

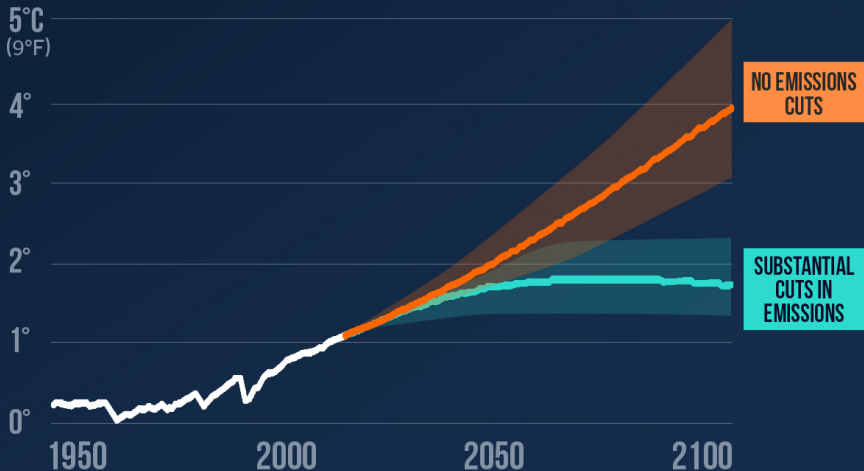
Human activities

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This first card includes all kinds of human activities requiring resources and having an impact on the environment. The main fields are **agriculture, transportation, use of buildings and industries**. According to the IPCC's fifth assessment report, it is "extremely likely that more than one-half of the observed increase in global average surface temperature from 1951 to 2010 was caused by human activity". Human activities are also responsible for **changes in land use** and **massive pollution** of the lands, water and atmosphere.

# Increased global temperature



Global surface temperature (°C) anomaly relative to 1850-1900  
High warming scenario: SSP3-7, Low warming scenario from SSP1-2.6.  
Source: IPCC AR6 WG1

Average temperatures are currently 1.2 °C above pre-industrial levels. The different IPCC scenarios show that we could reach up to +5°C by 2100 if nothing is done. An increase in global temperatures will lead to the **rise of the sea level** (mainly because of water expansion and ice cap melting), **droughts, heat waves** and **more intense and frequent tropical cyclones** (because of the water getting warmer).



# Change in land use

An aerial photograph showing a sharp contrast between a lush green rainforest and a cleared, deforested area. The deforested area in the foreground is covered in black, charred tree trunks and branches, indicating a recent fire. A few palm trees are visible in the transition zone. In the background, the dense green canopy of the forest extends to the horizon under a blue sky with some clouds.

This refers to the change in the occupation of an area. We can set six types of soil occupation : forests, cultivated soils, meadows, wetlands, artificial areas and other types of soils (rocks, sand,...). **Deforestation** is one of the biggest changes in land use concern because it strengthens global warming (liberating CO<sub>2</sub> and reducing CO<sub>2</sub> absorption) while **weakening ecosystems**. Turning natural soils or cultivated ones into artificial grounds also means a **decrease in resources**.

# Droughts, heat waves



Increased temperatures bring **more frequent and intense heat waves**. Excessive heat can inhibit daily life by making crucial activities such as work impossible, it can endanger human health due to physiological limits and increases risks of droughts and wildfires. Droughts are also due to water cycle disruption. Their consequence is not only a **lack of drinking water** but also impacts **food, sanitation,** and **air quality** and brings associated diseases.





# Increased urbanization

[conservationinstitute.org](https://conservationinstitute.org)

Because of rural exodus and other population movements towards cities, these need to expand and have a bigger population capacity. It means that we need to convert soils into urbanized areas, **changing the use of these lands**. According to the United Nations, **more than half of the global population lives in urban areas**, and this figure could reach two-thirds in 2050.

# Marine submersions



Marine submersions are events where sea water goes on the lands, flooding habitations, farmed soils and land ecosystems. With global warming and the rise of the sea level, we know that **submersions will be more intense and frequent**. It will become more difficult to live in some coastal areas (especially tropical ones), leading to **massive population movement**. Another consequence of submersion is the **decrease of farmed resources**, because of the salt-destroying cultures.



