



GAIA, KOSOVO

DECEMBER, 20 19

# CLIMATE 4 CHANGE: PROBLEMS & SOLUTION S



# CLIMATE 4 CHANGE: PROBLEMS & SOLUTIONS

## Contributors:

Célia Ruault, Endrita Banjska, Jeremy Flauraud,  
Helena Poučki, Maja Mlinarec

## Design

Izabela Markova and Teresa Almeida

All content licensed under Creative Commons "Attribution-ShareAlike 3.0 Unported" (CC BY-SA 3.0) unless stated otherwise – quotes remain the property of the respective copyright holders.

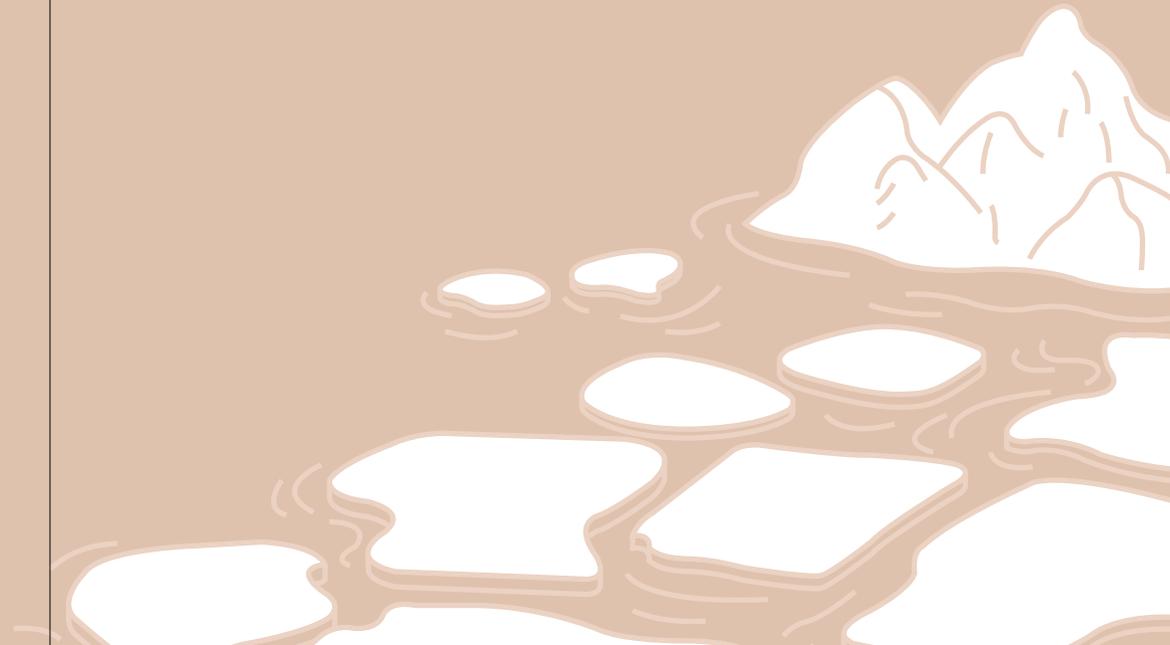
For the licence agreement, see <http://creativecommons.org/licenses/by-sa/3.0/legalcode>, and a summary (not a substitute) at <http://creativecommons.org/licenses/by-sa/3.0/deed.en>

**Published by GAIA**, Prishtina, Kosovo – December 2019

## TABLE OF CONTENTS

<b>The problem</b> .....	<b>5</b>
Introduction .....	7
Basics Of climate Science .....	8
Scientific consensus .....	11
Climate change in Kosovo .....	12
Climate change and human rights .....	14
Climate and Conflicts .....	16
Climate policies .....	17
<b>Solutions</b> .....	<b>25</b>
Climate change mitigation .....	27
Adaptation .....	29
Regenerative agriculture .....	30
Sustainable communities and practices .....	31
<b>About GAIA</b> .....	<b>35</b>
<b>About Service Civil International (SCI)</b> .....	<b>36</b>
<b>Resources and recommended readings</b> .....	<b>37</b>
<b>Important definitions</b> .....	<b>40</b>

# THE PROBLEM



## INTRODUCTION

Whenever children are taught about the history of humankind the element of progress is always emphasized. We think of our past in terms of big periods of progress: Antiquity with the birth of science and philosophy, Middle Ages with the consolidation of states and societies, the Age of Enlightenment with the rebirth of philosophy and democracy, the Industrial Revolution with the rapid technological developments. We see history as a long trend of progress, with better living conditions, better health, faster transports and communications. By far, the period that is branded as the one with the most progress is that of the industrial revolution, which happened between 1760-1840. During this time agrarian societies turned into industrial societies and the livelihood of people depended more on factories than on agriculture.<sup>1</sup> Since that period more and more societies have become industrialized, which means that there are more products, more means to spend and better living conditions; people are living longer and more prosperous. Our global society has chosen the path of always-more production, encouraging an always-more consumption. Our growing need for "stuff" has made us believe that progress is linked to the economical process of "production-consumption". Unfortunately, the earth is not an inexhaustible well of resources. We are demanding more natural resources, emit ever more pollution in the air, the soil and the water. This is how we put our only place to live in jeopardy, because of our individual greed and lack of global long-term thinking. But it is not too late to change the rules of the game. The emergency of climate change makes it vital now. We can redefine progress as a way to strive as human species without harming our own habitat. A system-change is necessary to continue existing as a healthy and wise species. A systems-change is needed to help us, our children, their children, and their children's-children to live on.



---

1 <https://journals.sagepub.com/doi/10.1177/02704676198886266>

# BASICS OF CLIMATE SCIENCE

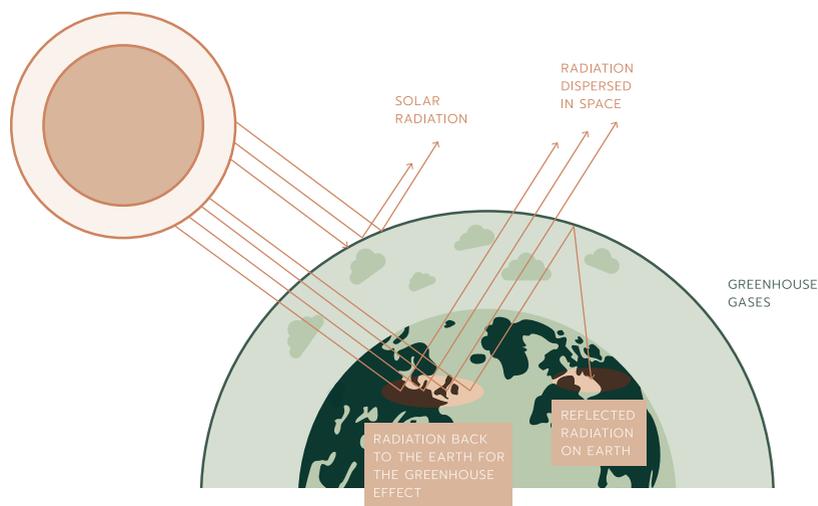
Annual global average temperature is about 1° C hotter than during pre-industrial times. The global scientific community confirmed in the 2018 IPCC report<sup>2</sup> that at the current rate, the world could go over 1.5°C hotter than pre-industrial times as soon as 2030. Just 1.5°C might not sound like a big increase in temperature, but it's the difference between life and death for thousands of people. Earth has always had natural cycles of warming and cooling, but not at the speed that we're experiencing now.

**The last five years – from 2014 to 2018 – were the warmest years ever recorded.**

Since the industrial revolution, around 1750, human activities have added significant quantities of **greenhouse gases** into the atmosphere.

The temperature of the earth's surface is almost exclusively made up by radiation from the sun. The biggest amount of solar energy reaches us at specific wavelengths, which we call light. This light is emitted by the sun, passes through our atmosphere, hits the surface and the energy is transformed into another kind of energy, heat. This heat, in return, is radiated by our planet's surface but cannot as easily pass our atmosphere to go back to space due to the so-called 'greenhouse effect', a natural phenomenon trapping the energy by allowing it to bounce back on our atmosphere to warm the planet. This natural process allows Earth to be warm enough to sustain life.

But 'greenhouse gases' produced in great quantities on Earth – CO<sub>2</sub> and CH<sub>4</sub> are famous examples – are disturbing this natural phenomenon. Their presence in the atmosphere trap too much heat, warming the planet in unnatural ways.



2 [https://report.ipcc.ch/sr15/pdf/sr15\\_spm\\_final.pdf](https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf)

## THE FIVE MAJOR GREENHOUSE GASES

GREENHOUSE GAS	CHEMICAL FORMULA	MAJOR SOURCES	GLOBAL WARMING POTENTIAL, 100-YEAR TIME HORIZON	ATMOSPHERIC LIFETIME (YEARS)
Carbon Dioxide	CO <sub>2</sub>	Fossil fuel combustion; Deforestation;	1	100
Methane	CH <sub>4</sub>	Cement production; Fossil fuel production; Agriculture; Landfills	25	12
Nitrous Oxide	N <sub>2</sub> O	Fertilizer application; Fossil fuel and biomass combustion; Industrial processes	298	114
ChloroFluoro-carbon-12 (CFC-12)	CCl <sub>2</sub> F <sub>2</sub>	Refrigerants	10,900	100
HydroFluoro-carbon-23 (HFC-23)	CHF <sub>3</sub>	Refrigerants	14,800	270
Sulfur HexaFluoride	SF <sub>6</sub>	Electricity transmission	22,800	3,200
Nitrogen TriFluoride	NF <sub>3</sub>	Semiconductor manufacturing	17,200	740

The amount of these greenhouse gases has steadily risen in the last decades due to industrialisation. This means that more heat is kept inside the atmosphere. Even though the sun provides the same amount of light, it is harder for the heat to escape. The consequence is global warming, meaning the average temperature of our planet has been steadily rising.

