MODULE 4: Carbon Footprint Awareness & Climate Resilience

“Green Job Growth”

Small-scale partnership in the field of youth

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GREEN JOB GROWTH

ABOUT THE PROJECT

"Green Job Growth" (GJG), a project co-funded by the Erasmus+ Programme, is a 18-month initiative committed to fostering sustainable development and youth employment across Europe.

Coordinated by Bridging Europe in Germany and in collaboration with Amici di Puck (Italy) and Go Green (Spain), this project addresses the urgent need for promoting green skills among young people and facilitating their entry into the green economy.

PROJECT CONSORTIUM

ASSOCIAZIONE Gli Amici di PUCK

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Introduction

We live in a world where the consequences of climate change are undeniable. Every year, more extreme examples emerge in every corner and region of the world. Fortunately, more and more people are joining the discussion and movement for a green future and urgent improvements to the current world model. In this module, we aim to provide young workers with the knowledge and tools to understand and calculate their carbon footprint, as well as strategies to reduce carbon emissions in their daily lives. We will also discuss the topic of building resilience in the face of changing climate conditions.

Understanding carbon footprint

Which role does the carbon footprint play in climate change? What is the connection between them? What leads to producing a carbon footprint and can we avoid it for 100%? Who is responsible for producing CO2 emissions and what needs to be changed and how urgently? Understanding carbon footprint is the first step and essential on the way to living more sustainably and making positive changes in the face of the current environmental crises.

What is carbon footprint?

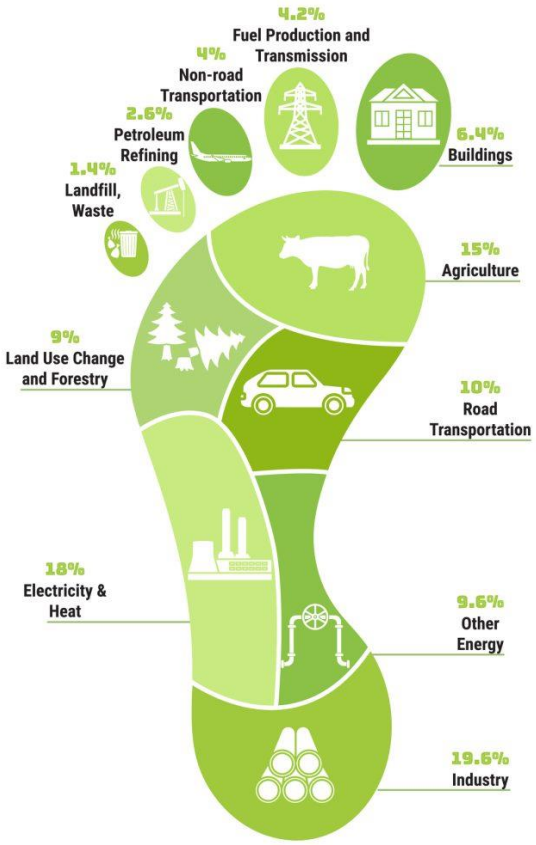
In 2003, oil and gas company British Petroleum (BP) attempted to shift the burden of action around climate change from fossil fuel companies to consumers with an ad campaign that asked people on the street about their "carbon footprint." Since then, the term has become popular shorthand for the amount of carbon (usually in tons) being emitted by an individual activity or an organization. Although the carbon footprint concept was popularized in the early 2000s, it can trace its roots to the older idea of ecological footprint, another indicator of our impact on the Earth. https://talema.com/de/carbon-footprint-understanding-greenhouse-gases/#

According to Mike Berners-Lee, a professor at Lancaster University in the UK and author of *The Carbon Footprint of Everything,* it is:

"The sum total of all the greenhouse gas emissions that had to take place in order for a product to be produced or for an activity to take place."

We can group these products and activities into several categories that are more or less similar for all consumers in developed countries. Categories such as transport, food, household energy use, clothes and home items and basically everything we buy contributes to the carbon footprint each of us creates. To perform each of these activities or to produce any of the product we pursue energy is needed. We use resources to create energy. And if we are talking about non-renewable fossil fuels that provide energy, then

they need to be burned to get it. And while fossil fuels are being burned, CO2 is releasing (as well as other greenhouse gasses). Each product and activity has its own footprint, which varies depending on many factors.



Carbon footprint illustration. Image source: iStock

Unsurprisingly, in general terms the size of a person's carbon footprint tends to increase with wealth. In his book, Berners-Lee writes: "The average American takes just a couple of days to match the annual footprint of the average Nigerian or Malian". https://www.nationalgeographic.com/environment/article/what-is-a-carbon-footprint-how-to-measure-yours

A carbon footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions. The average carbon footprint for a person in the United States is 16 tons, one of the highest rates in the world. Globally, the average carbon footprint is closer to 4 tons. To have the best chance of avoiding a 2°C rise in global temperatures, the average global carbon footprint per year needs to drop to under 2 tons by 2050. https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/#:~:text=What%20is%20a%20carbon%20footprint,highest%20rates%20in%20the%20world

Which role does the carbon footprint plays in climate change?

