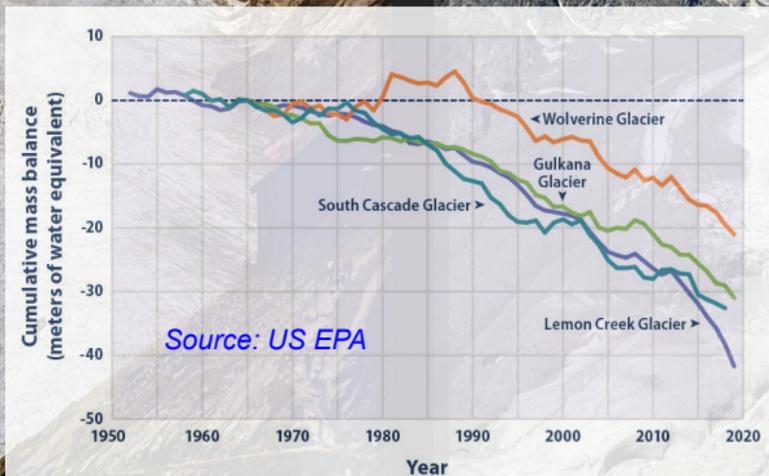
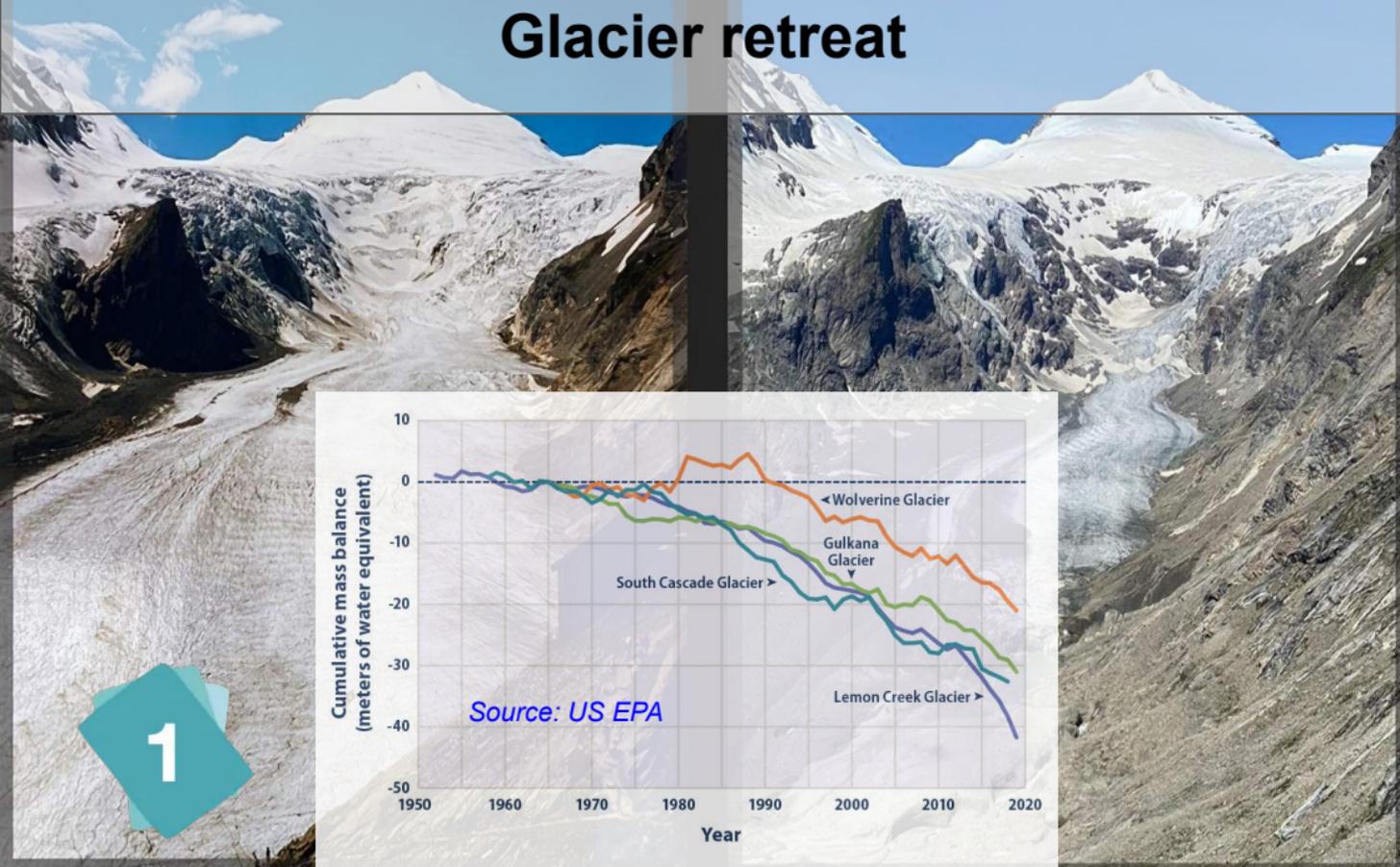


1994

2020

# Glacier retreat



1

The retreat of the glaciers is mainly due to the warming of the air which melts the ice.

