federal government whether organisations such as Correctiv, Omas gegen Rechts, Greenpeace, netzwerk recherche and Animal Rights Watch are state-funded. The questions suggested that the organisations are conducting tax-funded party campaigns against the CDU.

176 Huser 2024.

177 In the words of UN Secretary-General Guterres, the cuts will make the world “less healthy, less safe and less prosperious”. Guterres was referring to the US government’s cuts, see UN News 2025.

178 The Economist 2025b.

179 Overseas Development Institute – ODI 2025. The debates about “post-development” and “post-colonialism”, on the other hand, which have profoundly problematised bilateral and multilateral ODA even without the latest round of cuts, follow a much longer tradition.

180 Opalo 2025. Such demands are in the neoliberal tradition of Bauer 1976 and Moyo 2009.

181 Le Houérou 2023 and Hammersley 2025 state: “The last thing the world needs is for this limited capital to be funnelled into a fragmented, inefficient system composed of dozens of narrow climate funds.”

182 Bandhari et al. 2025.

183 Kowalzig 2024 explains the results of COP 29 in terms of climate finance and comes to the following conclusion: “Overall, the outcome of COP 29 in terms of climate finance is very disappointing.”

184 Cited in Franczak 2024.

185 One should not forget, however, that there are many desires and ideas about how to use potential revenues from innovative finance beyond the environmental goals in the Global South discussed here. The entire range of global public goods, from development aid, emergency and famine relief, to combating global health risks, has long been asserting claims here, as have underfinanced areas and policy fields in the Global North (education, social affairs, public housing, the environment at large, etc.


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