MODULE 8

Climate change and migration

This module invites students to evaluate the effects of climate change on migration across the globe. By exploring four real-life climate events in Senegal, the Philippines, Germany, and Kiribati in the South Pacific, the module illustrates that climate change can lead to circular, internal and international migration, but also to local adaptation. Through a power walk and scenario play, the module makes students discover that climate change affects people differently across the world. Students learn that personal factors and government policies have an important impact on climate-related migration and staying.

Learning objectives and outcomes

GLOBAL LEARNING OUTCOME

Evaluate the potential effects of climate change on migration

SPECIFIC LEARNING OBJECTIVES

Understand that climate change is a mediating, not direct, driver of migration
Identify adaptation strategies to different types of climate events
Recognise that governmental support and policies matter for how people react and adapt to climate change

Class structure and timeline

No preparation before class
Development in class

- **Activity 1:** Quiz: Rapid and slow onset events (10min)
- **Activity 2:** Four climate events (30-35min)
- **Optional: Activity 3:** Climate (in)justice: A power walk (45min)

No homework

↘ Document overview

Background information for teachers 2
Activities: Assignments, explanations and answers 4
Materials and worksheets for students 12
Further resources 20

↘ Background information for teachers

This short briefing summarizes research on climate change and migration by:

1. Explaining that adaptation strategies to climate change encompass local adaptation, which allows staying, as well as migration
2. Discussing the link between different climatic events and migration
3. Highlighting the influence of individual factors and political decision-making on the relationship between climate change and migration

Climate-related migration attracts a lot of attention from the media and is a regular subject of scientific literature as well as reports by international and non-governmental organisations. This is because it touches upon questions of **mobility justice** (who can migrate?), **climate justice** (who is most affected by climate change, and who is mainly responsible for it?), and the relation between the Global North and the Global South (Klepp, 2017). While climate change affects the entire humanity, it reveals huge inequalities and injustices across the world: Developed countries in the Global North cause most greenhouse gas emissions, whereas poor countries in the Global South suffer most from the consequences of global warming.

Many people think of climate-related migration as a big movement from the Global South to the Global North. The first ideas about the effect of climate change on migration stem from the 1980s and focused on the effect of persistent droughts, floods, and sea level rise. The very first report of the Intergovernmental Panel on Climate Change (IPCC), an intergovernmental body of the United Nations to advance scientific knowledge about climate change, warned in 1990 that "[t]he most serious impacts of climate change could be on human migration, when millions of people are displaced by erosion and flooding from coastal flooding and severe drought" (IPCC, 1990: 20). Building on this, the British ecologist Norman Myers published estimates of future climate-related migration (Myers 1991; 1997; 2005). He believed that the number of environmentally displaced people would be 50 million in 2010 (Myer, 2005). By 2050, he predicted 200 million. These and similar **alarming predictions**, citing numbers in the millions, have been **heavily criticized** by migration researchers and experts (Gemenne, 2011; Jakobeit and Methmann, 2012; Durand-Delacre et al., 2020). The most important criticism is that such estimates consider climate change to be the only driver of migration and that they **omit other adaptation measures** (Czaika and Münz, 2022). Adaptation strategies in fact encompass different forms of migration but also **local adaptation on site**.

The relationship between climate change and migration is complex and multidimensional. Overall, the **reasons why people move are always interlinked**. People move for combinations of social, political, economic and demographic reasons. **Climate change affects many of these other drivers of migration**, which means that climate change influences migration indirectly. Setting “climate migration” apart from other types of migration therefore makes little sense as much as it is inaccurate to claim someone is a “family” or an “economic” migrant. This is also why it is so difficult to define what a “climate migrant” or a “climate refugee” is. While climate activists often use the term “climate refugee” to highlight the responsibility of states to protect people from the effects of climate change,[1] some researchers argue that such language does not highlight the interlinked drivers underlying climate-related migration enough or that it further excludes already marginalised populations (Hiraide, 2022). At the same time, climate change is becoming a more important factor in people’s decision to migrate given how the climate is changing across the world.

[1] “Climate migrants” are not protected by international law. There is no legal category of “climate refugee” as climate is not one of the recognized causes for a refugee status based on the 1951 Geneva Convention (see also Module 7: Displacement and asylum). While some climate activists advocate for a legal category of “climate refugee”, other people fear that any reform of the Geneva Convention and redefinition of the refugee status could ultimately result in less and not more protection for refugees overall.

Furthermore, alarming predictions such as those mentioned above overlook the fact that most people who migrate because of environmental change **do not cross international borders** (Farbotko, 2022), and that climate change often leads to **staying or immobility** (Cundill et al., 2021). In environmentally stressful situations, some people (can afford to) move outside the risk zone while the majority remains. Adaptation strategies are closely linked to each family's levels of vulnerability and resilience and also to underlying social rules and norms. In fact, many people **adapt *in situ*** through **cultural change, (technical) innovation, community-based and ecosystem-based approaches** instead of migrating. This immobility despite environmentally stressful situations can indeed be voluntary and is often explained by factors such as place attachment (Adams and Kay, 2019; Nawrotzki and DeWaard, 2018) as well as social ties and family networks (Schewel and Fransen, 2020). It may however also be involuntary due to a lack of economic or financial capabilities that limit the ability to move (Carling, 2002; Schewel, 2020). In fact, these 'trapped populations' are a greater challenge from a humanitarian perspective than people who migrate (Zickgraf and Perrin, 2017). In general though, **adaptation "on site"** is often part of a family's or household's coping mechanism, which often combines migration and non-migration strategies. Numerous studies show that improved incomes of individual members of a household who have migrated make it easier for other members to remain in their home regions (Scheffran, Marmer, and Sow, 2012).