We would love to base the answer to this question on the article "Why Is a Carbon Footprint Bad for the Environment? All You Need to Know". We encourage you to also

read the full article, were this question is observed and explained from several positions and points of view. https://impactful.ninja/why-is-a-carbon-footprint-bad-for-the-environment/#:~:text=Our%20carbon%20footprint%20has%20a,of%20glaciers%20and%20polar%20ice.

The growth of the global population and the expansion of the economic and industrial sectors have played a considerable role in the Earth's capability to absorb carbon emissions both at land and at sea. Our carbon footprint has a negative impact on the environment in multiple ways: It is the main cause of human-induced climate change, it contributes to urban air pollution, it leads to toxic acid rain, it adds to coastal and ocean acidification, and it worsens the melting of glaciers and polar ice.

We are part of an ecosystem where everything is interconnected. And each of our actions enables a cause-effect chain that ultimately impacts the planet and our future on it. That also includes our carbon footprint. In general, carbon dioxide is released on Earth by three means – decomposition, respiratory, and ocean release. In simpler words, global economic and industrial activities play a central role in increasing carbon dioxide in the atmosphere, and carbon footprint is the measure of their impact on the environment.

Simply put, the ever-increasing greenhouse gas emissions coming from human, industrial and economic activities heat our planet, ultimately leading to extreme weather events like droughts, heat waves, cyclones, blizzards, and rainstorms.

A good example is the devastating Australian bushfires in 2019 and 2020. Although the leading cause was arson and lightning, climate change has contributed to its extent and intensity. All because 2019 was officially the hottest and driest year in Australian history.

But releasing carbon dioxide leads not only to the greenhouse effect and constantly increasing temperatures. In the article another important question was observed:

How Carbon Emissions Contribute to Urban Air Pollution

Since the industrial revolution, air pollution has become one of the biggest challenges, getting worse year by year. Industries have a substantial environmental impact by burning fossil fuels and releasing toxic atmospheric pollutants like heavy metals with hazardous effects on human health. Smog is an occurrence observed more often than ever before. In technical terms, it is known as the photochemical oxidant formation of ground-level ozone. Low-level or ground-level ozone doesn't form naturally. It is a chemical reaction that develops as a direct result of CO2 transportation and industrial emissions in the sunlight, which is why smog is usually observed on warm summer days. The air becomes hazy and at its worst very hard to see through, which drastically affects everyday life and has severe negative health consequences. Some of the most vivid examples are the disastrous smog episodes classified as meteorological hazards in China in 2013 and 2016,

resulting in the shutdown of entire cities, industries, and hospitalizations due to respiratory issues.

And this is still not the end of the problem. Carbon Emissions also lead to toxic acid rain, add to coastal and ocean acidification, worsen the melting of glaciers and polar ice. To learn more about the connection of the carbon dioxide and listed issues, we are highly recommending you to read the article mentioned above.

Living organisms and humanity as a whole have always produced CO2, so why is this a problem now?

It's a good question since many people are trying to use such a statement as an excuse. Humans have always polluted the Earth! CO2 is a natural and essential part of our ecosystem! There were always changes in the climate; it will come back to normal on its own!

To give an answer on these statements from the scientific perspective, we would love to turn to the article released in frames of the "CO2 Human Emissions" project by ECMWF. ECMWF is leading a new initiative to explore the development of a European system to monitor human activity related carbon dioxide (CO2) emissions across the world. (https://www.che-project.eu/introduction)

There are both natural and human sources of carbon dioxide emissions. Natural sources include decomposition, ocean release and respiration. Human sources come from activities like cement production, deforestation as well as the burning of fossil fuels like coal, oil and natural gas.

Due to human activities, the atmospheric concentration of carbon dioxide has been rising extensively since the Industrial Revolution and has now reached dangerous levels not seen in the last 3 million years. Human sources of carbon dioxide emissions are much smaller than natural emissions but they have upset the natural balance that existed for many thousands of years before the influence of humans.

This is because natural sinks remove around the same quantity of carbon dioxide from the atmosphere than are produced by natural sources. This had kept carbon dioxide levels balanced and in a safe range. But human sources of emissions have upset the natural balance by adding extra carbon dioxide to the atmosphere without removing any.

Who is responsible for producing CO2 emissions?

According to the statistic provided by C2EC (The Center for Climate and Energy Solutions), carbon dioxide emissions, primarily from the combustion of fossil fuels, have risen dramatically since the start of the industrial revolution. Most of the world's

greenhouse gas emissions come from a relatively small number of countries. China, the United States, and the nations that make up the European Union are the three largest emitters on an absolute basis. Per capita greenhouse gas emissions are highest in the United States and Russia. Note: Carbon dioxide emissions have risen rapidly for the past 70 years. However, they are projected to remain steady, albeit at a very high level, in the coming decades. Emission reductions in developed economies are expected to offset carbon dioxide emission growth in developing countries.

