This poster series has been developed for the Asia-Pacific region. Due to its geographic spread, the Asia-Pacific region covers virtually all the world's climate zones but the polar zone. Thus, climate risks and impacts are presented in a global manner, without explicitly breaking them down to a specific climate zone. Due to the interconnectedness and cross-cutting nature, none of the posters and videos in this series can adequately convey the complexity of climate change, as well as its causes and effects by itself. However, when taken together, these materials aim to provide a good overview, providing a basic understanding of the issue from a range of perspectives.
International cooperation is key to successful climate change mitigation and adaptation.

Due to the global scale of climate change, effective climate action requires close and continuous international cooperation.

Emissions reduction targets can only be achieved if people of all regions on Earth work together.

Rich countries are largely responsible for inducing climate change and have a responsibility to support poor countries in climate change mitigation and adaptation.

The UN is coordinating climate action across the globe, most notably through the United Nations Framework Conventions on Climate Change (UNFCCC).

However, almost all UN sectors are addressing climate change and sustainability in one way or another. In Asia-Pacific, the ‘Building Resilience’ and ‘Climate Change Mitigation and Air Pollution’ issue-based coalitions under the UN regional collaborative platform are jointly working towards improving climate literacy through this poster series.
CLIMATE JUSTICE

Without climate justice we risk growing inequalities and even conflict.

The impacts of climate change affect the world's peoples in diverse and inequitable ways.

The poor for instance are more affected than the rich. Women are more affected than men.

The elderly are more vulnerable to health impacts, and younger generations will live through more frequent and worsening climate impacts than older generations.

Climate justice considers these differences, looking at climate impacts from a human rights perspective.

As such, it aims to balance both cost and potential benefits across regions, countries, age groups and genders.

Without a focus on climate justice and the ethical dimensions of climate change, we will see inequalities rise, and we risk increased conflict within and between nations.

DID YOU KNOW?

Global warming of 2 °C would put over half of Africa's population at risk of undernourishment.
Climate change is accelerating the degradation of land-based ecosystems across the world.

**DID YOU KNOW?**

More than a quarter of global species are currently threatened with extinction.

**Climate change is strongly affecting life on land.**

It is accelerating biodiversity loss, land degradation and desertification, which are contributing to the disruption of the human life-support system.

Climate change and land degradation are among the biggest destructors of land-based ecosystems and biodiversity.

Habitat encroachment, deforestation, overharvesting of timber, and cattle farming lead to significant greenhouse gas emissions and directly impact life on land.

Sustainable land management practices including for agriculture, land conservation and restoration, and science-based management of forests and agroecosystems, can contribute to climate change mitigation and adaptation on a major scale.
Oceans regulate Earth’s climate and are impacted by climate change.

The Great Barrier Reef has lost 50% of its corals within the last few decades.

The ocean is one of the drivers of the climate system. Climate change is affecting coastal and marine life.

Climate changes include sea level rise, increasing temperature and acidity, decreasing oxygenation, as well as changes to oceanic chemistry and ocean currents.

Other man-made factors, such as unsustainable fishing practices and marine pollution, are worsening this process. This leads to the degradation of entire ecosystems, like algal- and coral reefs, mangrove forests, salt marshes, seagrass beds and others.

However, the ocean and coastal zones provide multiple powerful opportunities to mitigate and adapt to climate change, such as through offshore renewable energy, emission reductions of marine vessels, sustainable fishing practices, restoration of ecosystems and establishment of protected areas.
Despite international commitments, the climate crisis continues.

The first major international efforts to abate climate change are often linked to the 1992 Earth Summit in Rio de Janeiro. It was the birthplace of the United Nations Framework Convention on Climate Change (UNFCCC), the key international mechanism for climate action.

The 2015 Paris Agreement was established to limit climate change to well below 2 degrees Celsius, and preferably to 1.5 degrees Celsius, requiring zero net emissions by 2050.

While almost all countries of the world have ratified the UNFCCC and the Paris Agreement, current emissions trajectories and commitments are insufficient for reaching established targets.

While many countries are already carrying out mitigation and adaptation action, more action is needed. Furthermore insufficient funding has been allocated, especially for least developed and small island developing states.

