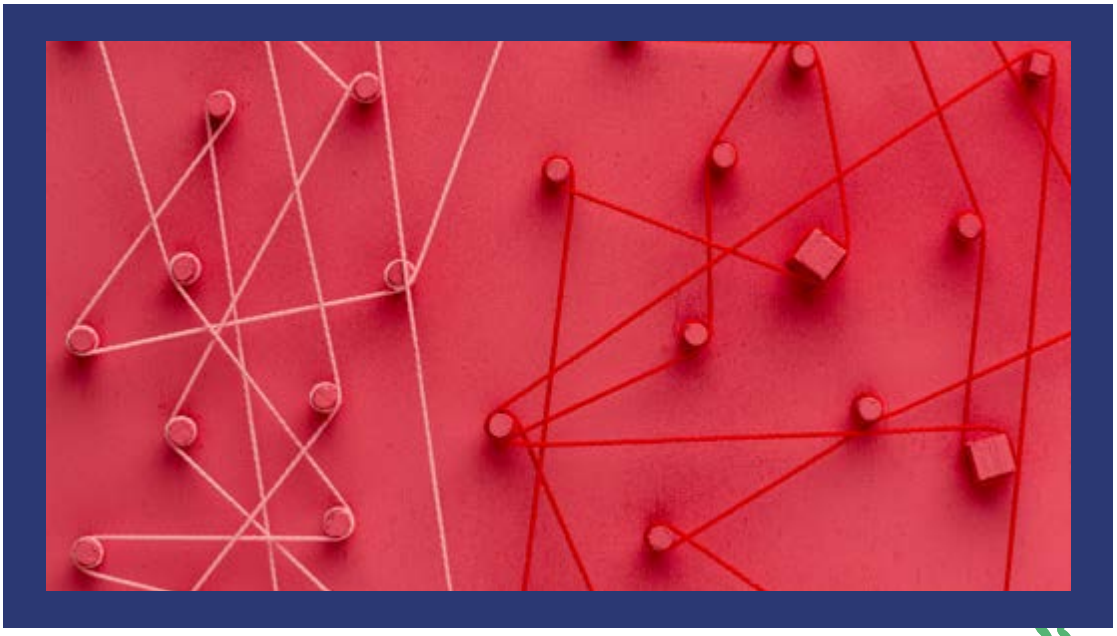
4.2 Our Planet. The Environmental Crisis

4.2.1 How do ecosystems work?

The concept of ecosystem is really important to understand the functioning of our planet. We could define an ecosystem as a place in nature made up of a given or specific space and the beings that inhabit it and the interactions that take place between them. To better understand the concept of an ecosystem, we recommend you watch this video.

4.2.1 Ecosystem functioning and its relation to the Law of Impermanence

Ecosystems function as a complex system of networks in which these relationships determine the evolution and balance of the ecosystem as a whole. At the heart of every ecosystem lies a fundamental principle: interdependence. This idea, as simple as it is profound, reminds us that all living things, from the smallest plants to the largest animals, are connected to each other by an invisible web of relationships that determines and conditions their existence.



