Module 4

Climate Change
People in Focus

Co-funded by
the European Union

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Let's assess your knowledge on climate change

Before you keep exploring within the chapters, we invite you to fill in the evaluation form in the link below to find out the level ofyour knowledge on the topics covered. After you answer all the questions, you will get an email with your scores. Do your best and compare your result with the scores of the questionnaire at the end of the module.

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Chapter 1

Climate Change

1.1 What is Climate Change?

"Climate change refers to a large-scale, long-term shift in the planet's weather patterns and average temperatures." - according to World Wildlife Fund UK.

The science is clear. Climate change is real. Climate change is happening now. Climate change requires immediate and ambitious action to prevent the worst effects it can have on people and wildlife all over the world.

We know that the planet has warmed by an average of nearly 1°C in the past century. If we are to prevent the worst effects of climate change, there is global agreement that temperature rises need to be kept well below 2°C from the pre-industrial era, with an ambition to keep it below 1.5°C. Currently, however, assessments suggest that we are currently on course for temperature rises of up to as much as 4°C or higher.

We have recently seen a number of unwanted developments due to climate change and global warming:

- 16 of the 17 warmest years on record have occurred since 2001, with 2016 being the warmest yet.
- The current levels of atmospheric concentrations of greenhouse gases are unprecedented in the last 800,000 years.
- And recently, scientists have declared a new geological time period: the Anthropocene, in which human activity is said to be the dominant influence on the environment, climate, and ecology of the earth.

As the planet continues to warm, climate patterns change. Extreme and unpredictable weather will become more common across the world as climate patterns change, with some places being hotter, some places being wetter, and some places being drier. These changes can have (and are already having) drastic impacts on all life on Earth.

1.2 Climate Change Terms

Climate change is an extremely important issue of our times. To get involved in various discussions and to be able to take concrete actions, it is indispensable to get familiar with its terms and concepts. Below you may find the key terms on climate change according to UNDP[1].

Climate is the average of weather patterns in a specific area over a longer period of time, usually 30 or more years that represents the overall state of the climate system.
Greenhouse gases are gases that trap heat from the sun in our planet's atmosphere, keeping it warm. Since the industrial era began, human activities have led to the release of dangerous levels of greenhouse gases, causing global warming and climate change.

Global warming is an increase in the Earth's average surface temperature that occurs when the concentration of greenhouse gases in the atmosphere increases. These gases absorb more solar radiation and trap more heat, thus causing the planet to get hotter. Burning fossil fuels, cutting down forests, and farming livestock are some human activities that release greenhouse gases and contribute to global warming.

[1] https://climatepromise.undp.org/news-and-stories/climate-dictionary-everyday-guide-climate-change

Climate change refers to the long-term changes in the Earth's climate that are warming the atmosphere, ocean and land. Climate change is affecting the balance of ecosystems that support life and biodiversity, and impacting health. It also causes more extreme weather events, such as more intense and/or frequent hurricanes, floods, heat waves, and droughts, and leads to sea level rise and coastal erosion as a result of ocean warming, melting of glaciers, ad loss of ice sheets.

The climate crisis refers to the serious problems that are being caused, or are likely to be caused, by changes in the planet's climate, including weather extremes and hazards, ocean acidification and sea-level rise, loss of biodiversity, food and water insecurity, health risks, economic disruption, displacement, and even violent conflict.

Climate feedback loops happen when one change in the climate triggers further changes, in a chain reaction that reinforces itself as time goes on. Ultimately, feedback loops can trigger tipping points, at which point the changes to our planet's climate systems become severe and irreversible. For example, as sea ice in the Arctic melts, more heat is being absorbed by the darker ocean waters, thus speeding up the warming process and leading to more ice melting.

A tipping point is a threshold after which certain changes caused by global warming and climate change become irreversible, even if future interventions are successful in driving down average global temperatures. These changes may lead to abrupt and dangerous impacts with very serious implications for the future of humanity and our planet.

A carbon footprint is a measure of the greenhouse gas emissions released into the atmosphere by a particular person, organization, product, or activity. A bigger carbon footprint means more emissions of carbon dioxide and methane, and therefore a bigger contribution to the climate crisis.

Climate change mitigation refers to any action taken by governments, businesses, or people to reduce or prevent greenhouse gas emissions, or to enhance carbon sinks that remove these gases from the atmosphere.

Climate change adaptation refers to actions that help reduce vulnerability to the current or expected impacts of climate change like weather extremes and hazards, sea-level rise, biodiversity loss, or food and water insecurity.

Climate resilience is the capacity of a community or environment to anticipate and manage climate impacts, minimize their damage, and recover and transform as needed after the initial shock.

Climate justice means putting equity and human rights at the core of decision-making and action on climate change.One aspect of climate justice relates to the unequal historical responsibility that countries bear in relation to the climate crisis. The concept suggests that the countries, industries, and businesses that have become wealthy from activities that emitted the most greenhouse gas emissions have a responsibility to help mitigate the impacts of climate change on those affected, particularly the most vulnerable countries and communities, who often are the ones that have contributed the least to the crisis.