Changes in precipitation patterns can also impact glacial retreat, as less snowfall or rainfall means less ice accumulation.

Their retreat causes a lack of water downstream during the summer, which is necessary for human consumption.



# Increased risk of erosion



If soil is removed during runoff, this is called water erosion of the soil. Water erosion causes soil to move from upstream to downstream.

Water erosion of soils is a natural phenomenon due to precipitation that can be increased by strong rainfall variations in rivers



Set 3



**Increase in the concentration of pollutants**

2

Atmospheric pollutants accumulate on continental surfaces over time. When rainfall occurs after a long period without precipitation, most of these pollutants are washed away into watercourses like a pollution wave.

The drying up of surface waters then reduces the dilution effect of pollution, which impacts on biodiversity.



2

# Evapotranspiration

5

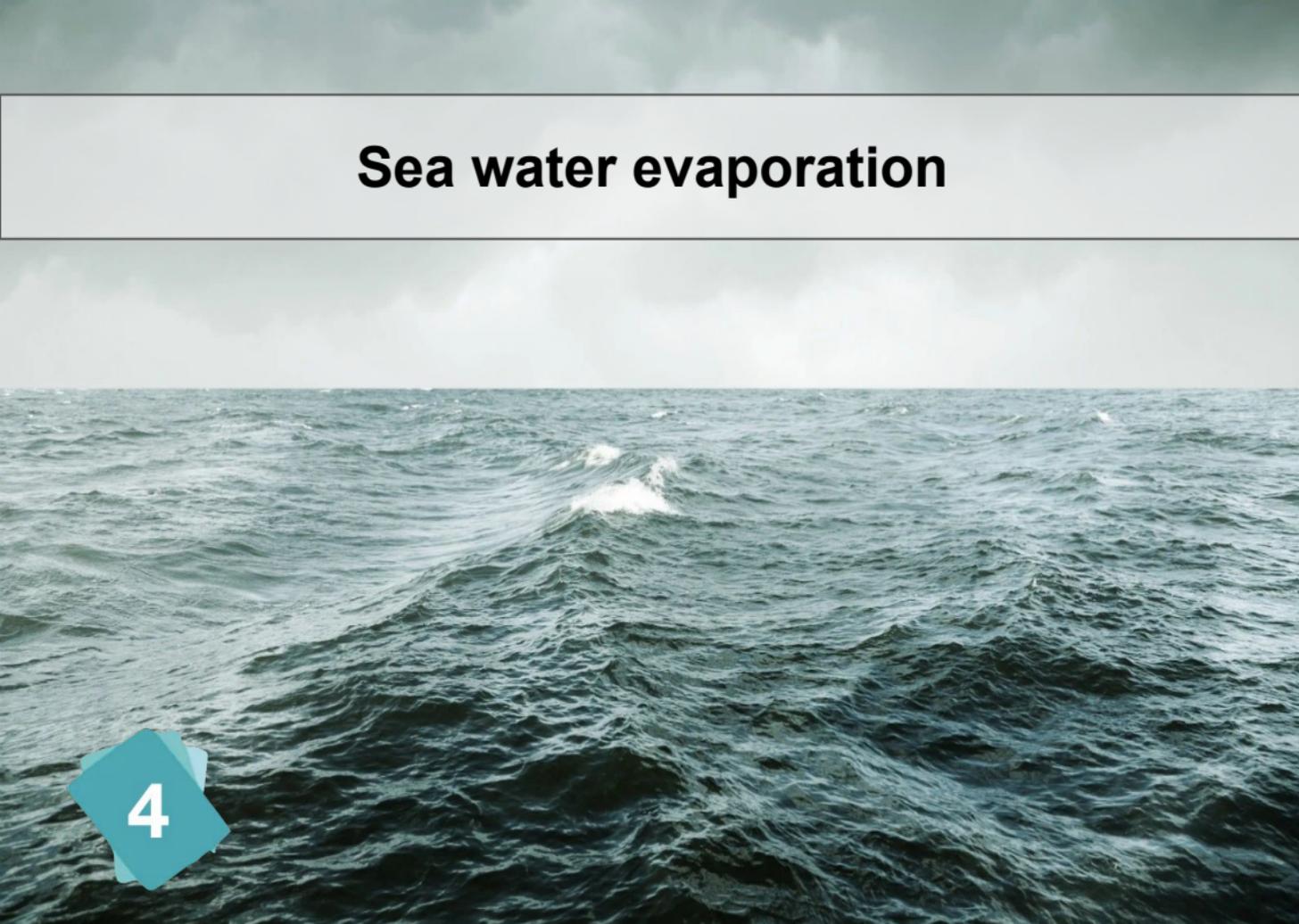
Evapotranspiration is the amount of water transferred to the atmosphere by evaporation from the soil and transpiration from plants

Climate change tends to accelerate this phenomenon, which in turn dries out the soil and vegetation.



