



**LIFE
CLINOMICS**

LIFE15 CCA/ES/000102



"This project has been funded with support from the European Commission"

Impacts of climate change

The evidence
The effects
The priorities
Action

The impacts of climate change pose a threat to the welfare and health of people, heritage, economic activities, urban and natural systems.

Today, territories, production systems and social fabrics do not meet the right conditions to keep their functions in the light of the new climate situation. At the same time, public services and economic and social activities in these territories are very vulnerable.

Society will face a global climate alert:

- 🔥 Increasing minimum and maximum temperatures, sunshine, heatwaves and tropical nights.
- 🔥 Increasingly intense and frequent droughts.
- 🔥 Higher risk of large forest fires.
- 🔥 Increase in sea level, posing a threat to coastal and delta areas.
- 🔥 Loss of biodiversity and biological integrity.
- 🔥 Extreme rainfall episodes.
- 🔥 Emergence of new diseases or resurgence of diseases that were considered extinct.

Adaptation is the main resource for agents acting in the territory to reduce vulnerability – this takes the form of strategies, action plans and governance processes.

All agents – governing bodies, companies of goods and services, workers, farmers and citizens – sharing a territory with management capacity have the potential to deal with the risks of climate change through joint actions for adaptation.

The Life Clinomics project initiates new investment processes for both public bodies and private companies to reduce vulnerability, anticipate climate impacts and increase resilience in three territories – the Montseny biosphere reserve, the region of Alt Penedès and the Terres de l'Ebre biosphere reserve – and in three economic sectors: fishing, agroforestry and tourism.





The evidence

human emissions, the main cause of climate change

The current changes to the Earth's climate are supported by indisputable scientific evidence.



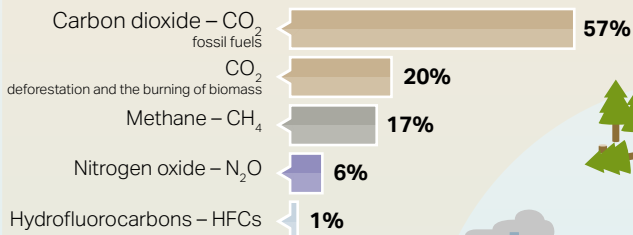
Human activity is the main cause of the greenhouse gases (GHG) released into the atmosphere.



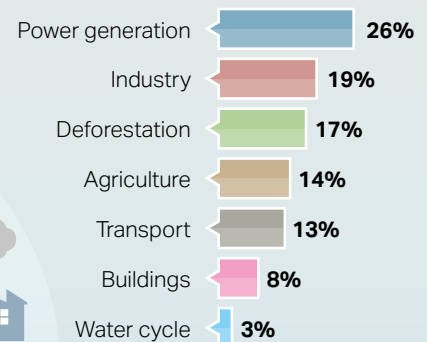
These emissions exceed the capacity of our oceans and vegetation to absorb them.



What is the breakdown of all of the gases emitted?



How much gas is emitted by each sector?



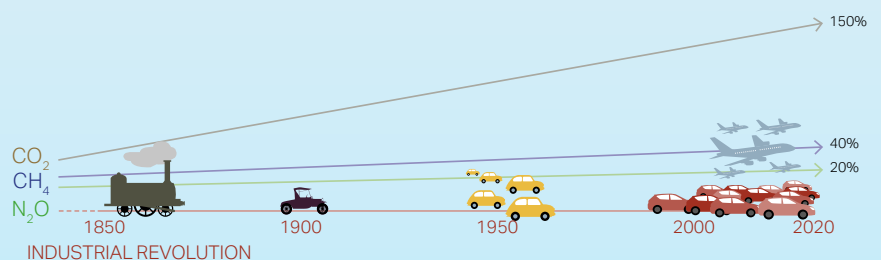
How much CO₂ is there in the atmosphere?

The concentration of CO₂ in the atmosphere continues to increase year after year. It has done so at a rate of 40% since the beginning of the Industrial Revolution and now exceeds 405 ppm (parts per million); CH₄ at 150%, and N₂O at 20%.

The last time there was a comparable concentration of CO₂ was four million years ago, when the temperature was between 2°C and 3°C warmer and sea levels were between 10 and 20 metres higher.

48 Gt

Every year, some 48 Gt of CO₂ (48x10⁹ t) are emitted. One tonne occupies a volume of about 510 m³.