Nature-based solutions are actions to protect, conserve, restore, and sustainably use and manage ecosystems to support climate change adaptation and mitigation efforts, preserve biodiversity, and enable sustainable livelihoods.

Net zero - Reaching net zero requires us to ensure that carbon dioxide emissions from human activity are balanced by human efforts to remove carbon dioxide emissions (for example, by creating carbon sinks to absorb carbon dioxide) - thereby stopping further increases in the concentration of greenhouse gases in the atmosphere.

A carbon sink is any process, activity, or mechanism that absorbs more carbon dioxide from the atmosphere than it releases. Forests, oceans, and soil are the world's largest natural carbon sinks.

Reforestation is the process of replanting trees in areas that had recent tree cover but where forests were lost, due to wildfires, drought, disease, or human activity such as agricultural clearing.

Afforestation is the process of planting trees in areas that have not been forested in recent history. Afforestation helps restore abandoned and degraded agricultural lands, prevent desertification, create carbon sinks, and generate new economic opportunities for local communities.

Circular economy refers to models of production and consumption that minimize waste and reduce pollution, promote sustainable uses of natural resources, and help regenerate nature.

Ensuring a **just transition** means that countries choose to green their economy through transition pathways and approaches that reinforce equality and inclusivity. This means looking at the impacts of the transition on different groups of workers across the economy and providing opportunities for training and reskilling that support decent work and aim to leave no one behind.

1.3 What is causing climate change?

The main driver of climate change is the greenhouse effect. Some gases in the Earth's atmosphere act a bit like the glass in a greenhouse, trapping the sun's heat and stopping it from leaking back into space and causing global warming.

Many of these greenhouse gases occur naturally, but human activities are increasing the concentrations of some of them in the atmosphere, in particular:

- carbon dioxide (CO2)
- methane
- nitrous oxide
- fluorinated gases

CO2 produced by human activities is the largest contributor to global warming. By 2020, its concentration in the atmosphere had risen to 48% above its pre-industrial level (before 1750).

Other greenhouse gases are emitted by human activities in smaller quantities. Methane is a more powerful greenhouse gas than CO2, but has a shorter atmospheric lifetime.

Nitrous oxide, like CO2, is a long-lived greenhouse gas that accumulates in the atmosphere over decades to centuries. Non-greenhouse gas pollutants, including aerosols like soot, have different warming and cooling effects and are also associated with other issues such as poor air quality.

Natural causes, such as changes in solar radiation or volcanic activity are estimated to have contributed less than plus or minus 0.1°C to total warming between 1890 and 2010.

Causes for rising emissions

- **Burning coal, oil and gas** produces carbon dioxide and nitrous oxide.
- **Cutting down forests (deforestation).** Trees help to regulate the climate by absorbing CO2 from the atmosphere. When they are cut down, that beneficial effect is lost and the carbon stored in the trees is released into the atmosphere, adding to the greenhouse effect.
- **Increasing livestock farming.** Cows and sheep produce large amounts of methane when they digest their food.
- **Fertilisers** containing nitrogen produce nitrous oxide emissions.
- **Fluorinated gases** are emitted from equipment and products that use these gases. Such emissions have a very strong warming effect, up to 23 000 times greater than CO2.

1.4 Myths about climate change

WWF[2] has identified the following 10 myths—explore them below:

MYTH 1

THE EARTH'S CLIMATE HAS ALWAYS CHANGED

Over the course of the Earth's 4.5-billion-year history, the climate has changed a lot. This is true. But the rapid warming we're seeing now can't be explained by natural cycles of warming and cooling. The kind of changes that would normally happen over hundreds of thousands of years are happening in decades.

Global temperatures are now at their highest since records began. In fact, 17 of the 18 warmest years on record have all taken place since 2001.

MYTH 2

PLANTS NEED CARBON DIOXIDE

Plants do need carbon dioxide (CO2) to live. Plants and forests remove and store away huge amounts of carbon dioxide from the atmosphere each year. But the problem is, there's only so much carbon dioxide they can absorb and this amount is getting less, as more and more forests are cut down across the world, largely to produce our food.

Let's be clear, CO2 itself does not cause problems. It's part of the natural global ecosystem. The problem is the quantity of CO2 that's being produced by us as humans; there hasn't been this level of CO2 in the atmosphere for 800,000 years.

[2] https://www.wwf.org.uk/updates/here-are-10-myths-about-climate-change

MYTH 3

GLOBAL WARMING ISN'T REAL AS IT'S STILL COLD

Global warming is causing the Earth's average surface temperature to increase. This is not only making heatwaves and droughts more likely but it's also causing changes to our natural climate systems. These changes are making extreme weather events more likely and more severe. For example, hurricanes and storms are becoming more intense, moving slower and taking longer to die down.