Adaptation strategies to climate change differ based on **different types of climate change**. Climate change encompasses **slow onset events**, which evolve gradually from incremental changes over many years, and **rapid onset events** (disasters) that occur in a matter of days or even hours. Slow onset events refer to increasing temperatures, loss of biodiversity, land and forest degradation, glacial retreat, ocean acidification, sea level rise, and salinization, while rapid onset events include extreme weather events such as floods, extreme rainfalls, hurricanes, tornadoes, and tropical cyclones as well as climate-related events like wildfires. Overall, rapid onset events are more clearly connected to (short-term, often circular) migration than slow-onset events like droughts, land degradation, or rain variability. Sea level rise is a bit of an exception as it is a slow-onset event, but the link to migration, for instance from small island developing states in Oceania, is quite clear. How are slow onset events linked to migration? Climate change can make **agriculture** less and less viable because of slow onset events such as **droughts or soil degradation**. People have reacted to such developments by reducing consumption (e.g. fewer meals per day), by obtaining loans, using savings, or selling land, by changing employment, land intensification (e.g. use of fertilizer), or agricultural diversification (eg. use resilient crop varieties, etc.). Other people have reacted by internal migration to cities or by migration to another country (Czaika and Münz, 2022: 40). If people move, in many cases, people use forms of **cyclic and seasonal movement** – which are often not entirely new but build on historically established migration patterns (McLeman, 2018; Schraven and Rademacher-Schulz, 2015). This also applies to circular migration after a rapid onset event: Someone whose house was destroyed by a **flood,** for example, may flee to a safer place until the flood receeds, but might later rebuild his or her house on the same land in a way that is more resilient to future flooding. After all, many people are attached to the places they live in and are reluctant to leave them.

Adaptation strategies also differ because of **institutional factors**. **Government actors are key in facilitating adaptation**. Climate change adaptation and mitigation measures have already begun in many regions, but they will not be feasible or affordable everywhere. Protective measures can be very costly, particularly when the necessary measures are extensive, such as building drainage systems or dams to prevent inland and tidal floods. Migration in the context of climate change is most likely to occur where either the cost of appropriate protective measures is particularly high, or where the possibilities of raising appropriate funding are low. In developing countries, governments often lack resources and the capacity to substantially invest in adaptation, while industrialised countries in the Global North have access to more resources and infrastructure to protect their populations against such events.

In this module, we want students to understand the multifaceted link between climate change, migration and staying. Through a quiz and a power walk, the module develops students' critical understanding that climate change affects people differently across the world.

↘ Activities: Assignments, explanations and answers

Development in class | **Activity 1**

Quiz: Rapid and slow onset events

LEARNING OBJECTIVES

- Students learn about various climatic events that might affect migration

MATERIALS

- Four images (see worksheet – either printed for each students or projected on the board)
    - **Image 1: The city of Saint-Louis in Senegal** (sea level rise)
    - **Image 2: The Philippines** (typhoon Haiyan 2013)
    - **Image 3: The Republic of Kiribati, an island in the Pacific ocean** (sea level rise)
    - **Image 4: Erftstadt-Blessem in Germany** (flood 2021)

LENGTH: 10 MIN

EXPLANATION ACTIVITY AND DIDACTIC SUGGESTIONS

- Explain that today's lesson is about how climate change affects people across the world.
- Project the images onto the whiteboard or distribute the printouts.
- Explain that the images portray different climate events across the world.
- Let students guess (i) which climate events the images portray, (ii) where they took place and (iii) if they happened in a slow or fast manner.
- Underline to students that it is sometimes not easy to identify climate change impacts.

SOLUTIONS AND SUGGESTED ANSWERS

- Explain images:
    - **Image 1: The neighbourhood Guet N'dar in the city Saint-Louis in Senegal**: the neighbourhood is located on small headland surrounded on both sides by water, sea level rise, slow onset event
    - **Image 2: Typhoon Haiyan in the Philippines**: people walk among the debris of Tacloban, the Philippine city devastated by Typhoon Haiyan in 2013, fast onset event
    - **Image 3: The Republic of Kiribati, an island in the Pacific ocean:** sea level rise, slow onset event
    - **Image 4: Floods in Germany:** River Erft in Erftstadt, Germany, burst its banks and caused massive damage in 2021, fast onset event

- Explain that the swiftness or slowness of environmental changes impacts how people react and adapt to climate change, including the importance of migration.

- Environmental changes often co-occur and co-exist: For example, floods and droughts in the same area can both contribute to soil degradation, while droughts and sea level rise can happen in the same country at the same time (Senegal – interior of the country vs. the coast).
- Highlight that while climate change affects the entire humanity, it reveals inequalities and injustices across the world: Industrialized, richer countries in the northern part of the world (Global North) contribute more to greenhouse gas emissions and climate change but it is mostly poorer countries in the southern part of the world (Global South) which are suffering most of the consequences of global warming. Northern countries have failed to counteract climate change for decades and have only started reacting once they have been increasingly affected themselves. Moreover, inequalities make it so that countries in the Global North have access to more resources to prepare for any upcoming effects of climate prepare for anticipated effects of climate change.

Development in class | **Activity 2**

Four climate events

LEARNING OBJECTIVES

- Students identify main adaptation strategies to climate change, including migration
- Students understand how governments influence people's adaptation strategies to climate change

MATERIALS

- Printed student worksheet with four scenarios (each scenario approx. 3 times, double-sided) and table (approx. 12 times)

LENGTH: 30-35 MIN

EXPLANATION ACTIVITY AND DIDACTIC SUGGESTIONS

- Split the class in groups of 3 students and assign to each group one of the following four climatic events so that 2-3 groups work on the same event:
  - Sea level rise in Guet N'dar in Saint-Louis, Senegal
  - Typhoon Haiyan in Tacloban City in the Philippines
  - Sea level rise in Kiribati in the South Pacific
  - Flood in Erftstadt-Blessem in Germany
- Each group has 10 minutes to:
  - Look at the map in the student worksheet to understand where each event is taking place.
  - Read the brief information in the student worksheet about "their" climatic event and how the government reacted to the event.
  - Discuss how people living there have reacted to the events given their geographic location and the different reponses from the government. Discuss how students themselves would react if they lived there.
  - Fill in the table on the worksheet summarizing (i) the climate event, (ii) the measures taken by governments, arguments concerning (iii) what to do, and where to go.
- Reconvene in class and choose one group per climate event to present in class and explain their arguments (10min). Let the other groups, who worked on the same event, complete the information.
- Draw and fill out the table on the whiteboard while the students speak.