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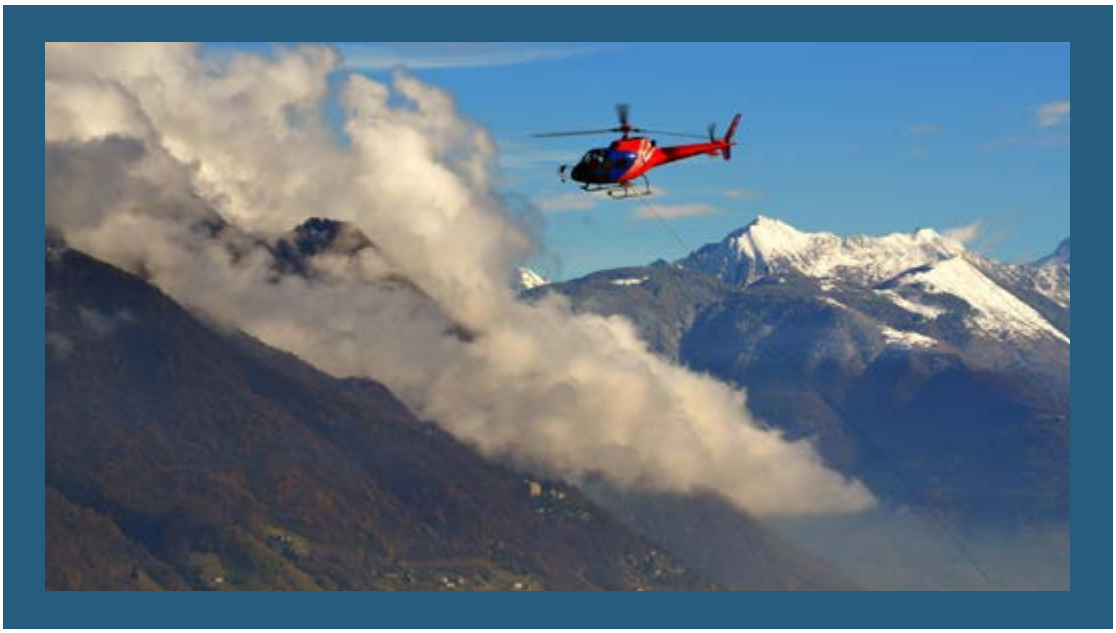
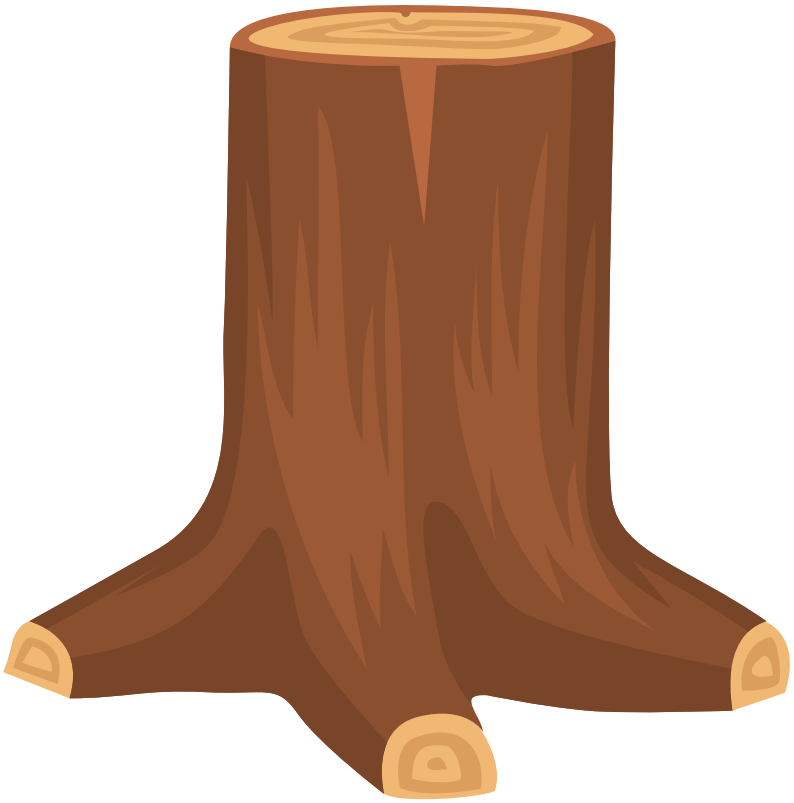
When disturbances exceed the capacity for self-regulation, by destruction of biocene or key elements of the structure, the ecosystem regresses. Currently, our species, through growth models, is the main regressor.



However, ecosystems also possess a remarkable capacity for resilience. In the face of a disturbance, they can activate recovery mechanisms that allow them to return to a state of equilibrium, even if this new equilibrium is not exactly the same as the previous one.