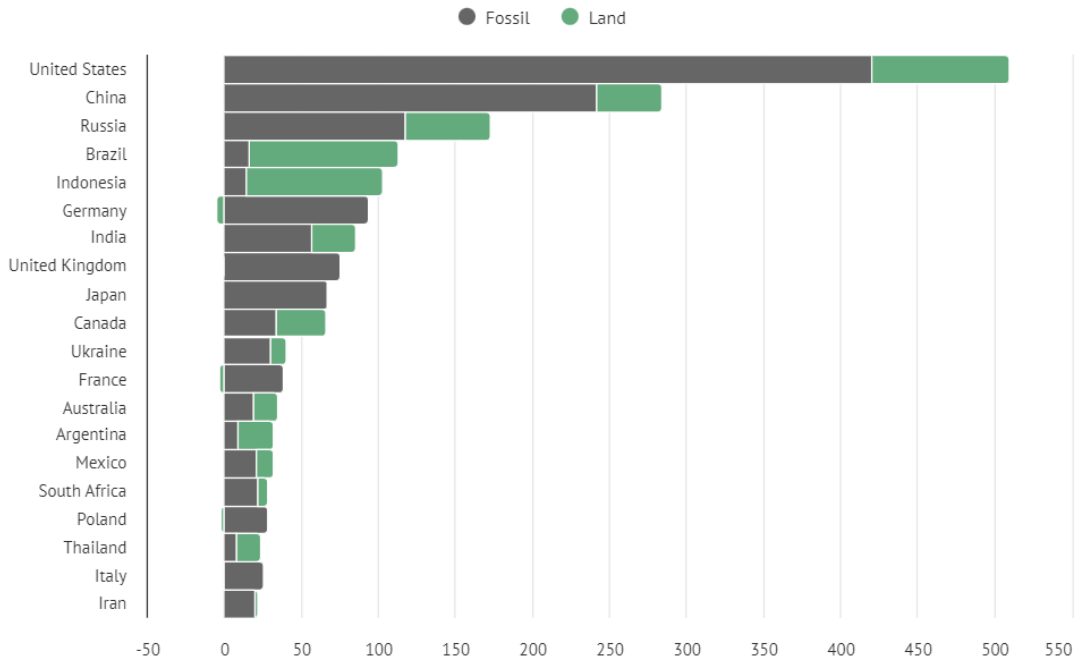


Image: https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/

Carbon footprint statistic:

Statistic helps us to see the big picture and the current tendency, powered by data that's why before moving further we would love to first share some points regarding the carbon footprint statistic from 2022. Source is a "CO2 Emissions in 2022" report by IEA. It provides a complete picture of energy-related greenhouse gas emissions in 2022. IEA - The International Energy Agency is a Paris-based autonomous intergovernmental organization, established in 1974, that provides policy recommendations, analysis and data on the entire global energy sector. This report is part of the IEA's support of the first global stock take of the Paris Agreement, which will be finalized in the run up to COP28, the next UN Climate Change Conference, at the end of 2023.

1. Global energy-related CO2 emissions grew by 0.9% or 321 Mt in 2022, reaching a new high of over 36.8 Gt. Following two years of exceptional oscillations in energy use and

emissions, caused in part by the COVID-19 pandemic, last year's growth was much slower than 2021's rebound of more than 6%. Emissions from energy combustion increased by 423 Mt, while emissions from industrial processes decreased by 102 Mt.

2. Specific challenges in 2022 contributed to the growth in emissions. Of the 321 Mt CO2 increase, 60 Mt CO2 can be attributed to cooling and heating demand in extreme weather and another 55 Mt CO2 to nuclear power plants being offline.
3. The biggest sectoral increase in emissions in 2022 came from electricity and heat generation, whose emissions were up by 1.8% or 261 Mt. In particular, global emissions from coal-fired electricity and heat generation grew by 224 Mt or 2.1%, led by emerging economies in Asia.
4. The European Union saw a 2.5% or 70 Mt reduction in CO2 emissions despite oil and gas market disruptions, hydro shortfalls due to drought, and numerous nuclear plants going offline. Buildings sector emissions fell markedly, helped by a mild winter. Although power sector emissions increased by 3.4%, coal use was not as high as anticipated. For the first time, electricity generation from wind and solar PV combined exceeded that of gas or nuclear.
5. Emissions from Asia's emerging market and developing economies, excluding China, grew more than those from any other region in 2022, increasing by 4.2% or 206 Mt CO2. Over half of the region's increase in emissions came from coal-fired power generation. China's emissions were relatively flat in 2022, declining by 23 Mt or 0.2%.
   We recommend reading the full report that is available on the following link: https://www.iea.org/reports/co2-emissions-in-2022.