- Compare the four cases in an open discussion highlighting the three messages below (10min).

SUGGESTED ANSWERS

Message 1: Climate change encompasses both slow onset and rapid onset events, which have different effects on migration. These climate-related effects are interlinked with other reasons to migrate.

- **Slow onset events** evolve gradually over many years (such as increasing temperatures, land and forest degradation, glacial retreat, sea level rise) and **rapid onset events** or disasters occur in a matter of days or even hours (floods, hurricanes, wildfires).
- Overall, rapid onset events (like the German flood and the Philippine typhoon) are more clearly connected to migration than slow-onset events because people have no choice but to move to survive, and no time to prepare or adapt to a changing environment. Migration related to rapid onset events is often temporary: once the disaster is over, people often return to their previous homes if possible (Germany, Philippines). Sea level rise is a bit of an exception when it affects islands because a whole state territory may disappear and people have few alternatives to adapt at home or move to a different area in the same country (Kiribati). In Senegal, people have reacted to sea level rise by combining staying with internal and international migration.
- People migrate for many reasons and these **reasons are often interlinked**. For example, people may migrate because they want to pursue a specific career or education, because their livelihoods are threatened, because they do not find a suitable job, they want to live with someone who resides elsewhere, or they flee from war or violence. It is difficult to separate climate events from these other reasons as climate change affects those factors indirectly. For example, a person might move not only because of raising sea levels but also because he or she does not like his/her government. Another person might change his profession as a farmer and migrate to a neighbouring country to work in the service industry because he earns too little as a farmer without even knowing that it is climate change that affects his harvest. The interplay of various factors that influence migration is is why it is difficult to say that people are “climate migrants”.

Message 2: People adapt differently to different climatic events. Adaptation strategies encompass different forms of migration but also local adaptation. Most people adapt “on site”, through cultural change, (technical) innovation, efforts in the community and family to support each other or by using creatively the possibilities nature offers instead of migrating.

- In general, climate change often leads to **immobility** and most people who migrate because of environmental change do not cross international borders but **migrate internally**. Many people adapt “on site”.
- When migration takes place, distinct processes link climate change and migration. For instance, climate change can make **agriculture** less and less viable through **higher temperatures and droughts** (in Senegal for example). People have reacted to such developments by eating fewer meals per day or different food, by selling land, by changing their job (leaving agriculture), by using fertilizers or more resilient crops. Other people have reacted with internal migration to cities (often also taking on a different job) or by migrating to another country. When it comes to **sea level rise**, people can react with internal migration to another part of the country or to another country (Senegal, Kiribati) or with innovation (planting mangroves to avoid land erosion (Kiribati). Adaptation “on site” is often part of **a wider family or household strategy** combining migration and staying. For example, some members of a household migrate and earn higher income, part of which is sent home, which in turn enables other members of the family to remain in their home region (Senegal).
- When faced with a **flood or typhoon,** people often flee to another safer place until the disaster is over, and later might return and rebuilt their house in a more resilient way (Germany, Philippines). People can also react to floods by technical innovations, such as building dams (for example in the Netherlands) or early warning systems (Germany).

Message 3: Governmental support and laws matter for adaptation strategies.

- Government actors are key in **facilitating adaptation**. Yet, protective measures can be very costly, particularly when the necessary measures are extensive, such as building dams to prevent inland and tidal floods or drainage systems to react to sea level rise, storms and hurricanes. Migration is most likely to occur where either the cost of protective measures is particularly high, or where the possibilities of raising appropriate funding are low. In developing countries, governments often lack resources and capacity to substantially invest in adaptation (e.g. Senegal, Phillipines). When disasters happen in the Global North, such as the flood in Germany, they often do not have the same impact as in the Global South because industrialised countries have access to more resources and infrastructure to protect their populations.
- People migrating because of climate change are **not protected by international law** – the body of international law that guarantees protection from persecution to people displaced across international borders (see TIES Module Displacement and Asylum) – as climate is not one of the recognized causes for a refugee status based on the 1951 Geneva Convention. While some climate activists advocate for a legal category of "climate refugee" to highlight the responsibility of governments to take action, other people fear that any reform of the Geneva Convention and any redefinition of the refugee status could ultimately result in less protection for refugees overall.
- When governments step in to provide structures and money for people to adapt locally, **they have more opportunities to stay** – unless it is about existential disappearance of territory (Kiribati). In such cases, international cooperation (e.g. humanitarian visas or options for resettlement) is even more crucial to find sustainable solutions.

Activity 3 can be taught in a second lesson to visualise and discuss climate (in)justice in an interactive way. If only one lesson is available, you could end the class after Activity 2 by wrapping up the class with the following discussion points (5min):

Closing

- *What can we do to counteract the unequal consequences of climate change?*
- *What can we do to support those who are forced to leave but have few possibilities and means to do so?*

Development in class | **Activity 3**

Climate (in)justice: A power walk

LEARNING OBJECTIVES

- Understand how both personal factors and governmental responses influence people's adaptation strategies when faced with different climate events
- Identify that some people want to stay while others want to move when faced with climate change and that some people can move while others cannot

MATERIALS

- Printed cards (A3) with fictious actors and scenarios (see worksheet)
- Blackboard
- A map of the world (if available)

LENGTH: 45 MIN

EXPLANATION ACTIVITY AND DIDACTIC SUGGESTIONS

Before the walk

Project or write the following indications on the board

Has it become more likely that I migrate to another country?