This does not mean however, that it is becoming warmer everywhere. Climate is complex and patterns are changing right now, making some areas drier in summer and wetter in winters. Intense storms are occurring more often in some places, floods are increasing as well as droughts. Due to the varied effects of global warming, the term climate change is preferred, to avoid the false image that our planet is becoming warmer everywhere, all the time.

## WHAT ARE THE MAIN CAUSES OF CLIMATE CHANGE?

Climate change is a natural process that has always happened since the beginning of time. If you think about the ice age, you can understand that we went from this very cold cycle to a warmer one naturally. However, since the last 50 to 100 years the changes have happened much faster and are larger in their effects. An overwhelming 97% of scientists agree that the rapid climate change we are seeing is caused by human greenhouse gas emissions. The biggest influence that we as humans have is through the following practices:

- Burning fossil fuels such as coal, gas and petrol. This is widely used nowadays as a means of transportation and energy production. The ignition of fossil fuels directly produces greenhouse gases which are released into the atmosphere, trapping solar energy on Earth's surface.
- Cutting down forests. Trees are formidable carbon traps. They naturally absorb the CO<sub>2</sub> surrounding them and transform it into harmless oxygen. By reducing the size of forests, humans have reduced the efficiency of this natural phenomenon.
- Increasing livestock farming. Animals raised for their meat demand high quantities of resources to be sustained. Large crop fields are allocated to feeding cattle, contributing to deforestation to acquire more land, using polluting fertilizers, etc. The digestion of some animals, such as cows, sheep and goats, also releases high volumes of methane.
- Using fertilizers containing nitrogen. Widely used in conventional agriculture, they release nitrous-oxide (N<sub>2</sub>O), which is 300 times more powerful than CO<sub>2</sub>.
- Using fluorinated gases. Those very harmful gases are used mostly for refrigeration and their greenhouse impact is 23000 times stronger than CO<sub>2</sub>.

## WHAT ARE THE IMPACTS OF CLIMATE CHANGE?

One of the challenges of climate change lies in its escalating nature. Its impact on life on this planet will increase drastically due to a number of nonlinear factors, such as feedback loops. For example long-time frozen methane will be released as permafrosted soil will slowly warm up. In the oceans, a similar dynamic is already underway. Speaking of oceans, not only will they grow larger and swallow coastal areas (due to melting ice at the poles and the thermal expansion of seawater), they are already becoming more acidic due to rising levels of CO<sub>2</sub> dissolved in the water. That endangers whole ecosystems and removes an important source of nourishment. We can already see that the warming of 1°C has had a devastating impact across the planet:

- Extreme weather events such as floods and drought are more frequent. Hurricanes, cyclones and typhoons are also growing in number, as they are created by a contact between waves of hot and cold air.
- Loss of sea ice. This is contributing to sea level rise, but it also puts away a natural source of cooling temperatures. Because of the loss of ice, temperature at the poles is increasing fast, threatening back the remaining sea ice, creating a feedback loop. This is also the case for glaciers in mountainous areas.

- Accelerated sea level rise. As predictions envision way higher levels of elevation of waters, some populations are already greatly suffering from the erosion of the coasts where they live. Waters are slowly covering the ground on which people are currently living. With time, major coastal cities inhabited by millions of people will be threatened, and entire inhabited islands will disappear.
- More intense heat waves. During summer, some countries experience more frequent and severe heat waves, threatening the health of vulnerable people.
- Plant and animal ranges shrinking. This puts the global biodiversity in danger, threatening the ecosystems of our planet. As more species go extinct, great disturbances are felt through the food chain.
- Trees and many other plants are flowering sooner, disturbing the natural cycles of pollination by insects and production of nectar.

As the impact is not evenly distributed and does not adhere to the financial and social possibilities of different countries, it is necessary to briefly explain the term climate justice. Climate justice tries to create a better balance between those who caused climate change and profited from it (the developed countries) and areas that are currently or have already started suffering the consequences (usually poorer countries with fewer options to adapt to climate change and mitigate its damage). In a later chapter we will elaborate more on climate justice.

## SCIENTIFIC CONSENSUS

Multiple studies published in peer-reviewed scientific journals show that 97 percent or more of actively publishing climate scientists agree: Climate-warming trends over the past century are extremely likely due to human activities. In addition, most of the leading scientific organizations worldwide have issued public statements endorsing this position.

Nearly all climate scientists that have been published in respectable scientific journals (97–98%) support the consensus on anthropogenic climate change, the remaining 3% of studies that claim to prove the contrary either cannot be replicated or contain errors. A November 2019 study showed that the consensus among research scientists had grown to 100%, based on a review of 11,602 peer-reviewed articles published in the first 7 months of 2019.<sup>3</sup>



3 <https://journals.sagepub.com/doi/10.1177/0270467619886266>

The current scientific consensus is that:

1. Earth's climate has warmed significantly since the beginning of the Industrial revolution
2. Human activities are the primary cause.
3. Continuing emissions will increase the likelihood and severity of global effects.
4. People and nations can act individually and collectively to slow the pace of global warming, while also preparing and adapting for unavoidable climate change.

## WHAT ABOUT SCEPTICS?

Climate change denial, or global warming denial is the dismissal or unwarranted doubts that contradicts the scientific consensus on climate change, including the extent to which it is caused by humans, its impacts on nature and human society, or the potential of adaptation to global warming by human actions. Climate sceptics often have close relations with the fossil fuel industry and their role is to keep us away from the real problem. Therefore, it is useful to learn all the arguments of climate change and to be prepared for a debate with those who do not 'believe' in scientific facts.

## CLIMATE CHANGE IN KOSOVO

In comparison with other countries in Europe, Kosovo has relatively low emissions per capita (5.5t CO<sub>2</sub> equivalent per capita per year in 2015), which are just over half of the EU average (9.93t). At the same time the greenhouse gas emissions per unit of GDP (0,56kg CO<sub>2</sub> equivalent per EUR in 2015) are high, what is almost double of those in the EU average (0.4 kg/EUR).

The climate change strategy of Kosovo mentions the following current and expected impacts:

1. Exposure to hazards such as droughts, floods, and forest fires will become greater with climate change. Climate variability has already increased in Kosovo;
2. Higher temperatures will make heat waves and forest fires more likely. Since 2000 there is an increased number of forest fires in Kosovo;
3. Increased temperatures, more uncertain rainfall, and higher exposure to droughts;
4. Ecosystem degradation and reduction of ecosystem services;
5. Increase and new forms of pollution, and water-related diseases.

In Kosovo climate change adaptation remains a challenge and country-specific studies of climate trends, projections and impacts are limited. Kosovo's large service sector (67 % of GDP) is less vulnerable to climate change. However, agriculture (14 %) and industry (19 %) are important drivers of the economy but they are

highly vulnerable to water shortages, heat waves, droughts and floods. Accelerated construction since 1999 combined with poorly regulated land use planning and lack of adherence to building codes increase the rapidly growing population's exposure to hazards. Mining of lignite (a low-energy, high-pollutant coal) and other mineral deposits, insufficient wastewater treatment and lack of public environmental awareness contribute to serious air and water pollution and environmental degradation challenges that Kosovo is working to control, all which will compound climate change impacts.<sup>4</sup>

## COAL POWER PLANTS & PLANS

Kosovo currently produces most of its electricity from the two outdated and highly polluting lignite power plants: Kosovo A which was built in 1962 and Kosovo B, built in 1983.

In the last few years, nearly 30 percent was lost from the distribution system through technical losses and non-payment, and much more is wasted through lack of energy efficiency measures. Yet the former Kosovo government, heavily backed by the US government, has been planning to build a new 500 MW lignite plant, Kosova e Re or New Kosovo.

Kosovo Civil Society Consortium for Sustainable Development (KOSID) has been vocal about the negative aspects of the new coal power plant. Their claims are founded in research and they summarize the following argumentation:

### 1. It is massively expensive for consumers and the Kosovar state

The Kosovo government has consistently claimed that the project would not burden the state budget because it would be financed via the private concessionaire. But ContourGlobal, chosen in a tendering procedure by the government to build the coal power plant, is a profit-making company, and someone will have to pay for the construction project. For profit making companies, the consumers pay for their products, but no-one would (or even could) pay the plant's "target price" of EUR 80/MWh.

### 2. The contract is almost certainly illegal

To add to the cost issues, the power purchase contract is almost certainly illegal under the Energy Community Treaty due to its promise of state aid that is incompatible with EU rules. State aids are a way to gain advantage over its competitors by receiving government support. For this reason, they are in contradiction with the third energy package which ensures free competition on the European energy market.

### 3. Kosovo needs to increase renewables and energy efficiency, and decrease CO<sub>2</sub> emissions

By 2020, Kosovo has committed through the Energy Community to source 25 % of overall energy from renewable sources and improve energy efficiency by 20 %. Currently, 3 % of Kosovo's energy production comes from renewable sources. And as the country is aiming to join the EU, it will have to adhere to

4 <https://www.climatelinks.org/resources/climate-change-risk-profile-kosovo>

ever stricter CO<sub>2</sub> reduction targets (likely to be 80-95 percent reduction for the EU as a whole by 2050).

#### 4. Water shortages

Power plants always need a source of water, usually a natural stream, to cool down its reactors. If the power plant does not have access to this kind of cooling system, it can have catastrophic industrial consequences, since the reactors will overheat. Kosovo is already very scarce in drinking water, and the water that we do have is highly polluted. The new power plant would only stress this problem further.

#### 5. Resettlement and agricultural land shortages

A new power plant would require a new coal mine. Setting up such a project would require resettlement of at least 7000 people, and impact the space allocated to agriculture.

## CLIMATE CHANGE AND HUMAN RIGHTS

The process of climate change that is sped up by human impact can pose a threat to a wide range of universally recognized fundamental rights, such as the rights to life, food, adequate housing, health, and water.

