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UN ENVIRONMENT PROGRAMME

Ecosystem Restoration

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SPRING 2022 MODEL UN CONFERENCE

INTRODUCTION TO THE COMMITTEE: UN ENVIRONMENT PROGRAMME

The **United Nations Environment Programme (UNEP)** was established in 1972 as the UN's main agency devoted to increasing environmental education and awareness. As the global environmental authority, UNEP sets the environmental agenda and helps implement sustainable development policies. UNEP is based in Nairobi, Kenya.

UNEP's work is divided into seven thematic areas, including climate change, disasters and conflicts, ecosystem management, environmental governance, chemicals and waste, resource efficiency, and research on environmental changes. To achieve its goals in these thematic areas, UNEP connects member states, the scientific community, the private sector, civil society, and other non-governmental organizations and UN organizations through its Environmental Assembly.

Currently, UNEP is partnering with the **Food and Agriculture Organization of the United Nations (FAO)** on the **UN Decade on Ecosystem Restoration** (2021-2030) to reverse **environmental degradation** and restore ecosystems around the globe. The UN Decade aligns with the 2030 deadline for the Sustainable Development Goals, which is also the deadline scientists have identified as the last chance to prevent climate change. Therefore, the UN Decade on Restoration will provide a space for all interested parties to make their ecosystem restoration efforts a success.

STATEMENT OF THE PROBLEM

An ecosystem is a dynamic relationship between plants, animals, humans, and micro-organizations in their environment. At this point in human history, humans have become a part of most ecosystems in both positive and negative ways, so all projects involving the environment need to consider the role of human impact in the ecosystem.

Around the world, human activities are accelerating climate change and drastically deteriorating environmental systems. Environmental degradation is a result of processes that deplete resources necessary for survival, such as clean air, water, and soil. This has serious and often fatal consequences for humans, animals, and plants.

Ecosystem restoration is the process of actively assisting the recovery and restoration of ecosystems that were destroyed by human activity. In many ways, restoration is a process that prompts nature to restore itself after human intervention. For example, planting trees, removing invasive species, and altering landforms are all ways to prompt an ecosystem to return to its healthy and natural state.

Ecosystem restoration is fundamental to achieving the Sustainable Development Goals, particularly those focused on climate change, poverty eradication, food security, water, and biodiversity conservation. Therefore, the UN Decade on Ecosystem Restoration was established as a global effort to restore the planet and ensure health for both people and nature. The goal of the UN Decade is to unite the world in preventing, halting, and reversing the degradation of ecosystems worldwide. The effort focuses on forests, grasslands, croplands, wetlands, savannahs, and other terrestrial to inland water ecosystems, marine, and coastal ecosystems, and urban environments.[1]

In this committee, students will assess the causes of environmental degradation and climate change and examine how these has led to the need for ecosystem restoration. They will learn what ecosystem restoration looks like and come up with solutions to improve ecosystems around the world. To do so, students will analyze past policies and make suggestions for improvements in creating a more unified and committed response to this increasingly pressing issue.

CAUSES OF ENVIRONMENTAL DEGRADATION

Ecosystem Restoration is becoming increasingly necessary because of the effects of **climate change** and environmental degradation on the ecosystem. The two are deeply intertwined and have consequences that reinforce one another.

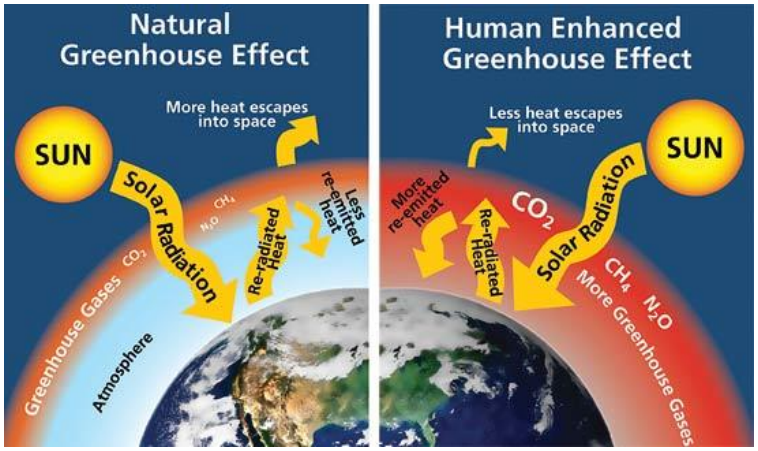

Image via Conservation in Changing Climate

The acceleration of climate change can be traced back to the **Industrial Revolution.** In the 18th and 19th centuries, **fossil fuels** were used as a source of energy to produce and manufacture goods, conduct electricity for heating and cooking, and for powering vehicles.[2] When fossil fuels are burned, they release the energy stored within them. This process releases **greenhouse gases (GHGs)** such as **carbon dioxide** into the atmosphere, contributing to air pollution and **global warming**.[3] In this process, carbon dioxide absorbs the heat that would normally be lost in space. Some of this heat is re-emitted back to Earth, causing additional heating of the planet, which is known as the **Greenhouse Effect**.[4]

[1] "UNEP/FAO Factsheet" UNEP and FAO. https://wedocs.unep.org/bitstream/handle/20.500.11822/30919/UNDecade.pdf.
[2] "Industrial Revolution" Britannica. https://www.britannica.com/explore/savingearth/industrial-revolution.
[3] "Global Greenhouse Gas Emissions Data" EPA. https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data.
[4] "How carbon causes global warming" The Guardian. https://www.theguardian.com/science/2005/jun/19/observerfocus.climatechange.