Of course, not only does the carbon footprint released by the manufacturers matter. As it was said above, each product and activity has a carbon footprint and each of us produces it daily with our everyday actions. Small choices we are all making (or deciding we are too busy to make these choices consciously) on a regular basis have consequences that are summed up and make an impact on the environment. Let's dive into the aspect of the personal carbon footprint – what each of us needs to know and spread awareness in our community.

Calculating personal carbon footprint

Before going to the concrete steps and tools that will help you calculate and understand your personal footprint, let's first face and answer an important question:

Does calculating carbon footprint have a role?

The issue is hotly debated and there are various, often even opposing opinions. There are experts who advocate raising awareness and more active implementation of carbon

footprint calculation, but there are also those who doubt the value of this step. It is really very important to avoid generalizations since ecological and economic situation varies from country to country dramatically. For example, many of the proposed means to reduce carbon footprints are simply unavailable to those who don't have access to public transport, or can't afford the upfront cost of an electric car or a heat pump, or who live in food deserts, where healthier, lower-impact foods such as vegetables and grains are harder to come by. But for the high income countries among middle-to-high income people calculating personal carbon footprint plays an important role to reevaluate daily choices and switch to the more sustainable available options. The concept of calculating personal carbon footprint is not universal and cannot be applied to everyone equally. But it has its potential to positive changes, even in terms of raising awareness.

Katharine Hayhoe, chief scientist for The Nature Conservancy and a professor at Texas Tech University argues that acting by ourselves is just one small part of what is required to affect change in a system that, despite the best individual efforts, remains dominated by the production and use of fossil fuels.

"I would say personal carbon footprint calculators are a useful tool to assess the impact of your immediate actions: where you live, where you travel, what you eat," she says. "But what's much more important than your personal carbon footprint is your climate shadow. Where do you keep your money? How do you vote? What about the businesses you work with, or the university you're a part of, or the Rotary Club of which you're a member—what are they doing, and how could you advocate for change?

"So, in a nutshell, when people ask me what they should do, I say: Do something, anything, but then talk about it. The only way to bring the carbon footprint of everybody in rich countries to where it needs to be for a sustainable planet is to change the system, and to change the system we have to use our voice." (https://www.nationalgeographic.com/environment/article/what-is-a-carbon-footprint-how-to-measure-yours)

And here we met one more interesting term, which will help us understand the problem around not only carbon footprint but eco-activism and actions against climate change in general: climate shadow.

What is climate shadow?

The term "climate shadow" was popularized by well-known climate journalist Emma Pattee, who came up with the concept. A climate shadow is not based on exact numbers but more so on the actions themselves, hence the word "shadow" that we leave behind. Raising awareness and spreading the message through actions that leave behind a positive

and helpful climate shadow is key. Activism has changed a lot for the better in terms of informing about climate change, but a climate shadow covers a broader range of actions. Supporting important climate causes and informing others about them is essential but one can do more. For example, choosing a line of work that helps the environment, raising awareness at work and encouraging sustainability, or even encouraging to get people to try new environmentally friendly foods, ways of transport, clothes, and so forth. The options and various courses of action are there for anyone.

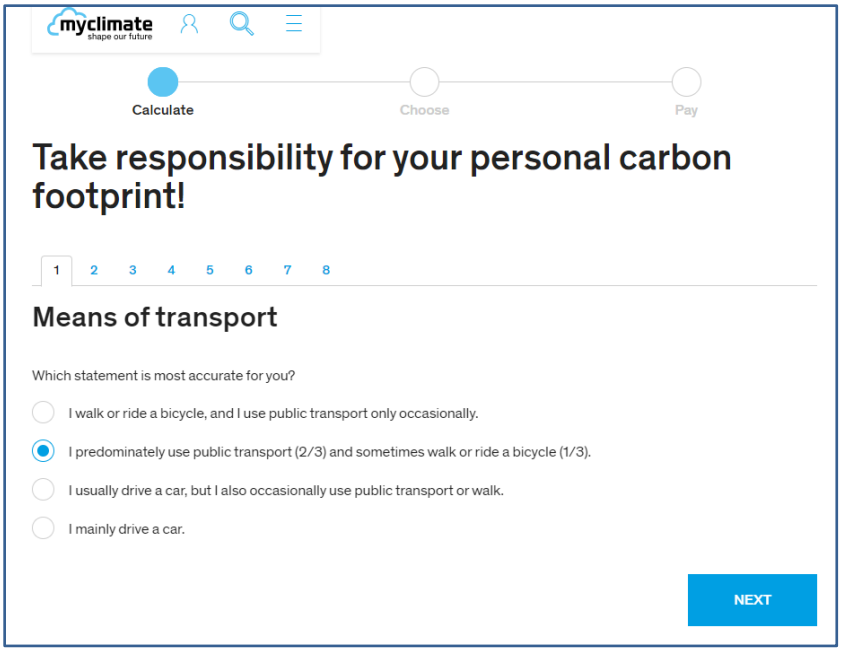
Climate shadow or carbon footprint?