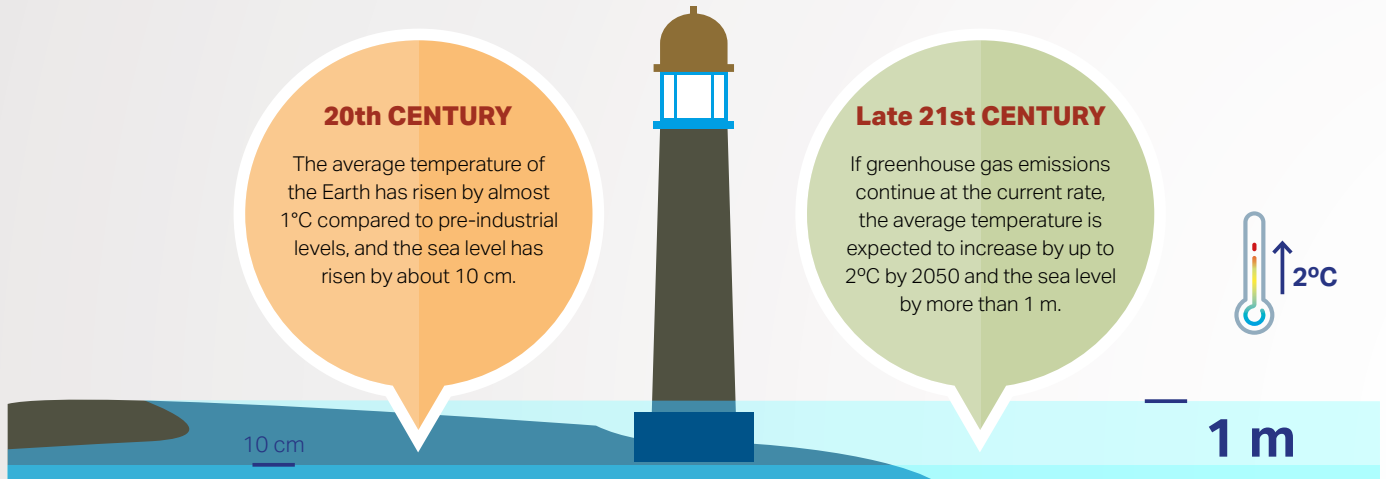
The effects the planet is warming and natural systems are suffering

20th CENTURY

The average temperature of the Earth has risen by almost 1°C compared to pre-industrial levels, and the sea level has risen by about 10 cm.

Late 21st CENTURY

If greenhouse gas emissions continue at the current rate, the average temperature is expected to increase by up to 2°C by 2050 and the sea level by more than 1 m.



How is this affecting climate change?



DESERTIFICATION



MELTING ICE CAPS AND
RETREATING GLACIERS



HEAT WAVES AND
FOREST FIRES



INVASIVE SPECIES



LESS RAINFALL AND
DROUGHTS



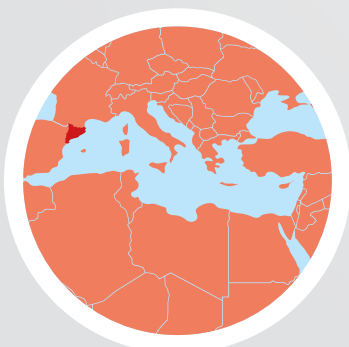
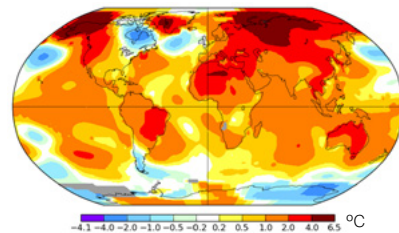
CHANGE IN SPECIES'
LIFE CYCLE



TORRENTIAL RAIN AND
EXTREME EVENTS

Global warming affects the natural systems, biodiversity and the cycle of the species, and also the health and quality of life for people throughout the globe, though the effects are felt differently depending on the climatic region.

How is the temperature of the Earth increasing?