The Industrial Revolution followed an **Agricultural Revolution** that made it easier to produce larger quantities of food for an increasing population. As people moved to cities for jobs, the resulting overpopulation and urbanization led to a massive depletion of resources and natural habitats and an increase in the emission of harmful gases and pollution from industrial and agricultural practices that use harmful chemicals. Together, these changes further contributed to climate change while making it difficult for species to adapt to their changing environments.

In addition to fossil fuels, **deforestation** is a large contributor to climate change. Deforestation is harmful because not only does it destroy the habitats of many species, but it also destroys the natural storage spaces for carbon dioxide that exists in trees. Deforestation also interrupts the production of oxygen through a tree's **photosynthesis** cycle causing carbon dioxide to be set free into the environment, contributing to an estimated 10% of global warming emissions and accelerating climate change.[5]

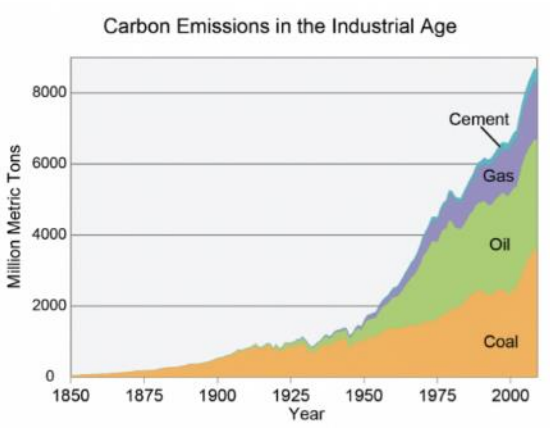

Image via GlobeChange.gov

Global warming and the resulting climate change are harmful to our planet because they cause hotter temperatures, droughts, more severe storms, changes in precipitation, loss of biodiversity, rising sea levels and more.[6] These changes have life-threatening effects on plant, animal, and human life around the globe. Yet, countries that are situated below the equator, which already experience warmer temperatures, are disproportionately affected. Unless real changes are made, climate change will continue to affect food and water security, conflict, global health, and economic development.[7]

Overconsumption and waste production are large contributors to environmental degradation as well. Due to the developments in mass production, humans are accustomed to always wanting the next best thing, like the newest iPhone or the latest clothing. As a result, consumption levels have been unsustainable, leading to increased waste in landfills, illegal dumping of toxic substances into oceans and on land, and plastic pollution that is either burned (polluting the atmosphere) or dumped in oceans (hurting sea animals).[8]

Electronic waste, or **e-waste**, is a particularly dangerous form of waste production. E-waste includes computers, televisions, phones, that contain harmful chemicals such as mercury and lead. Since there are no strict laws on the disposal of e-waste, it is illegally shipped and dumped in **developing countries**. Agbogbloshie, Ghana, for example, is a massive e-waste dumpsite.

[5] "Tropical Deforestation and Global Warming" Union of Concerned Scientists. https://www.ucsusa.org/resources/tropical-deforestation-and-global-warming.
[6] "The Effects of Climate Change" NASA. https://climate.nasa.gov/effects/.
[7] "Climate Change and the Developing World" USGLC. https://www.usglc.org/blog/climate-change-and-the-developing-world-a-disproportionate-impact/.
[8] "Causes, Effects, & Solutions for Environmental Degradation" Environmental Conscience. https://environmental-conscience.com/causes-effects-solutions-for-environmental-degradation/.

Residents are dangerously tasked with sorting through the materials to see what can be used again or sold.[9] While this does provide jobs, it also causes detrimental consequences for their health, as the chemicals end up in the soil, water, and air.

CONSEQUENCES OF ENVIRONMENTAL DEGRADATION

Image via Environmental Justice Atlas

As land and soil degrade as a result of harmful human activity, plants die off and animals soon follow as they begin to lose their food source and habitats. As a result, Environmental degradation leads to **biodiversity loss** and the endangerment of species. Today, the rate of extinction is 1,000 to 10,000 times faster than in pre-human eras.[10] Since 1900, over 500 species have gone extinct and currently, over 37,000 species are threatened with extinction.[11] Global warming only makes this worse as it causes increased heat, droughts, and unpredictable weather.[12]

Deforestation and pollution can also cause animals to lose their natural habitats, leading to rapid extinction rates. Deforestation additionally causes natural disasters such as landslides, floods, and wildfires. For example, deforestation in the Amazon rainforests has resulted in dryer land. This has led to unprecedented wildfires that have harmed the biodiversity in these areas.[13] Many have lost their homes, forcing people, especially those in poorer areas, to live in unhygienic conditions that support the spread of disease.

Image via The Guardian

In addition, pollution from environmentally degrading activities has harmful effects on food security and the economy. Without access to clean drinking water, people's health and livelihoods suffer. Beyond individual livelihoods, environmental degradation can also affect the economy. This is because half of the world's gross domestic product (GDP) – from agriculture to tourism – is dependent on nature.[14]

[9] "The Burning Truth Behind an E-Waste Dump in Africa" Smithsonian Magazine. https://www.smithsonianmag.com/science-nature/burning-truth-behind-e-waste-dump-africa-180957597/.
[10] "Why Endangered Species Matter" Columbia Climate School. https://news.climate.columbia.edu/2019/03/26/endangered-species-matter/.
[11] "Background and History" IUCN. https://www.iucnredlist.org/about/background-history.
[12] "Are the Effects of Global Warming Really that Bad?" NRDC. https://www.nrdc.org/stories/are-effects-global-warming-really-bad.
[13] "Deforestation drove massive Amazon rainforest fires of 2019" Purdue University. https://www.purdue.edu/newsroom/releases/2020/Q4/deforestation-drove-massive-amazon-rainforest-fires-of-2019.html.
[14] "Ecosystem Restoration for People, Nature, and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.

