BOĞAZİÇİMUN 2026

UNEP
STUDY GUIDE

Agenda Items:
1) Balancing Economic Growth and Environmental Sustainability Amid Urban Expansion
2) Climate Accountability and the Absence of Enforcement Mechanisms in International Climate Law

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1. Welcome & Introduction

a. Letter from the Secretary-General

Meritorious Participants,

I am Duru Yavuz, a senior Political Science and Sociology student at Boğaziçi University. As the Secretary-General, I would like to welcome you all to the 8th official session of BoğaziçiMUN, BoğaziçiMUN'26.

Our academic and organizational teams have been working endlessly to ensure the best BoğaziçiMUN experience for our participants. I would like to begin by thanking our Deputy Secretaries-General, Ömer Alp Şiringöz and İpek Şen for their efforts, support and friendship. And the biggest of thank you's goes to our Director-General and Club co-Coordinator Kaan Berker and our Deputy Director-General Ekin Asyalı, this conference would not be what it is without their ambition and hard work. I would also like to thank our Club co-Coordinator İrem Ayber for all her help in both academic and organizational capacities.

BoğaziçiMUN has always been a ground where we aim to achieve academic and organizational excellence, but it has also been a place where old friends get to gather and work towards a common goal, even if it is in the middle of a snowstorm. In our experience as a club and as a conference, we have broken and reshaped barriers, we have learned what it means to be in a close-knit team, we have looked to the past and embraced our legacy, and we have looked to the future to envision an improved BoğaziçiMUN.

Throughout the years, we have gained new experience, knowledge, and strength; and found a sense of community in our members and participants. In each BoğaziçiMUN; we have seen you, our participants, learn and grow with us; expanding your knowledge of international relations, world politics, and history. It was this growth and the chance to witness your dedication and curiosity that have inspired us to continue improving BoğaziçiMUN every single year. And because we get to see your enthusiasm, because we get to engage our participants' minds with the pressing issues of our time, our efforts are made worthwhile. This year, we have prepared for you a wide range of unique committees and agenda items, all thanks to our wonderful Under Secretaries-General who have worked closely with our academic team to bring fresh perspectives and discussions to the conference.

After months of preparation on top of our years of foundational experience, BoğaziçiMUN is finally ready to open its doors to you and ‘Bridge the Gap’ once again this February. At the intersection of diplomacy, international relations and creative decision-making, BoğaziçiMUN stands as a chance to take matters into your own hands. Let us embark on this mission together and broaden our horizons as well as our community. It is my utmost honor to welcome you all to BoğaziçiMUN 2026, I hope to meet you soon.

Kind regards,

Duru Yavuz
Secretary-General of Boğaziçi MUN 2026

b. Letter from the Under Secretaries-General

Distinguished participants,

It is our utmost pleasure to welcome you all into the United Nations Environmental Programme. We are Abdullah Kikati and Nisa İltekin, delighted to serve as your Under Secretaries-General. In this committee, we will discuss two important agenda items addressing today's most critical environmental and governance issues.

Our first agenda item, “Climate Accountability and the Absence of Enforcement Mechanisms in International Climate Law” reveals a fundamental weakness of the global climate regime. This issue directly concerns not only climate policies but also the structure of international law, the understanding of state sovereignty, and the concept of global justice. Delegates are expected to understand, on the one hand, why international law is often ineffective in the face of climate crises and the structural limitations of this system; and on the other hand, to question the extent to which possible mechanisms for holding states accountable are fair and feasible. And our second agenda item, “Balancing Economic Growth and Environmental Sustainability amid Urban Expansion” focuses on the environmental impacts of rapid urbanization. Delegates are asked to develop solutions on how sustainable urbanism, green infrastructure, and long-term planning systems can be integrated with economic development and growth. As the UNEP Committee, we expect you to present feasible and multifaceted policy proposals. And lastly, we expect delegates to think critically, ask bold questions, and openly discuss different perspectives, rather than settling for stereotypical answers.

Before we conclude, we would like to express our gratitude to our esteemed Secretary-General, Ms. Duru Yavuz, for providing us with the chance to form this committee and to our Director-General, Mr. Kaan Berker, for the unwavering support. We also want to thank our wonderful Academic Assistant, Ms. Irmak İşgören for her amazing contributions to this guide.

We wish you all a productive and a well-organized conference.

Best,

Nisa İltekin & Abdullah Kikati

2. Committee Overview

a. History of UNEP

The United Nations Environment Programme (UNEP) Since its founding in 1972, UNEP has served as a neutral convener of Member States, civil society, the private sector and UN agencies to address humanity's most pressing environmental challenges. (UNEP, n.d) UNEP seeks to assist the world in achieving the 17 Sustainable Development Goals as a member of the United Nations Development Group. The Convention on Biological Diversity (CBD), the Minamata Convention on Mercury, the Basel, Rotterdam, and Stockholm Conventions, the Convention on Migratory Species, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) are just a few of the multilateral environmental agreements and research organizations whose secretariats are housed at UNEP.

The Intergovernmental Panel on Climate Change (IPCC) was founded in 1988 by UNEP and the World Meteorological Organization.Additionally, UNEP is one of several Implementing Agencies for the Multilateral Fund for the Implementation of the Montreal Protocol and the Global Environment Facility (GEF). On occasion, UNEP goes under the alternative moniker UN Environment. Nairobi, Kenya, is home to the agency's headquarters.

b. Sustainable Development Goals (SDGs)

The Sustainable Development Goals (SDGs), which are also known as Global Goals, were adopted in 2015 by the United Nations as a universal call to act to end poverty, protect the planet, and make sure that by 2030 all people enjoy peace and prosperity. The 17 goals are aligned with each other; they notice that one action in one area will impact the consequences in others, and that development has to balance social, economic, and environmental sustainability. Countries have promised to prioritize improvement for those who are the furthest behind. The SDGs are created to end poverty, hunger, and discrimination against women and girls. The cooperation, technology, and financial resources from all of the people in the world are necessary to achieve the SDGs in every context. Especially, goal number 13, "Climate Action" is necessary to be observed under the framework of the United Nations Environment Programme (UNEP), which will be evaluated in detail in this guide in the following sections.

3. Introduction to Climate Accountability and the Absence of Enforcement Mechanisms in International Climate Law

a. Climate Change as a Global Environmental Crisis

Climate change points to long-term shifts in temperatures and weather patterns. These shifts can be natural, because of the changes in the sun's activity or large volcanic eruptions. However, since the 1800s, human activities have been the main cause of climate change, initially because of the burning of fossil fuels like coal, oil, and gas. Burning fossil fuels leads to greenhouse gas emissions that act like a blanket that wraps around the Earth, traps the sun's heat, and raises the temperature. The fundamental gases that are leading to climate change include carbon dioxide and methane. These gases are coming from, for instance, the usage of gasoline for driving a car or coal for heating a building. Clearing land and cutting down the forests also contributes to carbon dioxide release. Agriculture, oil, and gas operations are major sources of methane emissions. Energy, industry, transport, buildings, agriculture, and the usage of land are part of the central sectors that cause greenhouse gases.

Scientists use observations from the ground, air, and space along with computer models for monitoring and studying previous, present and future climate change. Climate data records provide evidence related to climate change key indicators such as global and ocean temperature increases, rise of sea levels, loss of ice at Earth’s poles and mountain glaciers; frequency and severity of changes in extreme weather conditions such as hurricanes, heatwaves, wildfires, droughts, floods, and precipitation and cloud and vegetation cover changes. The terms “climate change” and “global warming” are often used interchangeably; however, they have distinct meanings.

On the other hand, global warming refers to long-term heating of the surface of Earth, which has been observed since the pre-industrial period because of human activities, initially fuel burning, which increases heat-trapping greenhouse gas levels in the atmosphere of Earth. This term does not refer to the same meaning as “climate change” which is an essential distinction.

The global environmental crisis means critical situations that arise because of the degradation of the natural environment, often resulting from human activities like pollution and climate change. Therefore, as one of the most critical human-made natural environment degradation, climate change appears under the framework of “environmental crisis”. Climate change is one of the crises that emerged after the degradation of the environment due to human practices, and this crisis is not affecting a specific region but the whole world, which makes this crisis global. Climate change, as one of the global environmental crises, has been tried to solve by many actions taken by governments and organizations; however, more actions are needed in order to combat this crisis.

b. Sustainable Development Goal 13 and Its Interlinkages

Sustainable Development Goal 13 "Climate Action" is the goal that urges states to take immediate actions to tackle climate change and its impacts. The targets of SDG number 13 are:

1. Strengthening the resilience and adaptive capacity to climate related hazards and natural disasters in all countries
2. Integrating climate change measures into national policies, strategies and planning
3. Improving education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
    a. Implementing the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
        i. Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the $100 billion commitment through to 2025
    b. Promoting mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities
        i. Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)

The targets of Goal 13 clearly show its interlinkage with other sustainable development goals; therefore, it is not possible to achieve Goal without the help of other

goals, and this clearly shows the impossibility of tackling the issue of climate change without the help of other actions, which are mentioned under the targets of this goal and these interlinkages will be evaluated in this section.