Regardless of what kind of climate-positive action is taking place, it's all equally important in the grand scheme of things. Yet the distinction between climate shadow and carbon footprint is clear. A carbon footprint is more about measuring individual carbon emissions after individual actions. A climate shadow relates to all major actions that can't be measured precisely but impact and influence people in a climate-positive way. (https://woodly.com/how_to_fight_climate_change/climate-shadow/)

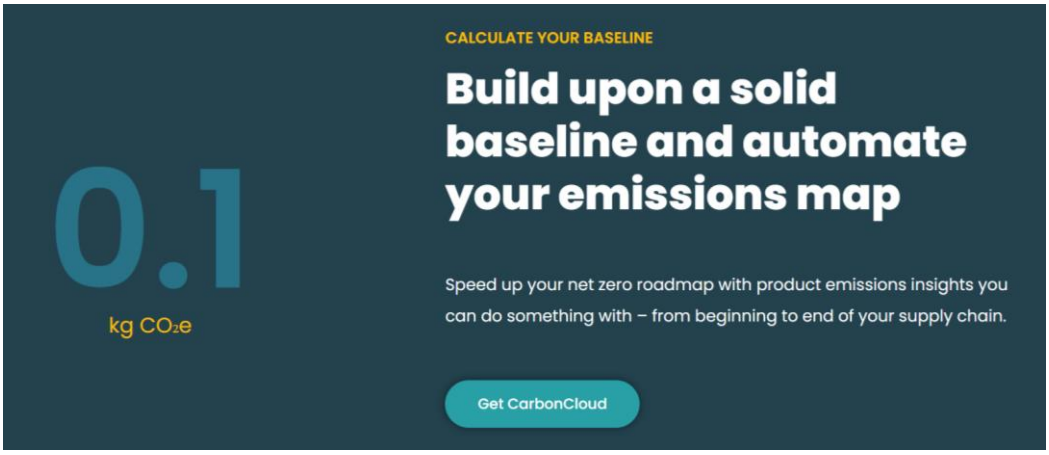
Calculating personal carbon footprint

To calculate personal carbon footprint many different services are available. There are many online calculators that allow sum up one's carbon footprint. We prepared several links for you to choose from, but feel free to continue your own research to find the most suitable instrument. At the end of the day, they all have the same principle – you'll need to reflect on your daily routine activities and choices, such as means of transportation, which type of diet you are following, where & how often you buy your clothes, how often do you travel by plane, etc. Then you will see the approximate result of your own carbon footprint. Use it as a starting point for further reflection. Check the statistics of carbon footprint in your country for the last year per person. Are you below or above the average result? What are the main sources of your personal carbon footprint? And then, after you understand and identify the current situation, continue with your own research on how you can reduce your carbon footprint. And don't forget to involve your community on the way! In the next part of the Module, we prepared some tips and advice as well as sources for further research, regarding how you can decrease your carbon footprint on the personal and community level.

Personal carbon footprint online calculators:



https://co2.myclimate.org/en/footprint_calculators/new/



https://carboncloud.com/calculate/?utm_term=&utm_campaign=Always+On+%E2%80%93+DSA&utm_source=adwords&utm_medium=ppc&hsa_acc=8622870345&hsa_cam=18271287240&hsa_grp=142593567042&hsa_ad=620541825730&hsa_src=g&hsa_tgt=dsa-1793317530647&hsa_kw=&hsa_mt=&hsa_net=adwords&hsa_ver=3&gad=1&gclid=CjOKCQjwmICoBhDxARIsABXkXIK-9X0LC91brgExIf3LF_al0iBtdb2iyfXnkie6wcWuQy9H_w6vUTAaAvhWEALw_wcB

How to reduce my carbon footprint?

When one starts wondering how to reduce his carbon footprint, at some point he will encounter the term “Net-Zero”. Net-Zero goals, net-Zero lifestyle. Let’s take a closer look at this term, with the help of the article prepared by the United Nations. (https://www.un.org/en/climatechange/net-zero-coalition)

What is net zero?

Put simply, net zero means cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance. The science shows clearly that in order to avert the worst impacts of climate change and preserve a livable planet, global temperature increase needs to be limited to 1.5°C above pre-industrial levels. Currently, the Earth is already about 1.1°C warmer than

it was in the late 1800s, and emissions continue to rise. To keep global warming to no more than 1.5°C – as called for in the Paris Agreement – emissions need to be reduced by 45% by 2030 and reach net zero by 2050.