# Armed conflicts



*Eric Lafforgue*

Tensions coming from the decrease in natural resources and poverty **raise the risk of armed conflicts** to occur. Countries ethnically divided, with a weak democracy and a cash or agrarian economy, face the greatest risk of instability due to sudden climatic events. Some areas such as the Horn of Africa show a great risk of armed conflicts because of the **tensions between communities to access resources**. For example in Sahel, where armed groups are present, areas with the most important violence are also the most affected by drought. **These conflicts further weaken populations.**

# Geopolitical instability



Political decisions greatly influence the way populations can adapt to climate change. Political instability, corruption and reduced democracy make it difficult to help populations facing migrations deal with climate-related disasters or lack of resources. **When geopolitical instability grows** between countries, or within a country, **populations may be affected**. The oil and gas reserves are located in vulnerable or politically unstable places, and crucial resources such as arable lands or fishing areas are becoming scarcer. **Geopolitical risks**, between superpowers and emerging countries, could be increased.

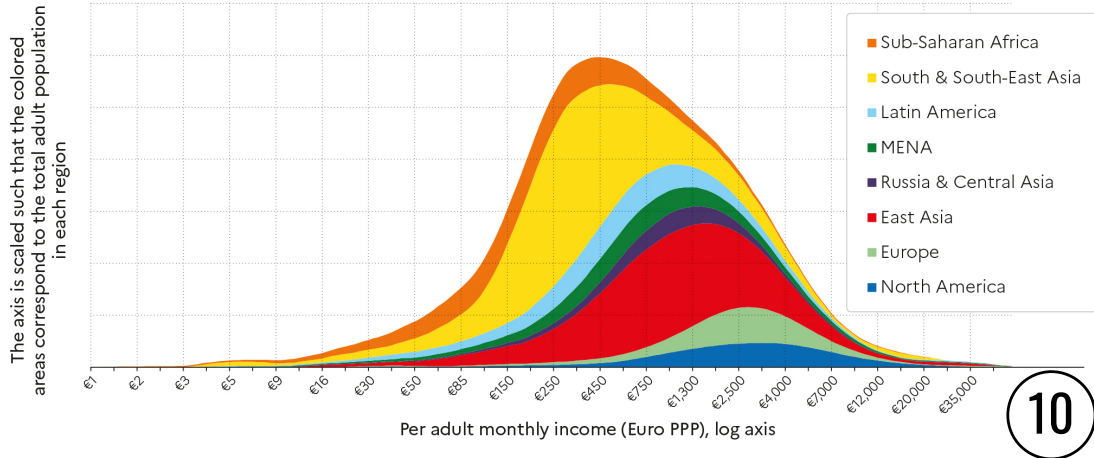
# Increase of poverty



A World Bank report estimated that **an additional 68 to 135 million people could be pushed into poverty by 2030 because of climate change**. Countries that witness migration experience an increase in poverty. People that migrate are more likely to experience **casualisation, health deterioration and insecurity**. In cities where these migrations occur, precarious housing and shanty towns expand.

# Rise of inequalities

**Figure 1.7** Global income distribution in 2021



**Interpretation:** The graph shows the size and geographical repartition of the global population at different levels of the income distribution. The relative size of each color wedge is proportional to the population in a region. Incomes are measured after pension and unemployment benefits are received by individuals, and before income and wealth taxes. **Sources and series:** [wir2022.wid.world/methodology](https://wir2022.wid.world/methodology).

While developing countries have contributed the least to climate change, they suffer the most from its consequences because these countries are localized in **areas more prone to climate risks** and have less capacity to help their population to face climate change impacts.

**Inequalities within countries are also raised.** People living in rural areas or employed in agriculture are more vulnerable to climate anomalies. This applies even more to rural countries. This population is often the poorest in these countries, and inequalities are likely to be further increased.