**Right to life:** the global problems caused by climate change will affect the general living conditions of humans throughout the planet, even in lethal ways sometimes.

**Right to food:** the warming of the average temperature will make it harder to grow food, thus making general access to food more and more complicated for individuals.

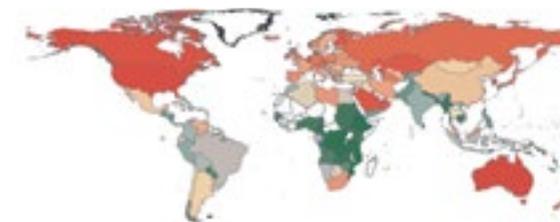
**Right to water:** as the temperature rises, the rivers will dry. Taking into account the current mismanagement of drinkable water sources around the world, continuation of this misuse will further the problem of access to water.

**Right to health:** climate change poses risks to health, due to the worsening of living conditions and sanitation, but also because the climate will allow for disease spreading more easily.

**Right to housing:** sea level rise and desertification, both consequences of climate change, will threaten the livelihood of millions of people in the following decades.

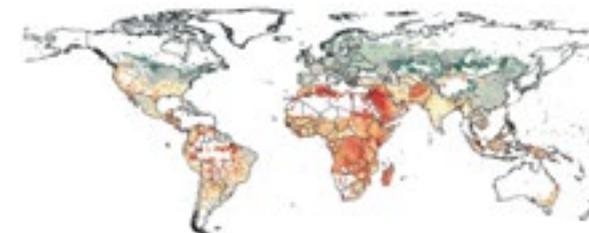
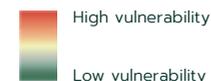
Climate justice means addressing the climate crisis while also making progress towards equity as well as the protection and realisation of human rights.

CO<sub>2</sub> EMISSIONS PER CAPITA



THOSE WHO CONTRIBUTE THE LEAST GREENHOUSE GASES WILL BE MOST IMPACTED BY CLIMATE CHANGE

VULNERABILITY TO CLIMATE CHANGE



### WHO ARE THE CLIMATE REFUGEES?

The UN Refugee Agency estimates that by 2050, up to 250 million people will be displaced by climate change impacts. Climate refugees or climate migrants are a subset of environmental migrants who were forced to flee "due to sudden or gradual alterations in the natural environment related to at least one of three impacts of climate change: sea-level rise, extreme weather events, droughts and water scarcity." Technically, in the context of legal and political systems, climate refugees do not have any status, so they do not have a legal existence.

### "SYSTEM CHANGE, NOT CLIMATE CHANGE."

Motivated by the injustice of this situation where those who will suffer most are those who have contributed least to the problem, all people, institutions and governments should try to live with a fairer – which often means smaller – share of the world's resources. "We must also understand that to be neutral in the face of injustice is to side with the powerful. And that means that we can't talk about consumerism without differentiating between those who are driving it and those who are suffering from it; we can't talk about growth without distinguishing between those who gain from it and those who are losing out. We can't talk about climate change without being absolutely clear about who is driving the changes in our climate and who is suffering from them."<sup>5</sup>

Climate change is not just an environmental issue: it poses wider, systemic challenges to our financial system, health care and national security. So what does a

.....  
5 'My environmentalism will be intersectional or it will be bullshit', Adam Ramsay, Open Democracy, <http://opendemocracy.net/ourkingdom/adam-ramsay/my-environmentalism-will-beintersectional-or-it-will-be-bullshit>

sustainable lifestyle actually mean? Is it the act of separating trash and cycling everywhere under 50 km? More community bonds, more time for each other, a healthier lifestyle, local living, more contact with nature; these acts show that lower-carbon lifestyles are associated, at least for some people, with a much broader vision of 'the good life', and benefits such as health, happiness, and community. Whether we call it degrowth, transition towns or transforming cultures, it is all about living better. You don't even have to believe in climate change to want to live in a low-carbon world, because of all the benefits it brings you, society and all living things.

Some of the solutions being promoted as sustainable only slow us down on the way to catastrophic climate change instead of stopping us. Using less packaging on a product is great, because on that day you will produce less trash. But if we don't stop using packaging altogether, the raw materials will be used and trashed sooner or later. So what does a real solution look like?

For example, access to local produce, which doesn't have to be transported over hundreds of kilometers – and in turn also require less or no packaging at all. Another solution are the policies, which make access to clean tap water easier than access to bottled water. Or punishing companies dumping their waste without any safety treatment or producing appliances, which break or need to be replaced too often. Individual behaviours are crucial to achieve the change we need, but they need to turn into collective action. We need a system which makes sustainable choices obvious and easy, and the unsustainable ones expensive and unacceptable.

## CLIMATE AND CONFLICTS

'Climate change doesn't directly lead to violent conflicts, but its impacts (extreme weather conditions) create many conflict situations and the reduced availability of resources like water, food and fertile land, making hostile confrontations more likely. The relationship between climate change and violent conflict is complex, country-specific, often not direct or linear and also localized within nations. The main impact pathways described in the literature include competition for scarce environmental resources, especially arable land and clean water, but also habitable land, which is likely to become scarcer, more crowded, and more costly if worst-case scenarios, especially of flooding, come to pass. Additionally, food insecurity could be an important triggering factor for conflict, as it has been in the past. The literature is also clear that climate change is expected to be the great multiplier of environmental deterioration, demographic displacements, and conflict threats.

Some of the most direct climate change impacts are related to access to farmland and water. Global warming is causing sea levels to rise, so coastal populations are forced to migrate (in extreme conditions, like the Tuvalu Islands, government buys land thousands of kilometers away to resettle the entire nation to a safer area). But climate change also leads to more severe droughts and desertification (arable land turning into waste land), so populations dependent on rainfall or irrigated agriculture will compete over water more fiercely. The situation is escalated by population growth and environmental degradation, leading to even less access to basic

natural resources. An example of this situation can be found in Syria, where a major drought in the Middle East (escalated by climate change) led to smaller harvests and rising food prices. This has been one of the driving factors that sparked the conflict in Syria.<sup>6</sup>

Other examples of difficult situations escalated by climate change are natural disasters, which are more likely because of climate change. Already thousands or even hundreds of thousands of people lose their lives and livelihoods as a result of events like hurricanes, massive wildfires or floods. These kinds of events will occur more often, more extreme and less predictive in the near future.

In addition, climate change is a 'threat multiplier' because it has the potential to exacerbate many of the challenges we are already confronting today – from infectious diseases to armed insurgencies – and to produce new challenges in the future.

Unfortunately, what we are observing so far is just the beginning, as extreme weather events and extreme temperatures will escalate from one year to another. If humans won't cut carbon emissions by half until 2030 and then totally by 2050, there will be enough CO<sub>2</sub> in the atmosphere to raise the average temperature in the world by 6 degrees (you can watch Six Degrees Could Change the World on National Geographic Channel) – what we see right now is a world after the temperature rising by 1 degree.

However, climate change doesn't always have to be associated with violent conflict. A lot depends on how systems and societies respond to situations of resource scarcity or natural disasters. Communities that are resilient (e.g. plant crops that are resistant to drought if threatened by desertification, or have a well developed bicycle infrastructure to replace car transport when oil is scarce) are more likely to manage disruptions in a peaceful manner. Similarly political system which favors climate change preparedness and disaster response is more likely to create a context when conflicts can be resolved nonviolently or even avoided.

Building sustainable communities and societies, which do not deplete natural resources, like fossil fuels and forests, build strong networks of support, reliance and resilience is a necessary step for achieving a peaceful and sustainable world.

## CLIMATE POLICIES

### LOCAL POLICIES

Kosovo has adopted its Climate Change Strategy in 2018, which sets out the policies for reducing greenhouse gas emissions (GHG) and adaptation to climate change. This Strategy is the initial step in the management policy process of the mitigation of greenhouse gasses and adaptation to climate change for the next ten years. Full membership in the UN has not been achieved yet, therefore Kosovo

6 'Climate Change and Violent Conflict: A critical literature review', Elen Messer, Oxfam America <http://bit.ly/oxfam-cc-conflicts>

is still not a direct signatory of the conventions, protocols and other international environmental agreements. Even though Kosovo has not participated in or signed the UN Framework Convention on Climate Change (UNFCCC) it does have the responsibility to respond to the requirements as one of the signatories of the Energy Community Treaty, which aims at creating an integrated pan-European energy market and at bringing together the EU and its neighboring countries. The Energy Community Treaty also sets clear reduction targets for the energy use while it demands to increase the share of renewable energies.

## EUROPEAN CLIMATE POLICIES

European climate policy has gone through many different steps since the 1990s as it tackles the sovereignty of member states and often enters into contradiction with their economic interests. Initiatives to build effective European climate policies really took off in the 2000's after the approval of the Kyoto Protocol. Since then, the EU launched different mechanisms tackling carbon emissions, or increasing the share of renewable energies. These recent years, the EU has set itself targets to reduce its greenhouse gas emissions progressively up to 2050, which are set in the 2020 climate and energy package and the 2030 climate and energy framework.

