



# ESBLMUN'25 STUDY GUIDE

UNEP: Net Zero & Carbon Offsets

# United Nations Environmental Programme (UNEP)

**Agenda Item:** Net Zero & Carbon Offsets

**Committee Directors:** Arda Anıl Aktaş, Ömer Tuna Meşe

Written by; Arda Anıl Aktaş, Ömer Tuna Meşe

## Table of Contents

1. Letter from the Secretary General
2. Letter from the Chairboard
3. Introduction to the Committee
4. What Is Net Zero?
5. What Are Carbon Offsets?
6. Regional Seas Programme (1974)
7. The Destruction of the Ozone Layer
8. Important Protocols and Conventions of UNEP
  - a. The Montreal Protocol
  - b. Basel Convention
  - c. Rotterdam Convention
  - d. Stockholm Convention
  - e. Minamata Convention
9. Biodiversity
  - a. Causes of Biodiversity Loss
    - i. understanding the web of life
  - b. Overexploitation of Species
    - i. Fish and Other Aquatic Species
    - ii. Birds
    - iii. Mammals
    - iv. Amphibians
    - v. Reptiles
    - vi. Invertebrates
    - vii. Plants
  - c. Invasive Species and Their Impact
10. UNEP's Role in Biodiversity Protection
  - a. Policy Leadership & International Frameworks

- b. Scientific Assessments & Reporting
- c. Capacity Building & Technical Support
- d. Ecosystem Restoration Initiatives
- e. Advocacy & Public Engagement

**11. Climate Change**

**12. Questions To Ponder**

**13. Bibliography**

***Letter from the Secretary General***

Dear Esteemed Delegates, Respected Advisors, and Valued Staff,

It is with great pleasure, honor, and joy that I welcome you to the Eti Social Sciences High School Model United Nations Conference. As the Secretary General of ESBLMUN'25, it is both a privilege and a heartfelt responsibility to lead such a meaningful event, one that brings together bright minds and passionate voices from diverse backgrounds.

My journey through the world of Model United Nations has shaped the way I view the world. It has taught me to think critically, speak confidently, and most importantly, to care deeply about the global challenges that define our time. MUN is more than a simulation; it is a gateway to empathy, leadership, and growth. Here, your voice matters. Your ideas matter.

At ESBLMUN, our mission is to empower delegates to become confident speakers, creative thinkers, and collaborative problem-solvers. We strive to create an inclusive and dynamic platform where diplomacy meets innovation, and every debate becomes an opportunity for development.

Behind the scenes, our dedicated team has worked tirelessly to ensure a conference that is not only academically enriching but also socially unforgettable. From thought-provoking sessions to meaningful interactions, we hope every moment inspires you to explore, engage, and evolve.

Welcome to ESBLMUN'25. Let this be a conference where you challenge yourself, connect with others, and leave with new insights and lifelong memories.

With all my best wishes for an incredible experience ahead,

Warm regards,

Secretary General

Zümra Elif Dilek

## **Letter from the Chairboard**

Esteemed Delegates,

It is with great joy and honor that I welcome you all to the United Nations Environment Programme (UNEP) at ESBLMUN'25. As your Chair, I am beyond excited to embark on this meaningful journey with each of you — a journey not only of diplomacy and debate but of genuine impact on the future of our planet.

Our agenda, “Net Zero and Carbon Offsets,” is a topic that resonates deeply with me. As someone who has always cherished the natural world and has been profoundly inspired by the beauty and fragility of animals and ecosystems, I cannot overstate how crucial this conversation is — not just in the context of climate negotiations, but for the survival of countless species and the wellbeing of future generations.

In UNEP, we are entrusted with the responsibility to look beyond borders, beyond politics, and act in defense of Earth — our only home. This committee will challenge us to ask difficult questions: Are carbon offsets truly effective, or just a loophole? Can net zero targets be equitable for both developed and developing nations? And most importantly — how do we ensure that climate action today is not just performative, but transformative?

I hope this committee becomes a space of sincere collaboration, respectful dialogue, and passionate advocacy. Whether you are a seasoned delegate or this is your first conference, your voice matters here. Your solutions, your creativity, and your compassion can spark the change we so desperately need.

Let's honor the spirit of this committee by debating not just with intellect, but with heart — for the forests, for the oceans, for the animals, and for all that makes this Earth worth fighting for.

I look forward to meeting you all, and to a committee that will be both inspiring and unforgettable.

Warmest regards,

Arda Anıl Aktaş.

