

IPMUN 2024

**Addressing the ongoing crisis of desertification mainly in central Asia,
Sahel and Amazonas regions**

Forum: UNFCCC COP



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INTRODUCTION

Committee introduction

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty, signed by 154 countries in 1992. Its main goal is to combat negative climate change as a consequence of human interference. To achieve this, the UNFCCC operates through annual meetings known as the Conference of the Parties (COP), where member countries (referred to as "Parties") meet to assess progress and negotiate new commitments. So far the convention has shown its effort in creating measures for lowering greenhouse gas emissions in the Kyoto Protocol (1997), as well as concentrating on combating global warming in the Paris Agreement (2015).

Topic introduction

Desertification is yet another detrimental consequence of human induced climate change. While this process of degradation of previously arable land does happen naturally, according to the United Nations, the pace has now reached about 30 times the historical rate. Not only does desertification leave the land unable to retain water, but it directly leads to the displacement of communities incapable of surviving in the harsh conditions it imposes. Currently, about 2 billion people live in places susceptible to desertification, potentially leading to major displacement estimated at 50 million people by 2030.

DEFINITION OF KEY TERMS

Irrigation: The artificial application of water to land or soil to assist in the growing of crops and vegetation. The technique can make farming possible in places where water is scarce. However, when done inefficiently, it can damage surrounding ecosystems (especially where the water is sourced from).

Grazing: The practice of allowing livestock, such as cattle, sheep, goats, and other herbivores, to feed on grass and other vegetation in pastures, rangelands, or natural grasslands. It can lead to overgrazing, where excessive feeding by animals damages vegetation, leads to soil erosion, and contributes to land degradation and desertification.

Deforestation: Deforestation is the process of clearing forests, often to make way for agricultural activities, urban development, or logging. This practice results in the loss of forest cover, which can have severe environmental impacts, including loss of biodiversity, disruption of water cycles, soil erosion, and contribution to climate change through the release of stored carbon dioxide into the atmosphere.

Soil erosion: The removal of the topsoil layer by wind, water, or human activity. It is a major contributor to desertification, as it depletes the soil's fertility and reduces its ability to support vegetation.

Monoculture: The cultivation of a single crop in a given area. It is a very common agricultural practice nowadays for its high efficiency, crop yield and easy management. However, it can have a negative impact on the soil quality. Monocultures also lower the biodiversity of the farmland, resulting in areas that are more prone to pest invasions.

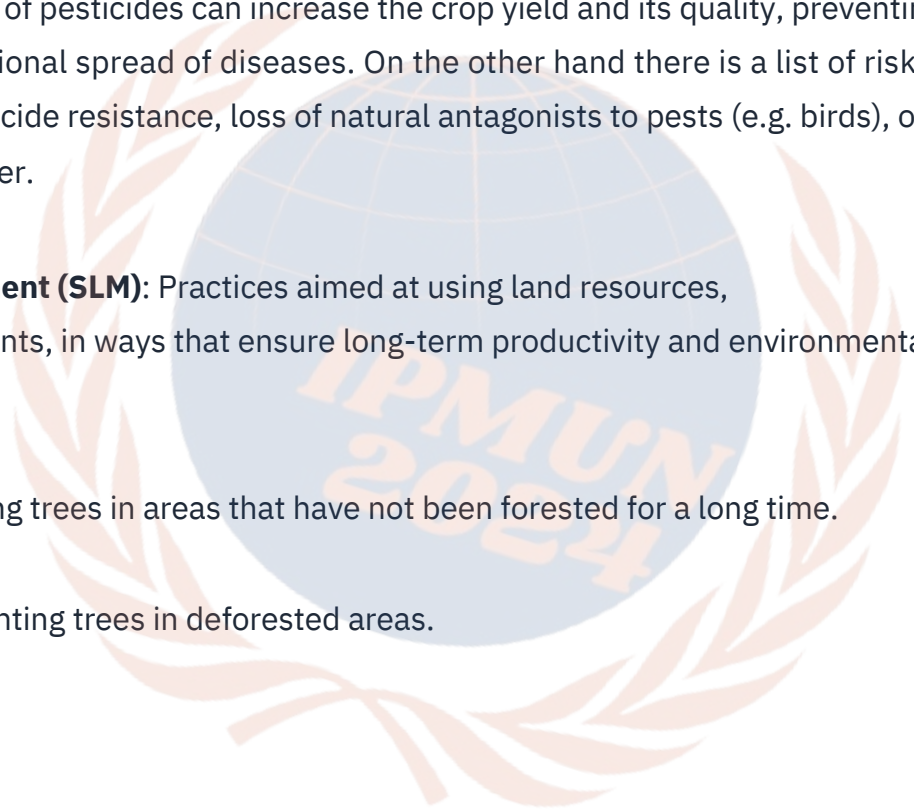
Fertilizer: A chemical or natural substance added to soil or land to increase its fertility. The overuse and usage of low quality synthetic fertilizers often pollutes the environment and causes algal blooms in bodies of water.

Pesticide: A substance used for destroying insects or other organisms (pests) harmful to cultivated plants. The use of pesticides can increase the crop yield and its quality, preventing crop waste and the international spread of diseases. On the other hand there is a list of risks involved in their usage: pesticide resistance, loss of natural antagonists to pests (e.g. birds), or contamination of groundwater.

Sustainable land management (SLM): Practices aimed at using land resources, including soil, water, and plants, in ways that ensure long-term productivity and environmental health.

Afforestation: Planting trees in areas that have not been forested for a long time.

Reforestation: Replanting trees in deforested areas.



UNCCD: The United Nations Convention to Combat Desertification is an international agreement established in 1994 to address desertification and mitigate the effects of drought.