The 2020 climate and energy package<sup>7</sup> is a set of binding legislation to ensure the EU meets its climate and energy targets for the year 2020. The package sets three key targets:

- 20% cut in greenhouse gas emissions (from 1990 levels)
- 20% of EU energy produced from renewables
- 20% improvement in energy efficiency

The targets were set by EU leaders in 2007 and enacted in legislation in 2009. They are also headline targets of the Europe 2020 strategy for smart, sustainable and inclusive growth. The EU adopted two main mechanisms that legally constrain Member States and industries in their greenhouse gases emissions:

### The emissions trading system (ETS)

The EU emissions trading system (launched in 2005) is the EU's key tool for cutting greenhouse gas emissions from large-scale facilities in the power and industry sectors, as well as the aviation sector. The ETS works on a cap-and-trade principle: "the cap corresponds to the total amount of greenhouse gas that can be emitted by installations covered by the system. The cap is reduced overtime so that total emissions fall. Within the cap, companies receive or buy emission allowances which they can trade with one another as needed. After each year a company must surrender enough allowances to cover all its emissions, otherwise heavy fines are imposed". The ETS covers around 45% of the EU's greenhouse gas emissions.<sup>8</sup>

7 [https://ec.europa.eu/clima/policies/strategies/2020\\_en](https://ec.europa.eu/clima/policies/strategies/2020_en)

8 [https://ec.europa.eu/clima/policies/ets\\_en](https://ec.europa.eu/clima/policies/ets_en)

However, some studies have assessed the efficiency of the ETS and there is little evidence that this system contributed to the reduction of greenhouse gas emissions that started to occur among all sectors, including the ones falling within the scope of the ETS in the EU. As mentioned by the Corporate Europe Observatory, "reductions in ETS sectors can be explained almost entirely by a combination of increases in renewable energy, improved energy efficiency and fuel switching (from coal to gas). In addition, there are no incentives to encourage Member States to implement policies that would encourage companies to achieve the targets. Finally, the ETS have led to an increase of speculation on the emission trading market and numerous cases of frauds have been reported since its launch.

### The national emission reduction targets

The council adopted binding rules to reduce greenhouse gas emissions for sectors of the economy that fall outside of the scope of the EU ETS. These greenhouse gas emissions account for some 55% of total EU emissions. This includes housing, agriculture, waste, transport (excluding aviation).

### Renewable energy – national targets

EU member countries have also taken on binding national targets for raising the share of renewables in their energy consumption by 2020, under the Renewable Energy Directive. These targets also vary, to reflect countries' different starting points for renewables production and ability to further increase it – from 10% in Malta to 49% in Sweden.

The overall effect will enable the EU as a whole to reach:

1. its 20% target for 2020 (more than double the 2010 level of 9.8%)
2. a 10% share of renewables in the transport sector.

The 2030 climate and energy framework includes EU-wide targets and policy objectives for the period from 2021 to 2030, that include:

1. At least 40% cuts in greenhouse gas emissions (from 1990 levels)
2. At least 32% share for renewable energy
3. At least 32.5% improvement in energy efficiency

This will enable the EU to move towards a low-carbon economy and implement its commitments under the Paris Agreement.

## UN CLIMATE POLICIES

The science of climate change induced by a planetary greenhouse effect has been known for a very long time, but the efforts of the major oil companies to hide it from the public led the global response to be weak and late. But scientific consensus soon consolidates in the 1980's, and calls to political acts are becoming more and more widespread. During the Earth Summit in Rio in 1992, 154 nations signed the United Nations Framework Convention on Climate Change (UNFCCC), the first truly international treaty asking for a reduction of greenhouse gases emissions, with responsibility given to the states. It entered into force in 1994. The limits on emissions are non-binding, but it consolidated a birthing movement in public opinion in favour of more efforts regarding climate change.

Following this treaty, the signatories gathered every year in what we call the Conference of the Parties (COP) in order to monitor the evolutions within the UNFCCC framework and agree on new terms. This is what happened following the first COP, where negotiations led to the signature of the Kyoto Protocol. This time, the states are committed to results. Expected measures are differentiated, meaning that countries will grant efforts proportionally to their resources. The United States refuse to sign it, but the rest of the major powers and a majority of countries accepts to sign the protocol.

In 2015, the nations of the world gathered for the COP21, where they signed the Paris Agreement, promising to limit global warming to a 2 degrees Celsius increase. Here again, developing countries have less pressure than the rich and developed powers which can more easily impulse change in their practices. In 2017, the US announced that they intend to withdraw from the Agreement.

In parallel to those treaties and conferences, which attempt to take political actions to change the course of climate change, the UN possesses an independant international body whose task is to collect the scientific data on climate change with the most accurate precision possible. The Intergovernmental Panel on Climate Change (IPCC) was created in 1988, and is still active today, gathering scientists from the whole world and publishing regularly reports on the evolution of the climate, the greenhouse gases emissions, and deducing potential consequences from climate change. The IPCC is recognized as the scientific authority on the matter of climate change, with a growing collection of data and analyses.

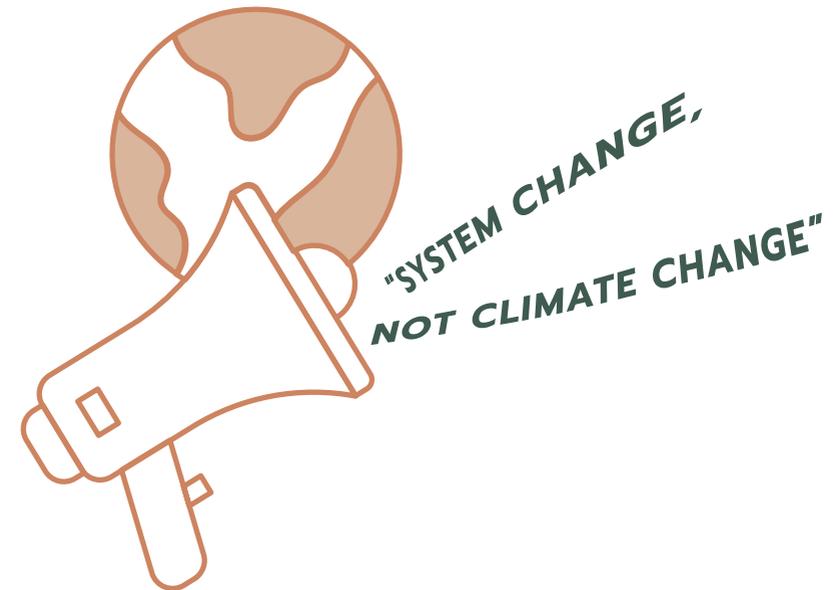
We could date back the first claims to protect and conserve our environment to the Industrial Revolution, when companies were increasingly polluting the cities and their surroundings. Soon a need to protect some forests and their wildlife felt much needed by people who cared about having purely natural surroundings. Sadly the big polluting companies gained in power, and their ability to wreak havoc on natural grounds for profit strengthened. But throughout recent history, and with a growth in the 1980's, groups of activists in every part of the world took a stand against the destruction of nature for financial gains.

Claims of the environmentalists can be very diverse: to ensure the conservation of a natural land, to oppose the construction of a polluting industry, to protect the wildlife in a threatened area, to fight the loss of biodiversity, to secure the quality of the water, etc. Those claims can be addressed on a local, national or international levels depending on the nature and scale of the issue. That is why a very

high number of organisations are included in this field of activism. Some are more mediatized than others due to their size and the type of spectacular actions they organize, such as GreenPeace, 350.org or Friends of the Earth. But local populations and autochthonous people often take a stance to protect their own lands from devastation.

Environmental justice is a concept inviting to a reflection on the unfairness of environmental degradation, as it very often affects more badly already vulnerable groups. The appropriation of natural resources by wealthy corporations deprives actual inhabitants of the exploited lands from their own local resources. When Coca Cola dries entire rivers in the Global South for products consumed in rich countries, the company is stripping local populations from much needed resources. The distribution of natural resources worldwide is far from equal, and no global planning is enforced to mitigate those gaps in access and ownership of resources.

Through environmental justice, activists want to empower the groups of population whose resources are getting appropriated by external groups. It would be "just" that the inhabitants of a certain area benefit from its resources. More generally, it would be "just" that people on Earth enjoy an equal access to natural resources, especially the vital ones like water and food. All in all, the idea is that everyone should enjoy a healthy environment in which to live.



## CLIMATE JUSTICE MOVEMENT

“To change everything, we need everyone” – Greta Thunberg

Climate justice considers climate change from an ethical point of view. We talk about reaching climate “justice” because the effects of climate change will not affect everyone the same, and the most vulnerable populations are not the ones responsible for the main emissions of greenhouse gases. The main point is that the countries of the Global North are responsible for most of the historical emissions of greenhouse gases (because the industrial revolution mostly took place in the Global North or industrialized countries), but it’s the countries of the Global South (also called developing countries) that experience the impacts of climate change first (mainly through extreme weather conditions and desertification), despite the fact they might never have had a chance to cause CO<sub>2</sub> emissions of any comparable amount. The effects of climate change can be a matter of life and death for some groups of people throughout the world: coastal villages and entire islands engulfed by the rising seas, agricultural lands affected by desertification, poor communities unable to tackle their climate-related health issues, etc. Yet, the most important part of the global greenhouse gases emissions leading to those dramatic consequences were released in the Global North, by developed countries, through rich and big companies. The ones responsible for those emissions can escape more easily the consequences, having less issues of access to health services, relocation, adaptation, access to income, provision of food and water, etc. Justice is achieved if the vulnerable populations we mentioned do not suffer from the effect of a phenomenon they did not actively participate in setting up. When they are already subjected to the harsh effects of climate change, the idea is that they should receive fair compensation for the injustice they are facing. Conclusively, this means pressuring the political powers to have meaningful and efficient policies to mitigate and adapt to the effects of climate change.

Many sectors in the climate justice movement are guided by the belief that climate justice requires structural and systematic change, in particular, an end to capitalism. This viewpoint has led to actions challenging policy at local, state, and global levels, actions that are growing in number and momentum. Long-established environmental movements such as Friends of the Earth or GreenPeace traditionally advocate for efficient policies to mitigate the effects of climate change, but in the recent years we witness the emergence of global movements focused solely on climate justice.

Climate justice movement, besides gathering environmental organizations, brings together human rights organizations, syndicates, indigeneous groups, student movements, the most vulnerable communities, famous artists and most eminent scientists.