Why now?
The UN Decade states, "there has never been a more urgent need to revive damaged ecosystems than now."[15] The world's ecosystems are of vital importance to all life on Earth, but the health of these ecosystems is declining at an alarming rate. Solutions to mitigate environmental impacts are necessary now more than ever as harmful effects accelerate.

Right now, most of the effects are seen on plants and animals, but climate change and environmental degradation will soon begin to negatively impact on human life as well. We can already see examples of its effects on humans in real time. For example, in the winter of 2020, Texas experienced extremely cold temperatures, which serves as an important reminder that climate change does not only causing an increase in temperatures.[16] Australia also experienced immense wildfires from 2019 to 2020, which released immense amounts of carbons and affected nearly 3 billion animals.[17]

THE STATE OF THE WORLD'S ECOSYSTEMS

There are 8 main types of ecosystems that the UN recognizes. Each has faced a unique set of challenges based on the effects climate change and environmental degradation.[18]

Farmlands
Farmlands are essential for sustaining human life. They provide us with food and other necessary products as well employing at least two billion people, particularly in poor and rural communities. However, environmental degradation is heavily reducing crop and livestock yields. Roughly 80% of global farmable land has been impacted by at least one form of environmental degradation. This could reduce global food productivity by 12% and cause food prices to increase by 30% by 2040. Hot temperatures will additionally make agricultural work increasingly unsafe and reduce working hours for the approximately 1 billion people that work in this sector.[19]

Forests
Forests are necessary for life not only because they release oxygen that animals and humans need to breathe, but they are also essential as a habitat to 80% of amphibians, 75% of birds, and 68% of mammals. They also contribute to precipitation and streamflow, providing **groundwater** to one-third of the world's largest cities. Most importantly, forests are critical in their ability to regulate the climate by absorbing carbon from the atmosphere. As deforestation and the burning of fossil fuels have caused carbon dioxide levels to increase, it has become increasingly difficult for forests to do so. As a result, forests have been increasingly subject to fires, the spread of disease, pests, as well as invasive species, drought, and adverse weather events.[20]

[15] "UN Decade on Restoration" Decade on Restoration. https://www.decadeonrestoration.org/.
[16] "Climate change may have worsened deadly Texas cold wave, new study suggests" The Washington Post. https://www.washingtonpost.com/weather/2021/09/03/climate-change-arctic-texas-cold/.
[17] "Australian wildfires declaring among thee 'worst wildlife disasters in modern history'" NBC News. https://www.nbcnews.com/news/world/australian-wildfires-declared-among-worst-wildlife-disasters-modern-history-n1235071.
[18] "Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[19] "Map of the Month: How Many People Work in Agriculture" Resource Watch. https://blog.resourcewatch.org/2019/05/30/map-of-the-month-how-many-people-work-in-agriculture/.
[20] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.

Freshwater
Freshwater bodies are home to 10% of all species on Earth. They provide food, drinking water, a means of transportation, and are an integral part of agriculture and industry. Worldwide water use has increased by 600% in the last 100 years, leading to water scarcity in certain areas such as wetlands. Large-scale irrigation infrastructure has left many freshwater sources polluted and not suitable for life. Overconsumption and poor usage have contributed to the half a billion people facing water scarcity around the world.[21]

Grasslands, Shrublands, and Savannas
Grasslands, shrublands, and savannas are found in drylands and are most commonly located in Africa and Asia. Despite the low productivity of drylands, they support over 1.75 billion people, especially poorer populations. These areas store carbon, which helps to mitigate climate change, and they also provide water storage, wood fuel, and food for livestock. Yet, these systems are threatened by over-exploitation. For example, 70% of grasslands and 50% of savannahs worldwide have been cleared for agriculture which has threatened the livelihoods of indigenous and ethnic minority communities.[22]

Image via Reader's Digest

Mountains
Mountain ecosystems host roughly half of the world's biodiversity hotspots and fulfill the freshwater needs of half of the global population. Mountains are also a significant source of food. Plant species that supply 80% of the world's food such as maize, potatoes, and apples, all originated from the mountains. However, environmental degradation of mountain ecosystems is endangering crop production, animal life, and food security. Half of the population that live in mountains in developing nations (around 311 million people) live in areas affected by land degradation, and 178 million of them face food insecurity. Floods from glacial lake melting have also led to thousands of deaths and the resulting run-off has impacted local water resources and agriculture.[23]

Oceans and Coasts
The ocean is critical for all life on earth. It provides 90% of the world's life-supporting space as well as food and medicine for the global population, 50-80% of the oxygen in the atmosphere, and is the avenue for 80% of international shipping, which is essential to the global economy. However, one-third of the ocean's commercial fish stocks are overfished, resulting in food

[21] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[22] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[23] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.

insecurity and affecting the livelihoods of 60 million fishers globally. Additionally, plastic pollution is estimated to reduce marine ecosystem services by 1-5% as micro plastics have found their way into seafood and drinking water.[24]

Image via Conservation.org

The open ocean has lost 77 billion metric tons of oxygen, creating 'dead zones' that can't sustain life. Rising water temperatures and acidification are also hurting fish stocks, damaging coral reefs, and causing sea levels to rise. Humans have also greatly impacted the ocean. About 40% of the world's population live near the coastline, resulting in coastal development and conversion for agriculture, harming the existing life of mangroves (pictured right), seagrass, and coral.[25]

Peatlands

Peatlands (pictured below) are important because they provide nearly 30% of global soil carbon, purify and supply water, and provide food and livelihoods to millions of people. Although more than 80% of peatlands are untouched, peat volumes are decreasing by 0.2% per year. Many European countries have begun draining their peatlands for agricultural commodities, leading to the sinking of land, vulnerability to fires, and salinization. Peatland degradation additionally accounts for 3-4% of global GHG emissions. Restoring these peatlands could vastly reduce GHG emissions and help mitigate climate change.[26]

Image via Peatlands.org

Urban areas

Urban areas generate about 80% of gross domestic product and are therefore critical to the global economy. They can play a key role in increasing standards of living and reducing poverty as well as key source of clear air and water, food, and climate regulation, if well-managed. For example, street trees, parks, and sustainable infrastructure can help reduce CO2 levels and air and water pollution.