5 options:

- **2 steps forward**: if you think that you migrate rather against your will
- **1 step forward:** if you think that you migrate rather voluntarily
- **Stay where you are:** when you think that the scenario does not concern you
- **1 step back:** if you think that you stay rather voluntarily
- **2 steps back**: if you think that you stay rather against your will

Pay attention to:

- Which **financial resources** can I draw on to stay or to move?
- Do I have **social networks** to facilitate migration?
- Do I have **care responsibilities**?
- How old am I?
- Which **individual skills** (education, professional skills) do I have to stay or to facilitate migration?
- How **vulnerable** am I towards climate change impacts? (factors like work sector (agriculture), income level)
- Is there **state support** where I live which can compensate me for damages related to climate change?

Distributing the characters

- Divide the class in a group of actors (6 characters), a group of scenario readers (4 students), and a group of observers (remaining students).
- The 6 characters live in one of these countries: Germany, Kiribati, Philippines.
- Choose the actors and readers from students who did not present in Activity 2. Choose 2 students among those who had worked on Germany in Activity 2, 2 from those who had worked on Kiribati, and 2 from those who had worked on the Philippines.

- Ask the acting students to come to the front of the classroom and stand in one line in the middle with their shoulders facing the other students, so that they can easily move back and forwards.
- Distribute the printed cards to the acting students and give them a moment to read the brief information about their characters and to visualise where and how s/he lives (you can use a map of the world if available). Answer any questions they might have about their characters.
- Distribute the scenario cards to the four readers and give them a moment to read their scenario to prepare for reading them out aloud.

6 acting students

- **Character 1: Maria (Germany)**
  Large-scale farmer, owns land to farm, lives in countryside in Southern Germany. Female, 45, married, two children, high school diploma, medium income, inherited her parents' farm.
- **Character 2: Thomas (Germany)**
  Car engineer, lives in a medium-size city in Southern Germany. Male, 30, married, three children, university diploma, comes from an engineering family, good salary, just bought a house.
- **Character 3: Emele (Kiribati)**
  Politician, lives in capital city of Kiribati. Female, 40, married, two children, university education, high income.
- **Character 4: Afu (Kiribati)**
  Teenager, lives on the coast of a small island in Kiribati. Male, 15, is one of 2 children of a fisherman and his wife who lost part of their land to sea level rise.

Attending secondary school. Parts of his family live on less endangered neighbouring islands.

- **Character 5: Nathan (Philippines)**
  Hotelier, lives in Tacloban in Philippines. Male, 45, divorced, no children, studied in Europe, multilingual, high income.
- **Character 6: Cecilia (Philippines)**
  Small business owner producing traditional clothes, lives in a slum in Manila, the capital of the Philippines (coast). Female, 60, married, 5 children, primary education, very low income.

4 scenario readers

- **Scenario 1**: **Massive sea-level rise**
  Politicians around the world failed at fighting climate change. The Arctic is now almost free of ice. The sea level has risen by several metres. 600 million people who live in coastal regions that are less than 10m above sea level have been affected by disappearing beaches and coastlines.

- **Scenario 2: Rising temperature**
  The Amazon, which plays a key role for world climate and biodiversity, has been destroyed. The Gulf Stream no longer exists. There are intense heatwaves worldwide. At the same time, winters have become extreme, especially in Europe. Unpredictable rain and temperature rise have made agricultural production extremely difficult. Governments in Europe and North America have set up aid mechanisms for their farmers; governments in Africa, Asia and Latin Amercia were not able to do so effectively. Agricultural produce has become very expensive.

- **Scenario 3: Water scarcity**
  Water availability and quality has decreased to unsafe levels across the world, especially in cities. Bottled water is very expensive and hard to come by. Even water-rich states have started rationing their water, and large-scale dams and reservoirs have been created in some parts of the world.

- **Scenario 4**: **Legal protection and compensation**
  The three previous scenarios all happened and states worldwide have now decided to offer legal protection and compensation for people affected by climate change, such as for lost assets. People whose existence is threatened by climate change now have the legal possibility to seek safety in another country as refugees.

<u>Acting / walk indications</u>

- Tell acting students to read out their characters aloud.
- Tell the actors that the scenario readers will now read out the four scenarios.
- Highlight that the scenarios are hypothetical scenarios – they could happen, but do not have to.
- Tell the actors to listen carefully, imagine how each scenario would affect them in their place of living and and decide for each scenario if they would move one or two steps forward, stay where they are or move one or two steps backwards, following the indications on the blackboard (reflecting on individual and institutional factors that might influence their decision). For each scenario, they should imagine that they were living in the place indicated in their character card. Highlight that there are no right or wrong answers and that they should react according to how they feel.

<u>After the walk</u>

- When the walk is over, tell the students to remain in their spot and open the discussion by **asking the acting students**:

  - For those who are in the front: Can you read your card again? How does it feel to see all other people behind?
  - For those in the middle: Can you read your card again? Why didn't you move further? How does it feel to be in the middle?

    - For those who stayed behind/moved backwards: Can you read your card again? How did it feel not to be able to move forward?
    - For those with low educational levels (Afu, Cecilia) who sometimes did not move forwards: Can you read your card again? Why did you not move?

- Give the participants a chance to adjust their places by walking forward or backward during the discussion.

- **Ask the whole class**:

    - Despite facing the same scenarios, some students stayed back, some moved – why?
    - What scenario made you think the most?

SOLUTIONS AND SUGGESTED ANSWERS

Message 1: Not all people feel the same about staying or moving when faced with climate change. Some people want to move but cannot do so and feel trapped, some people want to stay but feel forced to leave. Some people are not sure how they feel.

- Characters who could migrate but did so involuntarily will end up **in the very front**.
- Characters who could migrate and felt that it was mostly voluntarily will end up in the **front middle**.
- Characters who are not concerned by the scenarios will mostly **remain on their spot**. Characters who moved back and forth for different scenarios will also end up in the middle.
- Characters who stayed and felt they generally wanted to stay will end up **towards the back.**
- Characters who stayed but they would have liked to migrate end up **in the very back**.
- Staying can be **voluntary** because many people are attached to the place where they grew up and do not want to lose friends and family they have there. However, it can also be **involuntary** if they would like to leave but cannot because they do not have enough money to travel or are not allowed to enter another country.