In 2018, Swedish activist Greta Thunberg started her own movement of school strike, standing alone in front of the Swedish Parliament to protest the lack of opportunities for her generation’s future due to the incoming climate catastrophe. Soon, students from all around the world joined the movement and organized strikes and protests in various countries. Nicknamed “Fridays For Future” (FFF), weekly protests were held. The movement grew internationally, and “global climate

strikes” are now organized regularly, gathering more and more concerned youth. For the first Global Strike for Climate in March 2019, four brave students protested in the streets of Pristina. In September 2019, hundreds of people marched in the streets of the same city for a new climate strike.

This increase in protesters in our country mirrors a global trend of people getting more and more sensitive to the issue of the climate emergency. The young generation refuses to be sacrificed due to the mismanagement of resources by their elders. Greta Thunberg is getting more and more recognition worldwide, despite her young age, direct action groups like Extinction Rebellion are organising more and more protest operations, and various organizations are suing their states or local authorities for lack of action to tackle climate change. As climate change is becoming a central topic in civil society, it is more and more included into national policies and the political discourses.

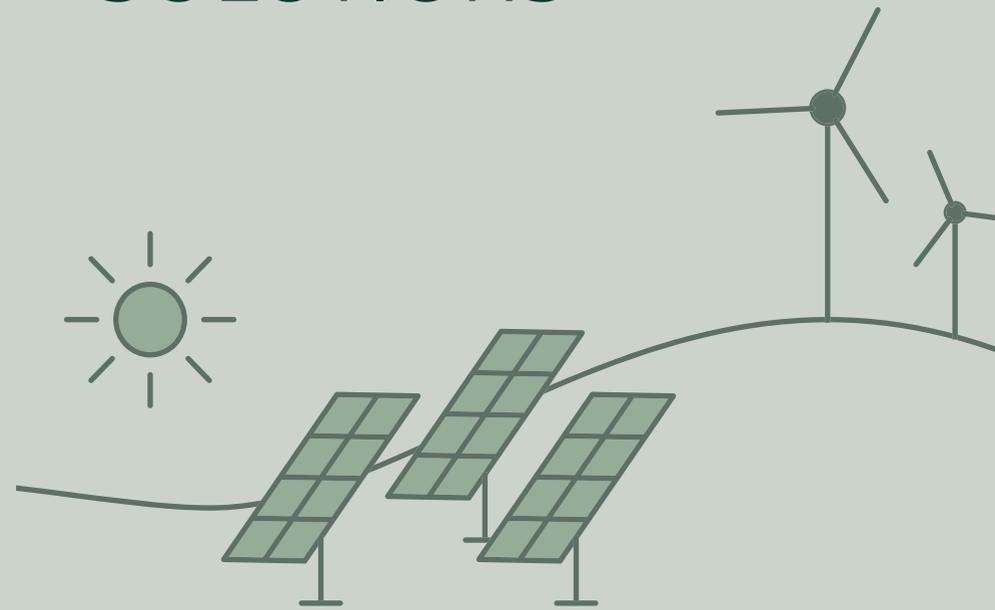
## POLITICS AND CLIMATE CHANGE

As the anxieties related to the incoming consequences of climate change are becoming more and more widespread, the topic is progressively taking more space in the political landscape. Political activism becomes then a powerful way to fight climate change, advocating for efficient policies. Activist groups around the world are holding accountable their authorities, requesting from them to justify their measures which have a negative impact on the environment and the climate. This way, through campaigns to raise awareness, advocacy and political action, organisations and parties managed in various countries to close down coal mines, stop the construction of new airports, pass regulations to encourage more sustainable transports, etc.

“Lobbying” is often associated with infiltration into the political circles by big companies trying to secure their interests. But there is also a lot of lobbying groups advocating for a better world with no financial interests for them. For example, GreenPeace is considered one of the biggest organisations actively lobbying to the governments and international institutions for better policies and norms. With constant pressure applied on them, through the media, public opinion and negotiations, they intend to change the legal landscape for a more sustainable future.

In the 1970’s, the first “green parties” were founded in some countries. The idea behind those parties was to put environmental protection and social justice at the center of their political program, and pushing for more talks on this topic in general politics. The number of green parties exploded throughout the years, and now you can find such parties almost everywhere and in every election. Their results were also met with great success. In some countries, they are in power or share the power with other political groups. They also have an increasing influence in the institutions of the EU.

# SOLUTIONS



# CLIMATE CHANGE MITIGATION

Climate change mitigation aims at limiting the magnitude of climate change. As the scientific research proves greenhouse gases are the source of accelerated climate change, mitigation focuses on:

1. Lowering the human-made greenhouse gas emissions (most importantly CO<sub>2</sub> coming from burning fossil fuels, intense farming and livestock rearing, destroying soil and forests), or
2. Creating carbon sinks (structures, which can keep carbon out of the atmosphere, like forests or certain types of soil).

Three basic ways to lower CO<sub>2</sub> emissions are:

1. Increasing energy efficiency, meaning using less energy to get the same results;
2. Closing down fossil-based industry;
3. Replacing fossil fuels with low-emission energy sources

Energy efficiency does help, but only if we use the increased efficiency to **lower energy consumption**. This does not happen automatically but rather may lead to maintaining the energy usage levels while producing more (and then in the process needing more resources).

For the reduction of greenhouse gas emissions, it is paramount that the fossil-based industry which spans from farmland fertilizers to transportation and conventional power plants is shut down and then replaced by an industry focusing on renewable materials like renewable energy – mostly hydro, solar and wind plants. Using agrofuels will not help, as they require mostly nearly as much energy to grow, harvest and process, as they return in the end. Also, construction of hydropower plants cannot be justified in every case. In the last few years, communities in the Balkans were fighting to protect small rivers from a so-called “tsunami” of small hydro-power plants. No less than 3000 small hydro-power plants are planned for the whole Balkans, among which almost 30% are in protected areas.

Nuclear power options are neither renewable nor would they help creating sustainable societies. No country has yet found a safe way at all to deal with nuclear waste – the costs are likely to be covered by society instead of the companies which gained the revenues. So for social and environmental reasons, nuclear power plants are not going to help us find a peaceful future.

## MARKET-BASED SOLUTIONS

Often lowering CO<sub>2</sub> emissions is seen as a threat to industrialized economies, mainly: mining, energy and transport. This is why market-based mechanisms were developed, allowing to move the mitigation efforts from one country to another. Emissions are being traded (when you are allowed to emit only certain amount of CO<sub>2</sub> and you can sell your right to emissions if you emit less, or you can buy extra

ones if you emit more) and investments in low-emission technologies are made in countries of the Global South (e.g. offsetting).

Market-based solutions didn't bring the necessary change of cutting the amount of carbon we emit and what is most important – they fail to address the injustice, in which Global South countries pay the cleaning bill for the Global North. People from the Global South have done little to cause the problem – but now they get to pay the price of industrialisation in the Global North. But the best way to keep coal out of our atmosphere is to keep it safely stored in the ground, instead of inventing 'clean coal' technologies or just trying to use it slower (these are fake solutions). After all, you can't solve the problem using the same way of thinking which created it.

Slowly, approach to mitigation is changing. Instead of mitigating (which is often associated with negative impact of economic growth), world politics turn to adaptation. However mitigation remains a very important issue due to the concept of runaway climate change. Scientists believe that beyond a certain level of greenhouse gases in the atmosphere, climate will start changing so much and so fast that life on Earth won't be able to adapt to those changes. Beyond that point mitigation will not make sense, because the changing climate will trigger a series of other drastic changes and they will lead to feedback loops between elements of the ecosystems, like freeing formerly frozen greenhouse gases in Siberia and on the seafloor (which means that consequences of climate change will participate in worsening climate change itself). In fact, some scientists, like James Hansen from the Climate Change panel in NASA, say that already the 1 degree rise (that we already observed in global temperatures) is enough to trigger this effect and is leading to dangerous changes which are difficult to predict (and a runaway warming process might be one of them).

## TREE PLANTING

According to a new report published on 5th of July 2019 in the journal Science<sup>9</sup>, planting more trees could be the best way to mitigate climate change – and the cheapest one. But trees planted today will still take 50 to 100 years to reach their full carbon-absorbing effects. Mapping the global potential tree coverage, the authors estimated that an extra 0.9 billion hectares of canopy cover could be added in areas that naturally support woodlands and forests. This could potentially store around 205 gigatonnes of carbon, which is approximately equal to the amount of carbon humans have added to the atmosphere over the past 25 years!

But if we don't deviate from the current global warming trajectory, the area of available and usable space for potential tree planting could shrink by over one-fifth by 2050, mainly in the tropics – even if global temperature rise is limited to 1.5 degrees Celsius above pre-industrial levels. And it could take up to 100 years for trees planted today to start soaking up the large quantities of CO<sub>2</sub> that humans have spewed into the atmosphere. And importantly, deforestation must stop. Young forests can take up to 70 years to reach the carbon-storing levels of mature forests.

.....  
<sup>9</sup> The global tree restoration potential, <https://science.sciencemag.org/content/365/6448/76>  
.....

Furthermore, plantations store less carbon. Another recent study found that natural forests are 6 times better than agroforestry and 40 times better than plantations at storing carbon. Therefore, restoring and protecting natural forests should be prioritised.

## ADAPTATION

Humans have been adapting to their evolving environments throughout history by developing practices, cultures, settlements and livelihoods suited to local environmental conditions. However, rapid climate change raises the possibility that existing societies will experience climatic shifts that previous experience, skills and knowledge, has not prepared them fast enough for.

Adaptation measures may be planned in advance or put in place spontaneously in response to a local pressure. They include individuals' behavioural shifts, ecosystem-based adaptation, sustainable communities, regenerative agriculture, large-scale infrastructure changes as well as disaster relief.

### Individual Behavioural Shifts includes:

- Using fewer resources, like energy and water, e.g. by collecting rainwater, taking shorter or less showers, using public transport or bike instead of a car
- Farmers planting diverse and perennial crops instead of large monocultures of just one sort,
- Building self-sufficient homes from natural, recycled and local materials,
- Encouraging education and practice of sustainable living, permaculture, transition towns, ecovillages, alternative economies.