Transitioning to a net-zero world is one of the greatest challenges humankind has faced. It calls for nothing less than a complete transformation of how we produce, consume, and move about. The energy sector is the source of around three-quarters of greenhouse gas emissions today and holds the key to averting the worst effects of climate change. Replacing polluting coal, gas and oil-fired power with energy from renewable sources, such as wind or solar, would dramatically reduce carbon emissions.

Is there a global effort to reach net zero?

Yes, a growing coalition of countries, cities, businesses and other institutions are pledging to get to net-zero emissions. More than 70 countries, including the biggest polluters – China, the United States, and the European Union – have set a net-zero target, covering about 76% of global emissions. More than 3,000 businesses and financial institutions are working with the Science-Based Targets Initiative to reduce their emissions in line with climate science. And more than 1000 cities, over 1000 educational institutions, and over 400 financial institutions have joined the Race to Zero, pledging to take rigorous, immediate action to halve global emissions by 2030.

Are we on track to reach net zero by 2050?

No, commitments made by governments to date fall far short of what is required. Current national climate plans – for 193 Parties to the Paris Agreement taken together – would lead to a sizable increase of almost 11% in global greenhouse gas emissions by 2030, compared to 2010 levels. Getting to net zero requires all governments – first and foremost the biggest emitters – to significantly strengthen their Nationally Determined Contributions (NDCs) and take bold, immediate steps towards reducing emissions now. The Glasgow Climate Pact called on all countries to revisit and strengthen the 2030 targets in their NDCs by the end of 2022, but only 24 new or updated climate plans were submitted by September 2022.

Image: https://www.un.org/en/climatechange/net-zero-coalition

Most emissions come from just a few countries. The top seven emitters (China, the United States of America, India, the European Union, Indonesia, the Russian Federation, Brazil) accounted for about half of global greenhouse gas emissions in 2020.

The Group of 20 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States, and the European Union) are responsible for about 75 per cent of global greenhouse gas emissions.

Knowing and analyzing statistics teaches us to separate promises and actions. Yes, there is a lot of discussion about the urgency and importance of decreasing green gasses emissions and reaching net-zero, but when we analyze the actions taken and their results, we clearly see, how much more and way more intensively we need to work on each level: governmental, community and personal.

We also would love to recommend an article prepared by the European Union that provides concrete steps regarding simple changes each of us can implement in our everyday lives to reduce our carbon footprint. As we already mentioned above, all our activities contribute to creating a carbon footprint. We can divide it into the main and most common categories and then improve each. We'll quote the main steps in this module, but also highly recommend continuing your own research by reading the full article.

Small changes can make a big difference in the long run, for example when it comes to transportation, food, clothing, waste, etc. Here are some tips:

Food

- Consume local and seasonal products (forget strawberries in winter)
- Limit meat consumption, especially beef
- Select fish from sustainable fishing
- Bring reusable shopping bags and avoid products with excessive plastic packaging
- Make sure to buy only what you need, to avoid waste

Clothing

- Take good care of your clothes
- Try swapping, borrowing, renting or buying second-hand
- Buy responsibly-made clothes, e.g. made from recycled material or with an eco-label

Transport

- Cycle or use public transport
- Be smart about when and how you drive
- Try the train for your next holiday

Energy and waste

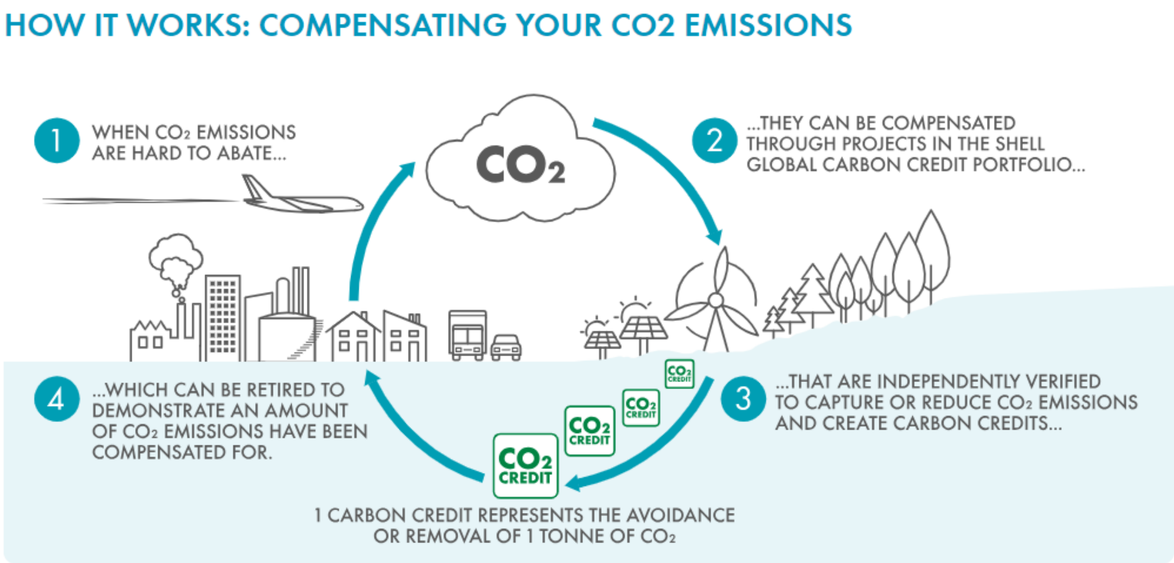
- Turn down the heating by 1°, it will already make a difference
- Take short showers
- Turn off the water while you brush your teeth or clean the dishes
- Unplug your electronic equipment and don't leave your phone on charge when the battery is already full
- Don't store unnecessary data in the cloud (learn more about your digital footprint!)
- Select energy efficient products with an "A" label (EU Energy Label)
- Limit and recycle your waste