MYTH 4

CLIMATE CHANGE IS A FUTURE PROBLEM

This is no longer an excuse not to act on climate change and push the burden onto future generations. Last year, the world's leading climate scientists warned we only have 12 years to limit global warming to a maximum of 1.5C and avoid climate breakdown.

MYTH 5

RENEWABLE ENERGY IS JUST A MONEY-MAKING SCHEME

It's a commonly-held belief that renewable energy is expensive, but this simply isn't true! Solar power and onshore wind are the cheapest ways of generating electricity; meaning the energy they produce is cheaper than using nuclear, gas and fossil fuels. The cost of renewables has fallen faster than anyone could have predicted.

MYTH 6

POLAR BEAR NUMBERS ARE INCREASING

This isn't the case. Climate change is the biggest threat faced by polar bears. The Arctic is warming roughly four times faster than the rest of the world, causing sea ice to melt earlier and form later each year. This makes it more difficult for female polar bears to get onto land in late autumn to build their dens, and more difficult for them to get out onto the sea ice in spring to feed their cubs. Their main source of prey, seals, are also affected by climate change, as they depend on sea ice to raise their young.

MYTH 7

RENEWABLE ENERGY CAN ONLY WORK WHEN IT'S NOT CLOUDY OR WINDY

Industry is developing new techniques for storing electricity and managing demand at peak times meaning that even if the sun isn't shining or it's not blowing a gale, it's still possible to rely on renewable energy sources.

MYTH 8

ANIMALS WILL ADAPT TO CLIMATE CHANGE

This one isn't a myth, Darwin got the adaptation part right. But let's be clear, some plants and animals will adapt but not all. To survive, plants, animals and birds confronted with climate change have two options: move or adapt. There are several examples of species that have begun to adapt to climate change already. But increasingly, it's a different story for many. Given the speed of climate change, it's becoming impossible for many species to adapt quickly enough to keep up with their changing environment.

MYTH 9

GETTING RID OF HUMANS WILL FIX THIS

This, we firmly believe, is wrong. It's easy to start feeling that we've gone too far already and that the planet won't be able to support the world's growing population.

MYTH 10

CHINA IS THE ONLY COUNTRY RESPONSIBLE FOR CLIMATE CHANGE

Despite being one of the largest emitters of greenhouse gases, China is currently one of the largest investors in renewables. The increase in investment has been in response to the rapid growth of green business and the need to clean up air pollution in its major cities.

Climate change is a global issue and we all have a responsibility to step up to the climate crisis. Action on it will need serious investment but has the potential to deliver huge benefits for nature and people.

1.5 How climate change affects the natural world and human beings

Climate change is a threat to our nature and us as human beings. The natural consequences are numerous and catastrophic. The most usual consequences identified by European Commission are outlined below:

High Temperatures

"The climate crisis has increased the average global temperature and is leading to more frequent high-temperature extremes, such as heatwaves. Higher temperatures can cause increased mortality, reduced productivity, and damage to infrastructure. The most vulnerable members of the population, such as the elderly and infants, will be most severely affected," according to the European Commission. Higher temperatures are also expected to cause a shift in the geographical distribution of climate zones. These changes are altering the distribution and abundance of many plant and animal species, which are already under pressure from habitat loss and pollution.

Wildfire and droughts

Due to the changing climate, many regions are already facing more frequent, severe, and longer-lasting droughts. “A drought is an unusual and temporary deficit in water availability caused by the combination of lack of precipitation and more evaporation (due to high temperatures).” as identified by the European Commission.
Droughts often have knock-on effects, for example, on transport infrastructure, agriculture, forestry, water, and biodiversity. They reduce water levels in rivers and groundwater, stunt tree and crop growth, increase pest attacks, and fuel wildfires.
In Europe, most of the roughly EUR 9 billion annual losses caused by drought affect agriculture, the energy sector, and the public water supply. Extreme droughts are becoming more common in Europe, and the damage they cause is also growing.

Availability of fresh water

As the climate heats up, rainfall patterns change, evaporation increases, glaciers melt, and sea levels rise. All these factors affect the availability of fresh water.
More frequent and severe droughts and rising water temperatures are expected to cause a decrease in water quality. Such conditions encourage the growth of toxic algae and bacteria, which will worsen the problem of water scarcity that has been largely caused by human activity.
Europe’s rivers generally originate in mountainous areas, and 40% of Europe’s fresh water comes from the Alps. However, changes in snow and glacier dynamics, and patterns of rainfall may lead to temporary water shortages across Europe. Changes to river flows due to drought may also affect inland shipping and the production of hydroelectric power.

Floods

Climate change is expected to lead to an increase of precipitation in many areas. Increased rainfall over extended periods will mainly lead to fluvial (river) flooding, while short, intense cloudbursts can cause pluvial floods, where extreme rainfall causes flooding without any body of water overflowing.