[24] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[25] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[26] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.

However, ineffective urban planning and management have caused 1.6 billion people to live in inadequate, unsafe housing. Additionally, the number of city inhabitants without access to safely managed drinking water has increased by more than 50%. Urban areas also continue to cause high levels of waste and emissions as they generate 70% of global carbon emissions and consume two-thirds of the world's energy. The resulting air pollution from this poses serious health hazards.[27]

ECOSYSTEM RESTORATION

The UN Decade addresses the consequences of ecosystem degradation and specifically lays out 9 areas for why ecosystem restoration is necessary. Ultimately, this process is necessary in order to recreate a balanced relationship with the ecosystems that sustain life through mitigating climate change, ensuring food security, and halting biodiversity loss.

While separated by category, these areas are all interconnected, meaning that improvements in one area can also lead to improvements in other areas. These efforts have tremendous potential to advance the achievement of all Sustainable Development Goals.[28]

The Economy

An estimated 10 trillion in global GDP could be lost by 2050 if ecosystem services continue to decline as the longer ecosystems are left to degrade. More damage will bring a larger cost to society. The current outcome and societal demand for ecosystem services far exceed ecosystems' ability to supply them.

Ecosystem restoration can solve this insufficiency through sustainable economic development. The point of sustainable economic development is to increase profits while also investing in ecosystem services that are going to improve the environment. For example, restoring coral reefs in Mesopotamia and Indonesia could deliver an additional USD 2.5-2.6 billion in ecosystem services benefits per year. Every dollar invested in restoration creates up to $30 in economic benefits.

Food Security

Food security means, "having, at all times, both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life."[29] On agricultural land, a variety of practices can contribute to ecosystem restoration, such as **agroforestry**, conservation farming practices, and sustainable land management. Agroforestry has the potential to increase food insecurity for 1.3 billion people and can increase soil carbon by 21%.

Restoration of mangroves, coastal and marine ecosystems, and freshwater ecosystems can also help to achieve food security targets by increasing the number of aquatic species in these areas.

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[27] Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[28] "Ecosystem Restoration for People, Nature and Climate" UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf.
[29] "Agriculture and Food Security" USAID. https://www.usaid.gov/what-we-do/agriculture-and-food-security#:~:text=What%20is%20Food%20Security%3F&text=Food%20security%20means%20having%2C%20at,hunger%20or%20fear%20of%20hunger.

According to the Mangrove Restoration Potential Map, restoring mangroves in 105 countries and territories could add over 60 trillion young fish and invertebrates to coastal waters every year.

Clean Water

Restoring wetlands and rivers is important for improving water quality by capturing pollutants and sediment from land degradation. By combining improved agriculture with forest protection and restoration, sediment and nutrient pollution in water could be reduced by at least one-tenth. Restoration can improve flows and the availability of water and has the potential to save USD 890 million each year in water treatment costs. Improved management of irrigation systems can reduce water use by an amount equivalent to the annual needs of 1.4 billion people.

Image via The Regulatory Report

Health and Well-Being

Ecosystem health is interconnected with both the physical and mental health of humans. We rely on ecosystems to regulate the climate, prevent diseases, and provide spaces for outdoor activities that are essential to our well-being. Research shows that spending an additional USD 100 million on growing trees in urban areas could lower temperatures and reduce air pollution, greatly reducing death by heatwaves and health problems from poor air quality, the latter leading to an estimated 9 million premature deaths per year. Through a complicated relationship, the risk of infection rises when land-use changes and greater use of wildlife brings people and animals into closer contact. Of all new human infectious diseases, roughly 75% are **zoonotic diseases**, as we have seen most recently with COVID-19.

Climate Change Mitigation

Nature-based solutions can contribute over one-third of the total climate change mitigation needed by 2030 to keep global warming below the 2 degrees limit the **Paris Agreement** has laid out. Possible actions in order to do so are restoring 2.5 billion **hectares** of forest, crop, and grazing land and restoring over 230 million hectares of natural tree cover. Restoration has the potential to reduce the annual increases of CO2 significantly as coastal and wetland ecosystems are rich **carbon sinks**, not to mention the carbon-absorbing forests. These actions will help to safeguard global food production and biodiversity and reduce global warming at the same time.

Climate Change Adaptation

Climate change is already happening, but ecosystem restoration can play an important role in increasing resilience and reducing vulnerability to extreme events caused by climate change. Restoration of coastal ecosystems can help communities adapt to sea level rises, storms, and associated flooding. For example, the restoration of mangroves in the Philippines could protect more than 267,000 from flooding because of the barrier they provide. In the US, restoring coastal wetlands of the Gulf Coast by 2030 could avoid an estimated USD 18.2 billion in storm damage,

which could increase food collection from this area. Restoration can also help humans adapt to rising temperatures by planting trees and creating urban green spaces for shade and lowered air temperatures.

Security
Investing in ecosystem restoration is a key element of conflict resolution, peacebuilding, and managing climate-related security risks. It is estimated that by 2050, 50 to 700 million people will migrate due to climate change and land degradation. However, restoration activities that improve access to resources, create jobs, and increase trust in communities can reduce the need for people to migrate and seek opportunities with extremist organizations due to insecurities at home.