GENERAL OVERVIEW

Degradation of land can happen and is currently happening in a lot of places around the globe and each country is having to deal with a different set of issues caused by it. However, climate change is an issue of great complexity and finding solutions to it is lengthy and strenuous. The three following regions and their habitats are currently suffering the most and face the risk of ceasing to exist completely before a long-term global plan to deal with climate change is constructed. Thus, immediate collaborative action is required to preserve them at least partially.

I. The Aral Sea

The Aral Sea, nestled between the countries of Kazakhstan and Uzbekistan, once held the title of the third largest lake in the world. The title was quickly lost in the 1960s, when its surface began shrinking uncontrollably as a direct consequence of the Soviet irrigation projects for mass production of cotton. During these projects, the two main rivers feeding the Aral Sea: Syr Darya and Amu Darya, were diverted to supply the arid plains in Kazakhstan, Uzbekistan and Turkmenistan to grow cotton alongside other crops. As much as these projects made the desert bloom and produce much harvest, they had a devastating effect on the Aral Sea. Since then, the lake has reduced to less than 10% of its historical surface area, dividing into 4 much smaller lakes. However, in 2014 NASA released satellite images, proving that the eastern basin dried up completely, now bearing the name Aralkum Desert. In present days, the desolated drylands left behind create health-concerning dust storms contaminated with fertilizer and pesticides.

The quality of the water has also dwindled: the increased salinity and pollution by pesticides practically ended the fishing business of the area, causing major issues in communities dependent on this economy. On top of that, the sudden disappearance of such a large body of water, acting as a moderator of temperature, caused significant fluctuations and unpredictable weather changes. The combination of all listed unfavorable conditions caused

mass displacement of communities, directly adding to the issue of urban overcrowding in large cities in the vicinity.

In 2005 a dam was built as an effort to stop flow of water away from the North Aral (one of the lakes). This led to a sudden increase in water levels, bringing the fishery business back locally, but achieving little change on a wider scale.

II. The Sahel region

The Sahel is a 5,400 km long strip of land in Africa connecting the Atlantic Ocean and the Red Sea. The word Sahel (originally sāḥil in Arabic) means edge or coast, which is very fitting for the area which borders the arid Sahara desert in the North and the biodiverse jungles and savannahs in the South. Running through parts of Senegal, Mauritania, Mali, Niger, Burkina Faso, Algeria, Nigeria, Chad, Sudan, Eritrea and Ethiopia, the region also has a second, unofficial title: the “Hunger Belt”.

The Sahel region has been subject to multiple ecological crises for centuries; periods of drought, forcing people to move away and periods of abundant rainfall, attracting these people back. But little attention was given to it until 1984, during a particularly substantial drought. A famine broke out and many inhabitants of the Sahel, mostly shepherds, saw their livestock die

and were forced to leave the region and flee South. The media attention revealed some of the

local unsustainable and short-term oriented agricultural practices, such as increased grazing

and overexploitation of land during the rainy season. This initiated a shift in the

perception of climate and its connection to desertification; many experts claimed that inadequate human actions, mainly in the field of agriculture, were the prime cause of desertification of the Sahel. However, it is near impossible to be accurate due to constant migration, armed conflicts and Boko Haram’s terrorist activities. Nonetheless, the population is expected to surpass 200 million by 2050 and since the majority will be below the age of 24, mass migration due to unfavorable conditions is expected, putting pressure on European countries, who will have to temporarily struggle to make the effects visible.

III. The Amazon Rainforest

The Amazon rainforest is a prime example of how destructive desertification can be not only to humans but to all species and ecosystems.

The rainforest hugely helps humans fight climate change just by its existence: it serves as a moisture supply to many other regions in South America and the mass evaporation of water has a cooling effect on the planet's surface. On top of that, all greenery within the rainforest

stores the amount of carbon equivalent to 15 to 20 years of global CO₂ emissions. And yet by

anthropogenic activities, the ecosystem is constantly being degraded and faces the imminent

danger of collapsing after having been resilient to climatic variability for almost 65

million years. Deforestation is without a doubt the number one cause of destruction of the Amazon. The years 1970-1980 were the most destructive in the history of the Amazon basin. More than 10% of the planet's potential biodiversity is encompassed within the Amazon basin, meaning that with the loss of the forest, the loss of species would be catastrophic. The process began in the 1970s, when Brazil's military regime saw potential profit in Amazon's natural resource richness. The government offered free land deep inside the rainforest along what was to become the Trans-Amazonian highway at a faster pace than anywhere else.

to attract people living on the East coast. Most of the newly cleared land was used as pastures for cattle. Later on in the 90s, Brazil saw another great economic opportunity in growing soybeans as food for livestock. Farmers bought and took over the pastures, while the ranchers moved deeper into the rainforest to create new pastures, sometimes illegally. Even long after the end of the military regime, Amazon continued to get cut down for the tremendous profit these two industries created.

Finally, in 2003 a series of protective measures were taken to help stop deforestation with the help of Marina Silva, the then environment minister. Areas of the rainforest that fell under some sort of legal protection increased from 28% to almost 50% in 2012, while the unprotected parts were under forest code, meaning that landowners could only cut down 20% of their private land. The environmental ministry also enforced these laws through IBAMA: a police agency that would track down illegal activities in the forest. All the efforts proved successful, because the deforestation rates dropped by half in 2006.

Unfortunately for the rainforest, an agricultural political party called the "Ruralistas" started gaining influence in Brazil after 2010. They worked on loosening up the protective measures and made it easier to cut down trees again. In 2018 Jair Bolsonaro, an ally to the Ruralistas was elected as president. Since then, the deforestation rates have started rising rapidly again. A common practice for its efficiency and low cost is to start fires to clear land,

which not only destroys all life, but also releases all the stored up carbon into the atmosphere as CO₂. Around 17% of the Amazon rainforest has already been cut down and experts estimate that when the figure reaches 20-25%, the ecosystem may collapse completely, which would have massive detrimental consequences on climate change globally.