In 2009, the UNFCCC secretariat extended constituency status to admitted youth NGOs, allowing youth representatives to engage with decision-makers at the UN climate change conferences.
Consumption culture is driving fossil fuel combustion.

Consumption and production are at the core of the climate crisis, especially the consumption and production of fossil fuels.

Current largely unsustainable economic practices are degrading the environment and driving greenhouse gas emissions.

Governments can play a direct role in better regulating production, minimising associated emissions and generally decarbonising the economy.

Governments can also support education and behavioural change to shift consumption patterns.

On an individual level, especially for the well-off, responsible consumption entails reducing the personal carbon footprint, by consuming less and consuming ‘better’.

Without major changes to how we live, shop, and consume, it is unlikely that we will successfully mitigate climate change.

DID YOU KNOW?

Domestic material consumption per capita increased by more than 40% from 2000 to 2017.
CITIES AND CLIMATE CHANGE

We want to live in green and clean communities.

As centres of economic activity, due to high population density, and exacerbated by poor urban planning, cities can be especially vulnerable to climate risks, including extreme weather events and increased spread of diseases.

Urban slum dwellers and vulnerable communities are generally most at risk.

At the same time, cities are estimated to be responsible for three quarters of global emissions.

Thus, making cities and communities more sustainable is an important factor for adapting to and mitigating climate change.

A sustainable city is resilient to climate change, for example by improving water run-off, reducing built-up areas, and extending canopy cover for shade, and reduced air pollution from transport and industry.

A sustainable city is also a decarbonised city, with minimized personal vehicle dependence, functional public transport, and urban food production, powered by renewable energy.

Approximately 55% of the global population lives in cities.
CLIMATE AND EQUALITY

Climate change is compounding global inequalities.

DID YOU KNOW?

The richest 1% own 43% of the world’s wealth.

Climate change is making it harder to reduce global inequalities, both within and among countries.

This is primarily due to higher vulnerability and exposure to climate related risks linked to socio-economic factors, including income, gender, education, age, and health.

In short, those that are well-off are more resilient and thus less impacted by climate change, while those that are worse-off will be hit harder.

Within countries, support mechanisms and political commitment are necessary for those most vulnerable, especially people at the fringes of society due to poverty, age, gender, or disability.

Support mechanisms could include subsidized insurances, social housing, free healthcare, and improved disaster preparedness.

Between countries, climate finance and the transfer of resources from resource-rich to resource-poor countries is important to building resilience and to preventing the worsening of global inequality due to climate change.
IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS

CLIMATE AND INNOVATION

Innovative green technology can help us overcome the climate crisis.

DID YOU KNOW?

Renewable energy sources account for almost 1/3 of global electricity generation.

To decarbonise the economy, innovations in technology can play an important role.

By transitioning to electric technologies and renewable electricity generation, we can power vehicles, homes, and manufacturing without generating greenhouse gas emissions.

Smart city technologies can significantly increase the energy efficiency of urban services and decrease transport emissions. Further innovations may help us store carbon from the atmosphere or mitigate the effects of droughts and floods on water availability and food production.

Innovative technologies alone, however, will not solve the climate crisis.

Without major political, economic and individual change, green innovations are unlikely to be used effectively nor to their full potential.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

CLIMATE SCIENCE LITERACY
IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS
CLIMATE AND THE ECONOMY

Unmitigated climate change will lead to substantial **economic costs**.

The economic cost of doing nothing about anthropogenic climate change far outweighs the cost of limiting it through mitigation actions.

**Development gains and economic growth achieved over recent decades are now at risk due to climate change.**

While vulnerable to climate change, economic growth is also a key driver of climate change.

Uncoupling of greenhouse gas emissions from economic growth is necessary to the successful combating of climate change. Green development pathways embracing green growth, circular economy, and new clean technology are essential to achieving emission reduction targets.

The shift to a low-carbon economy not only aims to reduce emissions but should also meet the demand for decent jobs for young people to develop new industries and markets.

DID YOU KNOW? On current trajectories the world economy is set to lose almost 20% of GDP from climate change.