In some regions, certain risks such as early spring floods could decrease in the short term with less winter snowfall, but the increased risk of flash flooding in mountain areas overloading the river system may offset those effects in the medium term.

Sea-level rise and coastal area

The sea level rose over the course of the 20th century, and the tendency has accelerated in recent decades. The rise is mostly due to thermal expansion of the oceans because of warming. But melting ice from glaciers and the Antarctic ice sheet is also contributing. It is predicted that Europe will experience an average 60 to 80 cm sea-level rise by the end of the century, mainly depending on the rate at which the Antarctic ice sheet melts.

Alongside other climate change impacts, sea-level rise will increase the risk of flooding and erosion around the coasts, with significant consequences for the people, infrastructure, businesses and nature in these areas.

Biodiversity

Climate change is happening so fast that many plants and animal species are struggling to cope. There is clear evidence to show that biodiversity is already responding to climate change and will continue to do so. Direct impacts include changes in phenology (the behaviour and life cycles of animal and plant species), species abundance and distribution, community composition, habitat structure and ecosystem processes.

Soils

Climate change may aggravate erosion, decline in organic matter, salinisation, soil biodiversity loss, landslides, desertification and flooding. The effect of climate change on soil carbon storage can be related to changing atmospheric CO2 concentrations, increased temperatures and changing precipitation patterns. Saline soils are expected to increase in coastal areas as a result of saltwater intrusion from the seaside because of rising sea levels and (periodically) low river discharges.

Marine Environment

The impacts of climate change, such as increasing sea surface temperatures, ocean acidification and shifts in currents and wind patterns will significantly alter the physical and biological make-up of the oceans. Changes in temperatures and ocean circulation have the potential to change geographical fish distribution. An increasing sea temperature might also enable alien species to expand into regions where they previously could not survive.

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1.6 Climate Migration and Gender Based Violence

IOM defines climate migration as

"the movement of a person or groups of persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border."

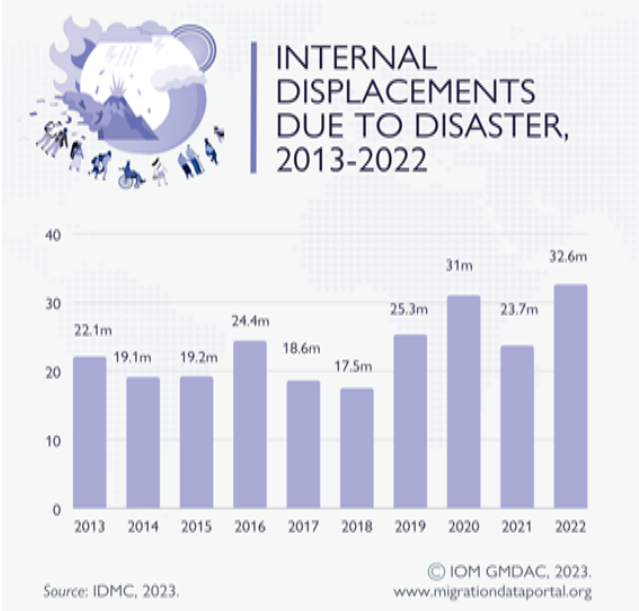
Climate migration is a subcategory of environmental migration; this type of migration can be associated with people in situations of vulnerability, particularly when people are forced to move, or it can be a form of adaptation that helps to build resilience for individuals and communities.

Disasters triggered 32.6 million new internal displacements in 2022, making it the highest figure in a decade as well as 41 per cent higher than the annual average of the past decade.[3] (IDMC, 2023).

This is a 45 per cent increase in the total number of internally displaced persons (IDPs) due to disasters compared to 2021. 98 per cent of the 32.6 million new internal disaster displacements in 2022 were the result of weather-related hazards such as storms, floods and droughts.

[3] https://www.internal-displacement.org/global-report/grid2023

The top 5 countries with the highest number of new internal displacements due to disasters in 2022 were Pakistan (8.2 million), the Philippines (5.5 million), China (3.6 million), India (2.5 million) and Nigeria (2.4 million).



In addition, climate change is changing precipitation and temperature patterns and increasing the frequency and severity of extreme weather events in many parts of the world, all of which affect food security by reducing agricultural production (IPCC, 2022), causing people to move seasonally or permanently from at-risk areas. The Intergovernmental Panel on Climate Change (IPCC) projects that more than one billion people globally could be exposed to coastal-specific climate hazards by 2050, potentially driving tens to hundreds of millions of people to leave their home in coming decades. The poorest people may be more likely to migrate when faced with slow-onset climate change impacts, such as decreasing crop productivity, water shortages and rising sea levels.

As climate change intensifies around the world, more women and girls, especially those in situations of vulnerability, are migrating to find safety and livelihood and employment opportunities.