PREVIOUS AND POSSIBLE SOLUTIONS

Sustainable Land Management Practices:

It has now become a universally acknowledged fact that improper farming practices and land exploitation are major contributors to desertification worldwide. Even though modern and sustainable agricultural methods have been developed, both large companies and small communities keep exploiting land to its maximum efficiency. Implementing laws, as well as educational campaigns for locals in regard to sustainable methods (such as collecting rainwater, agroforestry, crop rotation or terracing) might help in the process of moving away from harmful practices.

International Agreements and Initiatives:

The United Nations Convention to Combat Desertification (UNCCD) is the only legally binding international agreement that links environment and development to sustainable land management. The convention focuses on mitigating the effects of drought, combating desertification, and reducing poverty through land restoration and sustainable agriculture. It promotes a bottom-up approach, encouraging the participation of local communities in decision-making. It also provides a legal framework for member countries to develop National Action Programs (NAPs) to combat desertification, integrate sustainable land management into national policies, and report on progress.

As a part of the Sustainable Development Goals, the UNCCD has launched the Land Degradation Neutrality program with ambitions to achieve this neutrality by 2030. It encourages countries to voluntarily commit to some of its targets.

Furthermore the UNCCD and UNFCCC oversee more initiatives that target desertification in specific regions, such as the African AI-CD, or the REDD+ Mechanism, focusing on deforestation.

Global Disruptive Tech Challenge 2021:

The World Bank launched a 5-month long competition in 2020, looking for unique and groundbreaking solutions to the desertification of the Aral Sea. The competitors presented many creative solutions of various ambitions and focused on many details, one of which was to introduce bee colonies to the dried up Aral basin to initiate the restoration of life and greenery while presenting new business opportunities. Another idea was to educate a group of women in Tajikistan about sustainable farming in hopes of establishing good habits within local communities. Regardless of whether or not these ideas become a real thing one day, the real benefit of these crowdsourcing projects is bringing awareness to the situation in Central Asia and giving people hope.

The Great Green Wall Initiative:

Launched by the African Union in 2007, this ambitious project aims to create a "green wall" of trees and vegetation across the Sahel region of Africa to combat desertification, restore degraded lands, and improve livelihoods. The initiative seeks to plant millions of trees in a 15 km wide and 8,000 km long strip and implement sustainable land management practices across several countries of the region. As much as the ambitious project did face criticism from many parties for setting an unrealistic pace and not focusing on the natural regeneration of the land, having a project of such size being organized directly by the affected countries really shows progress towards sustainable thinking. In collaboration with more economically developed countries, such projects could become a reality one day.

Dutch Farms and Space-Saving Innovations:

Another major reason for land degradation, specifically in the Amazon rainforest, is the space inefficiency of agriculture. Large sections of the rainforest are being cut down and transformed into fields to produce the massive amount of crop the market is asking for. However, it does not have to be like this. A prime example of this is the Netherlands with their greenhouses and horizontal farming practices. These greenhouses, often referred to as "glass cities," utilize hydroponics—a method of growing plants without soil, using mineral nutrient solutions in water. This technique enables farmers to grow crops year-round, independent of weather conditions, and with a fraction of the water and space required by traditional farming. LED lighting, climate control, and automated systems further optimize growth conditions, leading to higher yields per square meter.

KEY PARTIES INVOLVED

The European Union

The EU provides substantial financial aid to regions affected by desertification, particularly in the Sahel and Central Asia. Through programs like the European Development Fund (EDF) and the EU Global Climate Change Alliance (GCCA), the EU funds projects that promote sustainable land management, reforestation, and community resilience to desertification. For instance, the EU is a key supporter of the Great Green Wall Initiative in the Sahel, providing both funding and technical expertise. They are also a key player in research and technological innovation to develop new methods for sustainable land use and to monitor desertification. European institutions often partner with local organizations in affected regions to share knowledge and best practices.

United States

The USA uses its diplomatic influence to advocate for stronger international action on desertification, linking it to broader climate change mitigation and adaptation strategies. The U.S. also promotes the integration of desertification issues into global climate negotiations, such as those under the Paris Agreement.

Both the EU and the USA, as major industrialized regions, have contributed historically to global environmental changes that exacerbate desertification, such as climate change. This has led to calls for these regions to take responsibility by providing greater support to affected countries.

In recent years, the EU has adopted stricter environmental policies and increased funding for international desertification efforts. The USA's approach has fluctuated with changes in administration, with varying levels of engagement in global environmental initiatives.

Russia

Today, Russia recognizes desertification as a significant environmental challenge, particularly in its southern regions and in neighboring Central Asia. While not as publicly vocal or active on the issue as some Western countries, Russia is increasingly involved in regional

and international efforts to combat desertification, primarily due to its historical and geopolitical ties to Central Asia. During the Soviet period, large-scale agricultural projects were initiated, particularly in Central Asia, aimed at transforming arid and semi-arid lands into productive agricultural zones. The Soviet Union's desire to become a leading cotton producer eventually led to the current situation around the Aral Sea. It is important to say that in the post-Soviet era and even before that, Russia has shown some effort in reversing the previously caused damages.

Brazil

Brazil, as the largest country in the Amazon Basin, has a complex stance on the topic of desertification. While the government has at times taken measures to protect the Amazon, recent years under the influence of the Ruralistas party have seen increased deforestation driven by agricultural expansion and resource extraction. This has led to criticism from the international community. The government's policies have a significant impact on Amazon's future.

Peru and Colombia

Peru and Colombia are also in a complicated position mainly in terms of deforestation. Both countries are committed to protecting their portions of the Amazon but face challenges related to illegal logging, mining, and agricultural expansion. They advocate for international cooperation and financial support to afford to combat deforestation and promote sustainable development.