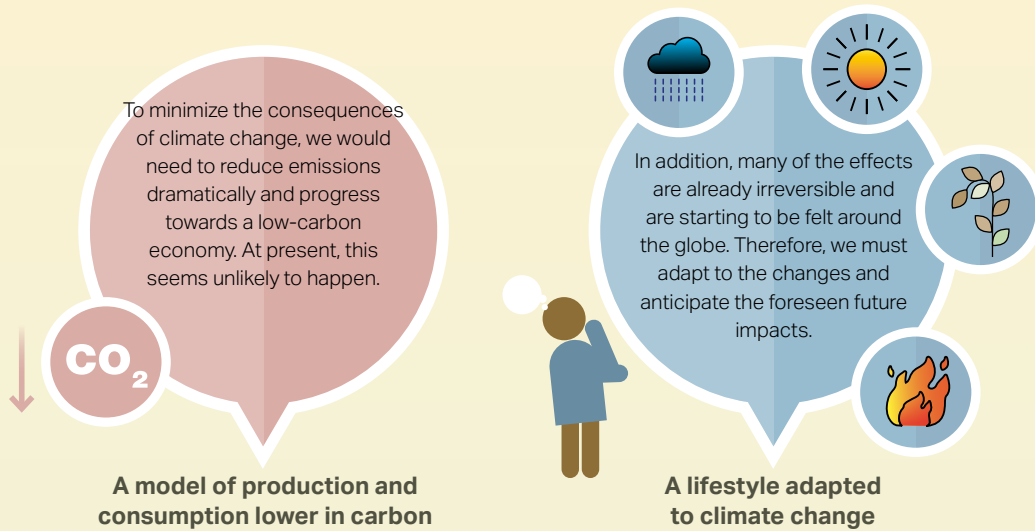


Southern Europe has a wide range of types and varieties of Mediterranean climates, as well as Atlantic and continental climates. Such climatic wealth and complexity makes it difficult to establish detailed trends and forecasts, especially for Catalonia.

In any case, during the 21st century, the temperature could rise between 0.3 and 4.8°C, and precipitation may decrease by about 10%. Tropical nights and days (climatic extremes) will be frequent, as will periods without precipitation.

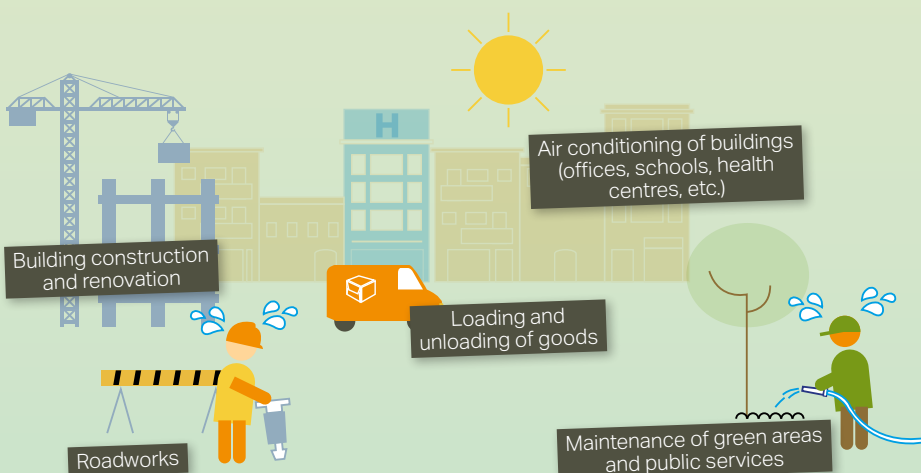


The priorities reduce emissions, but also adapt to the changes



All human activities are susceptible to climate change

Most human and economic activities will be affected by climate change, but especially those conducted in the open air and those related to the primary sector, tourism and leisure.



Higher temperatures and heat waves will also affect other activities, both outdoors and indoors, and especially in the cities, due to the heat island effect.



Action

**be aware of the vulnerabilities,
tackle the challenges and seize the opportunities**

Every economic sector, company and organisation must identify its risks and vulnerabilities in the face of climate change. Also the new opportunities it may have in the new scenario. The price of not acting in time may be very high and is already being felt.

((o))

Minimise **vulnerability** before negative risks and impacts

Identify the positive impacts and turn them into **opportunities**



RESILIENCE

Ask ourselves questions to find the answers



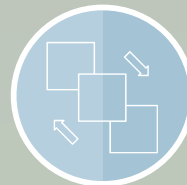
KNOWLEDGE



DIAGNOSIS



CONCLUSIONS



ACTION PLAN



MEASURES

How is the climate changing?

How is it affecting our region and economic activities?

How might it affect our industry?

How are we vulnerable and what risks do we face?

Are we ready to adapt to the changes?

What can we do about it?
What steps can we take?

By which deadlines must we act and which resources must we invest?

In what ways can we act?

A+++

Energy saving and efficiency



Renewable energy and self-production

**Work towards
a low-carbon
circular economy**

New mobility services and technologies



Waste prevention



Efficient water management





Third report on Climate Change in Catalonia

Government of Catalonia. 2016

http://cads.gencat.cat/web/.content/Documents/Publicacions/tercer-informe-sobre-canvi-climatic-catalunya/TERCER_INFORME_CANVI_CLIMATIC_web.pdf

The Climate Change

Catalan Office for Climate Change. Government of Catalonia

<http://canviclimatic.gencat.cat/ca/inici>

Reports IPCC

Intergovernmental Panel on Climate Change Reports

<https://www.ipcc.ch/reports/>

Climate Action

European Commission

<https://ec.europa.eu/clima/change>

Website: www.lifeclinomics.eu

Life Clinomics Events: www.lifeclinomics.eu/ca/category/agenda

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