Distinguished Delegates,

It is a great pleasure to welcome you all to the UNEP committee of ESBLMUN'25. As your Co-Chair, I am excited to engage in meaningful discussions with you around one of the most urgent global challenges of our time: achieving net zero emissions and the role of carbon offsets. While national policies and international agreements are essential in tackling climate change, we must remember that our greatest strength lies in raising awareness. This awareness should not remain within the boundaries of governments—it must spread among communities, businesses, and individuals. Our fight for a cleaner future must be a collective one, involving all levels of society.

Climate change today is not only a political or economic issue; it is a crisis that affects every living being on this planet. From melting polar habitats threatening polar bears, to polluted oceans harming marine life, our planet's biodiversity is suffering deeply. Each decision we make and every policy we create echoes in the lives of countless species. That is why the topic of net zero and carbon offsets is not just timely—it is essential. As global temperatures continue to rise, we are forced to rethink our systems and propose innovative solutions. Offsetting emissions is not a perfect answer, but it is part of a broader path toward sustainability.

I encourage you to approach this agenda with creativity and determination. Think beyond conventional frameworks and imagine solutions that empower people while protecting ecosystems. Your ideas, no matter how small they may seem, can spark powerful change. I look forward to witnessing your contributions and debates. Together, we can prove that action starts with awareness, and awareness begins with us.

Finally, it doesn't matter how experienced you are. We need everyone's ideas and vision in our committee. Don't forget to do your best to express your creativity. Remember that one day, it was everyone's first experience. I'm eagerly looking forward to finding sustainable solutions with you and taking one more step toward changing the world. I'm sure it will be both very productive and very enjoyable for all of us.

Sincerely,

Ömer Tuna Meşe.

### **Introduction to the Committee:**

UNEP's mission is to inspire, inform, and enable nations and peoples to improve their quality of life without compromising that of future generations. For over 50 years, UNEP has worked with governments, civil society, the private sector and UN entities to address humanity's most pressing environmental challenges - from restoring the ozone layer to protecting the world's seas and promoting a green, inclusive economy.

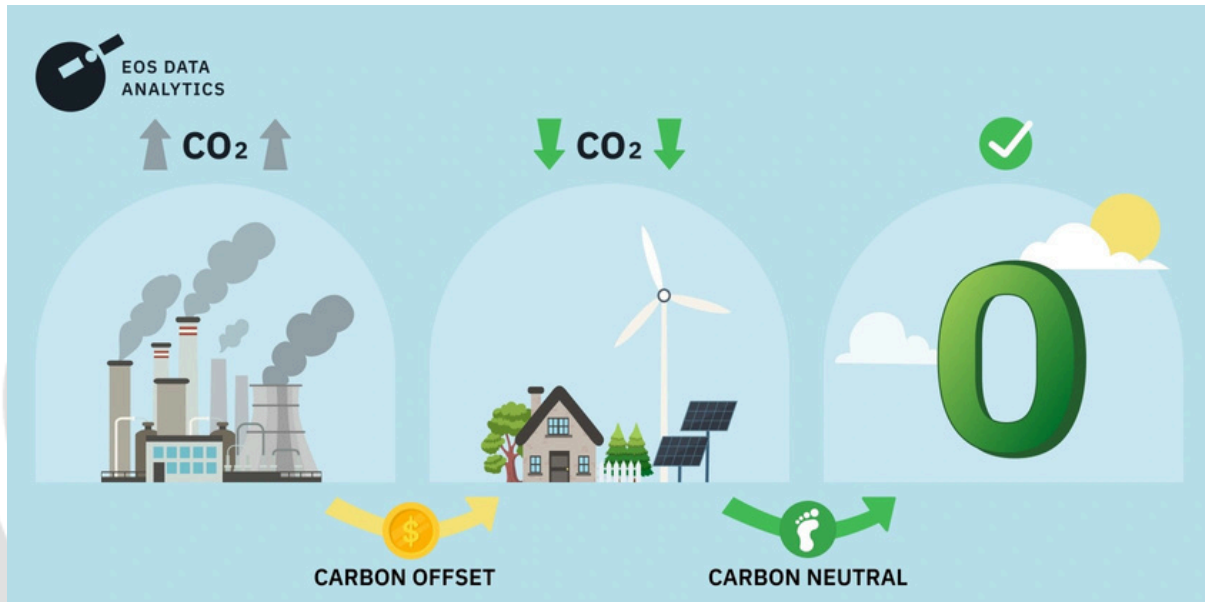
The United Nations Environmental Programme was established with one goal in mind, to unite the world and save our planet.