The failure in scaling up the climate action will impact all SDGs, but the situation can also be analyzed vice versa. Generally, it is suggested that climate action broadly links with the SDGs. A review of the nationally determined contributions under the Paris Agreement finds that countries' climate activities are contributing to renewable energy, energy efficiency, clean water and sanitation, ending deforestation and desertification, food systems and sustainable cities and transport systems, which are closely associated with goals number 2, 6,7,11, and 15. Official development assistance analysis shows that these financial flows initially target areas with strong mitigation potential, which include renewable energy systems, sustainable cities and communities, food systems, and life on land, which are linked with goals 2, 7, 11, and 15. Even though the climate action is linked with other SDGs, it is important to note that these interlinkages can also create several conflicts in terms of macro-economic costs, poverty alleviation, and energy access.

c. Why Climate Action Requires Collective Global Responses

The challenge remains in terms of mobilizing the global community to reduce GHG emissions, which shows a tragedy of the commons, a problem that takes place when shared or free-access resources are free and ready for the unsustainable exploitation of these resources. A united global response, which is also referred to as collective action, offers the opportunity for the creation of sustainable use. Therefore, international response to climate change is crucial for several reasons.

Firstly, humans use certain essential resources in common. The ozone layer and the atmosphere are the referred sources. Particularly, the atmosphere is a source that has been commonly used by the whole of humanity, and without global coordination and regulation, common resources are prone to degradation.

Secondly, even environmental degradation can be locally situated and felt; however, there are causes that are beyond the administrative and political borders. Globalization both provokes and mitigates environmental degradation. Global actions are essential for fair and effective solutions to climate change.

Thirdly, specific types of solutions for environmental degradation needs and benefits from global coordination mechanisms, collaboration, and regulation. Fast development and dissemination of green technologies and transmitting the flow of investment into low-emission economic sectors and activities that need relevant mechanisms. International mechanisms that coordinate the exchange of knowledge, skills, and policies are needed.

Lastly, the Earth requires many cases in which collective action is needed. The issue of climate change affects the whole world and not a single nation, and as a global problem, this issue needs global effort to be solved; therefore, global climate change can only be tackled by the collective action of every part of the world.

d. From Climate Commitments to Climate Accountability

The nature of the climate change problem requires the need of commitment. The role of commitments came from the collective action principle of climate change. On the other hand, these commitments have costs for the countries due to the nature of the crisis; the benefits of the national-level action are shared by the international community as a whole, so this makes the cost of the problem exceed the benefits and explains the reason that state makes commitments rather than obligations. Internationally, these commitments are helpful for holding the cooperative regime together. Previously, taking a costly action to address climate change, states need to be confident that others are doing their part as well. International commitments are the aspects that countries are binding themselves to another country to take collective action. Generally, these commitments are voluntary due to the absence of an international legislature that imposes these obligations on states, so this makes international obligations dependent on states' consent. On the other hand, by committing, a state is agreeing to limit its future freedom of action, and it promises to act in a particular way or to achieve a particular outcome. Therefore, even though the acceptance of a commitment is voluntary, the attainment of this commitment is not. International commitments have a spectrum. Some of these commitments are political; for instance, the goal in the UN Framework Convention on Climate Change (UNFCCC) is to return developed country emissions to the levels they were in 1990 by 2000; the others are legal, for instance, reporting requirements stated in the UNFCCC and the targets and timetables in the Kyoto Protocol and the Montreal Ozone Protocol. The absence of an effective institution for the interpretation and enforcement of international law, and the difference between political and legal commitments, can often be perceived as illusory. Most of the international agreements depend on the good faith of states and on the diffusion of the costs of creating a reputation for

breaking promises, which makes it more difficult to initiate advantageous deals in the future. However, generally, taking a legal commitment creates a greater level of seriousness for states, increases the cost of violation, and sets domestic legal implementation mechanisms in action. That is the reason, even in the absence of any realistic prospect of being sanctioned for non-compliance, countries are usually reluctant to accept legally binding commitments, and the reason for the decision of the action in the Kyoto Protocol was difficult and controversial. It is important to note that no level of commitment can assure that a country will stay committed to its commitments. Therefore, for analysts, climate change mitigation requires both legally binding commitments and a strong compliance system.

Climate accountability refers to the transparency regarding actions that are required for the effective mitigation and adaptation to climate change. The commitment of states to climate change also comes with them being held accountable for their actions because when state makes commitments for climate action under the framework of several agreements, they have to provide reports and be accountable in terms of these reports are highly crucial and essential. Also, climate accountability is not only related to the reports for international agreements but also important for informing citizens related to the actions of the state. Most importantly, since the climate change is a crucial problem and requires the actions of all governments accountability needs to be the key that shows the willingness and the actions of states took to solve this problem therefore, establishment of climate accountability requires strong governance and oversight, standardized data and reporting, clear outputs and outcomes, detailed action identification, budget allocation, monitoring, evaluation and reporting.

e. Climate Change and Seeking the Collective Good Framework

The collective goods problem refers to the problem of providing something that benefits all members of a group regardless of what each member contributes to it. Even though the extent of interdependence varies within individual nations, the collective goods problems remain at the core of all dilemmas facing the international community. There are three ways that a nation can approach the collective goods problem, which are reciprocity, dominance, and identity. The principle of dominance helps to examine the role of power and structural hierarchy that exists in many forms in the international system. The principle of reciprocity is related to the cooperation between nations, and it explains the reasons that nations have come to certain agreements and alliances without the use of physical force and a

central authority. The principle of identity explains the extent to which belonging to a certain group or sharing ideals and customs can impact the behavior of a state.

According to the current global scope, the demand for goods that are considered limited in the globalized economy is high, and unfortunately, environmental protection is generally not the initial concern. The efforts of governments and international organizations to consider these negative environmental issues faced some challenges. These international organizations have both achieved and failed to solve the global environmental problems in both the past and present times. Even though efforts have been made, the solving of the issue has not been solved completely; therefore, governments and international organizations are actors that serve and protect against the damage of the collective goods problem regarding the solution of environmental issues. These principles are essential for understanding the state's behaviors and the actions that are both willing to and not willing to take, or the agreements they ratify.

Climate change and the collective goods problem can be explained in terms of the agreements through the principle of reciprocity. Reciprocity is associated with the ratification of agreements because states are making mutual cooperations in which all parties are making some sacrifices, in order to solve the problem Kyoto Protocol can be examined under this approach. Even though this protocol has been refused to be signed by some countries that are prioritizing their own self-interest, it remains as an example for a reciprocity principle in solving the problem.

The problem of climate change can be evaluated and solved by the usage of other principles as well; however, as it is a global environmental the most efficient way to solve this problem is through the principle of reciprocity. This principle is crucial for understanding the reason for states' ratification of international agreements and making commitments to solve this problem, but also, this principle is crucial for understanding the reasons for countries' unwillingness to ratify these agreements. Therefore, for analyzing the climate change problem, the ways that seek the collective good provide an insight to analyze the problem.

4. Current Institutional and Legal Frameworks of Global Climate Governance

a. From Kyoto to Paris: Binding Commitments and Their Limits

Kyoto Protocol, 2005, adopted in 1997 and entered into force in 2005, was the first legally binding climate treaty (Maizland & Fong, 2026). The Kyoto Protocol, which requires the participation of at least 55 countries from the UNFCCC Annex 1 and whose CO2 emissions account for 55% of total CO2 emissions, can be considered one of the most

important actions taken internationally against climate change. It imposed quantified greenhouse gas (GHG) emission reduction targets on developed countries (Annex I Parties) only, averaging about a 5% cut below 1990 levels by 2008–2012 for 37 industrialized countries and the EU. The Kyoto Protocol is based on the principles and provisions of the Convention and follows its annex-based structure. It only binds developed countries, and places a heavier burden on them under the principle of "common but differentiated responsibility and respective capabilities", because it recognizes that they are largely responsible for the current high levels of GHG emissions in the atmosphere (United Nations Framework Convention on Climate Change [UNFCCC], n.d.). However, the deal did not force developing nations (including China and India, two of the world's largest carbon emitters) to take action (Maizland & Fong, 2026). The United States signed the pact in 1998, but it later withdrew its signature and never ratified it.. As a result, Kyoto's binding commitments covered only a fraction of global emissions, limiting its environmental impact and effectiveness. Indeed, even as Kyoto's targets were implemented, global CO_2 concentrations continued to rise, illustrating the limits of an agreement that did not encompass all major emitters.

A critical limitation of Kyoto's binding regime was the lack of robust enforcement in practice. While Kyoto established a Compliance Committee with an enforcement branch to determine consequences for non-compliant parties in reality it had no true power to sanction or coerce sovereign states (UNFCCC, n.d). If a country failed to meet its emissions target, the main "penalty" was suspension from emissions trading markets and the requirement to make up the shortfall (with a 1.3-to-1 ratio) in a future commitment period. According to Michael Gillenwater, one of the main failures of the Kyoto Protocol is also its lack of any real enforcement mechanism as it is mentioned above. Although the Compliance Committee includes an Enforcement Branch, this branch actually has no power of sanction or coercion over noncompliant parties. If a party is found to be noncompliant, its eligibility to continue to participate in the Protocol's flexibility mechanisms (i.e., national emissions trading, CDM, and JI) can be suspended by denying the party access to the international emission allowance transaction registry (Gillenwater, 2010)

These safeguards were insufficient; in order to avoid sanctions, a nation could even leave the treaty (as Canada did in 2011). To put it briefly, the strength of Kyoto's legally enforceable obligations depended on the political will of the various nations. Many believed that Kyoto was insufficient to address the global climate catastrophe because of the treaty's limited scope (only industrialized countries had targets) and lack of enforcement alternatives.