# Sea water evaporation

4



Evaporation, the process by which water in the oceans changes from a liquid to a gas and enters the atmosphere, is significantly accelerated due to global warming

This results in large variations in rainfall in some areas causing floods and droughts





# Groundwater

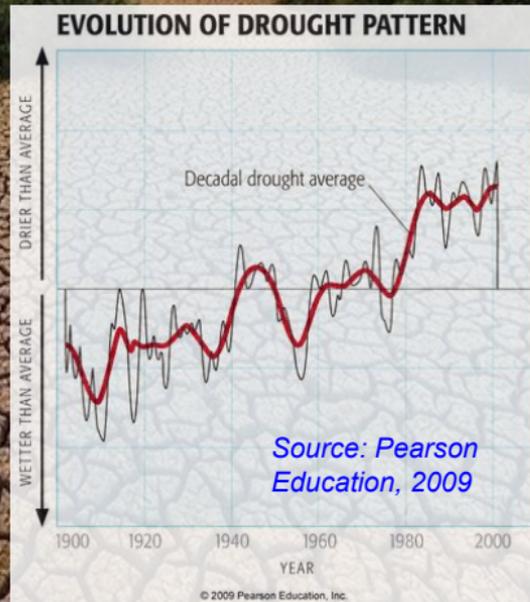
6

Groundwater is recharged through the infiltration of rainwater. This recharge therefore depends on rainfall. Climate change modifies this precipitation and increases evapotranspiration, which decreases the water actually infiltrated.

The decrease in the inflow into the system would change the conditions for the recharge of the hydrogeological systems.



# Soil drying



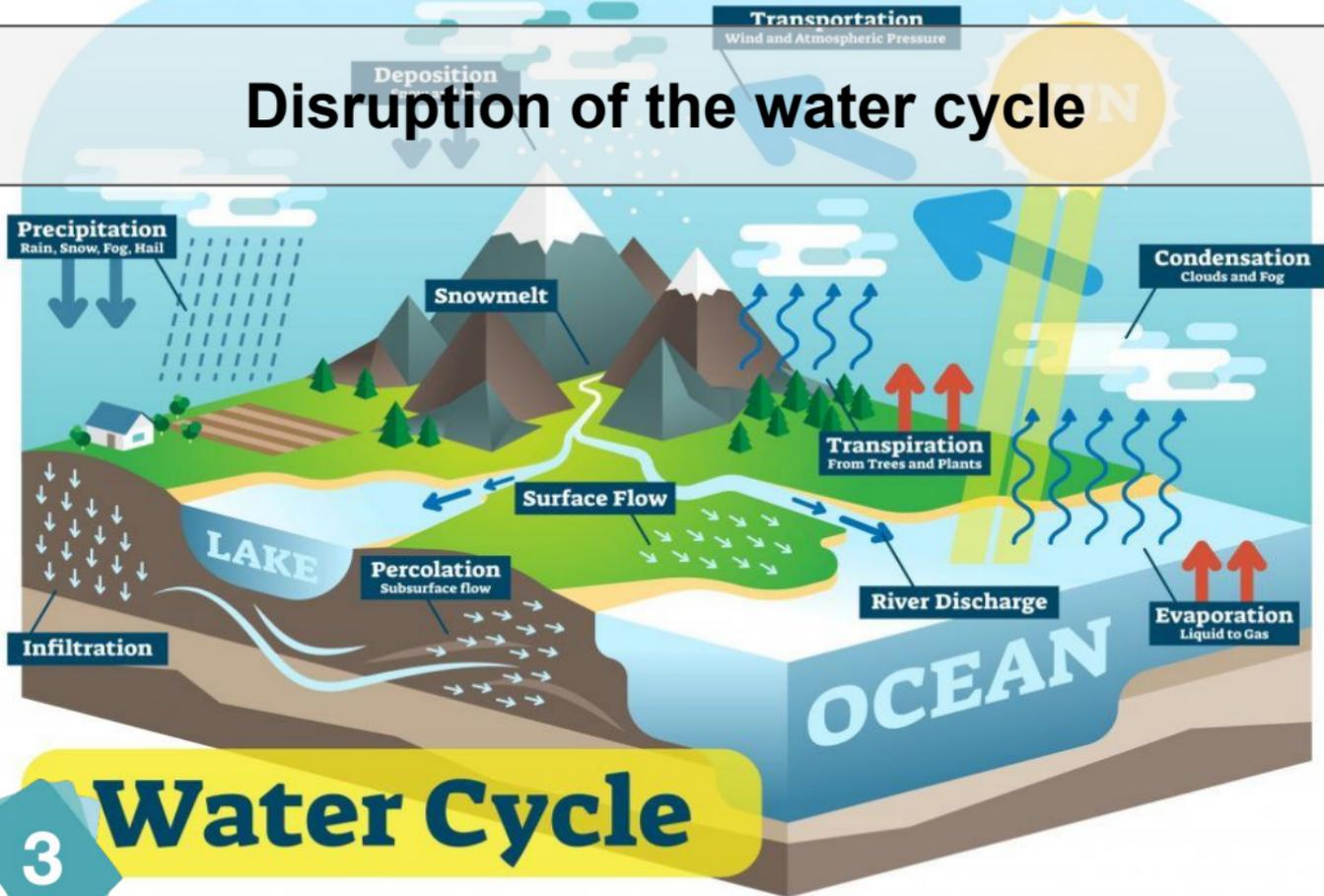
The hot weather accelerated the evaporation of water from the soil and plants.