### **What Is Net Zero?**

Net Zero is a target of completely negating the amount of greenhouse gases produced by human activity, to be achieved by reducing emissions and implementing methods of absorbing carbon dioxide from the atmosphere.

## **What Are Carbon Offsets?**

Carbon offsetting is a trading mechanism that allows entities such as governments, individuals, or businesses to compensate for their greenhouse gas emissions by supporting projects that reduce, avoid, or remove emissions elsewhere.



## **Regional Seas Programme (1974)**

The UNEP Regional Seas Programme is UNEP's most important regional mechanism for conservation of the marine and coastal environment since its establishment in 1974. It is an action-oriented programme that implements region-specific activities, bringing together stakeholders including governments, scientific communities and civil societies. These Multilateral Environmental Agreements are governed by their own meetings of the Contracting Parties.

The Regional Seas Conventions and Action Plans (RSCAPs) provide inter-governmental frameworks to address the degradation of the oceans and seas at a regional level, initially focusing on pollution at sea, such as oil spills and movement of hazardous waste, as well as land-based sources of pollution, for example plastics, wastewater and excess nutrients. Now, many have embraced the ecosystems approach to managing marine resources and have protocols on protected areas, marine litter, combating oil spills, pollution from ships, transboundary movement of waste including their disposal, integrated coastal zone management (ICZM) and land-based sources of pollution (LBS) through which disaster reduction, climate change adaptation and sustainable consumption and production issues can be addressed. The focus is on promoting regional oceans governance to deliver the global

oceans agenda and respond to emerging issues, new policies and initiatives such as the Blue Economy.

To date, UNEP's Regional Seas Programme consists of three types of Regional Seas Conventions and Action Plans (RSCAPs), across 18 different regions:

UNEP-administered – These RSCAPs have been established and are directly administered by UNEP who provides Secretariat functions, managing of finances and technical assistance. UNEP administers 5 regional seas conventions and 2 action plans. These are: Caribbean Region, East Asian Seas, Eastern Africa Region, Mediterranean Region, North-West Pacific Region, Western Africa Region. The Regional Office for Europe administers the Tehran Convention (Caspian Sea)

Non-UNEP administered – These RSCAPs have been established under the auspices of UNEP, but another regional body provides the Secretariat and administrative functions. These are: Black Sea Region, North-East Pacific Region, Red Sea and Gulf of Aden, ROPME Sea Area, South Asian Seas, South-East Pacific Region, Pacific Region

Independent – These RSCAPs have not been established by UNEP but cooperate with the Regional Seas Programme and attend regular meetings. These are: Arctic Region, Antarctic Region, Baltic Sea, North-East Atlantic Region

### **The Destruction of the Ozone Layer**

When chlorine and bromine atoms come into contact with ozone in the stratosphere, they destroy ozone molecules. One chlorine atom can destroy over 100,000 ozone molecules before it is removed from the stratosphere. Ozone can be destroyed more quickly than it is naturally created.

Some compounds release chlorine or bromine when they are exposed to intense UV light in the stratosphere. These compounds contribute to ozone depletion, and are called ozone-depleting substances (ODS). ODS that release chlorine include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), carbon tetrachloride, and methyl chloroform. ODS that release bromine include halons and methyl bromide. Although ODS are emitted at the Earth's surface, they are eventually carried into the stratosphere in a process that can take as long as two to five years.

In the 1970s, concerns about the effects of ozone-depleting substances (ODS) on the stratospheric ozone layer prompted several countries, including the United States, to ban the use of chlorofluorocarbons (CFCs) as aerosol propellants. However, global production of

CFCs and other ODS continued to grow rapidly as new uses were found for these chemicals in refrigeration, fire suppression, foam insulation, and other applications.

Some natural processes, such as large volcanic eruptions, can have an indirect effect on ozone levels. For example, Mt. Pinatubo's 1991 eruption did not increase stratospheric chlorine concentrations, but it did produce large amounts of tiny particles called aerosols (different from consumer products also known as aerosols). These aerosols increase chlorine's effectiveness at destroying ozone. The aerosols in the stratosphere create a surface on which CFC-based chlorine can destroy ozone. However, the effect from volcanoes is short-lived.

Not all chlorine and bromine sources contribute to ozone layer depletion. For example, researchers have found that chlorine from swimming pools, industrial plants, sea salt, and volcanoes does not reach the stratosphere. In contrast, ODS are very stable and do not dissolve in rain. Thus, there are no natural processes that remove the ODS from the lower atmosphere.