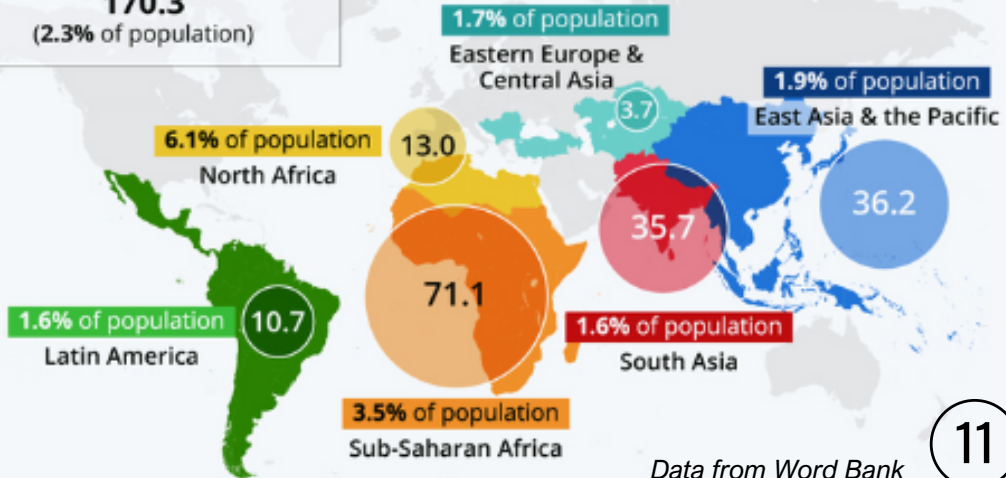


# Migration (climate refugees)

Total in surveyed regions

**170.3**

(2.3% of population)



*Data from Word Bank*

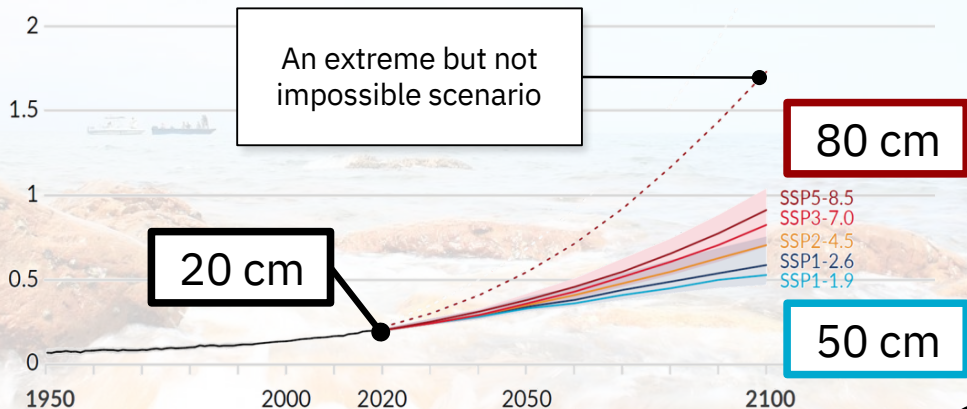
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**Average number of internal climate migrants by 2050 (in millions)  
modelled on pessimistic reference**

**Each year over the past decade, an average of 21.5 million people had to migrate because of climate events**, which is more than twice as many as migrations caused by conflict and violence, according to the United Nations Refugee Agency. Most climate refugees are migrating **inside their home country**, moving often to areas still exposed to climate hazards. Some cannot return home and become internally displaced, while a smaller number look for safety in other countries, needing international protection.