8 **DECENT WORK AND ECONOMIC GROWTH**
Combustion of fossil fuels is the main driver of human-induced climate change.

**DID YOU KNOW?**

Governments are still planning to produce more than double the amount of energy from fossil fuels in 2030, than the amount that would limit global warming to the Paris Agreement level of 1.5°C.

**Coal is the single biggest contributor to anthropogenic climate change.**

Next to coal, gas and oil drive up global greenhouse gas emissions.

While some emerging economies are now significantly contributing to the global emission of greenhouse gases, high-income countries are historically most responsible, and have delayed action for decades.

**Population growth and economic development across the world lead to an ever-increasing demand for energy.**

Thus, without a massive shift to comparatively clean solar, wind, water, geothermal, and kinetic energy sources, it will be impossible to reach globally agreed-upon climate change mitigation targets.

**AFFORDABLE AND CLEAN ENERGY**
Climate change increases water stress.

Climate change is leading to an increase in the frequency and severity of extreme weather events. This includes both increased precipitation leading to greater intensity of floods, and in other regions, reduced precipitation leading to longer and more severe droughts.

Both flooding and droughts negatively affect the availability of water for drinking, sanitation, hygiene and irrigation.

Thus, climate change is increasing water-stress around the globe. Clean water availability is also essential in creating hygienic conditions to reduce the spread of pandemics such as COVID-19.

Low-income communities, often already the most vulnerable to water supply threats, are the most affected.
Climate change is contributing to gender inequality.

Due to their unequal status in many societies, women, men, and children are affected by climate change in different ways.

Women and girls are more often working in sectors affected by climate change, such as agriculture, making them especially vulnerable to climate risks.

Gender inequalities are further compounded by the unequal participation of women and men in political decision making.

Climate change is increasing the likelihood of natural disasters, which can lead to an increased prevalence of gender-based violence and sexual abuse.

On the other hand, women can play a key role in the mitigation and adaptation to climate change, for example as holders of traditional knowledge, including the understanding of sustainable practices in agriculture and day to day subsistence.
CLIMATE AND EDUCATION

Education can pave the way to the world’s eventual emergence from the climate crisis.

By increasing knowledge and understanding of climate change causes and effects and by building more sustainable attitudes and behaviour, education is key to addressing climate change.

Educational systems worldwide play an important role in building an understanding of climate change, and in teaching climate change adaptation skills.

While it is part of the solution, education systems are also at risk from climate change.

Extreme weather events, such as cyclones and floods, force school closures, damage school facilities, disrupt education access and student’s attendance, and displace learners. This often leads to learning loss for those affected.

By worsening poverty, climate change also makes it harder for poor children to attend school in the first place.

DID YOU KNOW?

In 2019, 53% of young people were completing secondary school globally.
Climate change poses a significant threat to human health.

Climate change directly affects human health by reducing the ready availability of clean air, safe drinking water, sufficient and healthy food, and secure shelter.

In some regions climate change also affects health by causing an increase in heat stress and air pollution. Higher average temperatures can lead to the increased geographical spread of disease vectors, such as mosquitoes carrying Malaria and Dengue.

Climate change induced biodiversity loss and the destruction of wildlife habitat will likely lead to an increasing emergence of pandemics. The poor are the most exposed and vulnerable to health impacts and have the least access to quality health care.

Especially children that require more food, water, and air intake per kilo of body weight, are more vulnerable to malnutrition, polluted air and water.

In 2019, malaria incidence plateaued with 229 million cases worldwide, claiming some 409,000 lives.
Climate change is worsening **hunger crises** around the world.

Climate change is impacting all aspects of the food system, including food production and availability.

While in some regions growing conditions for crops may improve, such gains will in all likelihood be offset through losses elsewhere.

Notably, increases in likelihood and severity of extreme weather events affect food security and access to nutritious diets by reducing or failing crop yields, by disrupting food storage and transport, and by consequently increasing food prices.

**People that already live with hunger are the most impacted by reduced food security.**

Due to unsustainable practices, the global food system is one of the key contributors to human-induced climate change.