Message 2: Individual factors play a key role in shaping whether people want and are able to migrate across borders when faced with climate change. These can be related to gender, age, economic resources, social connections, education, and profession.

- For characters with more resources, higher education, more connections, and higher income, it is easier to migrate. Characters with fewer financial and social resources are thus more likely to stay or move only short distances. It is often also more likely for men to migrate than for women because women might have more care responsibilities back home and are more vulnerable to sexual and physical abuse during migration. For older people it is also often harder to migrate, but in general older people tend to want to stay rather than migrate. Younger children follow their parents' decisions.
- Financial resources, local knowledge and individual skills can also make it easier to stay and adapt, if people want to stay. They can more easily change jobs, adapt their agricultural production to different types of crops, find innovative solutions to adapt to climate change, etc.

Message 3: Sufficient governmental support can help people to stay and adapt at home. Governmental support can "soften" individual factors.

- Governmental support in some parts of the world (e.g. Germany) makes it easier for people to stay. Whenever governmental support exists, individual factors are less important for the decision to move or to stay, because government contributions may, for example, compensate for damages, provide subsidies for

home improvements or create opportunities to change jobs (e.g. retraining). All these options are independent of individual personal resources. Another example is when a government funds technical innovations (dams or polders) which often allow large groups of people to stay independently of their individual factors (e.g. Netherlands). Policies and laws can also make it harder or easier for groups of people to move (via visa regulations, migration or resettlement agreements).

Wrap up with the following discussing points:

- What can we do to counteract the unequal consequences of climate change?
- What can we do to support those who are forced to leave but have few possibilities and means to do so?

↘ Materials and worksheets for students

Activity 1: Quiz: Rapid and slow onset events

Image 1

Image 2

Image 3

Image 4

Activity 2: Four climate events

Table 1

Geographical location (continent, neighbouring countries)
Summary climate event
Government response
How did/do people living there react? Did they go anywhere? If so, where? What would you do?

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Scenario 1: Guet N'dar in Saint-Louis (Senegal)
Based on Migration Matters (2022), research by Zickgraf (2019, 2022), FAO (2021)

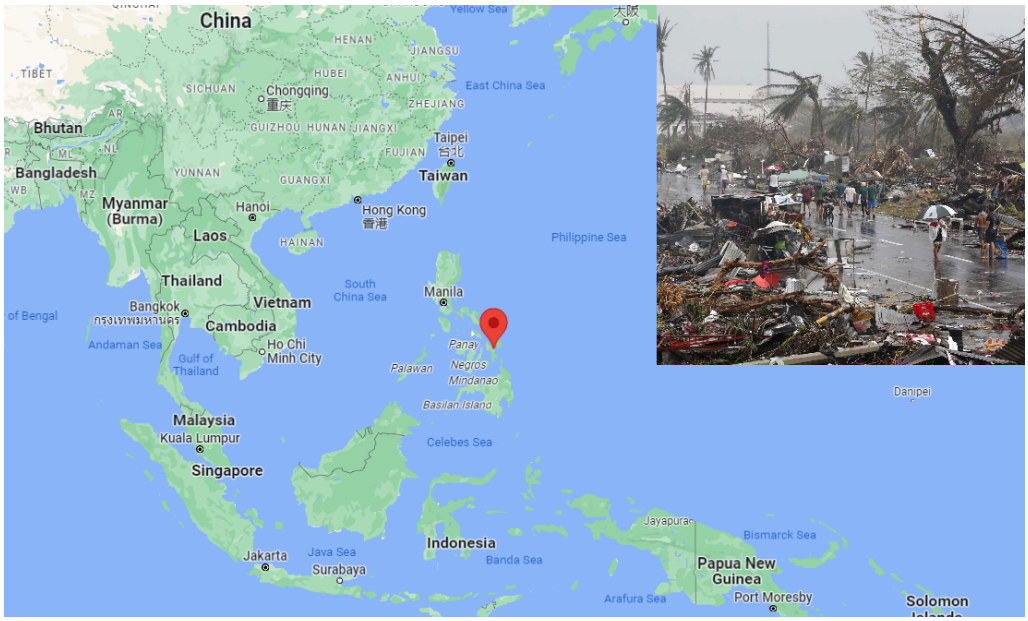
Africa is affected by climate change in many ways. Sub-Saharan Africa is one of the most vulnerable regions in the world to the impacts of climate change. Senegal, for example, faces different challenges related to climate change: droughts and desertification in the interior of the country; and threats related to flooding and sea level rise on the coastline.

Saint-Louis, in the country's north, is the second biggest city in Senegal. According to a study by the Senegalese government, 80% of Saint-Louis will be at risk of flooding by 2080. The neighbourbood Guet N'dar, which is located between a river and the ocean, is famous for its fishing. 97% of its population are dependent on fishing. Overfishing is increasingly becoming a problem because fish are caught so fast that they cannot reproduce quickly enough. People in Guet N'dar have faced a number of risks: sea level rise, flooding, coastal erosion, and salt creeping into their land. People living in Guet N'dar, unlike more touristic areas of Saint-Louis, are relatively isolated and many consider themselves neglected by the Senegalese government.

Senegal's response to climate change has been mostly directed to agriculture, livestock, fisheries and forestry sectors, which are all highly dependent on natural resources and land use and are strongly threatened by climate change. Key interventions have been an intensive rice cultivation system, composting and assisted natural regeneration. However, there is a lack of coordination and capacity in planning and implementation of climate actions. With regards to sea level rise, the government is not providing financial compensation to people in Guet N'dar whose houses are threatened. However, Senegal and neighbouring Mauritania have established several bilateral agreements that encourage international, circular labor migration schemes.