## ECOSYSTEM-BASED ADAPTATION (EBA)

Maintaining healthy ecosystems, on which we all depend, plays a significant role in helping people adapt to climate change, especially in 'poorer' countries. EbA includes ecosystem management activities to increase resilience and reduce the vulnerability of people and the environment to climate change. Some of the key concepts of EbA were outlined in a paper by IUCN on EbA for instance:

- Sustainable water management, where river basins, flood plains, and their associated vegetation are managed to provide water storage and flood regulation services; Disaster risk reduction, by for example nature restoration/preservation of coastal habitats such as mangroves, which can be a particularly effective measure against storm-surges, saline intrusion and coastal erosion;
- Sustainable management of grasslands and rangelands, to enhance pastoral livelihoods and increase resilience to drought and flooding;
- Establishment of diverse agricultural systems, where using indigenous knowledge of specific crop and livestock varieties, maintaining genetic diversity of crops and livestock, and conserving diverse agricultural landscapes secures food provision in changing local climatic conditions;

## LIFESTYLE AND ECOLOGICAL FOOTPRINT

Researchers from Imperial College London say we must eat less meat and dairy, swap cars for bikes, take fewer flights, and ditch gas boilers at home.

In the 1990s, the term “ecological footprint” was coined to refer to the demand that we place on the Earth’s resources. An ecological footprint is a measure of how much of the earth’s biologically productive land and water is needed to produce our food, material goods and energy, and to absorb waste we produce.

The ecological footprint is not as much a reflection of a person’s standard of living as much as it is a reflection of a person’s style of living. The more a person consumes, the larger that person’s ecological footprint, but consuming more does not necessarily mean a better quality of life. Each individual, city, state or nation’s Ecological Footprint can be compared to its biocapacity.

The Earth has a total surface area of 51 billion hectares, but less than one quarter of this – under 12 billion hectares – is biologically productive for human use for the food, water and other materials that we need to support ourselves.

Comparing ecological footprints of different people is a measure of intra-generational equity. In the longer term, the ecological footprint is an indicator of whether future generations will be able to meet their needs. More than 85% of humanity lives in countries that run an ecological deficit.

Earth Overshoot Day marks the date when humanity’s demand for ecological resources (fish and forests, for instance) and services in a given year exceeds what Earth can regenerate in that year. Earth Overshoot Day is occurring ever earlier in the year, and a big part of it being the growing amounts of CO<sub>2</sub> emissions. In 2019 Earth Overshoot Day was 21st of July 2019. This means that by that day, humanity globally used all the resources we could use for this year, within the limits of sustainability.

## REGENERATIVE AGRICULTURE

Today’s agriculture, as practiced in most parts of the world, is one of the biggest pollutants of our planet, even though it has a great potential to be a solution for our growing climate crisis. When designing in a regenerative way, agriculture becomes a method of climate mitigation, rather than the polluter emitting greenhouse gasses.

Regenerative agriculture is a practice of farming and grazing that has a goal of increasing high quality food production and creating healthy soil. While improving the soil and revitalizing soils biodiversity, regenerative practices can reverse climate change by sequestration of carbon and improving the water cycle. Carbon sequestration is the maximization of carbon pulled from the atmosphere by plant growth and the minimization of the loss of the carbon once it’s stored in the soil.

Sustainable agriculture is not enough anymore, because it alludes only that the system can be used for a long period of time and that it doesn’t harm, but with the current world situation, we need to improve and revitalize the soil, its degraded biodiversity and the environment.

The way these positive impacts are achieved is through building soil organic matter, especially in the topsoil. With this process, the carbon from the atmosphere can be taken back and stored in the soil, where it is very much needed.

This agriculture technology holds its principles and practices, and it incorporates permaculture and organic farming practices. The principles are to continually grow and evolve, to improve the whole agroecosystems, to ensure reciprocal relationships and to design and decide holistically, all of which makes it a dynamic practice.

The practices that are contributing to regeneration are some of the following: no-till farming, perennial crops, cover crops, animal integration, silvopasture, holistically managed grazing, agroforestry, crop rotation, pasture cropping and mobile animal shelters, use of compost, compost tea and biochar.

Regenerative agriculture has many goals, some of which are to decrease greenhouse gases emissions, but also increase soil carbon stock. Furthermore, it has a goal of improving the resistance of yield which is being challenged by extreme weather conditions. By creating organic matter in the soil, it increases the capacities for holding water, thus creating a more drought-resistant soil. Biodiversity is essential for these resilient systems, both for agricultural production and food security, and of course for nature and species conservation in general. With holistically planned grazing, grasslands can be restored which leads to more carbon sequestration.

All the mentioned ideas of regenerative agriculture are few of many, and it is important to keep in mind that all of these practices need to be adjusted and designed accordingly to the specific agroecosystem.

## SUSTAINABLE COMMUNITIES AND PRACTICES

### TRANSITION TOWNS

Transition is a movement that has been growing since 2005. It is about communities stepping up to address the big challenges they face by starting local, grassroots. By coming together, they are able to create local solutions together. They seek to nurture a caring culture, one focused on connection with self, others and nature. They are reclaiming the local economy, supporting entrepreneurship, reimagining work and the world, reskilling themselves and weaving webs of connection and support. The original idea was inspired by the idea of permaculture principles being used in looking for solutions for the peak oil. It was initiated in England and nowadays there are more than 400 communities all around the world recognized as the official Transition towns.

## ECOVILLAGES

More than half of humans live in cities. First ecovillages were created in 1960s, during the movement 'back to the land', as a response to the environmental crisis. An ecovillage can be an intentional, traditional or urban community that is consciously designed through locally owned, participatory processes in all four dimensions of sustainability: social, culture, ecology, economy. Their aim is to regenerate its social and natural environment. They are living laboratories creating alternatives and innovative solutions that respond to the problems of current environmental and climate crisis. They can be rural or urban settlements with vibrant and diverse social structures, united in their actions towards low-impact, but abundant and high-quality lifestyle in a community.

Thousands of ecovillage communities around the world in all continents are taking action and creating solutions to face the challenges confronting us due to climate change. This includes solutions to both help us reduce our carbon footprint, as well as measures to become more resilient to the challenges of climate change.

These actions range from developing and implementing green and natural building practices, to climate friendly agriculture, restoring the natural environment, sequestering carbon and greenhouse gases through biochar and soil restoration, protecting and regenerating local water cycles, installing renewable energy and appropriate technologies, and responding to emergencies and crises with resilient and regenerative planning and rebuilding practices.

Global Ecovillage Network (GEN) brings all ecovillages from all continents into one network for regeneration, while building connections with policy makers, organizations, governments, academics. There are four regional networks with 10000 very diverse communities.

There are many inspiring and magical ecovillage communities all around the world. Damanhur in Italy, Findhorn in Ireland, Sieben Linden in Germany, Auroville in India, Crystal Waters in Australia, Las Gaviotas in Columbia and many others.

## ENERGY COOPERATIVES

Empowering citizens to produce and consume their own energy is about democratizing the energy system. Cooperatives are owned by the members, or customers, who use them—people who have organized them to provide themselves with the goods or services they need that aren't being provided for otherwise. The main idea is to bring back the ownership of renewable energy sources to the people.

Providing electric service the cooperative way distinguishes electric coops from investor-owned and electric utilities. Cooperative employees and board members are part of the local communities. They are also involved in different community activities, while all members have a voice and a vote in cooperative matters.

Energy cooperatives exist in most of the European countries, including Croatia and Serbia. REScoop.eu is the European federation for renewable energy cooperatives, a growing network of 1,500 energy cooperatives and 1,000,000 citizen members.

## COMMUNITY SUPPORTED AGRICULTURE

Community Supported Agriculture (CSA) offers an alternative approach to agriculture based on solidarity, direct human relationships, mutual trust, small scale and respect for the environment. The main idea of CSA is simple: a group of consumers get together with a farm in their vicinity. Together, they share the costs of the farming season, including land rent, seeds, tools and the farmers' salaries. Likewise, they share the produce of the farm. The consumers get fresh food from a nearby farm, produced by farmers who they know and the farmers get good working conditions and produce for people they know.

In return for subscribing to a harvest, subscribers receive either a weekly or bi-weekly box of products, which includes seasonal fruits, vegetables, dried goods, eggs, milk, meat, etc. Farmers also try to cultivate a relationship with subscribers by sending weekly letters of what is happening on the farm, or inviting them for harvest, or farm celebrations.

CSAs create direct connections between producers and consumers through alternative markets and the members and farmers share the benefits as well as the risk of farming. CSAs generally focus on the production of high quality food for a local community, often using organic or biodynamic farming methods. In 2015, there were around 2,700 CSAs in Europe feeding almost half a million people.

## PERMACULTURE

Permaculture is a system which aims at meeting diverse needs of humans in a way that benefits the environment at the same time. It can be implemented in very small scales, like a front yard garden, as well as to restore whole degraded ecosystems. Permaculture covers a variety of issues, like water, energy, soil, economy and society, as well as how they are interrelated, just like in a natural ecosystem. Basically, it can be used to design any kind of process, based on the three ethics: Earth care, People care and Fair share. Permaculture is trying to work with and incorporate the principles of nature. So rather than trying to make nature obey to our mind-made plans and bulldozers, we first deeply observe how energy and matter flows naturally, and then try to arrange our needs incorporated in a design around that, which is then implemented carefully, using observation and feedback loops to readjust again and again.

**12 permaculture principles**, created by David Holmgren, together with the three Ethics, guide us through the design process.