Ecosystem restoration can also help reduce conflict as groups will no longer need to compete for limited resources. Ensuring that indigenous and local communities have rights to their land is key to the success of sustainable restoration activities as these initiatives are often driven by local leaders and communities. It is also important to provide incentives to reduce degradation in order to encourage people to take on these unfamiliar activities. Doing so can lift people out of poverty and create the necessary conditions to reduce conflict around resource control.

Biodiversity
Careful spatial planning, restoring 15% of converted lands, and halting the further conversion of natural ecosystems for commercial use could avoid 60% of expected species extinctions. Ecosystem restoration can enlarge habitats, increase species diversity, restore ecosystem function, and support the recovery of individual species. For example, the **Atlantic Forest Restoration Pact** aims to restore 15 million hectares of forest by 2050. This would double the native tree cover to at least 30% and significantly reverse biodiversity loss.

Image via Youmatter

Synergies and Trade-offs
In the last half-century, there has been a trade-off between two types of ecosystem services. By over-exploiting our food, water, and life sources, we are losing ecosystems' capacity to regulate our climate, purify our water, pollinate our crops, and protect us from floods and other disastrous consequences. Ultimately, the ecosystem is not able to adequately help us navigate the natural process of our Earth which is our fault. Bringing our ecosystem back to the health they are meant to have will deliver multiple benefits for people and nature. However, these benefits require multiple systems and actors to work together through an integrated, holistic approach - something we have yet to see.

CURRENT UN ACTION

The UN has established many different agencies and programs devoted to climate issues. In 1988, UNEP founded the **Intergovernmental Panel on Climate Change (IPCC)** to ensure that world leaders had access to climate data and research to guide their policymaking. **The United Nations Framework Convention on Climate Change (UNFCCC)**, also known as UN Climate Change, was adopted in 1992 and provides the foundation upon which countries' commitments to the **Paris Agreement** are coordinated and monitored.

The Paris Agreement is a legally binding international treaty adopted in 2015 with the goal of limiting global warming to well below 2 degrees Celsius and ideally 1.5 degrees Celsius.[30] According to a February 2021 study on National Determined Contributions (NDC) statistics, countries are not on track to the meet the goals of the Paris Agreement. The NDCs show that reductions in emissions will be small, around -1%, when -45% is needed in 2030 compared to 2010 levels according to the IPCC.[31]

The **Climate Technology Centre & Network (CTCN)** is another UNEP initiative that works to promote sustainable development and reduce global greenhouse gas emissions. By providing a wide variety of support and technical assistance to communities around the world working to develop sustainable infrastructure, CTCN helps to reduce emissions as well as strengthen communities' ability to adapt to the effects of climate change.[32] The CTCN has collaborated with 106 countries to implement technology development and nature-based solutions to environmental problems. These actions have spread important information on the importance of this issue and the alignment of the SDGs as well as providing critical monitoring and evaluating services. However, it is not yet clear what the concrete progress has been.[33]

For decades, UNEP has worked on addressing environmental degradation, biodiversity, environmental rights, climate action, and now ecosystem restoration is becoming one of the main new focuses. The most recent session of the UN Environmental Assembly in February 2021 focused on "Strengthening Actions for Nature to Achieve the Sustainable Development Goals." The session called for protecting and restoring nature through social, economic, and environmental dimensions in order to achieve the SDGs.[34]
UNEP's partner on the UN Decade, the **FAO**, has established 10 principles for ecosystem restoration including broad engagement, knowledge integration, and benefits to nature and people.[35]

[30] "Paris Agreement" European Commission. https://ec.europa.eu/clima/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_en.
[31] "Climate Commitments Not On Track to Meet Paris Agreement Goals" UNFCCC. https://unfccc.int/news/climate-commitments-not-on-track-to-meet-paris-agreement-goals-as-ndc-synthesis-report-is-published.
[32] "About the Climate Technology Centre and Network." CTCN. https://www.ctc-n.org/about-ctcn.
[33] "CTCN Progress Report" CTCN. https://www.ctc-n.org/.
[34] "UNEA-5" IISD. https://sdg.iisd.org/events/fifth-session-of-the-un-environment-assembly-unea-5/.
[35] "Principles for Ecosystem Restoration to Guide the United Nations Decade 2021-2030" FAO. https://www.fao.org/3/cb6591en/cb6591en.pdf

To reduce deforestation, the **UN-REDD** (Reducing Emissions from Deforestation and Forest Degradation) Programme supports National Programmes all over the world that seek to decrease deforestation and restore forests through a partnership with **UNDP**, UNEP, and FAO.[36] This program intends to deliver on the Sustainable Development Goals and the Paris Agreement. UN-REDD countries have reduced CO2 emissions by 700 million tons through this initiative which is equal to taking more than 150 million cars off the road for a year.[37]

The most recent event regarding environmental issues was **COP26**, also known as the United Nations Climate Change Conference. The conference brought countries together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. This conference had both positive and negative outcomes. On a positive note, more than 100 countries signed a pledge to cut methane emissions 30% by 2030. However, many countries, including some of the largest emitters of GHGs did not make such commitments.

Image via UNEP

For example, China, the world's largest emitter of greenhouse gases remained firm on the decision to allow emissions to rise until 2030. Yet, in a surprise announcement, the US and China agreed to work together to "strengthen and accelerate climate action and cooperation." Additionally, India, the world's fourth biggest emitter of carbon dioxide, pledged to net zero emissions by 2070.