# Rise of sea level

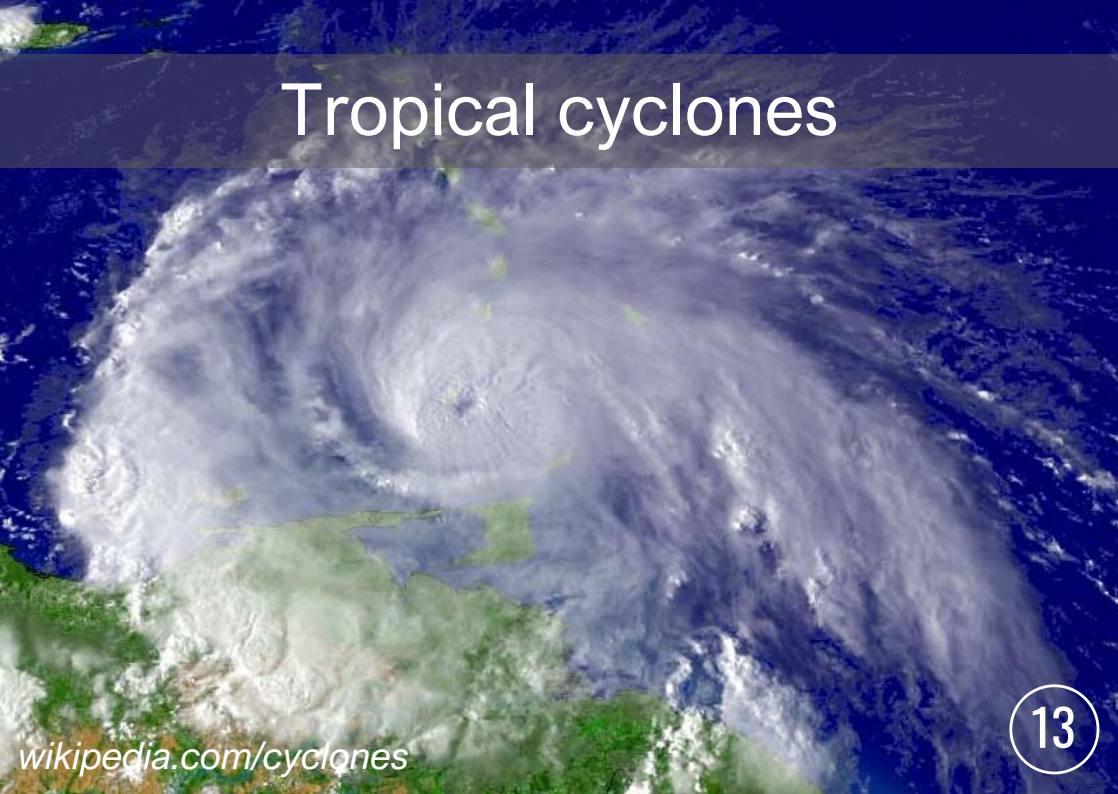
Global mean sea level rise from 1900



Source: IPCC

Sea level rise can increase coastal erosion and lead to the **flooding of low-lying areas**. It can also increase the **frequency and severity of storm surges**, which can lead to more damage from coastal storms. Additionally, sea level rise can impact infrastructures, such as roads and buildings, that are located near the coast. Finally, it can also **impact human populations** who live in low-lying areas or rely on coastal resources for their livelihoods.

# Tropical cyclones



Tropical cyclones can cause extensive **damage to infrastructure, property**, as well as **loss of life** due to high winds, storm surges, and flooding. They can also disrupt transportation and communication systems, causing widespread power outages and leaving people isolated. The long-term effects of tropical cyclones can include **economic losses, displacement of populations, and increased vulnerability to future disasters.**

# Pollution



Pollution can contaminate the air, the soil and the water resources, leading to **reduced soil fertility, water quality, and crop growth**. Air pollution can affect the growth and quality of crops, and lead to respiratory problems in farm animals and humans. Water pollution can cause diseases in crops, reduce yields, and health risks to humans and animals who consume contaminated crops or water. Overall, **pollution can negatively impact agricultural productivity, food security, human health, and the environment**.



# Decrease of resources

This card includes several kinds of resources : **farmed products, freshwater, materials and transformed goods**. One of the main consequences in the decrease of resources is the **increase in poverty**. With essential goods like food becoming more and more rare and expensive (especially due to low farming yields caused by climate change), the poorest people will struggle even more to satisfy their vital needs. We will observe an **important casualisation** of the population and **massive food insecurity**. Also, the lack of some materials and products can **compromise countries' economic independence and thus lead to geopolitical instabilities** (in or between countries).

# Food insecurity

## FOOD INSECURITY BASED ON THE FIES: WHAT DOES IT MEAN?



### FOOD SECURITY TO MILD FOOD INSECURITY

### MODERATE FOOD INSECURITY

### SEVERE FOOD INSECURITY



This person has:

- insufficient money or resources for a healthy diet;
- uncertainty about the ability to obtain food;
- probably skipped meals or run out of food occasionally.



This person has:

- run out of food;
- gone an entire day without eating at times during the year.

According to the FAO (Food and Agriculture Organization of the United Nations), food insecurity is when someone is lacking regular access to enough safe and nutritious food for normal growth and development and an active healthy life. **The two main factors are food unavailability and lack of resources to get it.** Because it causes difficulties to live, widespread food insecurity in some areas can cause **massive migration fluxes**, within and between countries. Spreading food insecurity is also synonymous with **social inequalities** among populations.

# Answers