Soils are dried out and weaken vegetation, reduce drinking water capacity and have human consequences on agriculture and on people at risk of dehydration



Set 1

# Disruption of the water cycle



3

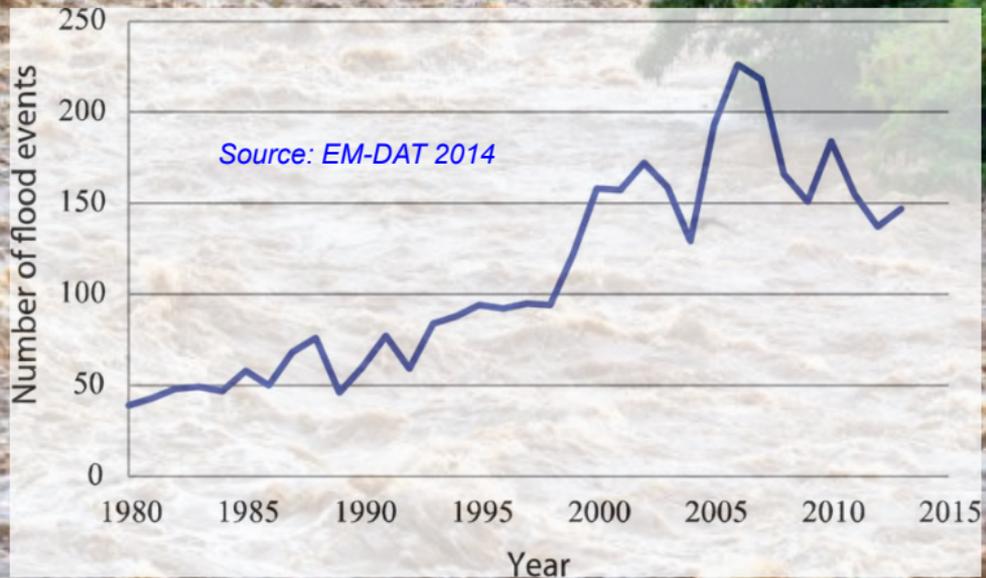
## Water Cycle

When there is less ice at higher altitudes in winter, this is reflected in lower river flows downstream in summer. Rising temperatures also lead to higher evaporation. The lack of water is also felt under the ground, as the soils are drier and it is therefore more difficult for water to infiltrate.



Set 1

# River flooding



Disruption of the water cycle can lead to more water or less water. More water can lead to inland flooding. With urbanization or if the soil has been hardened by a drought, it is worse because the water runs off without infiltrating.



# Inequalities in the sharing of water resources

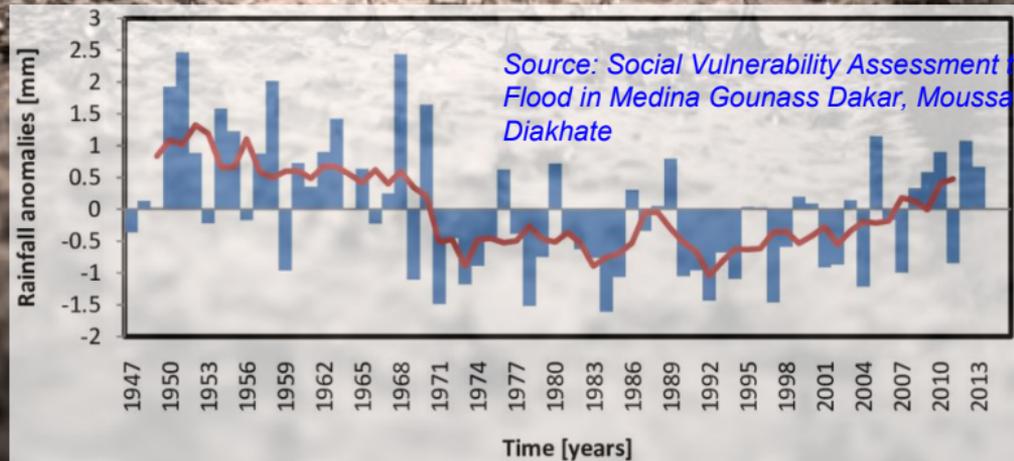


Variations in river flow and rainfall force people to adapt to access fresh water. If access to this resource becomes increasingly difficult, this will lead to inequalities between populations.