Emissions need to fall around 45% by 2030 to give the world a chance at limiting warming to 1.5 degrees Celsius by 2100. But instead, emissions are expected to rise by 14% over the next nine years. While many nations did not agree to cut back on emissions fast enough, experts say that the summits' progress means that goal could still be within reach if countries follow through on their promises.[38] However, there remains concern on whether countries will follow through on their commitments.

In the past, the world has failed to adequately address environmental issues due to a lack of political will among national governments as well as the UN's lack of enforcement capabilities to keep countries accountable. However, the more holistic approach of the UN Decade on Restoration which has successfully begun restoration initiatives all around the world while bringing awareness to increasingly pressing environmental issues provides hope that global

[36] "Forests: A Nature-Based Solution for the Climate Crisis" UN-REDD. http://stories.un-redd.org.
[37] "Our Impact." UN-REDD. https://www.un-redd.org/ourimpact
[38] "The COP26 summit" NPR. https://www.npr.org/2021/11/13/1055542738/cop26-climate-summit-final-decision

cooperation will improve and ecosystems will be restored more effectively in order to save our earth and its inhabitants.

CHALLENGES

There are many challenges that have prevented widespread ecosystem restoration. Despite numerous calls to action, there is a lack of a unified approach on the issue of climate which is important for several reasons.

COP26 was the latest example of this. Despite a unified approach, the conference displayed the failure of all countries to commit **to net-zero emissions** and a lack of enforcement mechanisms put in place.

While countries have made commitments to climate change, both at COP26 and at previous climate conferences, they also need to have the same commitment ecosystem restoration. For example, planting trees is useless if deforestation continues to happen at a faster rate.

Many countries benefit from the current state of our ecosystems because their economies are tied to industries that pollute the environment and destroy various ecosystems. Additionally, national governments fail to give this issue adequate attention due to the numerous other issues they are dealing with at home and abroad.

Ultimately, individual companies are the largest polluters and exploiters of the environment and its resources. The problem is that these companies are profiting from these harmful activities and will not easily change their business operations.

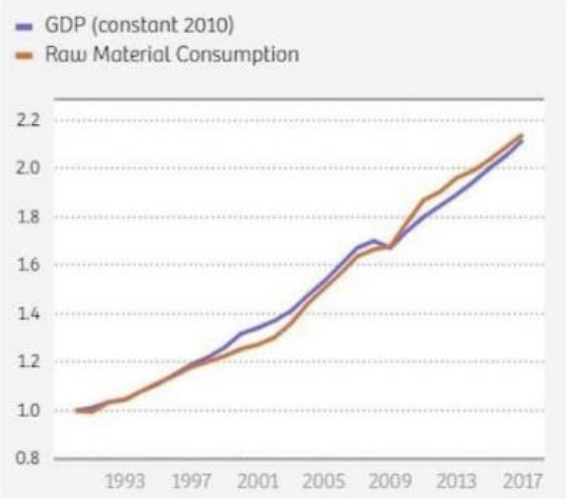

Image via MR Online

Just 100 countries contribute 71% to global GHG emissions.[39] On the graph to the right, you can see that the increase in GDP in the last few decades has followed a strikingly similar increase in raw material consumption. With their significant involvement in causing the problem, these companies have the power to create critical change in stopping and eventually reversing the damage done to our Earth.

With a lack of incentive to implement restoration policies, how can we convince these actors to change their harmful ways? One way is by encouraging businesses to slowly implement more sustainable practices such as investing in technologies that are cleaner for the environment and

[39] "Just 100 countries responsible for 71% of global emissions, study says" The Guardian. https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change.

are more productive. When done correctly, businesses will not lose out on the profits they desire.[40]

CASE STUDIES

Some major initiatives under the UN Decade on Ecosystem Restoration include **Project Seagrass** in the UK and the **Coffee Agroforests** in Latin America and the Caribbean.

Project Seagrass works in the ocean and coasts ecosystem to restore 10 hectares (ha) of seagrass in the UK. This initiative is necessary as the UK coast has lost up to 92% of its seagrass meadows, resulting in a significant decrease in aquatic species and reducing the ability for these areas to be a site of carbon-absorbing and pollution filtering.[41] The project uses cutting-edge technologies to access the sites and plan large-scale planting. They have successfully restored two full hectares of seagrass and are well on their way to achieving their goals of mitigating climate change, safeguarding biodiversity, and enhancing food security.[42]

Image via Project Seagrass

The Coffee Agroforests in farmland ecosystems of Latin America and the Caribbean are seeking to advance climate adaptation, safeguard biodiversity, and enhance food security. This action seeks to restore the 20% of land that has been degraded in Latin American and the Caribbean forests and agricultural land.[43] Coffee agroforestry systems have been shown to support up to 80% of the biodiversity of healthy forests. This initiative is currently planting 9,000 native forest and fruit trees in between 52,500 coffee seedlings in a 150-hectare park. The goal in the next 5 years is to restore 5,000 ha. Because this initiative can be costly for local farmers, this model is paired with payments for ecosystem services to ensure that these restoration methods support local livelihoods.[44]

Priorities to be discussed:

- Causes of environmental degradation
- The connection between environmental degradation and climate change
- Consequences of environmental degradation on plant, animal, and human life
- The need for ecosystem restoration in all ecosystems
- The challenges of implementing ecosystem restoration initiatives

[40] "Making Sustainability Profitable" Harvard Business Review. https://hbr.org/2013/03/making-sustainability-profitable.
[41] "Seagrass meadows shrank by 92% in UK waters" The Conversation. https://theconversation.com/seagrass-meadows-shrank-by-92-in-uk-waters-restoring-them-could-absorb-carbon-emissions-and-boost-fish-156459.
[42] "Seagrass Ocean Rescue" "Decade on Restoration. https://implementers.decadeonrestoration.org/implementers/17/project-seagrass-making-waves-to-save-our-seas-wales-uk.
[43] "RELEASE: Degraded Land in Latin America Could Yield Billions if Restored, Shows New Report" World Resources Institute. https://www.wri.org/news/release-degraded-land-latin-america-could-yield-billions-if-restored-shows-new-report.
[44] "Restoration of Coffee Park Focused on Resilience to Climate" Decade on Restoration. https://implementers.decadeonrestoration.org/implementers/17/project-seagrass-making-waves-to-save-our-seas-wales-uk.