One example of ozone depletion is the annual ozone "hole" over Antarctica that has occurred during the Antarctic spring since the early 1980s. This is not really a hole through the ozone layer, but rather a large area of the stratosphere with extremely low amounts of ozone.

Ozone depletion is not limited to the area over the South Pole. Research has shown that ozone depletion occurs over the latitudes that include North America, Europe, Asia, and much of Africa, Australia, and South America.

### **The Montreal Protocol**

The Montreal Protocol on Substances that Deplete the Ozone Layer is the landmark multilateral environmental agreement that regulates the production and consumption of nearly 100 man-made chemicals referred to as ozone depleting substances (ODS). When released into the atmosphere, those chemicals damage the stratospheric ozone layer, Earth's protective shield that protects humans and the environment from harmful levels of ultraviolet radiation from the sun. Adopted on 16 September 1987, the Protocol is to date one of the rare treaties to achieve universal ratification.

The Montreal Protocol phases down the consumption and production of the different ODS in a stepwise manner, with different timetables for developed and developing countries (referred to as "Article 5 countries"). Under this treaty, all parties have specific responsibilities related to the phase out of the different groups of ODS, control of ODS trade, annual reporting of data, national licensing systems to control ODS imports and exports, and other matters. Developing and developed countries have equal but differentiated responsibilities, but most importantly, both groups of countries have binding, time-targeted, and measurable commitments.

The Protocol includes provisions related to Control Measures (Article 2), Calculation of control levels (Article 3), Control of trade with non-Parties (Article 4), Special situation of developing countries (Article 5), Reporting of data (Article 7), Non-compliance (Article 8), Technical assistance (Article 10), as well as other topics. The substances controlled by the treaty are listed in Annexes A (CFCs, halons), B (other fully halogenated CFCs, carbon tetrachloride, methyl chloroform), C (HCFCs), E (methyl bromide), and F (HFCs).

The treaty evolves over time in light of new scientific, technical, and economic developments, and it continues to be amended and adjusted. The Meeting of the Parties is the governance body for the treaty, with technical support provided by an Open-ended Working Group, both of which meet on an annual basis. The Parties are assisted by the Ozone Secretariat, which is based at UN Environment Programme headquarters in Nairobi, Kenya.

## **Basel Convention**

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 and it came into force in 1992. It is the most comprehensive global environmental agreement on hazardous wastes and other wastes. With 175 Parties (as at 31 March 2011), it has nearly universal membership. The Basel Convention is an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to restrict the transfer of hazardous waste from developed to less developed countries. The Convention aims to protect human health and the environment against the adverse effects resulting from the generation, transboundary movements and management of hazardous wastes and other wastes. The Basel Convention regulates the transboundary movements of hazardous wastes and other wastes and obliges its Parties to ensure that such wastes are managed and disposed of in an environmentally sound manner. The Convention covers toxic, poisonous, explosive, corrosive, flammable, ecotoxic and infectious wastes. Parties also have an obligation to minimize the quantities that are transported, to treat and dispose of wastes as close as possible to their place of generation and to prevent or minimize the generation of wastes at source.



## **Rotterdam Convention**

The Rotterdam Convention is a multilateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply.

In 2012, the Secretariats of the Basel and Stockholm conventions, as well as the UNEP-part of the Rotterdam Convention Secretariat, merged to form a single Secretariat with a matrix structure serving the three conventions. The three conventions now hold back to back Conferences of the Parties as part of their joint synergies decisions.

The ninth meeting of the Rotterdam Conference was held from 29 April to 10 May 2019 in Geneva, Switzerland.

## **Stockholm Convention**

In 1995, the Governing Council of the United Nations Environment Programme (UNEP) called for global action to be taken on POPs, which it defined as "chemical substances that persist in the environment, bio-accumulate through the food web, and pose a risk of causing adverse effects to human health and the environment".

Following this, the Intergovernmental Forum on Chemical Safety (IFCS) and the International Programme on Chemical Safety (IPCS) prepared an assessment of the 12 worst offenders, known as the *dirty dozen*.

The INC met five times between June 1998 and December 2000 to elaborate the convention, and delegates adopted the Stockholm Convention on POPs at the Conference of the Plenipotentiaries convened from 22 to 23 May 2001 in Stockholm, Sweden. The negotiations for the convention were completed on 23 May 2001 in Stockholm. The convention entered into force on 17 May 2004 with ratification by an initial 128 parties and 151 signatories. Co-signatories agree to outlaw nine of the dirty dozen chemicals, limit the use of DDT to malaria control, and curtail inadvertent production of dioxins and furans.