Set 3

# Rainfall variability



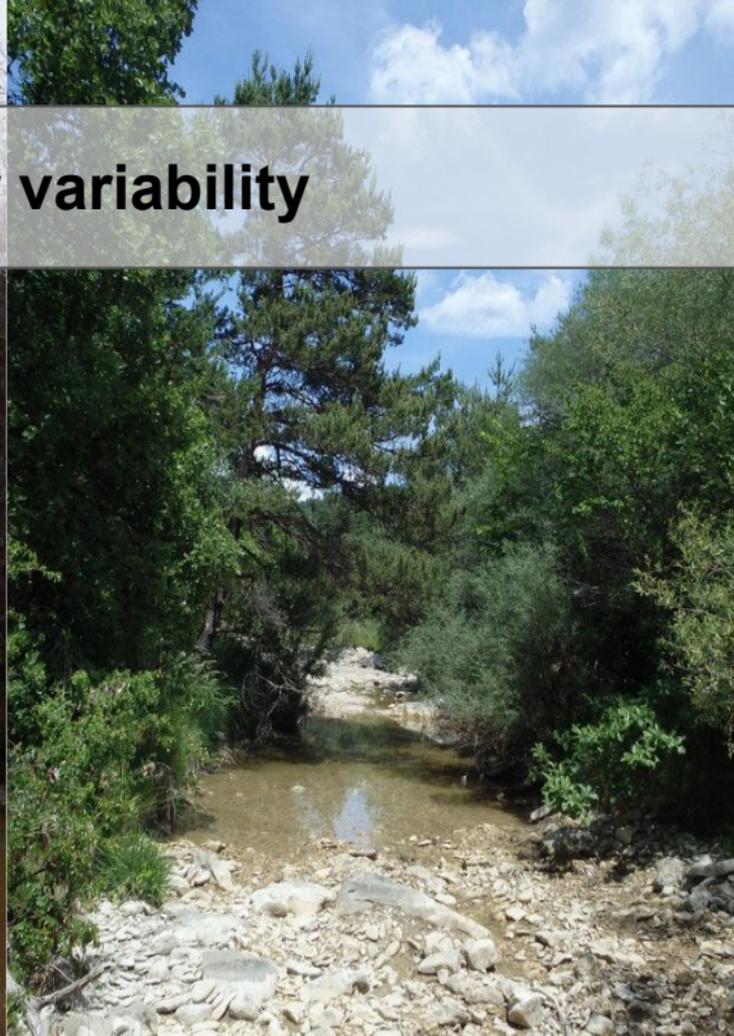
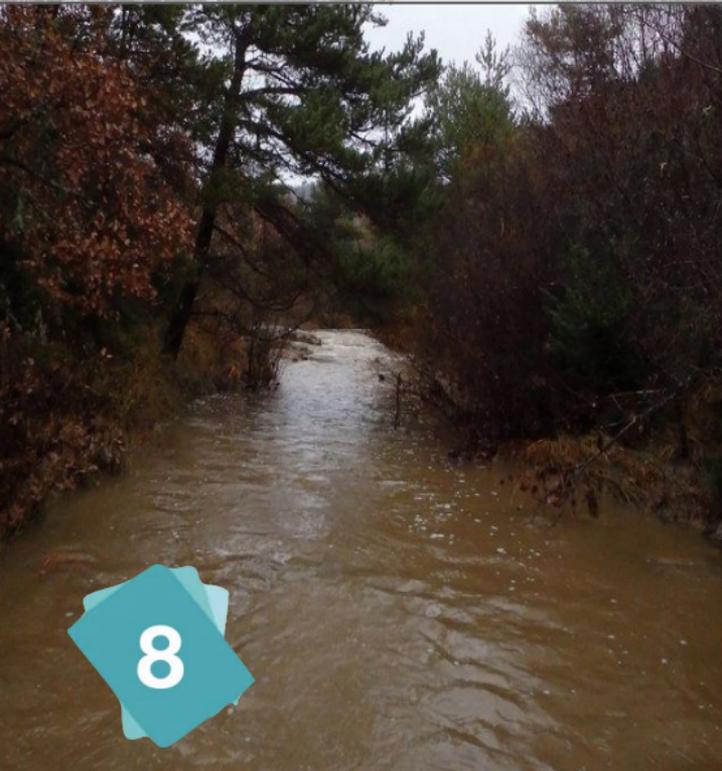
Variations in precipitation due to global warming are the cause of many problems: lower agricultural yields, drying out of soils, significant fluctuations in river flows.