- Benefits of ecosystem restoration in various types of ecosystems
- Role of the United Nations and countries in mitigating climate change and restoring ecosystems

Questions to consider:

- How has your country been negatively affected by environmental degradation?
- What are some key actors that are causing climate change and environmental degradation?
- What can your country do to limit environmental degradation more effectively?
- What are some key actors that can help with ecosystem restoration?
- What can you do to promote ecosystem restoration in your country?
- What countries/UN agencies can your country partner with to solve the issues?
- How can you increase public awareness of the importance of ecosystem restoration?

GLOSSARY

Agricultural Revolution: a period beginning in the mid-17th century of experimentation with new crops and new farming techniques that increases agricultural output and productivity.
Agroforestry: the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits.
Atlantic Forest Restoration Pact: a movement of companies, government agencies, civil society organizations and research centers formed in 2009 to restore 15 million hectares of degraded areas in the biome by 2050.
Biodiversity Loss: the reduction in an area's biodiversity expressed by species loss in each area.
Carbon Dioxide: the most common greenhouse gas, a major contributor to climate change, emitted when fossil fuels are burned and when forests are cut down.
Carbon Sinks: anything that absorbs more carbon from the atmosphere than it releases such as plants, the ocean, and soil.
Climate Change: includes both global warming driven by human-induced emissions of greenhouse gases and the resulting large-scale shifts in weather patterns.
Climate Technology Centre & Network (CTCN): promotes the accelerated transfer of environmentally sound technologies for low carbon and climate-resilient development at the request of developing countries.
Coffee Agroforests: UN Decade initiative in El Salvador to plant 9,000 native forest and fruit trees interspersed with 52,500 coffee seedlings across a 150-hectare park in order to support biodiversity.
COP26: 2021 United Nations Climate Change Conference held in Glasgow, Scotland which is in the United Kingdom.
Deforestation: reducing the area of a forest by cutting down large amounts of trees.
Developing Countries: countries that have not achieved a significant degree of industrialization relative to their populations, and have, in most cases, a medium to low standard of living.
Environmental Degradation: the deterioration of the environment through depletion of resources such as quality of air, water, and soil.
E-waste: electronic products nearing the end of their "useful life" that can be reused or recycled.
Food and Agriculture Organization of the United Nations (FAO): leads international efforts to defeat hunger and improve nutrition and food security.
Fossil Fuels: a natural fuel such as coal or gas formed from decomposed plants and animals over hundreds of thousands of years and extreme levels of pressure.
Global Warming: heating of Earth's climate system due to human activities, primarily from fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere.
Greenhouse Effect: a process that occurs when gases in Earth's atmosphere trap the Sun's heat, making the Earth warmer.
Greenhouse Gases (GHG): gases that contribute to climate change by absorbing energy from the sun such as carbon dioxide and methane.
Gross Domestic Product: monetary measure of the market value of all the final goods and services produced in a specific time period.
Groundwater: the water present beneath Earth's surface in rock and soil pore spaces and in the fractures of rock formations.
Hectares: a metric unit of square measure, equal to 100 acres.
Industrial Revolution: the process of change from an agrarian and handicraft economy to one dominated by industry and machine manufacturing beginning in 18th century Britain.
Intergovernmental Panel on Climate Change (IPCC): the United Nations body for assessing the science related to climate change.

National Determined Contributions (NDC): non-binding national plans highlighting climate actions, including climate related targets for greenhouse gas emission reductions, policies and measures governments aim to implement in response to climate change.
Nature-Based Solutions: refers to the sustainable management and use of nature for tackling socio-environmental challenge such as climate change, water security, water pollution, food security, human health, biodiversity loss and disaster risk management.
Net-Zero Emissions: achieving a balance between the amount of greenhouse gases produced and emitted into the atmosphere.
Overconsumption: when the use of a natural resource exceeds the sustainable capacity of a system.
Paris Agreement: a 2016 agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with GHG emissions mitigation, adaptation, and finance.
Photosynthesis: the process by which green plants and some other organisms use sunlight to take in carbon dioxide and release oxygen.
Project Seagrass: UN Decade initiative for large-scale seagrass restoration in the oceans and coasts of the UK to maximize ecological benefits.
The United Nations Framework Convention on Climate Change (UNFCCC): established an international environmental treaty to combat "dangerous human interference with the climate system", in part by stabilizing greenhouse gas concentrations in the atmosphere.
Tragedy of the Commons: a situation in which individuals with access to a shared resource (also called a common) act in their own interest and ultimately deplete the resource.
UN Decade on Ecosystem Restoration: 2021-2030 initiative that aims to prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean.
United Nations Development Programme (UNDP): promotes technical and investment cooperation among nations and connects countries to knowledge, experience, and resources to help people build a better life for themselves.
United Nations Environment Programme (UNEP): responsible for coordinating responses to environmental issues within the United Nations system.
UN-REDD: supports nationally led deforestation and forest degradation processes.
Zoonotic Diseases: type of disease that passes from an animal or insect to a human. Some don’t make the animal sick but will sicken a human.

EXTRA RESOURCES

In our Extra Resources section, we provide resources for students to use in their research for the Spring Conference. Students are responsible for researching their position for their assigned countries, and these resources help point them in the right direction.