What is carbon offsetting?

A carbon offset is a credit that a person or organization can buy to decrease its carbon footprint. When the number of carbon offset credits obtained is equal to an individual or organization's carbon footprint, that person or organization is carbon-neutral. Revenue generated from the purchase of carbon offsets is often -- but not always -- invested in environmentally friendly projects, like investments in green computing technologies.

More generally, carbon offsetting is any reduction of greenhouse gas (GHG) emissions to make up for emissions that occur elsewhere. Carbon offset credits show that an

organization or person has reduced its emissions. The term carbon offset is used to describe both the credit and the act of carbon offsetting. (https://www.techtarget.com/whatis/definition/carbon-offset)



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Building resilience in the face of changing climate conditions

As greenhouse gas emissions continue to rise, climate change will continue to accelerate. Even if emissions were to stop today, the climate would continue to change for some time as the Earth's system responds to the warming already underway. It makes sense to anticipate changes and act now to minimize future economic and social risks.

There's broad agreement that to slow down the pace of climate change, we need to rapidly reduce the heat-trapping emissions that cause global warming. This is climate change mitigation. It's about tackling climate change by addressing its root cause: the carbon emissions we dump into the atmosphere, primarily from the burning of fossil fuels.

Mitigation or adaptation?

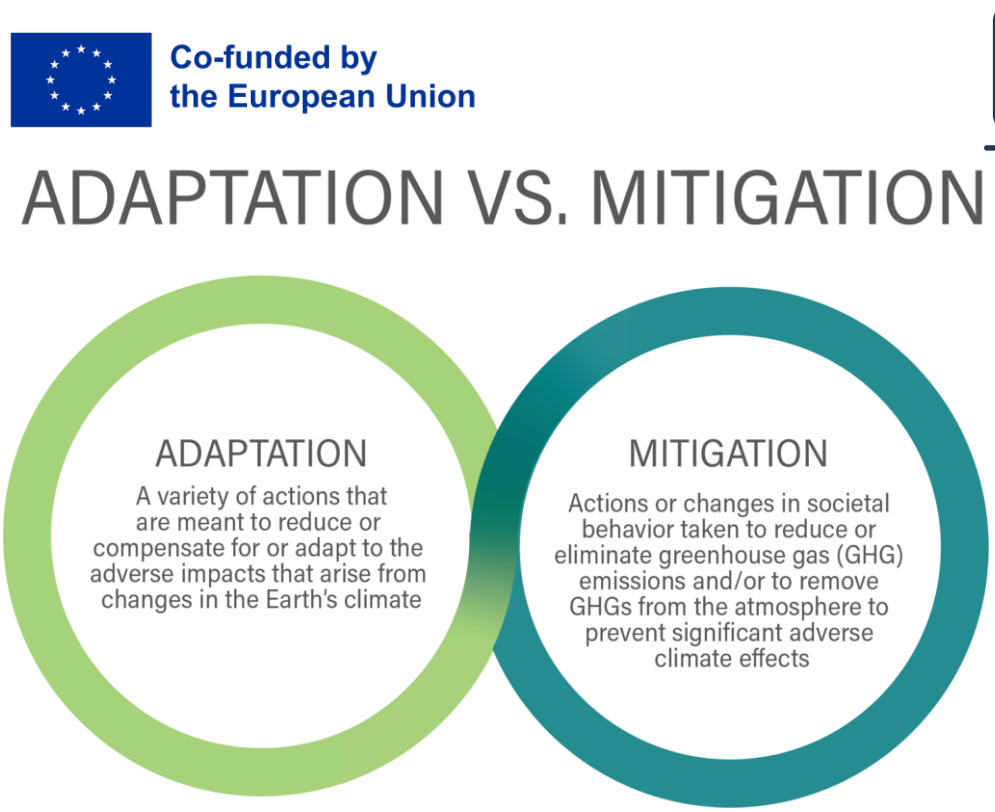

Image: https://eaest.com/insight/climate-change-adaptation-vs-mitigation/

Mitigation means shutting down coal and gas plants, shifting to renewable energy sources, using energy more efficiently, using less oil for transportation, ramping up use of public transportation and electric vehicles, and using land in ways that removes carbon from the atmosphere.