Most climate-related migration in Africa, including Senegal and Guet N'dar, is going to remain within the region and within the African continent. For example, fishermen in Guet N'dar migrate more and more to other places, and specifically, to Mauritania where there is more fish in the sea and fewer fishermen. They do not migrate permanently to Mauritania as they usually come back, often only for a month a year, when they bring back the money they earned. They use these resources to adapt in Guet N'dar. They often build second homes that are away from the coastline. Many of them are building in the same areas of Saint-Louis, some of them on the mainland, and then they're starting to commute to the ocean. It's a story of international migration that fuels adaptation in the community of origin, in Guet N'dar. In other words, they use international migration in order to stay.

Scenario 2: Tacloban City (Philippines)
Based on Migration Matters (2022) and research by Su (Cuaton and Su 2020, Su and Tanyang 2020)

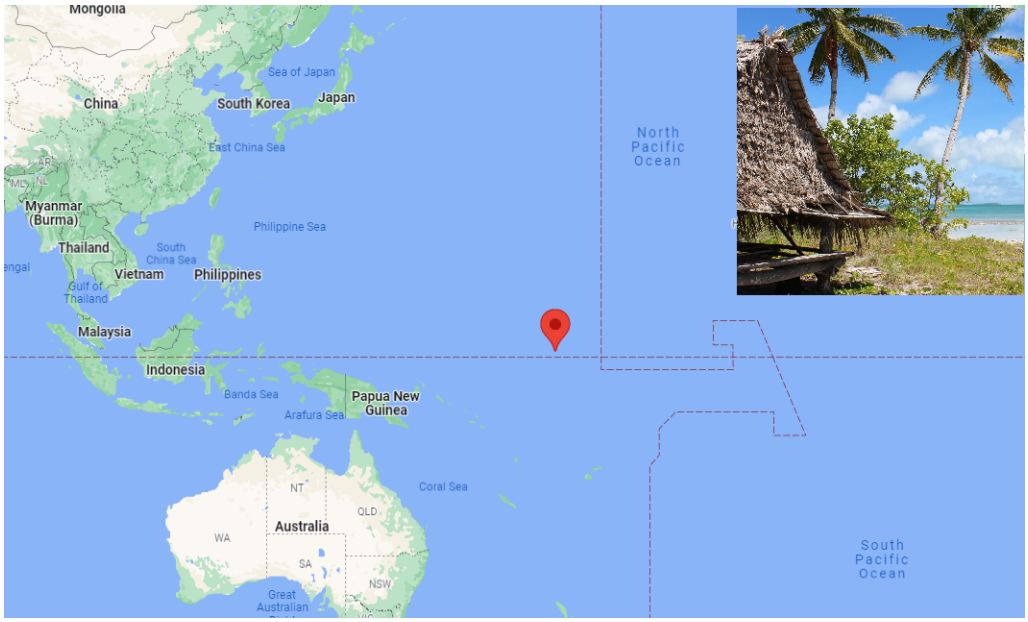


Typhoon Haiyan struck the central islands of the Philippines in 2013 and particularly Tacloban City, the most populous city in the central-eastern islands of the country. While climate change did not create typhoon Haiyan, its intensity probably increased as a result of climate change. Typhoon Haiyan was the strongest storm ever recorded and caused much damage to the infrastructure and to people's lives. The official death toll was over 6,000, but local people estimate that between 10,000 and 20,000 died. About four million people were internally displaced as a result of Typhoon Haiyan.
Such a disaster is not an extraordinary incident for most people in South Asia. In fact, about 20 typhoons a year hit the Philippines, affecting people's everyday lives. Because disasters are very common in the Philippines and other countries in South East Asia, coping with disasters has been somewhat normalized in Tacloban City. People say that they know when a typhoon is coming, they know what to do and they know how to recover quickly.

Politicians in the Philippines have used the same argument suggesting that many people do not need assistance because they are resilient and have supportive neighbours. The government did, however, relocate some people to (poor) temporary housing, where many people were made to live in a small space. Later the government relocated them to other areas in Tacloban very far away from the city center – an hour away with very infrequent transportation. This meant that many people could not get or keep their jobs. The Filipino government also decided to construct a no-build zone of 40 meters along the coast for people who used to live there. At the same time, it allowed commercial real estate, hotels and shops to build there.

Many people did not want to move away from the communities that were heavily affected by typhoon Haiyan because their friends and family were there, the homes they built over the years were there, and they wanted to return to their former houses along the coast. Despite the devastation caused by typhoon Haiyan, strong narratives of community resilience have emerged, with common references to *Bayanihan*, a Filipino word that means collective labor to help each other out.

Scenario 3: Kiribati (Pacific)
Based on the documentary Anote's Ark (2018) by Matthieu Rytz and StoryMaps (2021)