By the end of the first commitment period, most Annex B parties formally met their targets, in part due to economic transitions and use of carbon market credits – but global emissions had grown, shifting the burden to a future regime (Patt et al., 2022).

The limitations of Kyoto's approach set the stage for a different strategy. In the late 2000s, countries turned to voluntary pledges as a stopgap. The Copenhagen Accord (2009) (a political agreement, not legally binding) saw countries including major developing economies submit non-binding emissions pledges for 2020. Though merely "taken note of" by the COP, the Accord's voluntary, bottom-up pledging approach influenced the formal Cancun Agreements (2010), where the UNFCCC COP endorsed these pledges as an interim framework through 2020 (Patt et al., 2022, p. 1461). This pledge-and-review system engaged a broader set of countries but still lacked enforceable commitments. Consequently, parties agreed in Durban (2011) to negotiate a new agreement "with legal force" applicable to all parties, leading to the Paris Agreement of 2015 (Patt et al., 2022, s. 1462).

The Paris Agreement represents a paradigm shift from Kyoto's model. It introduced a bottom-up architecture of Nationally Determined Contributions (NDCs), whereby all countries (developed and developing alike) put forward their own emission reduction pledges. Unlike Kyoto's fixed, top-down targets, Paris commitments are self-defined and not legally binding as to outcomes, though the treaty obliges procedural duties (e.g. to submit and update NDCs). This flexibility was intended to secure universal participation and greater ambition over time. Notably, the Paris Agreement's goal is to hold global warming well below 2°C and strive for 1.5°C above pre-industrial levels (UNFCCC, n.d), with global net-zero emissions in the second half of the century. Achieving this relies on iterative strengthening of NDCs rather than binding country-by-country targets. In summary, the evolution from Kyoto to Paris was marked by a move from narrow, binding commitments (with significant limits in participation and enforcement) to a broader inclusive framework that leverages voluntary national commitments, transparency, and global peer pressure to drive action.

b. The UNFCCC Architecture and the Paris Agreement

The UNFCCC architecture provides the institutional scaffolding for global climate governance. The UNFCCC itself (opened for signature in 1992, entered into force 1994) set the overarching objective of preventing dangerous anthropogenic interference with the climate system. It established universal membership (197 Parties) and core principles, including equity and common but differentiated responsibilities and respective capabilities

(CBDR-RC) (UNFCCC, n.d), which acknowledge differing obligations for developed versus developing countries. Under the Convention, all parties commit to report emissions and implement climate measures, but only developed countries (Annex I) were urged to aim to return emissions to 1990 levels by 2000 (a non-binding goal) (Maizland & Fong, 2026). The Convention's supreme body, the Conference of the Parties (COP), meets annually to negotiate and adopt decisions. This UNFCCC process yielded the Kyoto Protocol and later the Paris Agreement as separate legal instruments (Maizland & Fong, 2026). Supporting the COP are subsidiary bodies (for scientific and technical advice, SBSTA, and for implementation, SBI) and various expert panels, as well as a permanent Secretariat (Patt et al., 2022, s. 1455). In essence, the UNFCCC provides a forum and institutional framework within which global climate rules are debated and decided.

The Paris Agreement was adopted at COP21 (2015) under the UNFCCC and is now the centerpiece of the climate governance regime. It is a legally binding treaty in force since 2016, with near-universal participation (over 190 parties) (UNFCCC, n.d). Importantly, the Paris Agreement is implemented through the UNFCCC structure: the COP also serves as the Meeting of Parties to the Paris Agreement (CMA), and the UNFCCC's mechanisms for reporting, finance, and technology support are integrated with Paris commitments (United Nations, 2015, Art. 9). Paris did not replace the UNFCCC; rather, it builds on and reinforces it, bringing all nations together under a common framework to limit warming (United Nations, 2015, Art. 2). Under the Paris Agreement, every country must prepare, communicate, and maintain successive NDCs (essentially national climate action plans) and pursue domestic measures to achieve them. These NDCs operate on a five-year cycle: Parties submit an initial NDC, implement policies, then every five years submit an updated NDC with stronger ambition. This ratcheting mechanism is designed to progressively raise collective ambition in line with the Paris temperature goals.

Within the UNFCCC/Paris architecture are several key components to facilitate action and support. A Global Stocktake is conducted every five years to assess collective progress toward the agreement's long-term goals, informing the next round of NDC enhancements. The framework also includes mechanisms for providing climate finance and technology transfer to developing countries. For example, the Convention's financial mechanism (operationalized via the Green Climate Fund, Global Environment Facility, etc.) and the commitment by developed nations to mobilize $100 billion per year by 2020 were affirmed in COP decisions (Cancun) and reiterated alongside Paris commitments (Patt et al., 2022, s.

1487). The Paris Agreement's text itself commits developed countries to continue taking the lead in climate finance, while for the first time encouraging voluntary financial contributions from others. Additionally, the Technology Mechanism (with bodies like the Technology Executive Committee and Climate Technology Centre & Network) was set up under the UNFCCC (Cancun Agreements) to facilitate tech cooperation, and now serves Paris goals as well. In terms of governance, the Paris Agreement Implementation and Compliance Committee (PAICC) and enhanced transparency framework (which will be discussed in 4.4) also fall under the broader UNFCCC institutional umbrella.

Notably, the UNFCCC's climate regime has evolved from a bifurcated structure under Kyoto to a more unified architecture under Paris. Under Kyoto, only Annex I parties had binding targets and its governing body (CMP) dealt with those commitments separately, whereas under Paris all parties have obligations (albeit differentiated in scope and support) and meet together under a single set of rules. Scholars often contrast the top-down Kyoto model versus the bottom-up Paris approach. In Kyoto, targets were negotiated and assigned through an international process (Annex B of the protocol), whereas in Paris, mitigation contributions are nationally determined and then internationally registered. Paris thus marked a decisive break from Kyoto's architecture, creating a more flexible system to engage both developed and developing countries in climate action. At the same time, there are continuities: the Paris system retained and enhanced mechanisms for transparency and reporting that originated under the Convention and Kyoto, and it continued to use common institutions like the COP and UNFCCC Secretariat. In summary, today's climate governance architecture under the UNFCCC is characterized by universal participation, nationally driven commitments, and common processes for monitoring progress, all aimed at achieving the globally agreed goals of the Paris Agreement. (Patt et al., 2022)

c. Soft Law Instruments and Voluntary Commitments

In addition to formal treaties, global climate governance heavily relies on soft law instruments and voluntary commitments. Soft law refers to non-binding agreements, resolutions, or principles that, while not legally enforceable, shape state behavior and expectations. In the climate context, soft-law arrangements have been used to complement or pave the way for hard-law treaties. A prime example is the 2009 Copenhagen Accord, essentially a political declaration wherein countries outlined voluntary climate actions for 2020 (Patt et al., 2022, p. 1461). The Accord was not legally binding and set no enforceable

emission targets, yet over 140 countries (accounting for more than 80% of global emissions) associated themselves with it and submitted pledges. These pledges (ranging from economy-wide emission targets by developed nations to goals like improving carbon intensity or reducing deforestation by developing nations) were purely voluntary. Nevertheless, the Copenhagen Accord's bottom-up pledge approach significantly influenced subsequent negotiations. At COP16 in Cancun (2010), parties formally adopted the Cancun Agreements, which incorporated the Copenhagen pledges into the UNFCCC framework. Although still non-binding, this move gave the voluntary commitments official recognition under the UN process. The Cancun Agreements were viewed as an interim solution through 2020, bridging the gap between Kyoto's first period and the new Paris regime.

Soft law in climate governance also encompasses the myriad of conference decisions, declarations, and initiatives that guide implementation and encourage greater ambition. COP decisions (apart from adopting treaties) are typically not treaties themselves but carry political weight. For instance, the COP21 decision adopting the Paris Agreement (Decision 1/CP.21) contains important but non-binding provisions, urging countries to pursue efforts for the 1.5°C limit and signaling intent on climate finance and adaptation. Similarly, the annual COP cover decisions (such as the Glasgow Climate Pact at COP26 in 2021) are essentially soft law instruments: they express consensus political commitments like accelerating the phase-down of unabated coal power, without creating new legal obligations on parties. These instruments rely on peer pressure and global public scrutiny rather than formal enforcement. They can influence national policies by articulating normative expectations. For example, even though the long-standing pledge by developed countries to mobilize $100 billion per year for developing nations by 2020 was not a binding treaty obligation, it was reiterated in UNFCCC decisions and thus became a benchmark against which countries' performance is judged. The repeated affirmation of this goal in soft-law form (from Copenhagen/Cancun through Paris decisions) put pressure on donor countries to demonstrate progress, illustrating how soft commitments can have practical impact.