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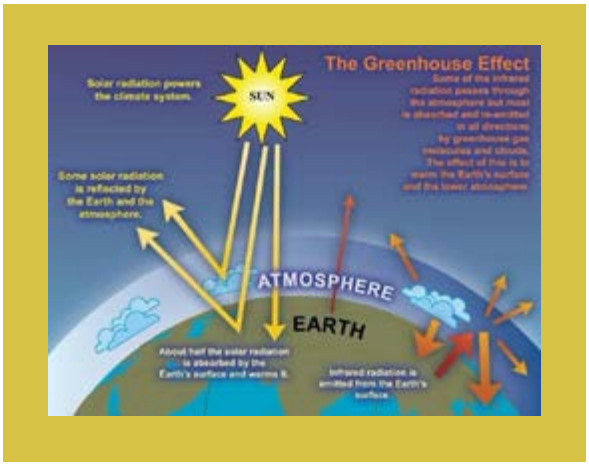
4.2.2 Crisis? What Crisis?

The global environmental emergency encompasses three main areas: the climate crisis, the ecological crisis and the energy crisis

4.2.2.1 Climate crisis

Climate change is caused by the increase in greenhouse gases (GHGs) such as CO2 and methane, mainly due to the burning of fossil fuels. This energy imbalance has resulted in global warming, changes in precipitation patterns, extreme weather events, sea level rise and loss of Arctic ice. **The greenhouse effect is a natural process that allows the Earth to maintain the conditions necessary to support life: the atmosphere retains some of the Sun's heat; without the greenhouse effect, the average temperature of the planet would be minus 18ºC.**



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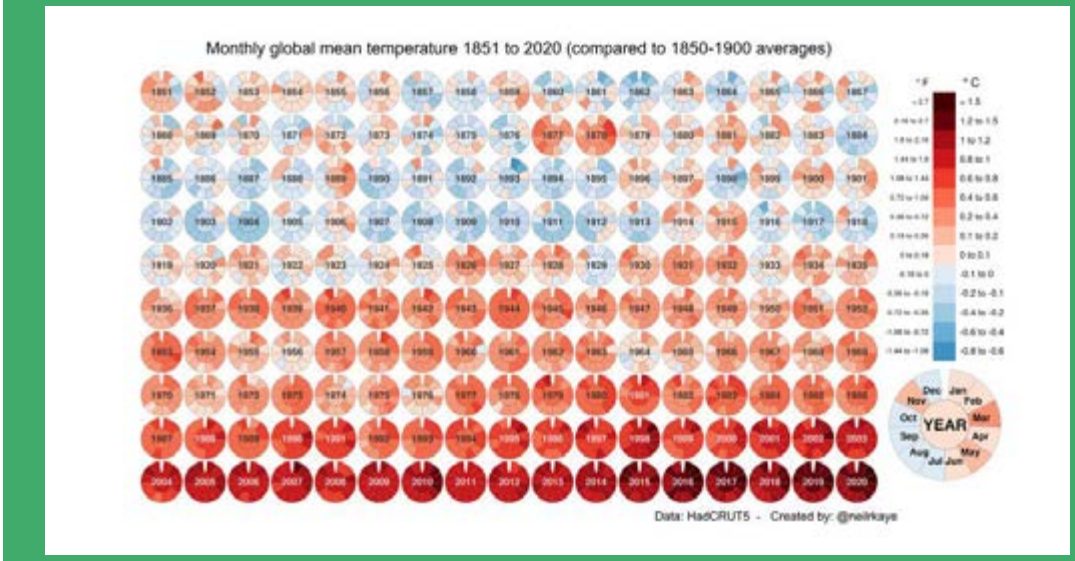
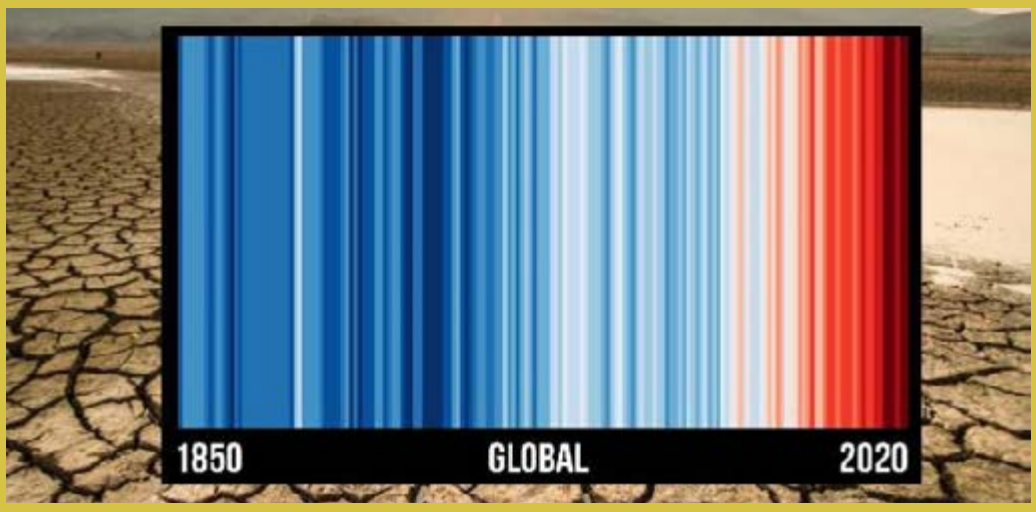
The current climate trend is the result of natural climate variability altered by the emission of greenhouse gases, the obvious result of which is an increase in air and ocean temperatures.