UN Decade on Ecosystem Restoration:

This is the main page for this initiative and provides updated information on projects, progress, and research.

Explore the page here: https://www.decadeonrestoration.org/

#Generation Restoration Youth Challenge

This resource provides information on how to join this global movement. It also includes interactive components that allow users to explore the global gains of restoration, the eight targeted ecosystems, and the commitments countries have made to meeting restoration targets.

Explore the page here: https://www.unep.org/interactive/ecosystem-restoration-people-nature-climate/en/index.php

FAO Best Practices

FAO, who partners with UNEP on this initiative, provides best-practice principles that creates a shared vision in order to support the implementation and success of restoration activities.

Read the report here: https://www.fao.org/documents/card/en/c/cb6591en/

National Oceanic and Atmospheric Administration

Helpful resource to monitor and interpret climate change data
Explore the page here: https://www.noaa.gov/education/resource-collections/climate/climate-data-monitoringn

UN Climate Change Conference: COP26

This web page provides more information on the goals and outcomes of COP26

Explore the website here: https://ukcop26.org/

Global Footprint Network

This resource provides compressive information on climate change, sustainable development, biodiversity, global ecological footprints, and more. Use the Footprint Calculator to calculate your own ecological footprint!

Explore the website here: https://www.footprintnetwork.org/

Use the calculator here: https://www.footprintcalculator.org/home/en

United Nations Framework Convention on Climate Change (UNFCCC):

This web page details all the topics the UN addresses regarding climate change, information on the recent COP26, information on climate action, and documents related to these topics.

Explore the website here: https://unfccc.int/

UN-REDD

Explore the work an impact of the UN-REDD programme, an inter-agency program that has already seen a positive impact from its forest restoration efforts.

Explore the website here: https://www.un-redd.org/

GLOBAL CLASSROOMS DC POSITION PAPER OVERVIEW AND REQUIREMENTS

What is a Position Paper?
A position paper is a short document that outlines a country's opinion on an issue. The paper includes a short summary of what the issue or problem is, explains why the country is interested in the issue, and communicates the country's stance on what should be done to address the issue. A position paper is written as if you were the actual representative of the country stating its position. Your personal opinions on the issue should not be included. A position paper is not a summary of your country's GDP, government, economy, languages, etc. unless directly relevant to the issue. Only one position paper is written per country, per grade school committee; if there are 2 or 3 delegates representing the same country on a committee, they should write the paper together.

Why write a Position Paper?
Writing a position paper will help you organize why an issue matters to your country and what your country wants done on the issue. The first thing you will likely do in committee is present an opening speech about your country's position. You should be able to pull portions of a well written position paper into an introductory speech on your country's perspective. Also, your delegation is not eligible to win best / outstanding delegation without the submission of a position paper. There are separate awards given for best position paper.

How to Write a Position Paper

(1) Research the Issue. The questions you want to answer are:
   1. How does this issue affect your country?
   2. How does this issue affect your country's neighbors or allies?
   3. Is this a global problem that impacts everyone?
   4. What would your country like to see done on this issue?
   5. Are there countries or groups of people who will be particularly sensitive to addressing this issue?
   6. Are there any conventions or resolutions on the topics that your country has signed or ratified?
   7. What are UN actions on the issue? Has your country supported or opposed these actions?
   8. Keep in Mind: What a country says, and what it actually believes should be done may be different. Also, some countries may believe that no action should be taken on an issue. They may disagree with how others feel or may not want international involvement. It is okay if your position is that the international community should do nothing, but you will need to explain why.

(2) Brainstorm Specific Actions. Come up with 3-4 specific things that can be done to reach the outcome your country desires. For example: "The United States believes we should send a peacekeeping mission to monitor human rights abuses in Syria and encourage talks between both sides." You will present these ideas in committee as possible solutions to the problem and attempt to pass a resolution which includes these actions.

(3) Outline Your Paper. Make an outline of what points you want to cover in your paper and the order in which you would like to address them. Remember a good paper should briefly explain the problem, explain why your country cares about the issue, and inform others what your country should like to see done. If you know other countries favor a solution that you will disagree with, make sure to include why your country disagrees.
(4) Write your Paper. Position papers should be no more than one page long and be written from the perspective of the country you are representing. Rather than being a report on the topic, a position paper should explain what your country wants to see done to address the issue. Start by giving a brief summary of the issue and how it impacts your country. Then explain the specific actions you would like to see taken. Close by summarizing your country's overall position. Proper grammar and spelling are a must!

Award Criteria and Eligibility

- One position paper award will be given out per committee.
- The ideal position paper will have a clearly defined and summarized topic with your country's position clearly outlined. Points are also awarded for organization, style and correct grammar.
- GCDC Staff will be fact checking position papers, so be sure to include the most up to date information and a works cited (or list of all the sources you use).
    - Proper source citation: if an idea or quote came from another source, you must provide a footnote / citation.
- Papers will be disqualified if the conference staff has discovered that students did not write their own papers or that content has been plagiarized.
- Make sure your position paper must have the required header below! Do not create any additional title pages - points will be deducted for improper format.
- Formatting Requirements: 500 words minimum, 1,500 words maximum. Times New Roman font, 12-point size
- All position papers must be sent to gcdc@unanca.org by **March 18, 2022 at 11:59 PM EST**.

REQUIRED POSITION PAPER HEADER

Committee:	*Examples:*	UN Environment Programme (UNEP)
Topic:		Climate Change
Country:		The United States of America
Delegate Name(s) and Grades:		Bob Smith and Jane Doe (gr. 7)
School (Teacher/Coach):		Madison High School (Mr. Jones)

The United States of America believes …