Parties to the convention have agreed to a process by which persistent toxic compounds can be reviewed and added to the convention, if they meet certain criteria for persistence and transboundary threat. The first set of new chemicals to be added to the convention were agreed at a conference in Geneva on 8 May 2009.

As of September 2022, there are 186 parties to the convention (185 states and the European Union). Notable non-ratifying states include the United States, Israel, and Malaysia.

The Stockholm Convention was adopted to EU legislation in Regulation (EC) No 850/2004. In 2019, the latter was replaced by Regulation (EU) 2019/1021.

## **Minamata Convention**

The Minamata Convention on Mercury is an international treaty designed to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. The convention was a result of three years of meeting and negotiating, after which the text of the convention was approved by delegates representing close to 140 countries on 19 January 2013 in Geneva and adopted and signed later that year on 10 October 2013 at a diplomatic conference held in Kumamoto, Japan. The convention is named after the Japanese city Minamata. This naming is of symbolic importance as the city went through a devastating incident of mercury poisoning. It is expected that over the next few decades, this international agreement will enhance the reduction of mercury pollution from the targeted activities responsible for the major release of mercury to the immediate environment.

The objective of the Minamata Convention is to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. It contains, in support of this objective, provisions that relate to the entire life cycle of mercury, including controls and reductions across a range of products, processes and industries where mercury is used, released or emitted. The treaty also addresses the direct mining of mercury, its export and import, its safe storage and its disposal once as waste. Pinpointing populations at risk, boosting medical care and better training of health-care professionals in identifying and treating mercury-related effects will also result from implementing the convention.

The Minamata Convention provides controls over a myriad of products containing mercury, the manufacture, import and export of which will be altogether prohibited by 2020, except where countries have requested an exemption for an initial 5-year period. These products include certain types of batteries, compact fluorescent lamps, relays, soaps and cosmetics, thermometers, and blood pressure devices. Dental fillings which use mercury amalgam are also regulated under the convention, and their use must be phased down through a number of measures.

## BIODIVERSITY



Our planet is at a crossroads; in the web of life, every living thing is reliant on the other. So, as habitat degradation, pollution and climate change intensify and we see biodiversity break down. The links that enable life disappear. Threatening us all, as all living organisms on our planet. To tackle these challenges head-on, countries across the globe have adopted the Kunming-Montreal Global Biodiversity Framework. A transformative roadmap towards a more sustainable and resilient future. It recognizes that biodiversity is not just an environmental issue. It is a linchpin for achieving the Sustainable Development Goals. It ensures we have fertile soil and a variety of foods to eat. It helps regulate our climate through carbon storage. It provides us with clean air and water. And it is a place for all living creatures, not just for us. Every government, every business, every investor and every individual must do what they can: to protect and restore nature, to address climate change and to massively reduce pollution and waste. UNEP is building alliances to join everyone together in true collective action and end to the triple planetary crisis once and for all. Together, we will safeguard a strong and thriving environment and future.

### a. Causes of Biodiversity Loss

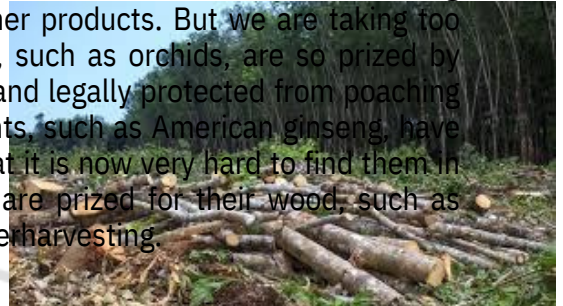


- i. *We share our planet with millions of species of plants and animals - a wondrous variety of wildlife that enriches our lives in so many ways. This complex web of life provides the natural systems we depend on – giving us essentials like water, clean air, fertile soils and a stable climate. It gives us food, medicines and materials, and supports millions of jobs. It also inspires people around the world – making our lives richer in all sorts of ways. But our planet’s wildlife is in crisis – numbers have fallen by more than half since 1970, and species are going extinct at an alarming rate. We need to reverse this loss of nature and create a future where wildlife and people thrive again.*