In this image, the code for each bar is presented in colours symbolising the temperatures recorded from the end of the 19th century to the present day; from the coldest blue to the warmest red, through white indicating the average temperature for the period analysed. The Climate Central web portal allows you to view and copy barcodes for the entire planet, individual continents or even by country.



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It is not only a matter of temperature
Changes in the hydrological cycle
Greater intensity of rainfall and associated floods
More intense droughts
Continued sea level rise and coastal erosion
Thawing permafrost
Loss of seasonal snow cover
Melting glaciers
Ocean warming and acidification with reduced oxygen levels
Deaths, diseases, and mass migrations of species
Extreme weather events

4.2.2.2 Ecological crisis (Loss of biodiversity)

The ecological crisis refers to environmental problems that negatively alter the biosphere and society. Human activities are causing losses of biodiversity, declining soil fertility, depletion of aquifers and alterations in ecological cycles. Cities, although occupying only 3% of the earth's surface, consume 60% of resources and generate 70% of GHG emissions.

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4.2.2.3 Energy and resource crisis

The main paradigm of the growth model based on the linear economy (use and throw away) is the unfeasibility of unlimited growth on a planet with limited resources.
When we talk about natural resources, we are referring to all those elements that nature offers us to add wellbeing to our lives. They are those that the planet offers without the need for human intervention. They are essential for our subsistence, but if they are consumed at a faster rate than their natural regeneration, as is currently the case, they could be depleted.

We distinguish between two types of resources that differ in terms of their sustainability:

• Renewable: solar radiation, wind, wood, water, the planet's internal heat...

• Non-renewable resources: minerals, metals, natural gas, fossil fuels, aquifers...

Causes of the indiscriminate exploitation of natural resources

What has led us to the current situation of scarcity of natural resources? The causes that have led to such a large-scale problem are very varied. Power and misuse of natural resources could be the key to all this.

· Wars and armed conflicts:

The environment has always been at the centre of such events. As resources are limited, and at the same time highly demanded by the whole planet, all countries want to control them in order to sell them and get richer.

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· **Increasing world population:**

The growth of the earth's population leads to an increase in food production. Understandable, isn't it?

However, this has led to agricultural malpractices that are damaging the planet's soils. So a resource that is giving us life and feeding us is being destroyed for this very reason. Curious paradox, isn't it?

· **Industrialisation and technological progress:**

Both sectors use natural resources to create the products that the market demands. And with which they get rich.

Raw materials such as minerals are essential to create computers, mobile phones, or any industrial product such as enamels, paints or construction elements.

· Practical activity. Learning control

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