Kazakhstan and Uzbekistan

The two countries most affected by the shrinking Aral Sea crisis. Besides dealing with the ecological impact of desertification within their territory, both countries also have to face the displacement of communities and high rates of urbanization. Both have voiced their support for international cooperation and have been implementing national strategies focused on sustainable land management and water resource conservation. Similarly to this,

Turkmenistan is also taking steps to combat desertification in the Karakum desert.

Mali and Niger

Both countries are severely impacted by desertification in the Sahel region and are strong advocates for international assistance and regional cooperation to combat land

degradation. They stress the need for sustainable land use practices and greater investment in land restoration. Mali and Niger are also key participants in the Great Green Wall Initiative and work closely with international partners to implement projects aimed at reversing desertification. Without the help from the international community, these two nations alongside with other African countries would face serious issues, such as migration, poverty or even famine.

Nigeria

As a major player in West Africa, Nigeria is committed to combating desertification, which poses significant threats to its northern regions. The country supports regional initiatives like the Great Green Wall. The country has also shown commitment by implementing national policies focused on sustainable agriculture and reforestation.

QUESTIONS TO CONSIDER IN THE RESOLUTION

- How does desertification impact the local populations, economies, and ecosystems?
- How can the progress towards stopping and reversing desertification be measured?
- Which specific goals in combating land degradation can be set?
- How to reliably identify and track down illegal deforestation?
- To what extent should MEDCs interfere with local communities in the countries in need of help?
- How to ensure that the financial aid to struggling countries is being used for anti-desertification purposes and not some corrupt activities?
- What role should technology and innovation play in combating desertification?
- What measures should be taken to support communities displaced by desertification?

- How can the resolution ensure accountability and transparency in the use of funds and resources allocated to combat desertification?
- How can public awareness about the causes and effects of desertification be increased?
- How can the resolution promote resilience in communities and ecosystems to withstand future environmental changes?
- Why is Amazon being cut down when we know the consequences? How to make companies opt for sustainable practices rather than fast and cheap ones?

TIMELINE OF KEY EVENTS

- **1960s** – The Aral Sea begins shrinking due to Soviet irrigation projects aimed at mass cotton production, leading to significant environmental degradation.
- **1970s** – Brazil's military regime begins large-scale deforestation of the Amazon rainforest to exploit its natural resources, primarily for agriculture and urban development.
- **1984** – A severe drought in the Sahel region of Africa triggers a famine, drawing international attention to the effects of desertification and unsustainable agricultural practices in the region.
- **1992** – The United Nations Framework Convention on Climate Change (UNFCCC) is signed by 154 countries, marking a global commitment to combat climate change and its effects.
- **1994** – The United Nations Convention to Combat Desertification (UNCCD) is established as the only legally binding international agreement focusing on land degradation and desertification.
- **1997** – The Kyoto Protocol is adopted, aiming to reduce greenhouse gas emissions globally as part of efforts to combat climate change.
- **2003** – Brazil implements protective measures to reduce deforestation in the Amazon, resulting in a significant drop in deforestation rates by 2006.
- **2005** – A dam is built to stabilize water levels in the North Aral Sea, leading to a temporary revival of local fisheries.

- **2007** – The African Union launches the Great Green Wall Initiative, aiming to combat desertification across the Sahel region by planting trees and implementing sustainable land management practices.
- **2012** – Legal protection of the Amazon rainforest increases, with nearly 50% of the rainforest under some form of protection.
- **2015** – The Paris Agreement is adopted under the UNFCCC, focusing on global efforts to limit global warming to below 2°C.
- **2018** – Jair Bolsonaro, an ally of the pro-deforestation Ruralistas party, is elected president of Brazil, leading to a sharp increase in deforestation rates in the Amazon.

CONCLUSION

Through examples such as the Aral Sea, the Sahel region, and the Amazon rainforest, it is evident that the consequences of desertification are severe and multifaceted, impacting everything from local economies to global biodiversity.

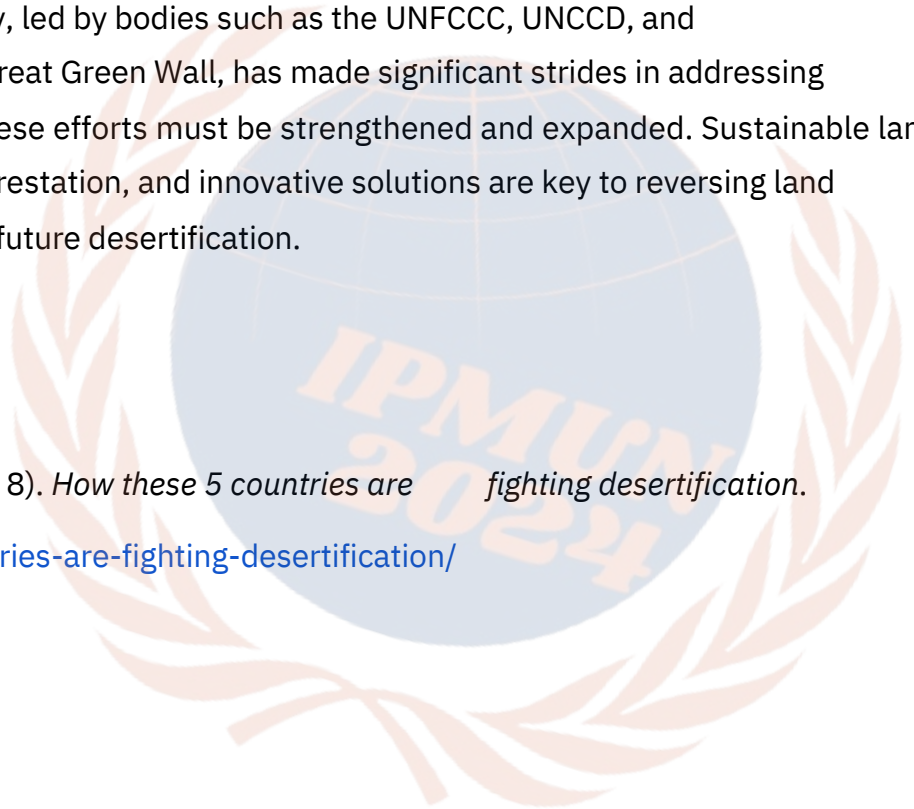
The places where desertification strikes the hardest are usually less economically developed countries. This doesn't by any means suggest they are to be held responsible for it. If anything, the international community should come together to systematically work against the processes that cause such land degradation.