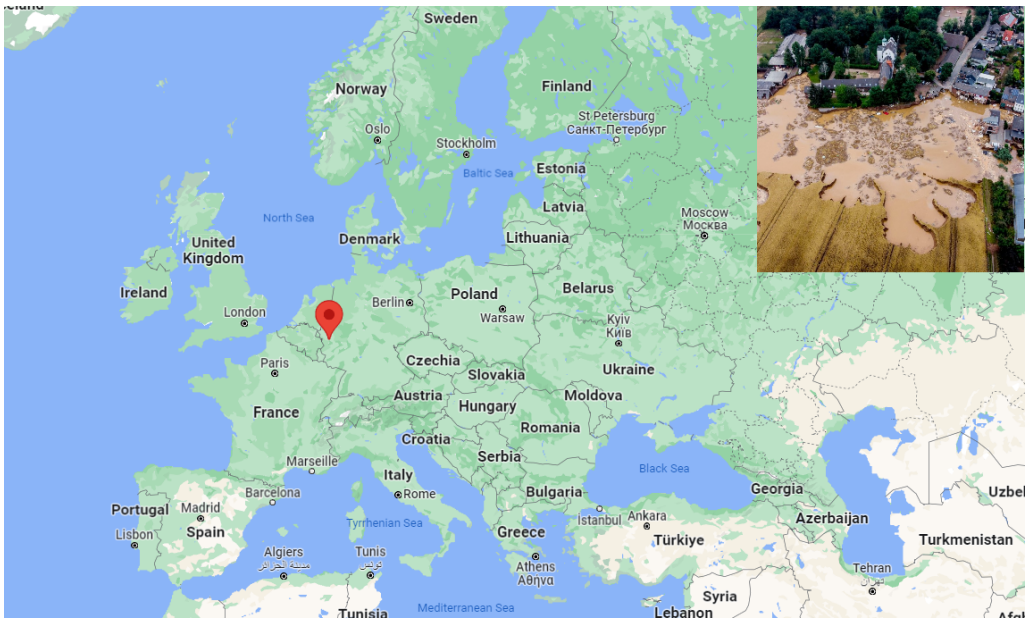


Kiribati is a small island nation located in the South Pacific and is one of the most remote places on the planet. It includes 32 atolls and a raised coral reef. The population of Kiribati is around 120,000 and Kiribati culture is over 4,000 years old. Most of Kiribati's islands are barely five meters above the sea level. This island-nation is one of the first countries to confront the existential dilemma of climate change: the islands will sooner or later disappear because of sea-level rise. Most Kiribatians live in the capital of South Tarawa, which has over 100,000 inhabitants. This city is very vulnerable to flooding due to its low elevation. Two of the islands in Kiribati have already been completely flooded and no longer exist. Kiribati faces also other challenges related to climate change. As temperatures rise, water insecurity continues to be a pressing issue for its inhabitants. Another challenge the citizens of Kiribati face is damage due to extreme tides, hurricanes, and tropical storms.

The Kiribatian government has responded with several measures and has tried to raise global awareness about the risks caused by climate change. It has provided government-rationed drinking water to more than 60% of the population. Former President of Kiribati Anote Tong (2003- 2016) bought land in Fiji for Kiribatians to be able to move to if they were to permanently lose their homes due to rising sea levels. However, as of now, the land has not been used for people to live on. The current president, Taneti Maamau, has announced that the land will instead be used for farming to supply Kiribati with food. At the moment, there are no official agreements to help relocate threatened Kiribatians to other countries. Kiribatians have tried to raise global awareness by advocating to accept climate change as a reason to provide refugee status. In 2013, a Kiribati man named Ioane Teitiota applied for asylum in New Zealand, but was denied and was sent back to Kiribati. In 2015, he filed a complaint, saying that New Zealand had violated his right to life by sending him back to a situation that threatened his life (UNHCR 2020). UNHCR denied his claim, ruling that there was no "imminent" threat on his life in Kiribati.

As a result of climate change and especially sea level rise, local community leaders have been working on local solutions, such as planting 50,000 mangroves on the shores, so that their roots help decrease land erosion. Citizens of Kiribati have also migrated, either to islands within Kiribati that stand at a higher elevation, or to other countries. In contrast to other continental nations with coastal cities which are similarly confronted with a rising sea level and for whom internal migration is a viable option, Kiribatians will increasingly need to migrate to another country. In some cases, the entire population of an island will be forced to migrate internationally if suitable land within Kiribati is not available. As there is no way to apply for asylum as a "climate refugee", Kiribatians have to use other pathways to migrate, such as work visas to Australia or New Zealand. It is however difficult for Kiribatians to receive such visas.

Scenario 4: Erftstadt-Blessem (Germany)
Based on Bundeszentrale für politische Bildung (2021)



In July 2021, parts of Germany were hit by extreme storms. Rhineland-Palatinate and North Rhine-Westphalia were the worst affected. On 14 July and 15 July, extremely strong rain fell in parts of the two federal states. As a result of the heavy rains, flash floods and massive flooding occurred in the affected regions, causing deaths and enormous damage. More than 180 people died because of the flood. The flood also caused billions of euros in property damage. The flood destroyed numerous railway lines, roads, bridges, mobile phone masts, as well as impacting gas, electricity and water supplies in many places in Germany. Experts expect an increase of such extreme weather events in Europe in the future due to climate change.

Thousands of police, fire brigade, rescue and relief services, as well as many volunteers, were involved in rescue measures, clearing up and reconstruction in the flooded areas. The federal and regional governments provided high amounts of emergency aid to alleviate acute emergencies of affected people, businesses and enterprises, to repair damage and to provide reconstruction aid. In addition, local governments introduced tax relief measures and favourable loans for flood victims. Experts also modernised and expanded the network of warning sirens and are planning to introduce an early warning system.

Inhabitants of Erftstadt-Blessem responded to the flood with short-term evacuation, reconstruction, and return. In order to mitigate the consequences of floods, dams and polders (diked retention areas that can be flooded if necessary) have been expanded in some parts of Germany in recent years. Several federal states affected by flood disasters also announced that they will continue their efforts in flood protection. The main focus is on increasing the absorption capacity of areas near water bodies, e.g. by restoring riverine floodplains and the reduction of soil sealing – the covering or sealing of the soil surface by impervious materials such as concrete, metal, glass, tarmac and plastic. Soil sealing often increasees the risk of flooding and water scarcity and contributes to global warming.

Activity 3: Mobility (in)justice: Cards for actors and readers

MARIA - GERMANY Large-scale farmer, owns land to farm, lives in countryside in Southern Germany. Female, 45, married, two children, high school diploma, medium income, inherited her parents' farm.
THOMAS - GERMANY Car engineer, lives in a medium-size city in Southern Germany. Male, 30, married, three children, university diploma, comes from an engineering family, good salary, just bought a house.
EMELE - KIRIBATI Politician, lives in capital city of Kiribati. Female, 40, married, two children, university education, high income.
AFU - KIRIBATI Teenager, lives on the coast of a small island in Kiribati. Male, 15, is one of 2 children of a fisherman and his wife who lost part of their land to sea level rise. Attending secondary school. Parts of his family live on less endangered neighbouring islands.
NATHAN - PHILIPPINES Hotelier, lives in Tacloban in Philippines. Male, 45, divorced, no children, studied in Europe, multilingual, high income.
CECILIA - PHILIPPINES Small business owner producing traditional clothes, lives in a slum in Manila, the capital of the Philippines (coast). Female, 60, married, 5 children, primary education, very low income.