However, migration and displacement as a result of climate change may also exacerbate the risks of violence, with well-documented increases in gender-based violence in the aftermath of disasters, particularly for women and girls who are displaced or live in camps or other places without privacy.

Domestic violence, intimate partner violence, sexual abuse and exploitation, and child, early and forced marriage also increase significantly during climate crises. In Ethiopia, for example, the number of girls sold into early marriage in exchange for livestock increased after drought-induced migration, as families struggled to cope with these extreme conditions.

“In Malawi, girls may be forced to get married due to food shortages connected to climate change. An estimated 1.5 million girls in Malawi are at risk of forced marriage as a result of food shortages and increased poverty due to climate change”, - according to the Guardian. Increasing global conflicts, lingering pandemic impacts, extreme weather ,and climate shocks have created the perfect storm, leading to unprecedented levels of violence against women and girls, as well as trafficking and sexual exploitation.

1.7 Climate Change

A threat to human rights?

Climate change has significantly impacted human rights, particularly in the areas of:

- **Food security, life, health, and adequate standard of living.** The industrial food system causes greenhouse gas emissions, leading to food insecurity and hunger. Climate change adversely affects these rights, disproportionately affecting rural residents, farmers, smallholders, fishermen, pastoralists, indigenous peoples, low-income households, women, girls, and children in the global South.

- Climate change also impacts the **right to water and sanitation**, affecting the availability and quality of clean drinking water and sanitary facilities. Climate change also impacts housing and livelihoods, causing forced evictions and homelessness, and affecting agricultural systems and lives.

- Climate change also impacts **education**, with disruptions in educational infrastructure affecting the quality and accessibility of education.

- Indigenous groups are directly impacted by climate change, as their way of life relies on ecosystems susceptible to its effects. This imperils **their right to self-determination**, as they may be forced to leave their ancestral lands due to environmental degradation.

- Vulnerable groups, such as indigenous peoples, local communities, peasants, migrants, children, women, people with disabilities, residents of small island developing states, and those in vulnerable situations, are disproportionately at risk from the negative effects of climate change. **Discrimination**, such as racism, sexism, and classism, can combine, overlap, or intersect with these experiences, particularly in the experiences of those who are vulnerable.

- Climate change has significant repercussions on human rights, particularly for older persons, who are disproportionately affected by its effects. Factors such as geography, poverty, gender, age, national or social origin, birth status, and disabilities contribute to these effects. Climate-related harms, such as vector-borne diseases, heat stress, and sudden- and slow-onset disasters, can impact **their physical and mental health and wellbeing**. However, older people have immense wisdom, experience, and fortitude, making their leadership, inclusion, and involvement crucial for human rights-based efforts.

- **People with disabilities** are disproportionately affected by climate change, as most are poor. Gender-responsive climate action is also crucial, as entrenched and systemic discrimination may cause gender-differentiated effects.

- Climate change also impacts **children's rights**/ Key impacts of climate change on children include extreme weather, natural disasters, water scarcity, food insecurity, air pollution, vector-borne and infectious diseases, mental health impacts, and disparate impacts on vulnerable situations.

- **Climate change and the right to health** are interconnected and require states to protect human rights. The right to health is a universal, indivisible right guaranteed to all people, and it depends on other rights like safe working conditions, adequate housing, food, water, sanitation, and education.

To mitigate the effects of our rights as humans, we all **have to take actions** and play our role as active citizens to prevent the **situation getting worse.**

Chapter 2

How EU is engaging to mitigate climate change

2.1 How it started

The EU has been engaged in the matter to promote climate actions. The multilateral climate actions of EU are as below:

UN climate convention

The United Nations Framework Convention on Climate Change, agreed in 1992, is the main international treaty on fighting climate change. Its objective is to prevent dangerous man-made interference with the global climate system. The EU and all its member countries are among the 197 Parties to the Convention.

Conference of the Parties (COP)

The Conference of the Parties (COP) is an annual event during which the world's countries gather to find solutions to the climate crisis. The COP is the decision-making body of the United Nations Framework Convention on Climate Change. In addition to the Parties to the Convention, representatives of business, international organisations, interest groups and associations can also join the COP as observers. Via the COP, the EU promotes ambitious climate action. EU also take part in the yearly Bonn Climate Change Conference, which lays the groundwork for the COP discussions.

Paris Agreement

At COP21 in 2015 in Paris, all UNFCCC Parties adopted the Paris Agreement: the first ever universal, legally binding global climate agreement. They agreed to limit the global temperature increase from the industrial revolution to 2100 to 2°C while pursuing efforts to limit the increase even further to 1.5°C.

Kyoto Protocol

Before the Paris Agreement, the world's only legally binding instrument for cutting greenhouse gas emissions was the 1997 Kyoto Protocol.

The Protocol has been ratified by 192 of the UNFCCC Parties, including the EU and its member countries. However, because many major emitters are not signatories, the Kyoto Protocol only covers about 12% of global emissions.