The international community, led by bodies such as the UNFCCC, UNCCD, and regional initiatives like the Great Green Wall, has made significant strides in addressing desertification. However, these efforts must be strengthened and expanded. Sustainable land management practices, reforestation, and innovative solutions are key to reversing land degradation and preventing future desertification.

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IPMUN 2024

Assessing ways to achieve global carbon neutrality before 2100 and devising binding legal measures to enforce this goal including focus on removing fraudulent carbon recapture schemes

Forum: UNFCCC COP



Written by Veronika Němečková

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COMMITTEE INTRODUCTION:

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty aimed at combating climate change, with 197 member countries coming together at the Conference Of the Parties (COP). Established in 1992, it focuses on reducing greenhouse gas emissions, enhancing climate resilience, and supporting sustainable development. The UNFCCC facilitates global cooperation, providing financial and technological aid to developing nations, and plays a key role in global climate governance.

INTRODUCTION:

Achieving global carbon neutrality by 2100 is a crucial step for our planet's survival. Atmospheric CO₂ levels have soared by over 50% since pre-industrial times due to rampant greenhouse gas emissions, primarily from fossil fuels, driving catastrophic global warming. This alarming rise necessitates the implementation of binding legal measures to hold countries accountable for reducing emissions and mitigating their carbon footprints. Additionally, fraudulent carbon recapture schemes undermine the integrity of carbon offset efforts and therefore must be rigorously addressed. Immediate, decisive action and international collaboration are imperative to overcome these challenges and pave the way for a sustainable future.

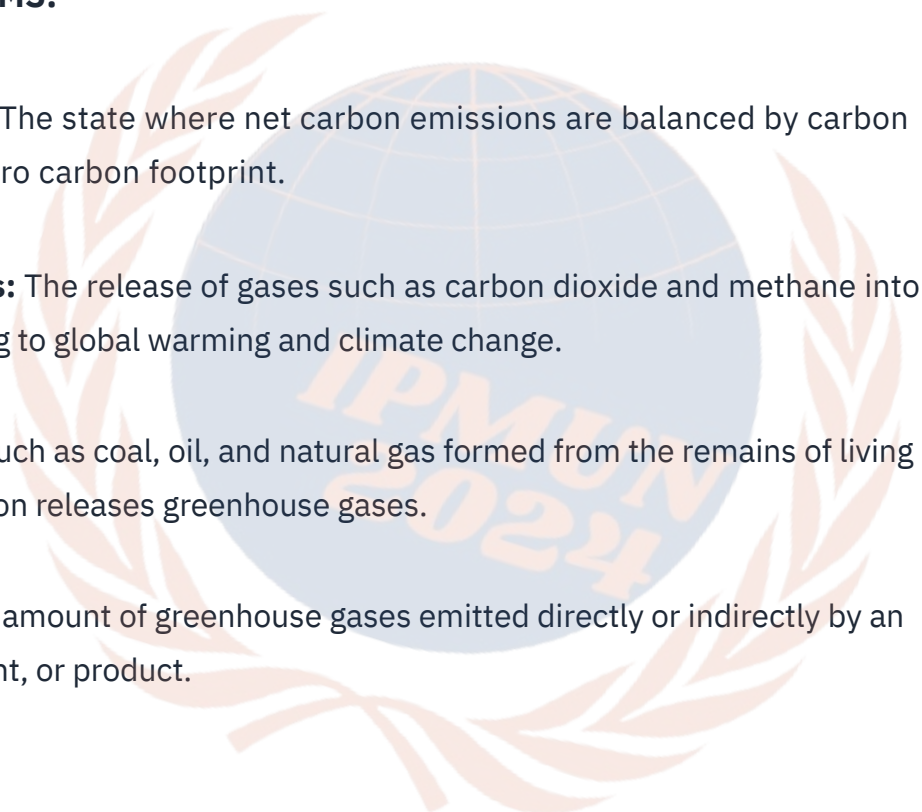
DEFINITION OF KEY TERMS:

Global Carbon Neutrality: The state where net carbon emissions are balanced by carbon removal, achieving a net-zero carbon footprint.

Greenhouse Gas Emissions: The release of gases such as carbon dioxide and methane into the atmosphere, contributing to global warming and climate change.

Fossil Fuels: Natural fuels such as coal, oil, and natural gas formed from the remains of living organisms, whose combustion releases greenhouse gases.

Carbon Footprint: The total amount of greenhouse gases emitted directly or indirectly by an individual, organization, event, or product.



Carbon Offset Efforts: Actions or projects aimed at compensating for emissions by reducing or removing an equivalent amount of carbon dioxide from the atmosphere.

Carbon Sequestration: The process of capturing and storing atmospheric carbon dioxide to mitigate or defer global warming.

Anthropogenic Emissions: Greenhouse gas emissions that are a result of human activities, such as industrial processes, transportation, and agriculture.

Mitigation Strategies: Actions and policies designed to reduce or prevent the emission of greenhouse gases.