Scenario 1: Massive sea-level rise

Politicians around the world failed at fighting climate change. The Arctic is now almost free of ice. Sea level has risen by several metres. 600 million people who live in coastal regions that are less than 10m above sea level have been affected by disappearing beaches and coastlines.

Scenario 2: Rising temperature

The Amazon, which plays a key role for world climate and biodiversity, has been destroyed. The Gulf Stream no longer exists. There are intense heatwaves worldwide. At the same time, winters have become extreme, especially in Europe. Unpredictable rain and temperature rise have made agricultural production extremely difficult. Governments in Europe and North America have set up aid mechanisms for their farmers; governments in Africa, Asia and Latin Amercia were not able to do so effectively. Agricultural produce has become very expensive.

Scenario 3: Water scarcity

Water availability and quality has decreased to unsafe levels across the world, but especially in cities. Bottled water is very expensive and hard to come by. Even water-rich states have started rationing their water, and large-scale dams and reservoirs have been created in some parts of the world.

Scenario 4: Legal protection & compensation

The three previous scenarios all happened und states worldwide have now decided to offer legal protection and compensation for people affected by climate change, such as for lost assets. People whose existence is threatened by climate change now have the legal possibility to seek safety in another country as refugees

↘ Further resources

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- Image 4: "River Erft in Erftstadt burst its banks and caused massive damage" (© picture alliance / Associated Press | Michael Probst), Bundeszentrale für politische Bildung, see link here.

Data

- **Internal Displacement Monitoring Centre (IDMC)**: "Displacement, disasters, and climate change": Provides collection of up-to-date data on internal displacement and climate change: https://www.internal-displacement.org/research-areas/Displacement-disasters-and-climate-change

- **National centers for Environmental Information, National Oceanic and Atmospheric Administration**: Climate data records: Provide robust, sustainable, and scientifically sound climate records that provide trustworthy information on how, where, and to what extent the land, oceans, atmosphere and ice sheets are changing. https://www.ncei.noaa.gov/products/climate-data-records

- **Migration, Climate Change and the Environment (CLIMIG) Database:** Bibliographic database updated weekly which lists publications that deal with environment-related migration: http://www.unine.ch/geographie/climig_database

- **Global South Climate Database**: A publicly available, searchable database of scientists and experts in the fields of climate science, policy and energy which aims to ensure that journalists from all over the world can contact climate experts from Asia, Africa, Latin America and the Caribbean, and the Pacific: https://www.carbonbrief.org/global-south-climate-database/

↘ Links and additional material

DOCUMENTARIES

Anote's Ark (in English)
by Matthieu Rytz (2018)
Anote's Ark is a Canadian documentary from 2018 about the sinking Pacific island republic of Kiribati and its former president Anote Tong's lobbying for refuge for its population. Anote's struggle to save his nation is intertwined with the fate of Tiemeri, a young mother of six, who fights to migrate with her family to New Zealand.
http://www.anotesark.com/

EDUCATIONAL VIDEO SERIES BY MIGRATION MATTERS

The Big Climate Movement: How will climate change impact migration? (in English with subtitles in French, German, or Arabic)
featuring François Gemenne, Caroline Zickgraf, and Yvonne Su and climate activists
The Big Climate Movement is a series of short 12 educational videos produced by Migration Matters, a non-profit organization which produces short videos for the public on commonly held preconceptions about migration. The series introduces key issues related to climate change and migration.
http://migrationmatters.me/big-climate-movement/

GRAPHIC NOVEL

Everyday Stories of Climate Change (in English)
by Gemma Sou, Adeeba Nuraina Risha, Gina Ziervogel and Cat Sims
When we talk about climate change, we often use abstract ideas such as, 'the planet is warming' or 'rainfall is becoming more unpredictable.' But, how do these changes impact the daily lives of 'ordinary' families across the world? In 'Everyday Stories of Climate Change', your students will travel to Bangladesh, South Africa, Bolivia, Puerto Rico, and Barbuda to discover how families experience the impacts of climate change, and their strategies to adapt and recover. The stories are based on research conducted by BRAC University (Bangladesh), RMIT University (Australia) and University of Cape Town (South Africa).
https://issuu.com/gemmasou/docs/issuu.pptx

STORYMAPS

Climate Change in Kiribati: How will rising sea levels effect Kiribati? (in English)
by Ericka Rosen (2021)
ArcGIS StoryMaps helps to create custom maps to tell remarkable stories with maps that inform and inspire. This StoryMap by Ericka Rosen focuses on climate change in Kiribati, providing data, maps and photos:
https://storymaps.arcgis.com/stories/7f455136b85f4edd8655d15a89b5039f

TED TALK

Does climate change cause migration? (in English)
(with automatically translated subtitles in German, French, Italian, Dutch and Polish)
by Daniela Paredes (2022)
13min Ted Talk by Daniela Paredes highlighting that it is a combination of factors such as existing migration pathways, loss of livelihoods, education, social capital among others, enable or not the mobility and immobility of people.
https://www.youtube.com/watch?v=XDnUZLXhQi8

POETRY AND CLIMATE ACTIVISM

Beached (2:52) (in English)
(with automatically translated subtitles in German, French, Italian, Dutch and Polish)
Poetry written and performed by Kathy Jetñil-Kijiner, a writer, performer and climate activist, born in the Marshall Islands, raised in Hawai'i, and currently based in Majuro, the capital city of the Marshall Islands.
https://www.youtube.com/watch?v=omvGWJcowEk