## b. Overexploitation of Species

- i. *Fish and Other Aquatic Species:* As fishing gear and boats have improved, the fishing industry has become very efficient at harvesting fish and shellfish. The industrialization of the fishing industry and the increasing global demand for seafood have people taking more fish from oceans, lakes and rivers than is sustainable. Prized fish, such as swordfish, cod and tuna, have undergone dramatic declines. In the Great Lakes, overfishing has caused whitefish, walleye, and sturgeon populations to decline. Beyond their role in the food supply, freshwater and marine fish are also trapped for the aquarium trade and fished for sport.
- ii. *Birds:* Certain species of birds are collected or hunted for sport, food, and the cage-bird pet trade (parrots and songbirds are prized as pets). Millions of birds are traded internationally each year. Close to 30 percent of globally threatened birds are affected by overexploitation, particularly parrots, pigeons, and pheasants. The Carolina parakeet was once the only species of parrot in the U.S., but it was hunted to extinction early in the last century for food, to protect crops and for its feathers (which adorned ladies' hats).
- iii. *Mammals:* People have always hunted mammal species—for fur, food, sport, and for their horns or antlers. Mammals are also trapped for the pet trade, zoos, and biomedical research. Today illegal hunting still threatens many species, especially large mammals such as tigers, rhinoceros, bears, and primates, whose body parts are highly valued in some parts of the world for traditional medicine.
- iv. *Amphibians:* Members of the amphibian class are collected and shipped all over the world for the pet trade, medicine, education (frogs are dissected in many biology classes), scientific research, and for food (frog legs are a delicacy in many parts of the world). The California red-legged frog, now a federally protected endangered species, was over hunted for food and its numbers seriously depleted during the Gold Rush in the area around San Francisco.
- v. *Reptiles:* Wanted for their skins or shells, their eggs, meat, and for the pet trade, reptiles are harvested and traded around the world. Overharvesting of the Kemp's ridley sea turtle's eggs nearly led to its extinction, and today it is still an endangered species. In the U.S., box turtles are being collected at unsustainable levels for the overseas pet trade. Some reptile skins—such as crocodile, python, and monitor lizard—are highly prized as exotic leathers.
- vi. *Invertebrates:* At least 75 percent of all known animal species are invertebrates. Insects, oysters, octopus, crayfish, sea stars, scorpions, crabs, and sponges are all kinds of this animal class. Today many invertebrates—particularly marine invertebrates—are at risk from overharvesting. Chesapeake Bay oysters, once an important part of the Bay economy, are now in decline. Horseshoe crabs, whose eggs provide food for migratory birds, fish and other organisms, are being harvested as bait for eel

- and whelk fishing. Octopus are suffering declines worldwide due to heavy fishing pressure. Shells and corals are collected for ornaments and jewelry.
- vii. *Plants*: The Earth's plants are vital to our survival and are the foundation of most ecosystems. People harvest plants for food, medicine, building materials, and raw materials to make other products. But we are taking too many plants from the wild. Some plants, such as orchids, are so prized by collectors that they are now endangered and legally protected from poaching by international law. Some medicinal plants, such as American ginseng, have also been so enthusiastically collected that it is now very hard to find them in the wild. A number of tree species that are prized for their wood, such as mahogany, are under threat because of overharvesting.