Voluntary commitments by non-state actors and coalitions also form part of the soft-law landscape in climate governance. The UNFCCC recognizes and encourages efforts by cities, regions, businesses, and civil society through initiatives like the Global Climate Action Portal (NAZCA), where thousands of pledges (e.g. on achieving net-zero emissions or 100% renewable energy) are recorded. These are not governed by international law, but they contribute to global climate objectives and create accountability through transparency.

Furthermore, clubs and partnerships outside the UNFCCC, such as the Climate and Clean Air Coalition or the Powering Past Coal Alliance, operate via voluntary commitments among subsets of countries and organizations. While not legally binding, they often spur faster action and can be incubators for norms later adopted universally. Scholars note that such transnational climate initiatives exemplify soft governance: they fill gaps left by intergovernmental agreements and can increase ambition by creating forums for like-minded actors.

In summary, soft law instruments (from COP decisions and political accords to voluntary multi-stakeholder initiatives) play a strategic role in global climate governance. They allow for flexibility and broad participation, enabling progress even when consensus for hard law is elusive. However, their non binding nature means they rely on transparency, goodwill, and normative pressure. The climate regime's experience (e.g. with the Copenhagen/Cancun pledges) shows that voluntary commitments can mobilize action and prepare the ground for stronger agreements. The Paris Agreement itself can be seen as a blend of hard and soft elements: the treaty is binding in form, but the stringency and enforcement of countries' contributions are largely voluntary, backed by soft pressure. Thus, soft law and voluntary commitments complement formal treaties, aiming to boost ambition and implementation in the absence of a global enforcement authority.

d. Existing Compliance and Monitoring Mechanisms

Ensuring that countries honor their climate commitments is a core challenge of global climate governance. Without a world government or "climate police" , compliance relies on monitoring, transparency, and peer accountability rather than coercive enforcement (Gillenwater, 2010). Over time, the climate regime has developed a complex system of reporting and review to track implementation. Under the UNFCCC, all parties submit periodic national communications and GHG inventory reports (Annex I countries annually, others biennially or as agreed) detailing emissions and policies (Gillenwater, 2010). The Kyoto Protocol significantly strengthened monitoring with rigorous accounting rules and expert review processes. Annex I parties had to maintain national systems for estimating emissions, and their inventories underwent review by teams of international experts to ensure accuracy (Gillenwater, 2010). Kyoto also introduced flexible mechanisms (emissions trading, Clean Development Mechanism, Joint Implementation), which came with their own oversight and verification procedures, linking compliance to carbon market eligibility (Gillenwater,

2010). The culmination of Kyoto's monitoring was the true-up period at the end of the commitment period: each party's total emissions were compared against its assigned amount (allowances plus credits) to determine compliance (Gillenwater, 2010).

The Kyoto compliance mechanism was, on paper, one of the most comprehensive in international environmental law. It featured a bifurcated Compliance Committee with a Facilitative Branch (to advise and assist parties in implementation) and an Enforcement Branch (to determine non-compliance and apply consequences). If a country failed to meet its Kyoto emissions target, the Enforcement Branch could declare it non-compliant and invoke penalties. The main consequences were: suspension of eligibility to participate in emissions trading and other mechanism activities, and a requirement to make up the excess emissions in the next period with a 1.3 multiplier penalty. While these measures sounded strict, their real world efficacy was limited. For one, the second commitment period (2013-2020) saw fewer participants and was not ratified by some major parties, undermining the penalty of carrying over excess obligations. Moreover, as noted, a party could withdraw from the Protocol entirely to avoid compliance consequences, an option several took. No international court or police could compel a sovereign state to cut emissions or pay fines. In practice, Kyoto's enforcement branch never had to impose harsh penalties : by 2015 it found most parties in compliance (with generous use of carbon credits). Observers conclude that Kyoto's enforcement system provided only weak incentives for compliance, its true impact was more about transparency and political accountability than punishment.

The Paris Agreement takes a different approach, emphasizing transparency and facilitation over sanctions. Given that Paris relies on self-determined pledges (NDCs) rather than internationally assigned targets, its focus is on holding countries accountable to their own commitments through monitoring and review. The backbone of this is the Enhanced Transparency Framework (ETF) (Article 13 of Paris), which compels all parties to report detailed information on GHG emissions and progress toward their NDCs on a regular cycle. Starting in 2024, both developed and developing countries (with flexibility for least developed countries and small island states) must submit Biennial Transparency Reports with economy-wide emission inventories and tracking of NDC implementation. These reports undergo Technical Expert Review by international teams, which check the data and provide feedback. Additionally, there is a Facilitative, Multilateral Consideration of Progress, a form of peer review where countries discuss each other's performance in implementing NDCs. The ETF builds on prior UNFCCC MRV (measurement, reporting, verification) systems but

extends them to all parties and is more rigorous in terms of the scope of information. Through transparency, the Paris system aims to create reputational incentives: countries that fall behind their pledges can face international scrutiny and pressure to adjust policies.

In lieu of an enforcement branch, the Paris Agreement established an Implementation and Compliance Committee (Article 15) (the PAICC) which began operating in 2019. This committee is expert-based, facilitative, and non-punitive by design. It cannot impose sanctions or resolve disputes, but it can examine cases where a party may be struggling to fulfill its obligations and recommend steps to improve compliance. For instance, the committee can be triggered if a country fails to submit an NDC or required report on time. In such situations, the PAICC will engage with the party, identify the challenges, and offer assistance or recommendations, always paying particular attention to national capabilities and circumstances. The logic is that by treating compliance as a matter of facilitation (capacity-building, transparency, encouragement) rather than punishment, even reluctant parties will remain engaged rather than defy the system outright. This reflects a recognition of state sovereignty and the political reality that harsh enforcement is infeasible. As a result, current compliance mechanisms in climate governance are essentially cooperative: they aim to build trust and confidence that all are doing their part, rather than to coerce unwilling governments.

Finally, it's worth noting the role of global stocktaking and peer pressure as meta-level monitoring tools. The Paris Agreement's Global Stocktake (GST), first scheduled for 2023, assesses collective progress towards the long-term goals on mitigation, adaptation, and support. While it does not judge individual countries, the GST's findings (e.g. a gap between aggregated NDCs and the 1.5°C path) are expected to inform and morally pressure governments to enhance their next NDCs. Outside the UN process, independent assessment initiatives (such as the UNEP Emissions Gap Reports, Climate Action Tracker, etc.) also monitor and publicize how current policies and pledges compare to the Paris goals. This public transparency complements official mechanisms and can galvanize domestic accountability, citizens and media can hold their governments to account for promises made on the international stage. To keep it short for this part, today's climate governance relies on a web of monitoring and compliance mechanisms that favor sunshine over sanctions: thorough reporting requirements, technical reviews, peer dialogues, facilitative committees, and periodic collective assessments. These tools seek to ensure that countries stay on track and progressively ratchet up action, even in the absence of binding enforcement, reflecting the

delicate balance between international oversight and national sovereignty in the climate regime.

5. The Foundations and Limits of Obligation in International Climate Law

The global climate crisis and other environmental problems are common threats that transcend state borders and affect all of humanity. In order to combat these threats, numerous international environmental agreements have been concluded. As an example, global climate treaties such as the Paris Climate Agreement mentioned above call on states to reduce their greenhouse gas emissions. However, as is frequently observed in practice, whether such agreements are genuinely binding remains highly controversial, and this constitutes a significant part of the issue we are examining under Agenda Item A. States often act reluctantly in fulfilling their commitments, and when they fail to comply with these agreements, there is no effective enforcement or sanctioning mechanism they face. This situation may raise questions for some and may lead others to propose solutions such as “then let us prepare sanction packages” or “establish climate courts.” Yet, there are certain reasons why there is no global climate police or supranational authority overseeing the enforcement of international law. To express the problem more clearly by turning it into a question: why does international climate law, and international environmental law more broadly, have such weak binding force in practice? Why is it that deterrent sanctions cannot be effectively triggered when rules are violated?

The answers to these questions are embedded in the philosophy and structure of international law. The differences between international law and domestic law; state sovereignty; the principle of auto-limitation; the formation of international legal rules through consensus (unanimity or general agreement); the rule of *pacta sunt servanda* (agreements must be kept); and the concept of soft law all help explain why climate agreements often lack sufficient binding force (Note: due to the very nature of international law, there are of course multiple perspectives on why and to what extent something can be binding, and as you become familiar with these views, you will be able to conduct more effective debates within the committee). In addition, the fact that international law operates through states themselves, the concept of state personality in international law, the monist–dualist distinction, and the approaches of jurists such as Alfred Verdross also shed light on this issue.

a. State Sovereignty, State Personality, and the Theory of Auto-Limitation

The most fundamental characteristic of international law is the absence of a central legislator or enforcement body. Based on the principle of sovereign equality, states voluntarily create and agree to abide by the rules of international law. This is explained by the theory of auto-limitation, which we will discuss in more detail below. In other words, "*States are bound by the rules of international law because they have demonstrated the will to comply with those rules.*"

Moreover, the concept of state personality, which we will frequently refer to later, expresses that states are independent and equal subjects (legal persons) in international law. Each state claims absolute sovereignty over its territory and people. Therefore, international law is based on the principle of the sovereignty and equality of states; there is no superior authority above states to set rules for them (Güneş, A. M. , 2012). In other words, since there is no supranational government or global police force in the world, it is the states themselves that make the rules of international law and are obliged to abide by them.