The Kyoto Protocol's top decision-making body is the COP serving as the Meeting of the Parties to the Kyoto Protocol (CMP). All Parties to the Protocol are represented. Governments that are not Parties attend as observers.

Other international fora

The EU and its member countries participate in international fora whose decisions or recommendations feed directly or indirectly into the UN process.

These include the:

- Intergovernmental Panel on Climate Change (IPCC)
- G7 and G20
- Major Economies Forum on Energy and Climate (MEF)
- Organisation for Economic Cooperation and Development (OECD)
- International Energy Agency (IEA)

2.2 Fit for 55

The European climate law makes reaching the EU's climate goal of reducing EU emissions by at least 55% by 2030 a legal obligation. EU countries are working on new legislation to achieve this goal and make the EU climate-neutral by 2050.

The Fit for 55 package is a **set of proposals to revise and update EU legislation** and to put in place new initiatives with the aim of ensuring that EU policies are into line with the climate goals agreed by the Council and the European Parliament.

The package of proposals aims at providing a coherent and balanced framework for reaching the EU's climate objectives, which:

- ensures a just and socially fair transition
- maintains and strengthens innovation and competitiveness of EU industry while ensuring a level playing field vis-à-vis third country economic operators
- underpins the EU's position as leading the way in the global fight against climate change

2.3 Climate-Neutral EU by 2050

All 27 EU Member States committed to turning the EU into the first climate neutral continent by 2050. To get there, they pledged to reduce emissions by at least 55% by 2030, compared to 1990 levels.
The EU now has legally binding climate targets covering all key sectors of the economy.

The overall package includes

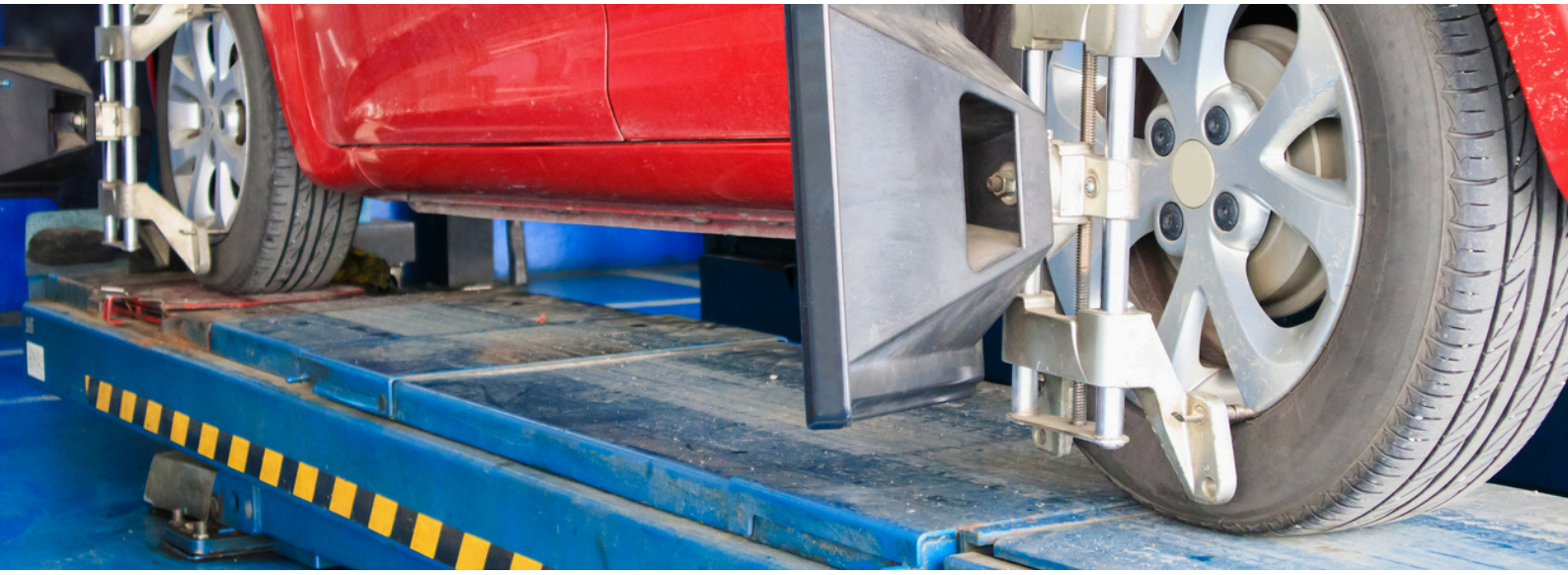
- emissions reduction targets across a broad range of sectors
- a target to boost natural carbon sinks
- an updated emissions trading system to cap emissions, put a price on pollution and generate investments in the green transition
- and social support for citizens and small businesses

Member States will now spend 100% of their emissions trading revenues on climate and energy-related projects and the social dimension of the transition.