### c. **Invasive Species and Their Impact**

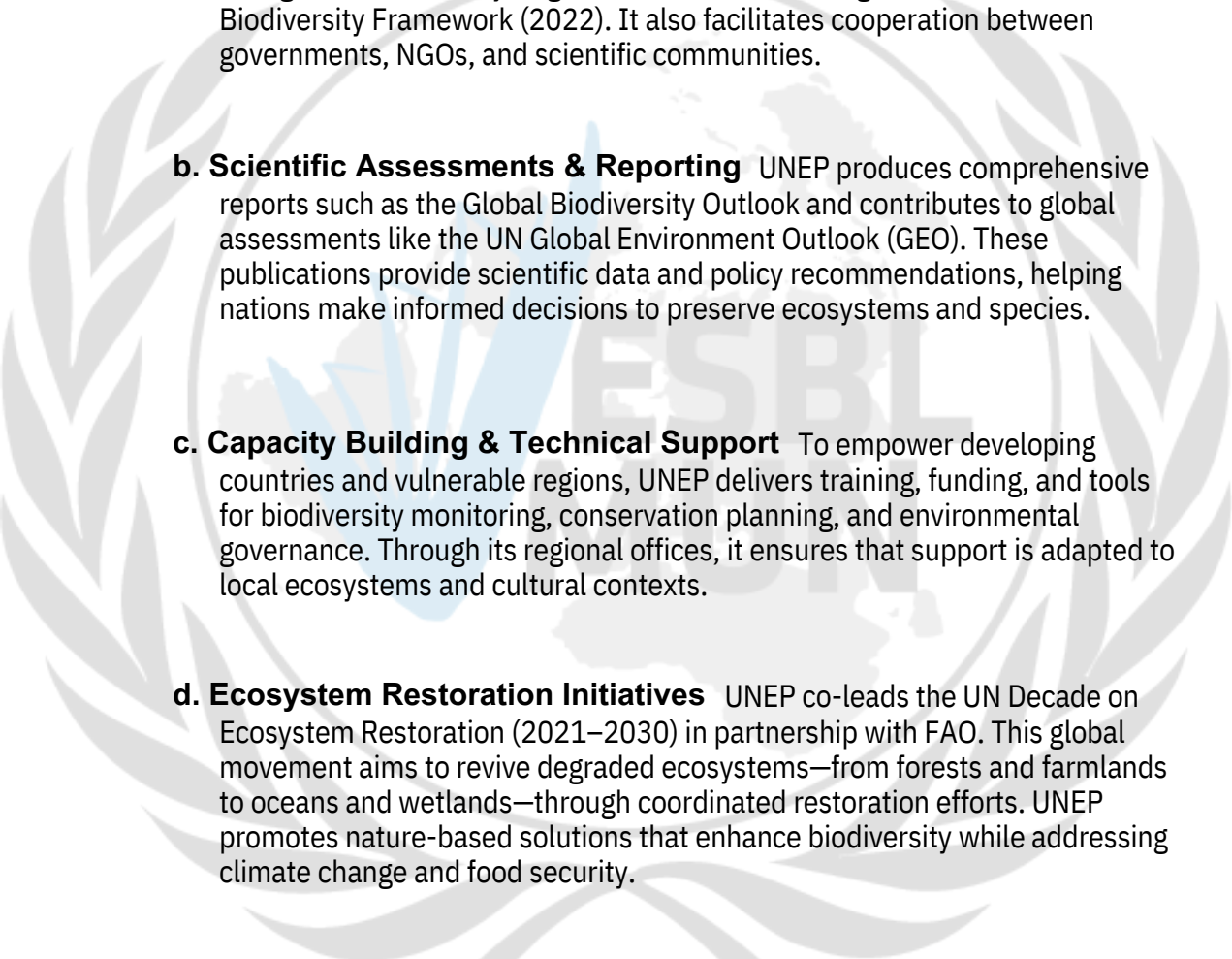
Invasive species are among the leading threats to native wildlife. Approximately 42 percent of threatened or endangered species are at risk due to invasive species. Human health and economies are also at risk from invasive species. The impacts of invasive species on our natural ecosystems and economy cost billions of dollars each year. Many of our commercial, agricultural, and recreational activities depend on healthy native



ecosystems. Invasive species cause harm to wildlife in many ways. When a new and aggressive species is introduced into an ecosystem, it may not have any natural predators or controls. It can breed and spread quickly, taking over an area. Native wildlife may not have evolved defenses against the invader, or they may not be able to compete with a species that has no predators. The direct threats of invasive species include preying on native species, outcompeting native species for food or other resources, causing or carrying disease, and preventing native species from reproducing or killing a native species' young. There are indirect threats of invasive species as well. Invasive species can change the food web in an ecosystem by destroying or replacing native food sources. The invasive species may provide little to no food value for wildlife. Invasive species can also alter the abundance or diversity of species that are important habitats for native wildlife. Aggressive plant species like kudzu can quickly replace a diverse ecosystem with a monoculture of just kudzu. Additionally, some invasive species are capable of changing the conditions in an ecosystem, such as changing soil chemistry or the intensity of wildfires.

## UNEP's Role in Biodiversity Protection

The United Nations Environment Programme (UNEP) plays a central role in global efforts to protect biodiversity. As the leading environmental authority within the UN system, UNEP works to assess global environmental conditions, develop international environmental law, and support countries in meeting biodiversity-related commitments.