This situation has also given rise to the question "Is international law… truly a law?", a problem that has preoccupied legal theorists since the nineteenth century. Moreover, the following statement (or similar ones) frequently encountered in visual and written media with regard to international law (particularly public international law) can be subjected to criticism: "Does international law even exist to be applied?" (Reçber, 2020). For example, the English jurist John Austin regarded international law not as 'law' in the true sense, but rather as positive practices that states choose to observe, since it lacks a coercive sanctioning power and a superior authority. International lawyers, however, responded to this problem through various theories, such as the auto-limitation thesis put forward by thinkers like Georg Jellinek, the Vereinbarung (agreement) theory, and Anzilotti's voluntarist approach. If you look into these theories, you will see that they are classified under voluntarist theories concerning the foundation of international law. Alongside these, there also exist natural law and objectivist theories, which may be briefly recommended for further exploration by those interested.

Returning to the concept of self-limitation, according to Jellinek, a sovereign state can be subject to law even in the absence of a superior authority; because the state can limit itself by deciding, through its own will, to respect the international legal order (Aguila & de Bellis, 2021). A sovereign state is bound only by the rules it willingly agrees to follow. This concept

of state consent and self-limitation is the cornerstone of the binding nature of the international legal order (Aguila & de Bellis, 2021). International norms are valid because states agree to bind themselves to them.

The theory of auto-limitation shapes both the formation and application of international law. The rule-making process in international law largely relies on the consent of states. Treaties between states are the most fundamental sources because they explicitly reflect this consent. For a rule to be considered international law, it generally requires the explicit or implicit approval of states (for example, in international customary law, it requires broad and consistent application, *opinio juris*). Treaties, customs, and general principles, which are among the sources of international law, are in fact always the product of the agreement of states. Therefore, the process of creating new rules in the international community is carried out with the common balance of 193 states: there is a constant search for consensus and compromise for the broadest possible participation. Diplomacy faces the dilemma of, on the one hand, creating rules with broad participation encompassing all states, and on the other hand, keeping the content of the rules at the lowest common denominator acceptable to everyone. In this context, Jellinek's theory can be summarized as: there is no international law without the consent of states. (Aguila & de Bellis, 2021)

Because states voluntarily enter into international obligations, they also have the freedom to withdraw from them. This weakens the enforceability of commitments that are not supported by sanctions, as seen in the international climate regime. For example, states party to the 2015 Paris Climate Agreement submit their self-determined climate targets through Nationally Determined Contributions (NDCs); however, there are no punitive sanctions for failing to meet these targets. Article 15 of the Paris Agreement states that the adaptation mechanism will be conducted by a "*transparent, non-adversarial and non-punitive*" expert committee. This design demonstrates a facilitative approach to the implementation of the agreement, but also reveals that the agreement does not contain binding sanctions in case of non-compliance.

Indeed, the US announced its intention to withdraw from the Paris Agreement in 2017 (during the Trump administration), officially left the agreement in 2020, and returned in 2021 with the new administration without facing any sanctions. This situation has shown that even a country that is one of the largest emitters can withdraw from an international climate agreement without facing legal sanctions, for economic or political reasons. As a natural consequence of the principle of auto-limitation, a state can voluntarily absolve itself from a

rule it has bound itself to. Similarly, Canada, realizing that it could not meet the binding emission targets stipulated in the 1997 Kyoto Protocol, withdrew from the protocol in 2011, thus freeing itself from its obligations.

Also, the Kyoto Protocol envisioned a stricter compliance mechanism compared to the Paris Agreement; for example, it stipulated that countries that failed to meet their targets would face heavier reductions and certain sanctions in the following period. However, Canada managed to avoid financial or legal penalties by withdrawing just before the end of the protocol's first commitment period. This event highlighted that states can find ways to circumvent even international climate law and the vacuum created by the lack of enforcement.

Consequently, the principles of voluntariness and sovereign equality, which form the normative basis of international law, limit the binding capacity of the climate regime. Because states “recognize no authority over themselves other than their own decisions,” compliance, even in a global issue like climate change, ultimately rests on the will of the state. This philosophical and structural reality explains why climate agreements often contain “soft law” provisions, a distinction we will discuss later. Without a central global enforcement mechanism, international climate law largely relies on the conscience, reputational concerns, and mutual self-interest of states.

So we can, and should, ask the question, “Why isn’t there a mechanism for sanctions that works equally for every state here today?” Of course, the answer to the question of whether there is a way to create such a mechanism, given how international law has been shaped until today, can also be found. But before asking that question, it's important to understand why climate laws have never been 100% binding, and why enforcement and litigation mechanisms in international law are also structured according to the auto-limitation approach. International justice is often voluntary: States, by virtue of their sovereignty, are not obliged to recognize the compulsory jurisdiction of an international court. For example, the jurisdiction of the International Court of Justice only comes into play with the consent of the states; no state can be forcibly brought before the Court in a case it does not want. Similarly, there is no single central enforcement body in international law; there is no authority that can enforce compliance with the rules from a single source. The task of punishing a state that commits a wrongful act is essentially left to other states, which are the subjects of international law. Interstate sanctions (e.g., diplomatic initiatives, economic embargoes, or retaliatory measures) are only implemented through the individual or

collective will of states. This structural situation has led to international law being characterized as a unique and not yet fully developed legal system due to the lack of a central authority.

In summary, within the international legal order, states occupy a dual position as both law-makers and subjects of law. This dual role renders the binding force of international rules internally dependent on state consent. The sovereign legal personality of the state and the principle of auto-limitation provide a key to understanding why international rules (including those of international climate law) cannot be fully enforced in practice: without state consent, no rule can be established, nor can it be effectively implemented. Indeed, a legal person is one to whom a given legal order grants rights and imposes obligations. If a state possesses supreme authority that lies beyond all forms of control, this gives rise to the notion that the state stands outside and above the legal system of which it is supposedly a part. In such a case, the state cannot be regarded as a legal person (Reçber, 2020). In this sense, if we accept the state as a legal person, we must also acknowledge that the state's sovereignty and authority are limited by the legal order within which it exists (Çelik, 1984).

In other words, as a summary of the summary, it can be said that the most fundamental characteristic of international law is the absence of a centralized legislative or enforcement authority. States, based on the principle of sovereign equality, create and agree to abide by the rules of international law of their own free will. This stems from the thesis of self-limitation.

b. The Role of Domestic Legal Systems in Implementing International Climate Obligations

Up to this point, we have said that international law can be binding only insofar as states choose to remain faithful to agreements because they believe it serves their interests and we have noted that this is referred to as the auto-limitation theory. But is there truly no way for the rules of international climate law to be effectively implemented in practice? One of the factors that directly affects this issue is how these rules are reflected in domestic legal systems. At this point, we encounter the monist-dualist distinction in international legal theory. This distinction represents two different approaches to the nature of the relationship between international law and national law: monism and dualism.

According to monism, national law and international law are parts of a single whole; the legal order is singular. In monist systems, when a state ratifies an international treaty, that treaty directly becomes part of domestic law. In other words, international norms automatically become applicable in national law. In some monist interpretations, international law is even hierarchically superior and prevails over national law in case of conflict. Countries like the Netherlands can be given as examples of monist structures: in this country, ratified treaties have the force of national legislation, and if they conflict with domestic law, the treaty provisions take precedence (Santos, 2023). In such a system, the terms of a climate agreement could be directly implemented domestically, and citizens or NGOs could challenge the state in national courts, alleging that the state is failing to fulfill its international climate obligations.

Dualism views national and international law as entirely separate systems. In a dualist system, an international agreement must first be transformed in order to have effect under domestic law. That is, unless Parliament or the competent authority incorporates the provisions of that agreement into domestic law, it cannot be directly enforced by individuals and courts. The United Kingdom typically adopts a dualist approach: even if the government is a party to an international agreement, the provisions of the agreement will not directly create rights or obligations within the country unless Parliament enacts the necessary domestic legislation (Santos, 2023). In this case, international law continues to exist at the interstate level, but it does not transform into a concrete legal rule that citizens can demand from the state.

The monist or dualist approach is a critical factor in determining the binding nature of international climate law at the national level. If a country has a monist structure, environmental agreements it signs automatically become part of its domestic law, allowing its citizens to hold their government accountable in their own courts. A striking example of this is the climate case known as the Urgenda case in the Netherlands. A Dutch NGO (Urgenda Foundation)[1] filed a lawsuit alleging that the government was failing to meet its targets for reducing greenhouse gas emissions; in its rulings in 2015 and 2018, the Dutch courts condemned the government to take stronger measures to reduce emissions. The court decisions also took into account the Netherlands' obligations under the European Convention on Human Rights regarding the right to life and its international climate commitments. This

[1]Further discussion of the case is available at the following link: https://www.climatecasechart.com/document/urgenda-foundation-v-state-of-the-netherlands_3297

decision is the first instance in the world where a government was compelled by a court ruling regarding its climate targets, and it was made possible thanks to the monist structure of the Netherlands (the Dutch constitution stipulates the direct enforceability of international agreements in domestic law). Similarly, in its decision of January 31, 2020, the French Constitutional Council stated that the ban on the export of pesticides produced in France to third countries was constitutional, based on the concept of "common heritage of humanity" in the preamble of the French Environmental Charter. In this decision, the Council emphasized that national activities for environmental protection must also take into account their impact outside the country (Aguila & de Bellis, 2021). This approach demonstrates that a national judicial body is acting from a perspective that considers the global public interest.