These variations force populations to adapt and be more flexible.



Set 1

# River flow variability



8

High variability in rainfall leads to high variability in river flows, as a large proportion of the flows come directly from rainfall.

High and low water flows will be more frequent, increasing the risks of floods and soil dryness.



Set 1

# Urbanization

An aerial photograph of a city at dusk, showing a dense grid of skyscrapers and buildings. The sky is a mix of orange and blue. A semi-transparent horizontal bar is overlaid across the top of the image, containing the title 'Urbanization' in a bold, black, sans-serif font.

13

A teal-colored hexagonal graphic with a white border, containing the number '13' in a white, bold, sans-serif font. The hexagon is positioned in the bottom-left corner of the image, partially overlapping the cityscape.

Large cities have an effect on precipitation. In fact, studies have shown that there is an increase in average precipitation especially over and downwind of the cities.

The sealing of the ground strongly reduces the possibilities of infiltration. Cities are poorly vegetated, the evaporated and/or evapotranspired part decreases significantly.

As a result, the amount of runoff increases considerably.



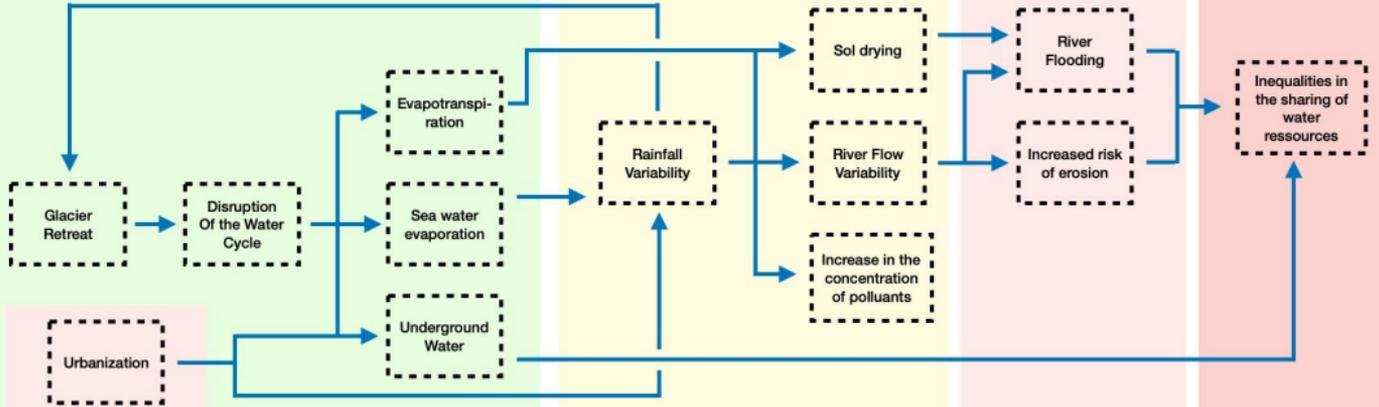
Set 3

### Water cycle

### Direct consequences

### Indirect consequences

### Final consequences

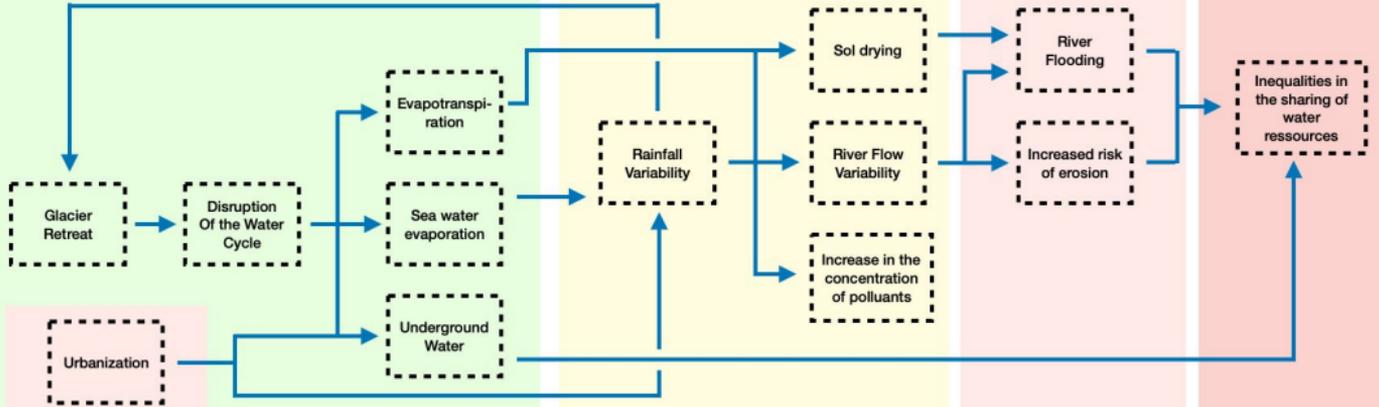


Water cycle

Direct consequences

Indirect consequences