Climate Resilience: The ability of a system, community, or ecosystem to withstand and adapt to the impacts of climate change.

Cap-and-Trade System: A market-based approach to controlling pollution by providing economic incentives for achieving reductions in the emissions of pollutants.

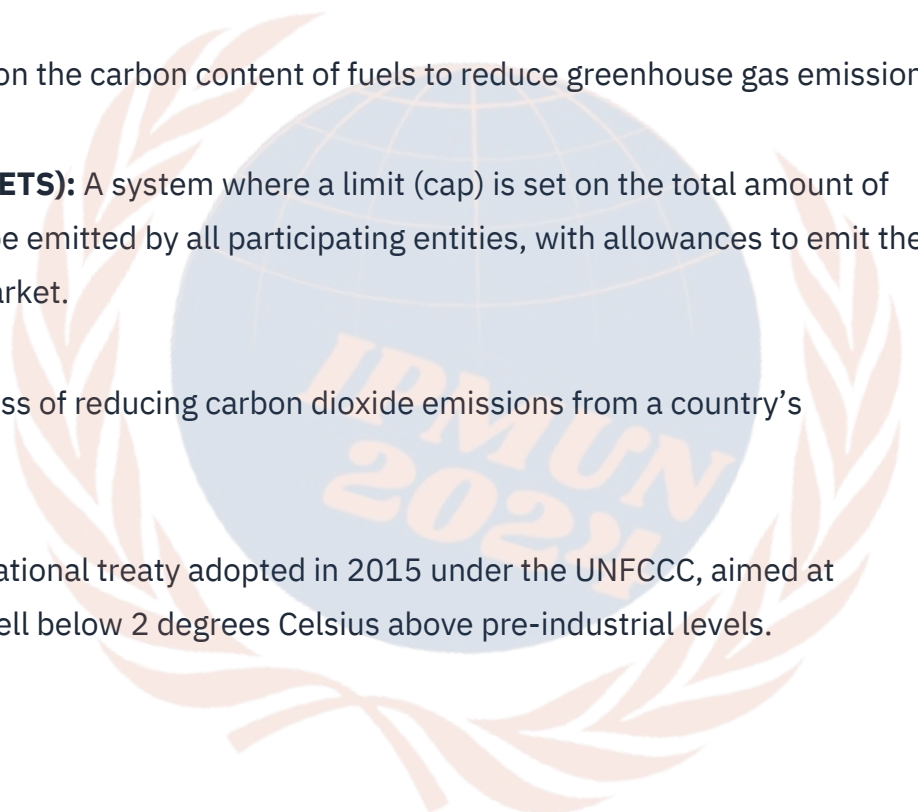
Renewable Energy Sources: Energy derived from natural processes that are replenished at a faster rate than they are consumed, such as solar, wind, and hydroelectric power.

Carbon Tax: A tax imposed on the carbon content of fuels to reduce greenhouse gas emissions.

Emission Trading Scheme (ETS): A system where a limit (cap) is set on the total amount of greenhouse gases that can be emitted by all participating entities, with allowances to emit these gases being traded in the market.

Decarbonization: The process of reducing carbon dioxide emissions from a country's economy.

Paris Agreement: An international treaty adopted in 2015 under the UNFCCC, aimed at limiting global warming to well below 2 degrees Celsius above pre-industrial levels.



Negative Emissions Technologies (NETs): Technologies that remove more carbon dioxide from the atmosphere than they emit, such as direct air capture and bioenergy with carbon capture and storage (BECCS).

Carbon Budget: The cumulative amount of carbon dioxide emissions permitted over a period of time to keep within a certain temperature threshold, such as the 1.5°C target set by the Paris Agreement.

Greenhouse Gas Protocol (GHG Protocol): A standardized framework for measuring and managing greenhouse gas emissions from private and public sector operations, value chains, and mitigation actions.

Environmental, Social, and Governance (ESG) Criteria: Standards for a company's operations that socially conscious investors use to screen potential investments.

Green Bonds: Bonds specifically earmarked to be used for climate and environmental projects.

HISTORY OF THE TOPIC AND CURRENT OVERVIEW:

History of the Call for Carbon Neutrality:

The pursuit of global carbon neutrality is deeply rooted in the history of recognizing and responding to climate change. The journey began in earnest in the late 19th century when scientists like Svante Arrhenius first suggested that burning fossil fuels could enhance the greenhouse effect. However, it wasn't until the mid-20th century that the scientific community began to coalesce around the understanding that human activities were significantly altering the Earth's climate.

In 1979, the First World Climate Conference organized by the World Meteorological Organization highlighted climate change as a critical issue. This was followed by the formation of the Intergovernmental Panel on Climate Change (IPCC) in 1988, which played a pivotal role in consolidating and disseminating scientific knowledge on climate change. The IPCC's first assessment report in 1990 laid the groundwork for international climate policy.

The United Nations Framework Convention on Climate Change (UNFCCC) was established at the Earth Summit in Rio de Janeiro in 1992, marking a significant step towards a coordinated global response to climate change. The Kyoto Protocol, adopted in 1997, was the first international treaty to set legally binding targets for greenhouse gas emissions, primarily for developed countries. Despite its limitations and the withdrawal of some key nations, the Kyoto Protocol set a precedent for international climate agreements. The concept of carbon neutrality gained prominence in the early 21st century as the urgency of addressing climate change became more apparent. Alarming reports from the IPCC and growing evidence of climate impacts spurred action. The Paris Agreement, adopted in 2015, marked a watershed moment. Unlike the Kyoto Protocol, it included commitments from all countries to limit global warming to well below 2 degrees Celsius, with efforts to limit the increase to 1.5 degrees. Central to this

agreement is the goal of achieving global carbon neutrality in the second half of the century.