In dualistic systems, the effectiveness of international climate agreements in domestic law depends on the political authorities taking action. For example, in countries like Turkey (which adopts a hybrid model but where the dualistic aspect predominates in practice), the Paris Agreement needs to be ratified by parliament and then implemented through concrete policies in national legislation. If the government does not make the necessary legal and administrative arrangements, it becomes difficult to file a lawsuit based on the Paris Agreement in domestic law. Indeed, in some countries, even though governments have ratified international commitments, delays in implementation can occur; targets may remain on paper because domestic legal steps are not completed. The criticized aspect of the dualistic approach is that it allows states to be "two-faced": while gaining prestige by signing the agreement in the international arena, it is possible to delay or limit its implementation domestically.

On the other hand, even a monistic system is not a complete solution; because when some international agreements do not have sufficiently clear and precise provisions, judicial bodies may hesitate to apply them. Since framework texts such as the Paris Agreement do not directly say "make reductions at this level," the application of these texts by courts becomes a matter of interpretation, even in monistic countries. Nevertheless, in monistic systems, since international law is accepted as a superior set of norms, there is more internal control pressure on the state to comply with its commitments. In dualistic systems, international law can easily be disregarded by politics, since it is generally not possible for citizens to claim rights based on an agreement that does not have a counterpart in domestic law.

In conclusion, for international climate law rules to be effective in real life, they need to be binding not only at the international level but also at the national level. This is possible only if constitutional and legal regulations support international environmental obligations. Some countries have strengthened the enforceability of international commitments in domestic law by adding the "right to a healthy environment" to their constitutions or by making the fight against climate change a legal obligation. For example, the UK's Climate Change Act of 2008 imposed legally binding carbon emission budget targets on the British government, creating a kind of domestic legal compulsion. Such steps can partially compensate for the enforcement gap at the international level.

c. Rule-Making by Consensus: The Problem of the Lowest Common Denominator and Soft Law

As mentioned above, the creation of international legal rules largely depends on the consensus (unanimity or at least general agreement) of states. This is particularly evident in the field of environment and climate. In comprehensive environmental agreements concerning all states, it has generally only been possible to establish rules that are soft enough or general enough to be acceptable to everyone. In negotiations conducted within the framework of the United Nations, a paradoxical picture emerges: "ambitious but soft" vs. "binding but narrow": either ambitious and advanced goals are set but are not legally binding (for example, texts such as the UN Biodiversity Aichi Targets or the Paris Agreement fall into this category), or legally binding agreements are made but are limited to very technical and narrow issues (for example, specific issues such as the transport of hazardous waste or the protection of the ozone layer) (Aguila & de Bellis, 2021). Indeed, observers have frequently noted that states often fail to agree on environmental norms that are both ambitious and coercive (Aguila & de Bellis, 2021). This is a structural problem of global environmental governance: rules that everyone can agree on are generally only at the level of a minimum common denominator, while advanced commitments remain in the form of voluntary agreements or soft law.

Soft law, in international law literature, refers to texts that are not legally binding but carry political or moral weight. Declarations, conference resolutions, guidelines, and action plans are generally considered soft law. The 1972 Stockholm Declaration and the 1992 Rio Declaration are examples of soft law in the environmental field. For instance, the Rio Declaration contains 27 principles on environment and development; while these principles

are not legally binding, some are confirmed by existing international customary law, and others contribute to the development of customary law. In other words, although the Rio Declaration does not impose directly enforceable legal obligations, it defines the rights and responsibilities of states regarding environmental protection and imposes at least a political obligation on them. Similarly, comprehensive action plans such as Agenda 21, while not containing legal obligations, set out a set of policies that states are expected to adhere to.

States have consciously preferred to keep many environmental commitments at the soft law level, as they will not evolve into binding agreements. The reason is clear: the preservation of sovereignty and the need for flexibility. A binding international rule restricts a state's future freedom of action and, if not complied with, can lead to consequences such as loss of prestige or political backlash. States unwilling to take these risks tend to pursue ambitious environmental targets "voluntarily, not legally." For example, this dynamic can be clearly seen in climate change negotiations: the 1997 Kyoto Protocol was a relatively strict agreement that set binding emission targets for industrialized countries; however, its impact remained limited due to the non-participation of major actors such as the US and the failure of some countries to fulfill their obligations. The 2015 Paris Agreement, designed after these experiences, followed a completely different strategy: by adopting a hybrid legal form, it created a framework that was both flexible enough for all countries to participate in and open to raising targets in the long term (Paris Agreement). Technically, the Paris Agreement has the status of a treaty, meaning it imposes certain legal obligations on its parties; However, the nature of these obligations is unusual. Each state submits its own national contribution targets (NDCs) and updates these targets and provides progress reports every five years. The agreement requires all parties to comply with these processes, but it does not impose a binding dictate on how much each state should reduce emissions. In other words, states' emission reduction commitments (NDCs) are not directly binding under international law; the Paris system primarily seeks to ensure accountability through transparency and monitoring (Paris Agreement). Indeed, as the UN Legal Counsel has emphasized, since the Paris Agreement does not make the parties' NDCs legally binding, it relies on transparency rather than legal coercion to ensure accountability (Paris Agreement). Therefore, the success of the Paris Agreement depends on the parties implementing their self-set targets in good faith and on the effectiveness of international pressure mechanisms (meetings, review processes, civil society pressure, etc.).

The soft law approach has led to the emergence of many important principles in the environmental field: principles such as "sustainable development," "common but differentiated responsibilities," "precautionary principle," and "polluter pays principle" were first expressed in soft law documents, and some have gradually become customary law. However, the weakness of soft law is that it does not have direct sanctions for non-compliance. International legal mechanisms cannot be activated against a state that does not comply with a declaration; at most, political criticism can be directed. This leads states to prefer soft law to avoid environmental obligations that involve serious restrictions. For example, the United Nations General Assembly debated for a long time proposals for a comprehensive and binding World Environmental Agreement, but ultimately settled for publishing a "Political Declaration" on the environment in 2022 (Aguila & de Bellis, 2021). In other words, the idea of creating a binding "global environmental constitution" has been replaced by declarations of good faith that have no legal value due to the reservations of powerful states.

As a result of this situation, international climate law in practice consists largely of voluntary or soft commitments. Texts setting ambitious targets mostly remain advisory; legally binding agreements are either narrow in scope (e.g., limited to specific pollutants) or insufficiently substantiated. This demonstrates that the "least common denominator" rule applies to the collective action of states. The part that everyone can agree on, unfortunately, falls short of what the planet needs.

d. Lack of Sanctions in International Law and the Implementation of the Climate Regime

The issue of sanctions in international law is the other side of this binding problem. When a state violates its international obligations, there is almost no global mechanism to forcibly prevent or punish it. International environmental law is no exception to this general situation. In fact, unless environmental issues are seen as urgent crises directly threatening national security (such as nuclear tests), the interstate system is even more reluctant to impose sanctions on these violations.

In the international climate regime, there are some bodies established to monitor compliance. For example, countries party to climate agreements hold periodic meetings (Conferences of Parties - COPs), submit reports, and conduct assessments through

compliance committees. However, these mechanisms generally use “persuasion” methods based on consensus rather than sanctions. In most international environmental agreements, the enforcement power of the committees that intervene in case of violations is limited: They usually suffice with measures such as warnings, recommendations, and name and shame. The decisions of these committees are not court decisions but administrative-supervisory decisions, and their members consist of state representatives or international secretariat officials. Furthermore, the right to appeal to such monitoring mechanisms is often granted only to states; individuals or civil society organizations cannot directly complain about a state violating its treaty obligations. Consequently, sanctions are rarely applied for treaty violations; generally, solutions to identified non-compliance are sought through technical assistance, capacity building, or mutual negotiations. Even the bodies monitoring the implementation of treaties implicitly or explicitly avoid very harsh measures, bearing in mind the possibility that states can withdraw from the agreement at any time. In the climate regime, too, any state can withdraw from the agreement or suspend its obligations without fear of serious sanctions- indeed, the US remained outside the Kyoto Protocol by not ratifying it despite having signed it. It withdrew from the Paris Agreement in 2016 and later rejoined. Such examples highlight how structural the lack of enforcement is in international environmental law. (Aguila & de Bellis, 2021)

The main reason behind the lack of sanctions is, again, the principle of state sovereignty. A sovereign state can only be subject to sanctions in the international arena with its own consent. Even if an agreement prescribes certain punitive measures for its parties, if a state does not want to accept them, it can either not become a party to the agreement from the outset or withdraw whenever it wishes (since there is no constitutional obligation in international law, you cannot force a state to remain a party). For example, the Kyoto Protocol theoretically stipulated a penalty of setting a 30% stricter target for the next period for countries that did not fulfill their obligations in the second period (2013-2020). However, this mechanism could not be implemented because many large emitters (Russia, Japan, Canada, etc.) did not participate in the second period. Although the Paris Agreement introduced procedures such as a 3-year waiting period and a 1-year notification period to make it more difficult for states to withdraw, ultimately, if a country (e.g., the USA) wants to withdraw, there is no power that can stop it. The United Nations Security Council can take coercive measures in situations that threaten international peace and security; However, climate change has long been overlooked in this context (in recent years, the possibility of

climate becoming a security issue has begun to be discussed, but in practice, there is no binding Council decision).