We need to dramatically cut the emissions—on the order of 50 percent below 2005 levels by 2030, here in the United States—is essential to a safe climate future. But even if we aggressively cut emissions—and we must—the early impacts of climate change are already here. They grow more severe every year, and because carbon pollution doesn't just disappear—it remains in the atmosphere for decades—climate impacts are here for the long run. So, we also need climate change adaptation, where we protect against the threats already here and prepare for more change to come.

Because climate impacts are so far reaching, the range of things considered "climate adaptation" is also quite broad. Adaptation includes things like reinforcing the electric grid to better withstand extreme weather; investing in better housing and infrastructure in areas hard-hit by flooding or sea level rise; planting trees to reduce extreme heat in cities; and putting air conditioning in schools. Basically, it means adjusting how we live, work, and play to keep us safe from the impacts of climate change. ucsusa.org/resources/what-climate-resilience#:~:text=Adaptation%20includes%20things%20like%20reenforcing,putting%20air%20conditioning%20in%20schools.

Climate resilience is often associated with acute events – like heat waves, heavy downpours, hurricanes, or wildfires – that will become more frequent or intense as the climate changes. However, good resilience planning also accounts for chronic events, like rising sea levels, worsening air quality, and population migration.

Cities and local communities are responding by investing in infrastructure updates and climate-smart planning to mitigate the impacts of acute and chronic events. For example, a combination of nature-based solutions and building improvements, like planting street trees and installing green roofs, can help mitigate extreme heat. Actions like these are especially important in historically marginalized communities, where climate impacts can exacerbate existing inequalities. Baltimore and Minneapolis are among cities that have implemented Resilience Hubs, housed in trusted community facilities that provide day-to-day services and operate as resource centers during and after hazard events like floods or extreme heat. (https://www.c2es.org/content/climate-resilience-overview/#:~:text=For%20example%2C%20a%20combination%20of,impacts%20can%20exacerbate%20existing%20inequalities.)

Climate resilience needs climate justice

We find it incredibly important to underline, that there's a critical aspect of resilience that has to inform how we adapt to and mitigate climate change: climate justice. Climate change causes disproportionate harm to certain members of society, including people of color, people living on low incomes or in poverty, and people who are elderly, young, or disabled.

Incorporating climate justice in resilience means, on the adaptation side, prioritizing the wellbeing of people and communities most exposed to climate harm and least able to cope with it. This could involve, for example, ensuring public housing has air conditioning, putting at-risk communities first in line for money for pre-disaster planning, and investing in measures to keep people who are elderly, disabled, homeless, or living in poverty safe during a hurricane or wildfire.

On the mitigation side, climate justice means ensuring that climate solutions, like clean energy projects, bring help, not harm, to vulnerable communities. This could involve prioritizing power plant pollution reduction and decommissioning of dirty fossil fuel-powered plants in low-income communities; ensuring wind, solar and other clean energy projects bring more benefits than burdens to communities of color; and expanding low-income households' access to rooftop and community solar, energy efficiency, public transit, and the electrification of transportation and heating.

As we build resilience, we should prioritize those among us who face the greatest harm from climate change. But because of systemic racism and other historic injustices, this has not been done. Acknowledging and addressing those injustices is central to working toward just resilience, now and for the future.

Only by pursuing mitigation and adaptation in tandem can we achieve and sustain climate resilience. If we work hard on both these fronts, keeping climate justice front and center, we can build a climate resilient society that is low carbon, equipped to deal with the realities of a warmer world, and works to safeguard the well-being of all.

Conclusion

As we can see from all the information provided above, carbon emissions are a problem that is way bigger and way more complex and complicated than just CO2 emissions. It touches on the urgent need for transition to greener renewable energy and the interconnected difficulties being present in this field. It touches economic aspect - if we have all the statistics and knowledge regarding the harm made by using non-renewable sources of energy, why we are still didn't switch the way we work, produce, and live? Why do many companies still use and depend on non-renewable sources of energy and how affordable it is for small enterprises? We can't ignore the social aspect of the problem - who is making the decisions and who is facing the consequences of these decisions? It is a complex challenge each of us simultaneously faces and contributes to. Each of us constantly creates a carbon footprint. Each of them has an influence at least on our own carbon footprint. But we also should use the power of education - raising awareness among friends, families, and communities means making a contribution to a faster positive change. As Youth Workers you have access to a bigger network of people, which increases your potential impact. Educating yourself, changing harmful unconscious habits to more sustainable, becoming a role model and an educator - with the help of the theory and tools from this Module you can start to make positive changes.

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