Final consequences



# Climate migration



Climate migration due to sea level rise is a significant issue affecting coastal communities and low-lying areas worldwide. Rising sea levels caused by the melting of ice caps and glaciers are contributing to climate-induced migration. In the coming decades, sea level rise is expected to displace millions of people, especially in vulnerable regions. To address this issue, reducing greenhouse gas emissions is crucial. Supporting climate migrants and protecting their rights are also essential.

# Destruction of farmland



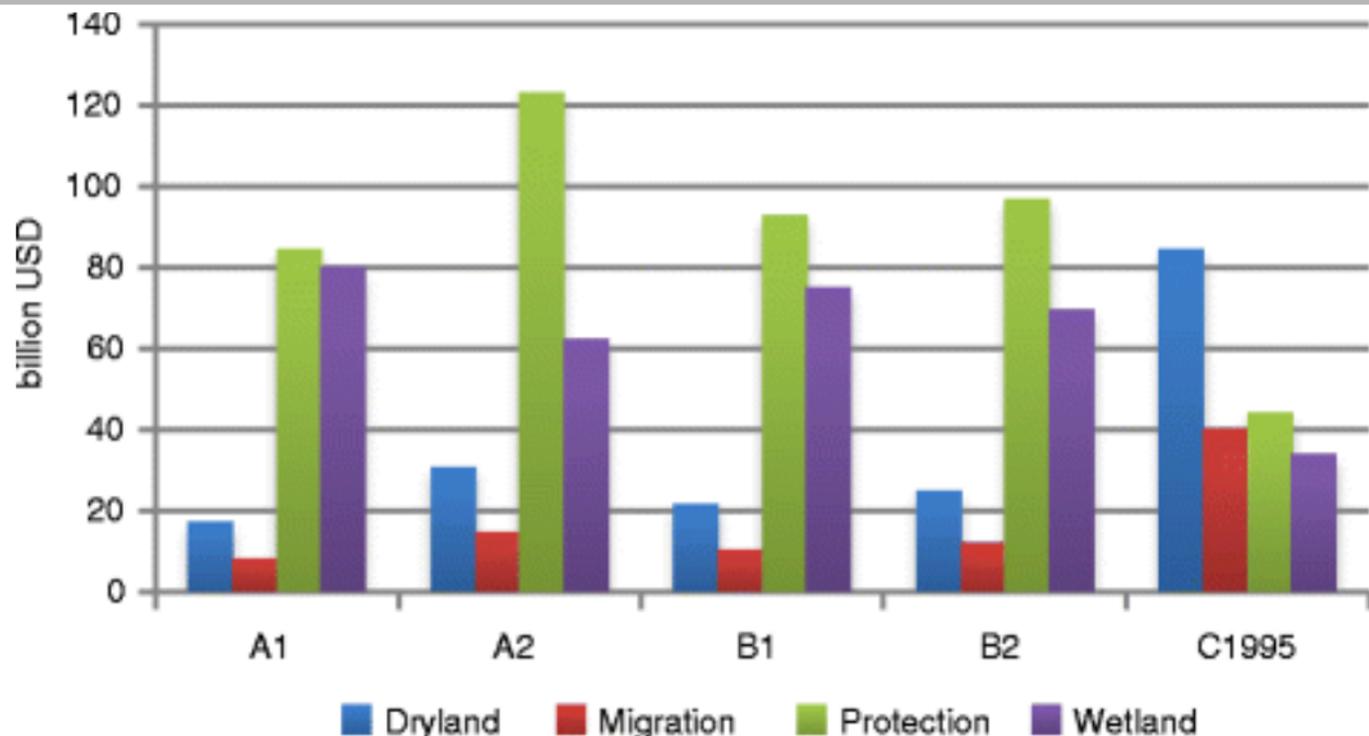
Sea level rise can damage or destroy farmland in low-lying coastal areas by causing flooding and saltwater intrusion into freshwater resources. This can make soil too salty for crops to grow and disrupt food production, leading to serious consequences for food security and economic stability. To mitigate the impacts, adaptation strategies may include building sea walls, using salt-tolerant crops, and implementing water management techniques.

# Coastal erosion



Coastal erosion, exacerbated by sea level rise, poses a grave threat to vulnerable shorelines worldwide. As sea levels continue to increase, the relentless power of waves and storms erode coastal areas, leading to the loss of valuable land and ecosystems. Urgent measures are required to mitigate the devastating impacts of this combined force on coastal communities and protect our fragile coastlines for future generations.