- 
- a. Policy Leadership & International Frameworks** UNEP supports the development and implementation of key international biodiversity agreements, most notably the Convention on Biological Diversity (CBD). UNEP provides technical assistance and helps member states align their national strategies with global biodiversity targets, such as the Kunming-Montreal Global Biodiversity Framework (2022). It also facilitates cooperation between governments, NGOs, and scientific communities.
  - b. Scientific Assessments & Reporting** UNEP produces comprehensive reports such as the Global Biodiversity Outlook and contributes to global assessments like the UN Global Environment Outlook (GEO). These publications provide scientific data and policy recommendations, helping nations make informed decisions to preserve ecosystems and species.
  - c. Capacity Building & Technical Support** To empower developing countries and vulnerable regions, UNEP delivers training, funding, and tools for biodiversity monitoring, conservation planning, and environmental governance. Through its regional offices, it ensures that support is adapted to local ecosystems and cultural contexts.
  - d. Ecosystem Restoration Initiatives** UNEP co-leads the UN Decade on Ecosystem Restoration (2021–2030) in partnership with FAO. This global movement aims to revive degraded ecosystems—from forests and farmlands to oceans and wetlands—through coordinated restoration efforts. UNEP promotes nature-based solutions that enhance biodiversity while addressing climate change and food security.
  - e. Advocacy & Public Engagement** UNEP raises global awareness about biodiversity through campaigns such as World Environment Day and initiatives targeting youth, indigenous communities, and civil society. It promotes the idea that biodiversity is not just a conservation issue, but a foundation of sustainable development and human well-being.

## Climate Change

Climate change affects every corner of our planet – from the poles to the tropics, and from the mountains to the oceans. People and nature worldwide are already feeling the effects: water supplies are shrinking, extreme weather events are increasing in frequency and intensity, forests burning, and coral reefs dying. Governments, companies, cities and communities are coming together to act. We can still escape the worst impacts of climate change, and build a safer future for all. But we need to do more, and faster. Most importantly, we need to step up efforts to switch from using fossil fuels – the biggest cause of climate change – to clean, renewable energy. And we need to help people and nature adapt to the inevitable changes ahead.

The planet's average surface temperature has risen about 2 degrees Fahrenheit (1 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide emissions into the atmosphere and other human activities. Most of the warming occurred in the past 40 years, with the seven most recent years being the warmest. The years 2016 and 2020 are tied for the warmest year on record.

The ocean has absorbed much of this increased heat, with the top 100 meters (about 328 feet) of ocean showing warming of 0.67 degrees Fahrenheit (0.33 degrees Celsius) since 1969.6 Earth stores 90% of the extra energy in the ocean.

The Greenland and Antarctic ice sheets have decreased in mass. Data from NASA's Gravity Recovery and Climate Experiment show Greenland lost an average of 279 billion tons of ice per year between 1993 and 2019, while Antarctica lost about 148 billion tons of ice per year.

Glaciers are retreating almost everywhere around the world – including in the Alps, Himalayas, Andes, Rockies, Alaska, and Africa.

Satellite observations reveal that the amount of spring snow cover in the Northern Hemisphere has decreased over the past five decades and the snow is melting earlier.

Global sea level rose about 8 inches (20 centimeters) in the last century. The rate in the last two decades, however, is nearly double that of the last century and accelerating slightly every year.

Both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades.

The number of record high temperature events in the United States has been increasing, while the number of record low temperature events has been decreasing, since 1950. The U.S. has also witnessed increasing numbers of intense rainfall events.

Since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30%. This increase is due to humans emitting more carbon dioxide into the atmosphere and hence more being absorbed into the ocean. The ocean has absorbed between 20% and 30% of total anthropogenic carbon dioxide emissions in recent decades (7.2 to 10.8 billion metric tons per year).

## Questions To Ponder

- What are the most pressing environmental challenges that disproportionately affect developing countries, and how can UNEP address these inequities?
- How can UNEP enhance international cooperation to ensure the successful implementation of global environmental agreements?
- In what ways can UNEP support sustainable development while balancing the economic needs of member states?
- How can technology and innovation be leveraged to combat climate change and biodiversity loss more effectively under UNEP's mandate?
- How can we ensure sustainable development that secures a better future for people without compromising the wellbeing of animals, and instead actively improves their living conditions?
- What measures should UNEP recommend to reduce the environmental impact of rapidly growing urban populations?
- How can UNEP strengthen its partnerships with non-governmental organizations, indigenous communities, and the private sector?
- What strategies can UNEP implement to increase accountability and transparency in countries' environmental reporting and commitments?
- How can UNEP better educate and involve youth in environmental protection and policy-making processes worldwide?

## **Bibliography**

<https://www.unep.org/>

<https://www.youtube.com/@UNEP>

<https://www.nwf.org/>

<https://wwf.panda.org/>

<https://www.nationalgeographic.org/>

<https://www.nasa.gov/>

<https://www.noaa.gov/>

<https://unfccc.int/>

<https://www.worldwildlife.org/>

<https://www.carbonbrief.org/>

<https://sdgs.un.org/goals>

[https://en.wikipedia.org/wiki/Main\\_Page](https://en.wikipedia.org/wiki/Main_Page)