The general tendency of states is to avoid a binding and enforceable judicial mechanism in the field of environment. For example, the idea of establishing an International Environmental Court has been raised from time to time in the international community. At the Rio Summit in 1992 and in various platforms thereafter, the necessity of an international judicial body specializing in environmental issues was emphasized. Some initiatives have even prepared drafts in this direction. However, states have generally avoided any mechanism that would enforce environmental law (Aguila & de Bellis, 2021). Despite the views of legal scholars such as former President of the International Court of Justice Robert Jennings that a specialized court in an international and technical field like the environment would be beneficial (Aguila & de Bellis, 2021), political will is far from taking such a step. This is because such a court would subject states' environmental policies to judicial review and could impose sanctions in case of violations; this is seen as an undesirable restriction on sovereignty.

The idea of an International Court of Environment or Climate is actually crucial because, although there isn't currently a court specifically focused on climate, one of the closest institutions to having binding authority is the International Court of Justice. But let's say we do establish such a court, or the existing ICJ is structurally modified in some way. What would its limits be? Before answering this question, which is actually the main point of Agenda Item A, we need to briefly discuss the philosophy of international law one last time.

i. Societas delinquere non potest

The principle of “societas delinquere non potest” (that is, the acceptance that societies or legal entities cannot commit crimes) forms both the ontological and legal basis for why we cannot imprison a state or punish it in the classical sense in modern legal systems. This principle is not merely a technical legal rule; it also contains a profound philosophical assumption about to what the concepts of crime, responsibility, and moral condemnation can be applied. According to classical legal philosophy, crime is inherently a human phenomenon. For an act to be considered a “crime,” the subject who commits it must possess free will, understand the consequences of the act, and, most importantly, possess a mens rea, that is, a criminal mental state. Without elements such as intent, purpose, consciousness, and conscience, one cannot speak of crime in the sense of criminal law.

ii. Is the state a “reality” or a “fiction”?

At this point, the ontological status of the state becomes decisive. The state is not an entity with a body, consciousness, or conscience in the material world; it is an abstract legal entity recognized by law. As fiction theory emphasizes, the state is based solely on a construct that exists within the normative order. Therefore, approaching the state as a moral agent is theoretically problematic: an entity without a conscience cannot be morally condemned, and an entity without will cannot be declared malicious. This is why, in international law, the actions of states are defined not as crimes, but as internationally wrongful acts. This distinction is critically important because crime gives rise to punishment, while a wrongful act only gives rise to liability and compensation. This is precisely why international law, in its everyday language, often treats the state anthropomorphically; it uses expressions such as "the state decided," "the state showed will." However, when it comes to criminal responsibility, the same state avoids obligations specific to humans by reminding us that it is an abstract structure. This dual approach is often described in the literature using the metaphor of the corporate veil: the state becomes visible when it comes to accountability, but retreats behind the curtain when it comes to punishment.

iii. Par in parem non habet imperium/jurisdictionem

Perhaps the most fundamental, most silent, yet most destructive axiom of international law is this: ‘Among equals, there is no superiority.’ The Latin expression of this principle, *par in parem non habet imperium* (or *jurisdictionem*), redraws from the outset all the judicial boundaries of the international legal order. The logic is extremely clear: regardless of their power, population, or economic capacity, states are regarded as equally sovereign before the law. There is no hierarchy in legal status between the United States and Tuvalu. Yet it is precisely this assumption of equality that creates the greatest impasse of international adjudication. For adjudication, by its very nature, presupposes a superior-inferiorrelationship; it requires an adjudicating authority and a party being adjudicated. However, since no such hierarchy is recognized among sovereign states, it is theoretically impossible for one state to bring another state before its own national courts as a defendant. No king may judge another king in his own palace.

This abstract principle of equality produces extremely concrete consequences when it comes to climate law. The main point of contention lies in whether state actions are to be classified as *jure imperii* or *jure gestionis*.

(The distinction between *jure imperii* and *jure gestionis* in international law is a fundamental classification that determines in which situations a state is considered immune. *Jure imperii* refers to acts carried out by the state through the exercise of its sovereign authority; actions such as legislating, collecting taxes, conducting foreign policy and making defense decisions, or determining climate policy fall within this category. In such acts, because the state exercises public power and sovereign will, it cannot be tried before the courts of another state and benefits from jurisdictional immunity. By contrast, *jure gestionis* defines commercial and private-law acts in which the state acts not as a sovereign authority but as an ordinary legal person or trader; for example, purchasing goods, entering into lease agreements, or engaging in commercial activities fall into this group. In this case, the state steps outside the shield of sovereignty and may be adjudicated like private-law persons. In short, when the state exercises public power it is immune (*jure imperii*)[2], whereas when it acts like a market actor it loses that immunity (*jure gestionis*)[3].

The adoption of a climate policy by a state, the setting of emission targets, or the construction of coal-fired power plants may at first glance appear to be technical or economic choices. However, from the perspective of legal classification, these actions are not regarded as commercial activities but as a direct exercise of sovereign authority. Here, the state is not selling a commodity nor acting as a market actor; rather, it is making binding decisions on the basis of public interest, development strategy, and national energy security. For this reason, climate policies fall within the classical category of *acta jure imperii*.

The consequence of this classification is extremely strict: in the realm of sovereign acts, the state enjoys state immunity. In other words, a state's failure to comply with a climate agreement does not mean that it can be tried before the national courts of another state. For example, if Sweden were to attempt to bring the United States before its own courts by alleging that the U.S. has violated its climate obligations and that this violation has led to sea-level rise in Sweden, the U.S. defense would be remarkably brief and effective: "This matter is not a commercial activity; it is a public policy that falls within the sphere of state sovereignty. Therefore, your court lacks jurisdiction." The national court would have to accept this objection; the case would be dismissed before even reaching the merits.

[2] **Is this an act of sovereignty?** (*Jure imperii*): Yes. The state says, "For the development of my country, this factory must operate, and I am shaping my laws accordingly.")
[3] **Is this a commercial transaction?** (*Jure gestionis*): No. The state is not selling coal; the state is determining the country's energy policy (public interest/strategy).

At this point, the legal 'personality' of the state comes into play, and the difference between states and corporations becomes clear. Private-law legal persons (for example, multinational energy companies) are not sovereign. For this reason, when they pollute the environment, they can be tried before national courts. Indeed, in the *Milieudefensie v. Royal Dutch Shell* case, Dutch courts were able to compel Shell to reduce its emissions. This is because corporations, no matter how powerful they may be, do not possess the shield of sovereignty. The state, however, is an entirely different legal entity. In international law, the state is defined as a 'sovereign legal person,' and this sovereignty functions as a shield of immunity that protects it against external judicial intervention.

This situation creates a structural paradox in the enforcement of climate agreements. When states sign these agreements, they do so as equal and consent-based 'contracting parties.' Yet when they violate the agreement, there is no judicial authority positioned above them that can compel them to appear before a court. The system operates as follows: suppose that State X has dramatically increased its carbon emissions, and as a result State Y has suffered serious environmental harm. State Y wishes to bring State X before its national courts. State X's response is simple: "My energy policy falls within my sphere of sovereignty; I am not a trader, I am a state." As a result, jurisdictional immunity is triggered and the case is dismissed.

The sole exception to this rule is the bringing of states before the International Court of Justice. However, even there, binding force is not absolute. Thus, we can now return to the question: 'So what are the limits?'

e. The Role and Limits of International Judicial Bodies

As we have said, another avenue that comes to mind regarding the enforceability of international climate law is the involvement of international judicial bodies. The most important of these bodies are the International Court of Justice (ICJ), as well as regional human rights courts (when they address climate issues within a human rights framework), and bodies such as the International Tribunal for the Law of the Sea (ITLOS). In theory, it may be considered that a state could bring another state that fails to comply with its climate change obligations before the ICJ. However, there is a critical obstacle to applying to the ICJ: the Court's jurisdiction is dependent on the consent of the states concerned. In other words, if a state does not recognize the ICJ's jurisdiction in a case brought against it, the case cannot be heard. Many powerful and major emitter states have not accepted the compulsory jurisdiction

of the ICJ. For example, it does not appear feasible to compel countries such as the United States, China, or India before the ICJ on climate-related matters. Moreover, since climate harms are generally shared harms, it is also unclear whether a single claimant can demonstrate a concrete and individualized wrongful act. For instance, for a country to bring a case by saying, 'My country has suffered damage due to rising sea levels, and this country is responsible,' poses difficulties both in terms of proving scientific causation and in legal terms of identifying 'which obligation has been breached.'