The new **Social Climate Fund** will dedicate €65 billion from the EU budget, and over €86 billion in total to support the most vulnerable citizens and small businesses with the green transition. This will ensure there are opportunities for everyone, by tackling inequality and energy poverty, and strengthening the competitiveness of European companies, leaving no one behind.

To ensure a level playing field for European companies, the new **Carbon Border Adjustment Mechanism** will ensure that imported products will also pay a carbon price at the border in the sectors covered. This is a valuable tool for promoting global emissions reductions and leveraging the EU market to pursue our global climate goals. With the new CO2 standards, **all new cars and vans registered in Europe will be zero-emission by 2035**. As an intermediary step towards zero emissions, average emissions of new cars will have to come down by 55% by 2030, and new vans by 50% by 2030.

As a further step on the path towards climate neutrality, the Commission presented its assessment for a 2040 climate target for the EU in February 2024. It recommended reducing net greenhouse gas emissions in the EU by 90% by 2040 compared to 1990 levels, which is in line with recent scientific advice and the EU's commitments under the Paris Agreement. The European Parliament and Member States will discuss this target, and the next Commission will put forward legislative proposals on that basis.



2.4 COP and its impacts

As part of its efforts towards achieving global climate neutrality, the European Commission takes part in the Conference of the Parties (COP) to the UN Framework Convention on Climate Change. Since 1995, the United Nations Climate Change Conferences bring parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change.

The 28th UN Climate Change Conference (COP28) was held from 30 November to 12 December 2023 in Dubai. Under the presidency of the United Arab Emirates, the COP28 summit brought parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change.

Key commitments and actions announced by the EU at COP28:

- to accelerate the transition away from fossil fuels this decade, to take action to reduce emissions by 43% by 2030, and set the world on a pathway to reaching net zero emissions by 2050

- as part of the Global Pledge on Renewables and Energy Efficiency, to triple renewable energy capacity and double the rate of energy efficiency improvements by 2030. €2.3 billion from the EU budget will support the energy transition in the European neighbourhood and around the globe

- €175 million of financial support from the EU and its Member States to reduce methane emissions

- over €400 million in funding from the EU and its Member States to activate a new loss and damage fund for climate emergencies

- the first two European clean tech projects to be supported by the EU-Catalyst partnership to help the EU reach its 2030 climate targets

- a €20 billion Team Europe contribution to the Africa-EU Green Energy Initiative

- a new Team Europe initiative focused on deforestation-free value chains

2.5 European State of the Climate

This section provides the 2022 view for Europe, compared to long-term trends of variables across the climate system. Key events that occurred during the year are also described within a climatic context. Europe has been warming faster than any other continent in recent decades, with temperatures increasing at twice the global average rate.

- The summer temperature for Europe was the highest on record. 2022 was the second warmest year on record for Europe, at 0.9°C warmer than average. For many countries in southwestern Europe, the year was the warmest on record. The most-above-average temperatures occurred in northeastern Scandinavia and those countries bordering the northwestern Mediterranean Sea.

- Europe's lakes and seas are seeing increasing surface temperatures. The average sea surface temperature (SST) across Europe's seas was the warmest on record in 2022. In the Mediterranean Sea, temperatures were much warmer than average for a prolonged period from May onwards, with record-breaking marine heatwaves during summer. Record-warm sea surface temperatures were also observed in the Bay of Biscay, English Channel and Irish Sea, and in the Norwegian Sea. Across the region, 73% of lakes recorded warmer-than-average temperatures, with the warmest temperatures in Spain and the coolest in Ukraine.

- High temperatures and dry conditions contributed to the spread and intensification of wildfires, with the second largest burnt area on record.

- A lack of precipitation contributed to widespread drought conditions. The year as a whole was as much as 10% drier than average. May was the driest month, with 21–28% less precipitation than average, while September was the wettest month, with 13–21% more precipitation. There were also fewer wet days than average, particularly in France, Italy and Poland.

- For 10 months of the year, river discharge was below average. River discharge was the second lowest on record across Europe, marking the sixth consecutive year of below-average flows. In terms of the area affected, it was the driest year on record, with 63% of rivers seeing below-average flows. In March, flows were the lowest since records began, although April saw the most widespread high river flows, with 54% of the river network having above-average river discharge. In August, two thirds of the river network had below-average river discharge, with one third experiencing exceptionally low flows, reflecting drought conditions. Around half the river network had below-average flows for the remainder of the year.

- Second largest burnt area on record across the EU countries. These extreme fire danger conditions facilitated the ignition and spread of large fires in central Europe and the Mediterranean region, with critical fires, those covering an area greater than 10 000 ha, in Czechia, France, Portugal, Slovenia and Spain. It is estimated that in total, over 900 000 ha were burnt across the EU countries.