Therefore, SDG2 aims at building sustainable food production systems and implementing resilient agricultural practices.

**DID YOU KNOW?**

In 2020, 9.9% of the world’s population was undernourished. 820 million people suffered from the daily struggle to eat enough food.
CLIMATE AND POVERTY

The poor are most affected by climate change.

Climate change is impacting people around the world, especially the poor.

Poverty increases vulnerability and exposure to climate risks, especially for women and children.

Poverty reduces people’s adaptive capacity and climate resilience especially when facing new challenges.

This can be due, for example, to limited financial capacity and education, as well as low housing quality and high population density in vulnerable communities.

While most at risk, the poor are the least responsible for anthropogenic climate change.

Climate change has the potential to reverse progress made towards achieving SDG 1 aiming to end poverty in all its forms.

DID YOU KNOW?

In 2020, 9.5% of the world’s population lived in extreme poverty, which has risen again for the first time in the last two decades.

In 2020, 9.5% of the world’s population lived in extreme poverty, which has risen again for the first time in the last two decades.
Small Islands Developing States are among the most vulnerable countries to climate change. Did you know?

Some of the most climate change vulnerable SIDS in the Asia-Pacific region include Kiribati, Solomon Islands, Vanuatu, Maldives, Timor-Leste, and the Marshall Islands.

90% of energy caused by anthropogenic global warming has been absorbed by the oceans. This ocean warming has caused global sea levels to rise in two ways: Firstly, melting glaciers and ice sheets add large quantities of water to the oceans. Secondly, higher ocean temperatures lead to the physical expansion of water bodies worldwide.

Sea level rise is a global phenomenon but small island developing states and LDCs with large populations living near the coast are especially vulnerable as their economy, infrastructure and environment may be directly threatened. SIDS are also threatened by an increase in number and intensity of tropical cyclones that cause storm surges, coastal destruction, saltwater intrusion, failing crops and reducing freshwater availability on the islands.

In as little as a few decades, some islands may become uninhabitable.
Governments **play a key role** in climate change mitigation and adaptation.

To successfully navigate the climate crisis, we need action on all levels, from individual to global, especially to halt coal, oil, and gas consumption as soon as possible.

Governments are key actors in either facilitating or hindering climate action. Governments have a range of tools to influence the key drivers of greenhouse gas emissions.

Currently many governments subsidise fossil fuels to make energy available to the broad population. They could support and incentivise renewable energy instead, thus accelerating a green energy transition, and improve energy efficiency in households, businesses, and public services.

Clear environmental laws and their enforcement can slow down, halt, or even reverse deforestation. Strict regulations on maximum vehicle emissions will help to phase out combustion engine vehicles.

While governments are key to enabling climate action, there is a lot we need to do as individuals. Awareness raising for behavioural change and implementing changes in daily life can positively contribute to reducing greenhouse gas emissions.
We can reduce the **severity** of climate change impacts through **mitigation** and **adaptation**.

**What is climate change mitigation?**
Mitigation aims to address the key drivers of anthropogenic climate change to limit its severity and impact on life on Earth. Key to effective mitigation is the “decarbonisation” of the global economy by shifting to clean energy, stopping the burning of fossil fuels and deforestation, while increasing efforts to restore ecosystems, including forests and mangroves.

**What is climate change adaptation?**
Adaptation aims to build resilience to help us cope with the adverse impacts of climate change. Resilience is required in food and agriculture systems, in water and natural ecosystems, including coastal zones and oceans, in cities, and for infrastructure and services. Improving disaster risk management and providing adaptation finance to support poor populations and countries will further build resilience.

But even with both, effective mitigation and adaptation mechanisms in place, we need to be prepared for adverse impacts to the human life support system – and deal with loss and damage that ensues.
How climate change affects us

Climate change is compromising the human life support system.

By affecting the natural human life support system, climate change causes adverse impacts on human living. Climate change is reducing the amount of fresh water available to human-kind, especially where water is already scarce. Climate change is disrupting livelihoods and weakening food security, especially in regions with high poverty. Climate change is reducing air quality, affecting those most vulnerable due to old age, poverty, or medical conditions. Climate change is reducing biodiversity, compounding food insecurity and negative health impacts. Climate change is increasing the likelihood of extreme weather events, such as heatwaves, floods, droughts, and cyclones, leading to human displacement, injury and death. Climate change may trigger increased migration, refugee crises, and conflict over scarce resources.