# Economic consequences

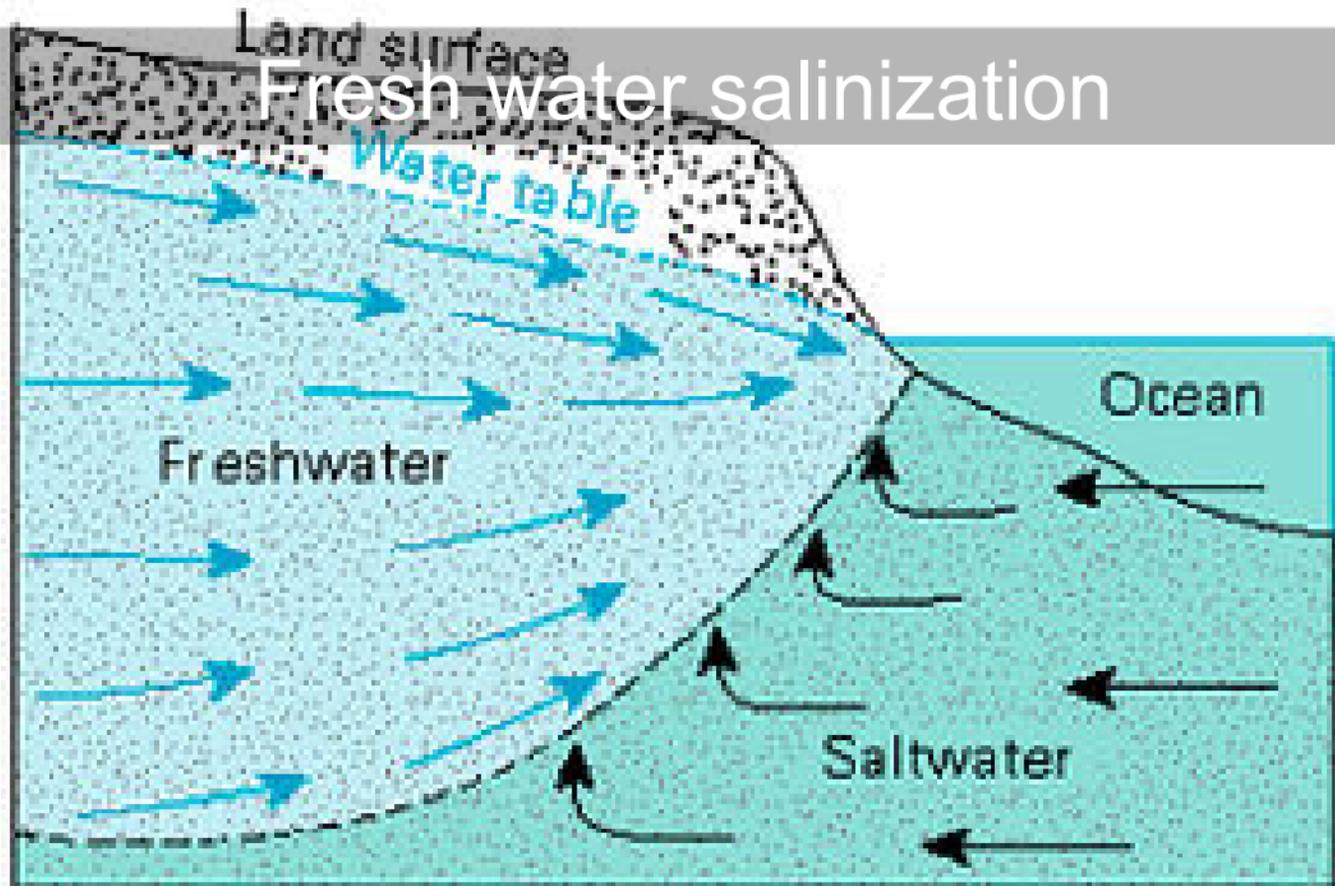


Sea level rise carries significant economic consequences, particularly for coastal communities.

Increased flooding and storm surges damage infrastructure, disrupt trade and transportation, and devalue coastal properties. Businesses reliant on tourism, fishing, and shipping suffer losses, while insurance costs skyrocket. Adequate planning, investment in resilient infrastructure, and adaptation strategies are vital to minimize the economic toll of sea level rise.

# Natural Conditions

## Fresh water salinization



The phenomenon of fresh water salinization is closely intertwined with sea level rise. As ocean waters encroach upon coastal regions, saline intrusion infiltrates freshwater sources, contaminating essential supplies. This accelerating problem poses significant challenges for agriculture, ecosystems, and human populations, necessitating comprehensive strategies to monitor and mitigate the impacts of sea level rise on freshwater resources.