Current Overview and Statistics of Achieving Carbon Neutrality:

As of 2023, over 130 countries have pledged to achieve net-zero carbon emissions by mid-century, aligning with the goals set out in the Paris Agreement. However, despite these commitments, global greenhouse gas emissions continue to rise, driven by factors such as economic growth, energy consumption, and population increases.

According to the International Energy Agency (IEA), global CO₂ emissions reached a record high of 36.8 billion metric tons in 2022. This alarming statistic underscores the urgency of transitioning to a low-carbon economy. The IPCC's Sixth Assessment Report, released in 2021, emphasizes that limiting global warming to 1.5 degrees Celsius requires immediate, deep, and sustained reductions in greenhouse gas emissions. The report warns that, without rapid action, global temperatures could rise by 2.7 degrees Celsius by the end of the century, leading to catastrophic climate impacts.

Renewable energy has seen remarkable growth, with renewables accounting for nearly 30% of global electricity generation in 2022. Solar and wind energy, in particular, have experienced rapid expansion, driven by falling costs and technological advancements. The cost of solar power has decreased by approximately 90% over the past decade, making it competitive with fossil fuels. However, the transition to renewable energy is uneven, with significant disparities between regions and countries.

Investment in clean energy is also on the rise. In 2022, global investment in energy transition technologies, including renewables, electric vehicles, and energy storage, exceeded \$500 billion. Despite this positive trend, it is still insufficient to meet the targets set out in the Paris Agreement. The IEA estimates that annual investment needs to triple by 2030 to align with a pathway to net-zero emissions.

The challenge of decarbonizing hard-to-abate sectors, such as heavy industry, aviation, and shipping, remains significant. These sectors account for roughly 25% of global emissions and lack cost-effective and scalable solutions for deep decarbonization. Carbon capture, utilization, and storage (CCUS) technologies are crucial for these sectors, but deployment is still limited, with only 26 commercial projects operating globally as of 2023.

Carbon Recapture Schemes:

Furthermore, carbon offset schemes, intended to compensate for emissions that cannot be directly reduced, face credibility issues. Reports of fraudulent carbon recapture schemes have undermined trust in these mechanisms. For instance, a 2021 investigation revealed that up to 90% of rainforest carbon offsets by major certifiers were potentially "junk" and did not represent genuine emission reductions.

In another high-profile case, a 2019 report by the EU's anti-fraud office, OLAF, uncovered that up to 20% of carbon credits in the European Union Emissions Trading Scheme (EU ETS) had been issued fraudulently, resulting in financial losses of over €5 billion. These credits were often linked to projects that either did not exist or did not deliver the promised emission reductions.

Moreover, the Clean Development Mechanism (CDM) under the Kyoto Protocol has also faced scrutiny. A study published in *Nature* in 2015 estimated that around 85% of CDM projects were unlikely to have provided genuine emission reductions, amounting to about 600 million tons of CO₂ equivalent.

Such fraudulent activities not only result in financial losses but also divert resources away from genuine climate action. They allow companies to claim emission reductions on paper without

making actual cuts in their carbon footprints, effectively undermining global efforts to combat climate change. The lack of robust regulatory frameworks and rigorous verification processes has been a critical factor in enabling these fraudulent schemes, highlighting the urgent need for reforms to restore trust and integrity in carbon markets.

International cooperation is crucial for achieving global carbon neutrality. However, geopolitical tensions, varying national interests, and economic disparities pose significant barriers. Developing countries, which are often more vulnerable to climate impacts, require substantial financial and technical support to transition to low-carbon economies. The \$100 billion annual climate finance goal set for 2020 under the Paris Agreement has yet to be fully met, further complicating global efforts.

MAJOR PARTIES AND THEIR VIEWS:

United States

The U.S. supports voluntary carbon markets and has implemented state-level programs like California's cap-and-trade system, which has issued over 500 million carbon credits since its inception. Additionally, the Biden administration has committed to reducing greenhouse gas emissions by 50-52% below 2005 levels by 2030. Projects like the Regional Greenhouse Gas Initiative (RGGI), a cooperative effort among 11 states, aim to cap and reduce CO₂ emissions from the power sector, achieving a 47% reduction in emissions since 2009.

United Kingdom

The UK is a strong advocate for carbon markets and has established its own Emissions Trading Scheme (UK ETS) after leaving the EU. The UK ETS aims to reduce emissions by 68% by 2030 compared to 1990 levels. The country also invests in nature-based solutions, with projects like the Peatland Code, which promotes the restoration of degraded peatlands to sequester carbon. The UK's commitment is further highlighted by its legally binding target to achieve net-zero emissions by 2050.

China

China, the world's largest emitter, launched its national carbon market in 2021, initially covering over 2,200 power plants responsible for approximately 40% of the country's

emissions. The market aims to incentivize reductions in carbon intensity, with plans to expand coverage to other sectors. China's commitment includes peaking CO₂ emissions before 2030 and achieving carbon neutrality by 2060. Significant projects include the Three Gorges Dam, the world's largest hydroelectric power station, contributing to the country's renewable energy capacity.

India

India emphasizes renewable energy and forest conservation in its carbon offset strategies. The country aims to install 450 GW of renewable energy capacity by 2030. India's afforestation projects, such as the Green India Mission, aim to enhance carbon sequestration and improve forest cover. India is committed to reducing its emissions intensity by 33-35% from 2005 levels by 2030 and increasing its forest and tree cover to absorb an additional 2.5 to 3 billion tons of CO₂ equivalent.

European Union (EU)

The EU is a global leader in carbon market regulation, with its Emissions Trading System (ETS) being the world's largest. The ETS covers over 11,000 installations and has traded 2.84 billion allowances in 2021 alone. The EU aims to reduce emissions by 55% by 2030 compared to 1990 levels. The European Green Deal, with initiatives like the €10 billion Innovation Fund, supports clean energy and carbon capture projects, reinforcing the EU's commitment to carbon neutrality by 2050.