1. Observe & interact
2. Catch & store energy
3. Obtain a yield
4. Apply self-regulation & accept feedback
5. Use & value renewable resources & services
6. Produce no waste
7. Design from patterns to details
8. Integrate rather than segregate
9. Use small & slow solutions
10. Use & value diversity
11. Use edges & value the marginal
12. Creatively use & respond to change

Those Principles being so broadly interpretable, allows to apply permaculture in any setting that includes processes. Most people may be familiar with the term of Permaculture in home-scale garden, with the herb spiral being a quite prominent image that comes to our mind. But it is way more than that. Whole landscapes and ecosystems have been regenerated through Permaculture approach, and there are also some farms that apply permaculture on a big scale.

Knowing the interconnections might be even more important than knowledge in one of the areas, because it allows to design not only gardens or forests, but also to incorporate ponds, motorways or buildings in a way that all elements of the system will be advantageous to each other.

Permaculture is not only about food and gardening. It covers the issues of waste, energy, infrastructure, housing, as well as ways of managing your business or social life in a responsible way. By default its goal is to decrease the energy consumption and to produce less waste. The general approach of permaculture is that all excess products are directed towards improving the state of the environment as well as people's lives.

# ABOUT GAIA

GAIA was founded in 2010 in Plemetina, a village situated next to Kosovo's coal power plants. It registered as a non-governmental organization in June 2010 in Prishtina, Kosovo. In 2014 GAIA became the official branch of Service Civil International, one of the oldest peace organizations, which organizes diverse volunteer programs all around the world. Since then, together with different local partners, more than 30 international volunteer workcamps have been organized in which more than 300 international and local volunteers participated. Besides workcamps, GAIA has been organizing campaigns, educational events (trainings, workshops, seminars) and youth exchanges on the topic of nature conservation, climate change, reconciliation, rights of minorities, national identity and permaculture.

GAIA is dedicated to the culture of peace, social and environmental justice and sustainable living. The main activities of GAIA are international volunteer programs, non-formal education and permanent community building programs, in places which are facing different social or environmental challenges.

In all programs we host long-term volunteers either through European Solidarity Corps or other programs such as French Service Civique and German Weltwärts. GAIA also supports young people from Kosovo to take part in long and short term volunteering programs abroad. GAIA has around 30 members from different communities and ethnic groups from all around Kosovo and the Balkans.

In 2019 GAIA operates within 4 programs:

1. Permaculture program in Bozevce
2. Educational program in Gracanica's Roma mahalla, called "Imaginatorium"
3. Peace-building program in Mitrovica
4. Climate change program

Climate 4 Change is a one-year long project supported by KCSF and Norwegian Embassy in Kosovo. The project is addressing the biggest challenge of our civilization, climate change.

The goal of the project is to increase awareness and knowledge about climate change, moral responsibility for decision-making and environmental activism, on different levels, targeting leverage points for change in the approach, attitude and values. The project is envisioned as a series of educational and informational activities in different communities around Kosovo, mainly with young people whose future depends on our success in reducing the impacts of climate change. Besides awareness and knowledge-raising activities, numerous tree planting actions took place in Autumn, while in December 2019 during the UNFCCC talks in Spain, Climate Action Day was organized in Prishtina together with partners and activists.

# ABOUT SERVICE CIVIL INTERNATIONAL (SCI)

SCI was created in 1920 to respond to such challenges: war, destruction, injustice and violence. In the last 100 years of commitment to building peace and promoting a culture of peace, SCI has reacted to post-war situations, natural catastrophes, ecological and social challenges.

Today climate change is for us what World War I was to Pierre Ceresole in the early 20th century: it presents a growing threat to peace, nonviolence and human rights and survival of humanity. The climate is changing rapidly around the planet and this change is without question caused by humans. Our fossil-fuel based economy and culture of consumerism is contributing significantly to this process.

Communities are already suffering from violence due to climate change related events. Syria and Somalia are at the front-line as droughts and famine driven by the changing natural conditions contribute to civil unrest. We are expecting 150 million climate refugees to leave their homes by 2050. Climate change related events contribute to destabilisation of governments and social cohesion in countries already struggling with a variety of other challenges. Moreover, the consequences of our actions today will be borne by the future generations.

All this means that if we are serious and committed about living SCI's mission and values in a meaningful way, we have to answer the call for climate justice! This is especially important since the call is often coming from the impacted communities in the countries where SCI and its partners are active. SCI branches and activists are working towards the new fossil fuel free, climate resilient future already. SCI supports the impacted and frontline communities with workcamps and educational activities bringing real change back to our local communities. We want to recognize them and also to multiply their ideas and ideals until they become standard.

# RESOURCES AND RECOMMENDED READINGS

Here you can find links for some of the most relevant web-sites, reports, strategies and articles related to climate change problems and solutions.

## **Ecological footprint calculator**

<https://www.footprintcalculator.org>

## **Fridays for future**

<https://www.fridaysforfuture.org>

## **Global Ecovillage Network Europe**

<https://gen-europe.org>

## **Save the Blue heart campaign**

<https://www.balkanrivers.net>

## **Service Civil International**

<https://sci.ngo/what-we-do/climate-justice-campaign>

## **IPCC reports**

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

## **Energy Community Treaty**

<https://www.energy-community.org> > legal > treaty

## **EU climate action policy**

[https://ec.europa.eu/clima/policies/eu-climate-action\\_en](https://ec.europa.eu/clima/policies/eu-climate-action_en)

## **2020 Climate & energy package**

[https://ec.europa.eu/clima/policies/strategies/2020\\_en](https://ec.europa.eu/clima/policies/strategies/2020_en)

## **2030 Climate & energy framework**

[https://ec.europa.eu/clima/policies/strategies/2030\\_en](https://ec.europa.eu/clima/policies/strategies/2030_en)

**United Nations Framework Convention on Climate Change**

<https://unfccc.int>

**Climate Risk Profile: Kosovo**

<https://www.climatelinks.org/resources/climate-change-risk-profile-kosovo>

**National Climate Change Strategy 2019 - 2028**

[https://konsultimet.rks-gov.net/Storage/Consultations/14-13-59-04102018/Climate%20Change%20Strategy%20and%20Action%20Plan\\_sep\\_2018.pdf](https://konsultimet.rks-gov.net/Storage/Consultations/14-13-59-04102018/Climate%20Change%20Strategy%20and%20Action%20Plan_sep_2018.pdf)

**'Kosovo's Potential for Renewable Energy Production: An Analysis', Dije Rizvanolli**

[https://essay.utwente.nl/79555/1/Rizvanolli\\_MA\\_BMS.pdf](https://essay.utwente.nl/79555/1/Rizvanolli_MA_BMS.pdf)

**'Kosova e Re lignite power plant', Kosovo, Bankwatch**

<https://bankwatch.org/project/kosova-e-re-lignite-power-plant-kosovo>

**'Climate Change and Violent Conflict: A critical literature review', Elen Messer, Oxfam America**

<http://bit.ly/oxfam-cc-conflicts>

**Climate for Peace toolkit: how to organize sustainable workcamps**

[https://issuu.com/sciint/docs/c4p\\_toolkit](https://issuu.com/sciint/docs/c4p_toolkit)

**Climate change: Big lifestyle changes are the only answer**

<https://www.bbc.com/news/science-environment-49997755>

**Effectively engaging with climate skeptics**

<https://serc.carleton.edu/NAGTWorkshops/oceanography/activities/72558.html>

**Ecosystem-based Adaptation: A natural response to climate change, IUCN, 2009**

[http://cmsdata.iucn.org/downloads/iucn\\_eba\\_brochure.pdf](http://cmsdata.iucn.org/downloads/iucn_eba_brochure.pdf)

**'Energy Community finds distortions of state aid rules regarding Kosova e Re power plant', Vladimir Spasic**

<https://balkangreenenergynews.com/energy-community-finds-distortions-of-state-aid-rules-regarding-kosova-e-re-power-plant/>

**EU emissions trading: 5 reasons to scrap the ETS**

<https://corporateeurope.org/en/environment/2015/10/eu-emissions-trading-5-reasons-scrap-ets>

**Friends of the Earth attacks carbon trading**

<https://www.theguardian.com/environment/2009/nov/05/friends-of-the-earth-attacks-carbon-trading>

**Overview of Community Supported Agriculture in Europe, European CSA research group**

<https://urgenci.net/wp-content/uploads/2016/05/Overview-of-Community-Supported-Agriculture-in-Europe.pdf>

**'My environmentalism will be intersectional or it will be bullshit', Adam Ramsay, Open Democracy**

<http://opendemocracy.net/ourkingdom/adam-ramsay/my-environmentalism-will-beintersectional-or-it-will-be-bullshit>

**Scientists Reach 100% Consensus on Anthropogenic Global Warming, James Powell**

<https://journals.sagepub.com/doi/10.1177/0270467619886266>

**"The global tree restoration potential" Jean-Francois Bastin, Yelena Finegold, Claude Garcia, Danilo Mollicone, Marcelo Rezende, Devin Routh, Constantin M. Zohner, Thomas W. Crowther**

<https://science.sciencemag.org/content/365/6448/76>

**'Why global water shortages pose threat of terror and war', Suzanne Goldenberg, The Guardian**

<http://bit.ly/theguardian-water-shortages-terror-war>

# IMPORTANT DEFINITIONS

## **Adaptation**

"Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities."

<http://bit.ly/ipcc-glossary-ad>

## **Biodiversity**

"Biodiversity (biological diversity) is the variation of life forms within a given ecosystem, biome, or for the entire Earth. Biodiversity is often used as a measure of the health of biological systems. The biodiversity found on Earth today consists of many millions of distinct biological species, which is the product of nearly 3.5 billion years of evolution."

<http://bit.ly/glossary-biodiversity-ecounesco>

## **Carbon footprint**

"A carbon footprint is 'the total set of greenhouse gas (GHG) emissions caused by an organization, event or product'. For simplicity of reporting, it is often expressed in terms of the amount of carbon dioxide, or its equivalent of other GHGs, emitted."

[http://en.wikipedia.org/wiki/Carbon\\_footprint](http://en.wikipedia.org/wiki/Carbon_footprint)

## **Carbon market**

"A popular but misleading term for a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called 'carbon-dioxide equivalents'."