While the majority of the world's peoples will increasingly experience the negative effects of climate change, some regions of the globe may also benefit, due to more precipitation or warmer temperatures.

DID YOU KNOW?

Around 1 million animal and plant species are now threatened with extinction, many within decades.

Climate Science Literacy

In support of the Sustainable Development Goals
The main anthropogenic cause for climate change is the emission of greenhouse gases. Human influence on the climate system is now an established fact. Observed warming is driven by greenhouse gas emissions caused by human activities, especially from fossil fuel burning and from land use and land cover change, including deforestation and livestock production. The global surface temperature has already increased by more than 1°C since pre-industrial times, with higher increases over land than over the ocean. Today, carbon dioxide concentrations are higher than at any point in the past 800,000 years. Many changes caused by past and future greenhouse gas emissions are irreversible, especially changes in the ocean, ice sheets and to the global sea level. Global greenhouse gas emissions continue to rise at a time when they need to be rapidly reduced to slow down climate change.
IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS

NATURAL CLIMATE VARIABILITY

Natural factors have always been causing changes to Earth’s climate.

There are many natural climate determinants, including planetary, cosmic, and solar factors. These have been shaping both ice ages and warm periods over the billions of years of Earth’s history.

Natural climate change is a slow change that takes place over tens of thousands of years, giving existing life forms time to evolve to new conditions.

The key determinant of temperature on Earth is its distance from the sun.

Over time, there are slight changes to the Earth’s orbit and tilt on its axis, as well as changes to solar patterns, changing that distance. Also, solar variations, leading to a different temporary energy output can influence the climate. Other natural factors include changes in ocean currents and surface ice changing the reflection of sunlight.

Massive volcanic eruptions and large meteor impacts can cause abrupt changes of the climate.

A change of global average temperature of only 4-6°C separate an ice age from a warm period.

DID YOU KNOW?

CLIMATE SCIENCE LITERACY
IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS
WHAT IS CLIMATE CHANGE?

The climate on earth has always been changing, but due to human activity it is currently changing at an accelerated rate.

Climate change describes long-term shifts in temperatures and weather patterns, in particular linked to human-induced changes.

Over most of the lifetime of Earth, this change has been natural, leading to ice ages and warm periods alternating over earth's history.

Historical climate can be measured by evaluating carbon deposits from rock or sediment drillings, via ice or coral samples and even by examining tree rings.

Life on earth has flourished in both, cold and warm periods, as species tend to adapt to climate change. Since the Industrial Revolution however, human activities, primarily the burning of fossil fuels and deforestation, have become the main driver of climate change. The emission of carbon dioxide and other greenhouse gases is trapping increasing amounts of heat in the earth's atmosphere and oceans. This has caused global heating at a rate well beyond the normal climate variability.

The speed of this change is beyond the natural and human capacity to cope, leading to a significant loss in biodiversity and to water, food, and energy insecurities.

DID YOU KNOW?

Earth has already warmed by more than 1 degree C compared to pre-industrial levels.
WEATHER AND CLIMATE

The **key difference** between weather and climate is **time**.

What is the difference between weather and climate?

Both weather and climate are measured via environmental parameters, including air and sea surface temperature, atmospheric pressure, precipitation, humidity and evaporation, as well as wind speed and direction.

The key difference between weather and climate is time. Weather describes the current conditions of the atmosphere: how much will it rain today, or how hot will it be tomorrow? Climate describes the long-term weather patterns of the atmosphere: what was the average temperature over the last 30 years, or how much rain can be expected in an average year?

Weather and climate are closely linked but are observed and documented over different timeframes.

As climate is defined by long-term averages, it can be predicted with some certainty. Weather, however, is difficult to predict beyond brief time periods.

DID YOU KNOW?

The longest continuous series of temperature measurements to date is the series by de Bilt in the Netherlands, which begins in 1700.