United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC is the primary international body for coordinating climate action and fostering global cooperation. It oversees major agreements like the Paris Agreement, which sets targets for limiting global warming to well below 2 degrees Celsius, with efforts to limit it to 1.5 degrees. The UNFCCC supports mechanisms such as the Clean Development Mechanism (CDM) and the Green Climate Fund (GCF), which provide financial and technological support to developing countries for emission reduction and adaptation projects. The UNFCCC also works to enhance transparency and accountability in carbon markets, addressing issues like fraudulent carbon offset schemes.

International Energy Agency (IEA)

The International Energy Agency (IEA) provides critical data and analysis on global energy markets and climate policy. The IEA's World Energy Outlook highlights trends in energy consumption and emissions, emphasizing the need for accelerated transitions to renewable energy and energy efficiency. The agency advocates for robust climate policies, including carbon pricing and investment in clean technologies. The IEA's Net Zero by 2050 report outlines pathways to achieving global carbon neutrality, stressing that annual investment in clean energy must triple by 2030 to meet climate targets.

TIMELINE OF KEY EVENTS:

- 1979 – The First World Climate Conference highlights climate change as a critical issue and sets the stage for future international climate agreements.
- 1988 – The Intergovernmental Panel on Climate Change (IPCC) is established to assess scientific information related to climate change and provide policy guidance
- 1992 – The United Nations Framework Convention on Climate Change (UNFCCC) is adopted at the Earth Summit in Rio de Janeiro, marking the beginning of a global framework for climate action.
- 1994 – The UNFCCC enters into force, providing a framework for international climate negotiations and cooperation.
- 1997 – The Kyoto Protocol is adopted, setting legally binding emissions reduction targets for developed countries.
- 2003 – The EU introduces the first phase of its Emissions Trading System (EU ETS), covering major industrial sectors and power generation.
- 2005 – The EU Emissions Trading System (EU ETS) is formally launched, becoming the world's largest carbon market.
- 2006 – The first Clean Development Mechanism (CDM) projects are registered under the Kyoto Protocol, enabling developed countries to invest in emission reduction projects in developing countries.
- 2008 – The EU announces its climate and energy package, including a target to reduce greenhouse gas emissions by 20% by 2020 compared to 1990 levels.
- 2009 – The Copenhagen Accord is negotiated at COP15, setting out a framework for global climate action but failing to achieve binding commitments.

- 2010 – The UNFCCC establishes the Green Climate Fund to support developing countries in their efforts to mitigate and adapt to climate change.
- 2011 – The first Carbon Pricing Leadership Coalition (CPLC) meeting is held, promoting the use of carbon pricing to reduce emissions.
- 2011 – A major investigation reveals that up to 20% of carbon credits in the European Union’s ETS were issued fraudulently.
- 2013 – The UNFCCC launches the Warsaw International Mechanism for Loss and Damage to address the impacts of climate change on vulnerable countries.
- 2015 – The Paris Agreement is adopted at COP21, with 196 parties committing to limit global warming to well below 2°C and pursue efforts to limit it to 1.5°C.
- 2016 – The Paris Agreement enters into force, with countries submitting their Nationally Determined Contributions (NDCs) to meet climate goals.
- 2019 – The IPCC releases the Special Report on Climate Change and Land, highlighting the critical role of land use in addressing climate change.
- 2020 – The EU updates its climate policy with the European Green Deal, aiming for a 55% reduction in emissions by 2030 and achieving carbon neutrality by 2050.
- 2021 – The UN Climate Change Conference (COP26) is held in Glasgow, where nations agree to accelerate efforts to reduce emissions and phase out coal.
- 2022 – China’s national carbon market becomes operational, covering over 2,200 power plants, and the global carbon market continues to expand.
- 2023 – The EU introduces the Fit for 55 packages, proposing a comprehensive set of policies to achieve a 55% reduction in emissions by 2030 and set the stage for long-term carbon neutrality by 2050.

QUESTIONS A RESOLUTION SHOULD ANSWER:

- What specific targets should be set for different sectors (e.g., energy, transportation, industry) to ensure progress towards global carbon neutrality by 2100?
- What strategies should be adopted to accelerate the deployment of renewable energy technologies and energy efficiency measures?

- How can international cooperation be enhanced to support developing countries in achieving carbon neutrality while addressing their unique challenges?
- How can fraudulent carbon offset schemes be detected and addressed to maintain the integrity of global carbon neutrality efforts?
- What role should public and private sectors play in financing and supporting innovations necessary for achieving carbon neutrality?
- How can countries and international bodies track and report progress towards carbon neutrality transparently and consistently?
- How can global awareness and commitment to the goal of carbon neutrality by 2100 be increased among governments, businesses, and individuals?
- What specific actions should countries take to enhance the transparency and accountability of carbon offset projects?
 - Should international organizations or UN bodies increase their involvement in regulating and monitoring carbon offset schemes to ensure their credibility? If so, how?
- What penalties or consequences should be imposed on entities found guilty of engaging in fraudulent carbon offset schemes?

CONCLUSION:

Achieving global carbon neutrality by 2100 is crucial for our planet's survival. Greenhouse gas emissions from fossil fuels drive global warming, threatening ecosystems and human life. Despite efforts like the Kyoto Protocol, the Paris Agreement, and regional initiatives such as the EU Emissions Trading System, challenges persist, notably fraudulent carbon recapture schemes. Technologies like satellite monitoring and blockchain, along with stringent verification standards, are essential to combat these frauds. Therefore, continuous improvement, robust legal measures, and international cooperation are necessary to maintain progress. The urgency of climate change requires decisive action from all the member states of the UNFCCC to secure a sustainable future for all, making carbon neutrality an environmental and moral imperative.

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