<http://bit.ly/unfccc-int-glossary>

## **Carbon Offsetting**

"A carbon offset is a financial instrument aimed at a reduction in greenhouse gas emissions. Carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO<sub>2</sub>e) and may represent six primary categories of greenhouse gases. One

carbon offset represents the reduction of one metric ton of carbon dioxide or its equivalent in other greenhouse gases."

[http://en.wikipedia.org/wiki/Carbon\\_offset](http://en.wikipedia.org/wiki/Carbon_offset)

## **Consensus**

"Consensus is defined in English as, firstly, general agreement and, secondly, group solidarity of belief or sentiment. A close equivalent phrase might be the 'collective agreement' of a group, keeping in mind that a high degree of variation is still possible among individuals, and certainly if there must be individual commitment to follow up the decision with action, this variation remains important."

## **Conservation biology**

"Conservation biology is the scientific study of the nature and status of Earth's biodiversity with the aim of protecting species, their habitats, and ecosystems from excessive rates of extinction. It is an interdisciplinary subject drawing on sciences, economics, and the practice of natural resource management."

[http://en.wikipedia.org/wiki/Conservation\\_biology](http://en.wikipedia.org/wiki/Conservation_biology)

## **Conference of the Parties (COP)**

"The supreme body of the UNFCCC (see later). It currently meets once a year to review the Convention's progress. The word 'conference' is not used here in the sense of 'meeting' but rather of 'association,' which explains the seemingly redundant expression 'fourth session of the Conference of the Parties.'"

<http://bit.ly/unfccc-int-glossary>

## **Direct action**

"Direct action is politically motivated activity undertaken by individuals, groups, or governments to achieve political goals outside of normal social/political channels. Direct action can include nonviolent and violent activities which target persons, groups, or property deemed offensive to the direct action participant."

[http://en.wikipedia.org/wiki/Direct\\_action](http://en.wikipedia.org/wiki/Direct_action)

## **Ecological footprint**

"The ecological footprint is a measure of human demand on the Earth's ecosystems. It compares human demand with planet Earth's ecological capacity to regenerate. It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste."

[http://en.wikipedia.org/wiki/Ecological\\_footprint](http://en.wikipedia.org/wiki/Ecological_footprint)

## Ecology

“Ecology is the interdisciplinary scientific study of the interactions between organisms and their environment. Ecology is also the study of ecosystems. Since ecology refers to any form of biodiversity, ecologists can conduct research on the smallest bacteria to the global flux of atmospheric gases that are regulated by photosynthesis and respiration as organisms breath in and out of the biosphere. Ecology is a recent discipline that emerged from the natural sciences in the late 19th century. Ecology is not synonymous with environment, environmentalism, or environmental science. Ecology is closely related to the disciplines of physiology, evolution, genetics and behavior.”

<http://en.wikipedia.org/wiki/Ecology>

## Ecosystem

“Ecosystems describe the web or network of relations among organisms at different scales of organization.”

<http://bit.ly/glossary-ecosystem>

## Ecosystem services

“Humankind benefits from a multitude of resources and processes that are supplied by natural ecosystems. Collectively, these benefits are known as ecosystem services and include products like clean drinking water and processes such as the decomposition of wastes.”

[http://en.wikipedia.org/wiki/Ecosystem\\_services](http://en.wikipedia.org/wiki/Ecosystem_services)

## Energy Community

“The Energy Community, also referred to in the past as the Energy Community of South East Europe is an international organisation established between the European Union (EU) and a number of third countries to extend the EU internal energy market to Southeast Europe and beyond.”

[https://en.wikipedia.org/wiki/Energy\\_Community](https://en.wikipedia.org/wiki/Energy_Community)

## Environmental justice

“Environmental justice (EJ) refers to inequitable environmental burdens borne by groups such as racial minorities, residents of economically disadvantaged areas, or residents of nations in the Global South.

“Environmental justice proponents generally view the environment as encompassing ‘where we live, work, and play’ (sometimes ‘pray’ and ‘learn’ are also included) and seek to redress inequitable distributions of environmental burdens (pollution, industrial facilities, crime, etc.) and equitably distribute access to environmental goods such as nutritious food, clean air and water, parks, recreation, health care,

education, transportation, safe jobs, etc. Self-determination and participation in decision-making are key components of environmental justice.”

[http://en.wikipedia.org/wiki/Environmental\\_justice](http://en.wikipedia.org/wiki/Environmental_justice)

## Environmental protection

“Environmental protection is a practice of protecting the environment, on individual, organisational or governmental level, for the benefit of the natural environment and (or) humans.”

[http://en.wikipedia.org/wiki/Environmental\\_protection](http://en.wikipedia.org/wiki/Environmental_protection)

## Environmental refugee

Environmental refugees are people who have been forced to leave their traditional habitat, temporarily or permanently, because of marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life.

GAIA hypothesis

“The Gaia hypothesis is an ecological hypothesis proposing that the biosphere and the physical components of the Earth (atmosphere, cryosphere, hydrosphere and lithosphere) are closely integrated to form a complex interacting system that maintains the climatic and biogeochemical conditions on Earth in a preferred homeostasis. The hypothesis is frequently described as viewing the Earth as a single organism.”

<http://bit.ly/glossary-gaia>

## Greenhouse effect

“The greenhouse effect is a process by which thermal radiation from a planetary surface is absorbed by atmospheric greenhouse gases and therefore is kept within the atmosphere, heating the planet. Earth’s natural greenhouse effect makes life as we know it possible. However, human activities, primarily the burning of fossil fuels and clearing of forests, have intensified the natural greenhouse effect, causing global warming, also called anthropogenic global warming.”

[http://en.wikipedia.org/wiki/Greenhouse\\_effect](http://en.wikipedia.org/wiki/Greenhouse_effect)

## Greenhouse gases (GHG)

“The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). Less prevalent – but very powerful – greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>).”

<http://bit.ly/unfccc-int-glossary>

## **Intergovernmental Panel on Climate Change (IPCC)**

“Established in 1988 by the World Meteorological Organization and the UN Environment Programme, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC is independent of the Convention.”

<http://bit.ly/unfccc-int-glossary>

## **Kyoto Protocol**

“The first major attempt to address climate change by the UNFCCC resulted in the Kyoto Protocol. Negotiated in 1997, it set binding targets to reduce GHG emissions an average of 5.2% below 1990 levels by 2012. One hundred eighty-three countries, not including the U.S. ratified the Kyoto Protocol. It entered force in February 2005 and participating countries are meeting reduction targets in the first compliance period, which runs 2008–2012. The Protocol categorized countries into three groups dependent on their ability to reduce emissions.”

[bit.ly/glossary-kyoto-protocol](http://bit.ly/glossary-kyoto-protocol)

## **Mitigation**

“In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other ‘sinks’ to remove greater amounts of carbon dioxide from the atmosphere.”

<http://bit.ly/unfccc-int-glossary>

## **Nonviolence**

Nonviolence broadly describes a range of learned interactions between people and is central to peaceful conflict solution. As a philosophical and strategical approach to conflicts, it offers diverse methods of working against injustice and oppression. These range from economic boycotts, to strikes and protest and persuasion. Gene Sharp famously made a series of books listing 198 nonviolent methods. In comparison to violent conflict resolution methods these lead to faster and more sustainable solutions with a lower amount of casualties and higher public support.

## **Nonviolent direct actions**

“Nonviolent direct action (NVDA) is any form of direct action that does not rely on violent tactics. Mohandas Gandhi’s teachings of Satyagraha (or truth force) have inspired many practitioners of nonviolent direct action, although the use of nonviolence does not always imply an ideological commitment to pacifism.”

[http://en.wikipedia.org/wiki/Direct\\_action](http://en.wikipedia.org/wiki/Direct_action)

## **Paris Agreement**

“The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, signed in 2016. The Paris Agreement’s long-term temperature goal is to keep the increase in global average temperature to well below 2 °C above pre-industrial levels; and to pursue efforts to limit the increase to 1.5 °C, recognizing that this would substantially reduce the risks and impacts of climate change.”

[https://en.wikipedia.org/wiki/Paris\\_Agreement](https://en.wikipedia.org/wiki/Paris_Agreement)

## **Sustainable development**

“Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for future generations. The field of sustainable development can be conceptually broken into three constituent parts: environmental, economic and sociopolitical sustainability.”

<http://nrg4sd.org/sustainable-development>

## **Sustainable living**

Sustainable living is a lifestyle that focuses on lower consumption and usage of resources both by individuals as well as societies to ensure that no resource is used faster than it can regenerate. This encompasses all of our lives activities including choices regarding transportation, energy usage, food diet, and housing.

## **UNFCCC**

“The United Nations Framework Convention on Climate Change is an international environmental treaty (currently the only international climate policy venue with broad legitimacy, due in part to its virtually universal membership) negotiated at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro from 3 to 14 June 1992. The objective of the treaty is to ‘stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system’.”

<http://bit.ly/wikipedia-unfccc>

[WWW.NORWAY.NO/EN/KOSOVO/](http://WWW.NORWAY.NO/EN/KOSOVO/)

[WWW.KCSFOUNDATION.ORG/](http://WWW.KCSFOUNDATION.ORG/)

[WWW.GALAKOSOVO.ORG](http://WWW.GALAKOSOVO.ORG)

This grant is supported by the 'Civil Society programme for Albania and Kosovo', financed by the Norwegian Ministry of Foreign Affairs and managed by Kosovar Civil Society Foundation (KCSF) in partnership with Partners Albania for Change and Development (PA). The content and recommendations do not represent the official position of the Norwegian Ministry of Foreign Affairs and Kosovar Civil Society Foundation (KCSF).



Norwegian Embassy



**KCSF**

FONDACIONE KOSOVARE PER SHQETERHEMBRE  
KOSOVAR CIVIL SOCIETY FOUNDATION