- Lack of snow at the start of the year contributed to drought conditions and exacerbated glacier melt. Across much of central and southern Europe, there were up to 20 fewer winter snow days, those with at least 1 cm snow depth, than average, and up to 50 fewer in some locations. In 2022, glaciers in southwestern Scandinavia benefitted from the slightly above average number of winter snow days, seeing a slight gain in ice. Meanwhile, the Alpine glaciers saw record ice loss, due to lack of winter snow and the unusually warm summer. Glacier ice loss was more than 5 km3 in 2022.

- In 2022, Europe experienced its highest sunshine duration on record, with 130 more sunshine hours than average, fitting with a marked trend towards more sunshine hours. This positive anomaly came mainly from above-average sunshine hours between January and July. From August onwards, sunshine duration was closer to or below average. Consistent with the high sunshine duration, annual cloud cover was the second lowest on record, at 4% less than average. It was most below average in parts of western and southeastern Europe, and slightly above average over the Iberian Peninsula and far-eastern Europe.

Activities

Activity 1

What happens if it doesn't happen?

ACTIVITY TITLE	**What happens if it doesn't happen?**
ACTIVITY PURPOSE /GOAL	• to raise awareness on climate change consequences; • to understand the consequences of climate change in local communities; • to develop creativity.
ACTIVITY DURATION	90 min +
NUMBER OF PARTICIPANT	Divide participants into groups of 4
MATERIALS	Flipchart and markers
DESCRIPTION OF THE ACTIVITY	1. Participants divided in groups brainstorm on the possible consequences of climate change in their local community (namely, what happens if they don't take actions ("doesn't happen"?)). 2. The groups prepare a short play to illustrate one or more of the possible consequences. 3. Each of the groups presents the play to the others, who try to find out what it is exactly about.
DEBRIEFING AND EVALUATION	Ask participants the following questions: 1. Do any of the scenes that you have just seen remind you of a situation that you have experienced in your local community? Which one? What was the result? 2. What would be the factors or barriers that don't allow you to take actions?

Activity 2

Here for Climate Change

ACTIVITY TITLE	**Role Play – Here for Climate Change**
ACTIVITY PURPOSE /GOAL	• to show how situations can be modified; • to experience different aspects of contributing in climate actions • to develop their soft skills
ACTIVITY DURATION	60 min +
NUMBER OF PARTICIPANT	Divide participants into 4 groups
MATERIALS	A4 paper with the scenario written for each one of the 4 teams
DESCRIPTION OF THE ACTIVITY	The participants are split in 4 groups. The facilitators give to each group a paper with a scenario, and they need to prepare a theatre play based on it. After 15 minutes, the groups start to present their improvised acts. Each time the group plays their scene and then they have to play it one second time and someone from the audience can say 'stop' and enter the scene, in order to change the plot according to his/her point of view. The given scenarios are: 1. The European Commission takes part in COP29. Which commitments undertakes? 2. The European Parliament discusses the climate neutral target for 2040. What targets have to be accomplished? 3. Member states of the European Union are facing difficulties to reach the goals of Fit for 55. How will the EU deal with the problem? 4. The European Union is facing deprivation of human rights due to climate change. How will it cope to ensure basic human rights to communities affected? After this phase is completed, the participants make a circle and the facilitators make these questions: • How was it for you? • What did you observe? • How did you feel? • Would you change something in the way you behave? • What will you remember after this?

Activity 3

A visit to Gaia

ACTIVITY TITLE	**A visit to Gaia**
ACTIVITY PURPOSE /GOAL	• to look for ways of creating an inclusive society where there is no need for migration and human rights are respected; • to reflect on how these measures can be used in local context; • to practice presentation skills
ACTIVITY DURATION	90 min +
NUMBER OF PARTICIPANT	Divide participants into groups of 5
MATERIALS	Flipcharts, pens, colored paper, glue etc.
DESCRIPTION OF THE ACTIVITY	1. Explain that each of the groups is a delegation that has just visited the community of Gaia, where they witnessed perfect climate change actions resulting in no migration of communities. Now each group needs to share what they saw with the others. 2. Give the groups 45 minutes to prepare a visual presentation on the measures, actions, regulations and other ideas that have been successfully implemented in Gaia. 3. Invite the delegations to make a report of their visit. 4. Collect on the flipchart all the ideas about measures leading to zero effects of climate change 5. Open the floor in the plenary session for any comments, views, etc. 6. Ask the participants to think individually
	Ask participants the following questions: 1. How did you feel when imagining your visit to Gaia? 2. How realistic are the measures implemented there? (How realistic are the measures proposed and presented by the small groups?) 3. Could such a presentation be made for the mayor or community authorities or would it need some improvement?

Final self-assessment questionnaire

Let's evaluate your knowledge about climate change

Please, fill this self-evaluation questionnaire after you have gained knowledge on climate change matters.
Try to compare the score with the first questionnaire at the beginning of the module:

https://docs.google.com/forms/d/1_QOinRRc3FVSyV7bmrGEJeePsTZqTpru1YcPb_siuVs/edit

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For Non-Formal Education Methodology

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