Nevertheless, there have been some initiatives. In 2023, small island states applied to the International Tribunal for the Law of the Sea (ITLOS) with a request for an advisory opinion, asking the Tribunal to clarify states' obligations under the Law of the Sea Convention to prevent climate change. In September 2023, ITLOS issued a bold advisory opinion on this matter, emphasizing that states are under a heavy duty of due diligence to protect the marine environment from serious climate-related harm (this opinion provides a legal basis for requiring states to be more cautious regarding the carbon they emit into the atmosphere). Likewise, the advisory opinion process requested from the ICJ by the UN General Assembly in 2023 is still ongoing. A possible advisory opinion to be delivered by the ICJ in 2024 or 2025 may reveal what obligations states already have under international law to prevent climate change and to compensate for climate-related damage. This could create a legal pressure mechanism to accelerate climate action, since states would at least be formally recorded as having violated international law if they fail to comply.

However, the enforcement of international judicial decisions is a separate issue. Although ICJ judgments are binding on the parties, there is no global enforcement officer to ensure their implementation. Under the UN Charter, if an ICJ judgment is not complied with, the Security Council may take up the matter; however, political obstacles such as the veto power of the permanent members of the Security Council exist, this is what we refer to as UNSC deadlock. Perhaps the most striking historical example of this is the Nicaragua case (1986).

We will not discuss the case here in great detail, but briefly, the ICJ found the United States' covert activities against Nicaragua to be unlawful and ordered them to cease and to pay compensation. However, the United States refused to comply with the judgment, stating that it did not recognize the ICJ's jurisdiction. When Nicaragua brought the matter before the

Security Council to seek enforcement of the judgment, the United States vetoed the draft Council resolution aimed at implementing the decision.

As a result, the ICJ judgment remained on paper. At the time, the *Washington Post* summarized the situation by stating: 'The ruling is mandatory in theory, but in practice neither the Council, nor the General Assembly, nor the Court has the capacity to enforce it.' This example demonstrates that even international court decisions have limited coercive power within global power dynamics. Similarly, if a climate-related case brought before the International Court of Justice by the Netherlands in 2023, or a decision rendered in another context, were to result in a judgment, the full implementation of that decision in practice would again depend on the willingness of states.

One area in which international adjudication has been able to play an active role in climate matters is the human rights dimension. Environmental rights and climate change have begun to be the subject of cases before courts such as the European Court of Human Rights (ECHR) and the Inter-American Court of Human Rights. For example, there are strategic cases pending before the ECHR concerning the inaction of France and certain other countries on climate issues (the *Klima Seniorinnen* [4] case or cases brought by young activists may be cited as examples). In these cases, the applicants argue that the climate crisis threatens their right to life, family life, and so forth, and that the state has committed human rights violations by failing to take the necessary measures. Although such cases have not yet reached the stage of final resolution, they indicate that international judicial bodies may assume an indirect role in climate matters. Of course, even if the decisions of human rights courts are binding on the states concerned, their implementation ultimately depends on states' domestic legal arrangements and political will.

Finally, in situations where international adjudication is ineffective, another avenue pursued is the use of domestic judicial mechanisms. In some countries, active courts have compelled governments to fulfill their climate commitments. For example, as a result of the Urgenda case (2015–2019) in the Netherlands, the court regarded the state's target of reducing emissions by 25% by 2020 as a legal obligation and forced the government to take further steps. Likewise, in 2021, the German Federal Constitutional Court, upon applications by young claimants, ruled that the government had failed to adequately protect the rights of post-2030 generations and required the climate law to be tightened. These examples show

[4] Further discussion of the case is available at the following link
https://www.climatecasechart.com/document/klimaseniorinnen-v-switzerland-ecthr_e78f

that national courts are attempting to partially fill the gap in the global fight against climate change. However, not every country's domestic legal system offers such possibilities, and national decisions cannot be extended to other countries. And this is precisely the problem here: ultimately, it is not possible to interfere with a country's domestic legal order. Therefore, although the central enforcement gap in international law is, in places, sought to be filled through judicial means at the national level, when we look at the overall picture, we see that the problem of binding force in international climate law structurally persists.

6. Free-Riding and the Failure of Voluntary Climate Regimes

William Nordhaus' 2015 article[5], "Climate Clubs: Overcoming Free-riding in International Climate Policy," published in the American Economic Review, is a revolutionary study that attributes the failure of international climate agreements not to political reluctance, but to the flawed incentive structure of the system, and is particularly well-suited for examination under this heading. Nordhaus begins his analysis by defining the economic nature of global warming, primarily by addressing the Collapse of the Current System and the Problem of "Free-riding." According to him, combating climate change is, in its purest form, a global public good problem. Of course, by the nature of public goods, everyone (countries and their populations) will benefit from its production (i.e., the reduction of carbon emissions), but there is a problem: the cost will inevitably be borne only by those who take action. This situation gives rise to the "free-riding" problem in international relations and game theory. To elaborate on this problem, existing regimes like the Kyoto Protocol and the Paris Agreement are doomed to fail because they are based on voluntarism and lack a mechanism to penalize non-participants or those who fail to fulfill their commitments. (Note: For those wondering why there shouldn't be penalty mechanisms, please continue reading! You will find the answer.) A country can benefit from this improvement without incurring any cost while other countries reduce their emissions (free-riding).

a. Trade Measures as Enforcement Tools in Climate Governance

According to Nordhaus's models, the "individual rational strategy" for each country in this structure is not to cooperate; this creates a Nash Equilibrium where the worst-case scenario (high global warming) occurs. (For further reading, https://en.wikipedia.org/wiki/Nash_equilibrium) So what is the proposed solution? That's

[5] For further information regarding the article, see the link below
https://www.aeaweb.org/articles?id=10.1257/aer.15000001

exactly where Nordhaus, at a theoretical level, proposed the “climate club” model as a solution to this issue. To break this vicious cycle, Nordhaus suggests the “Climate Club” concept, which facilitates a shift from voluntary participation to a "strategic incentive" model. A club is an excludable structure where the benefits it provides to its members outweigh the cost of being left out. Nordhaus's proposed Climate Club has two main pillars. The first is a “target carbon price” (e.g., $50 per ton) that club members determine internally. Whether members use a carbon tax or an emissions trading system (cap-and-trade) to reach this price, the important thing is that they bear the cost of emission reduction. This is the "entry fee" of the club. However, the truly revolutionary part of the system is the second pillar, the "exclusionary mechanism," which keeps members in the club while penalizing non-members. This is the most striking part of the article, and it sheds light on the “enforcement” debate, the answer to which will be sought in this committee.

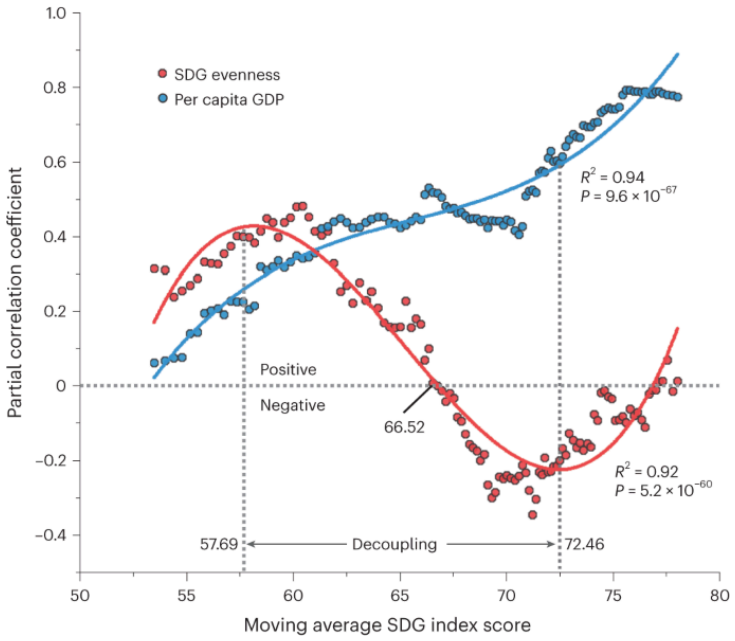
Nordhaus mathematically proves that the club cannot be stable without sanctions applied to non-participants (the mathematical proof can be found on the original paper). However, the penalty he proposes is not a complex system based on the carbon content of specific products (such as a carbon footprint tax), as such taxes are very difficult to calculate and prone to misinformation. Instead, Nordhaus proposes a “Uniform Tariff” to be applied to all products imported from non-participants (for example, a low but effective rate like 2%; such approaches are highly open to discussion and encouraged in this committee). This method is strategic rather than targeted: the aim is to inflict enough damage on the non-participant country's economy that it would prefer to join the club and bear the cost of carbon reduction. In other words, the cost of staying outside (loss of trade) should be higher than the cost of joining (carbon tax). To test his theory, Nordhaus conducts simulations on 15 different regions of the world using DICE and RICE (Regional Integrated Climate-Economy) models. The results are striking: In scenarios without an enforcement mechanism (similar to the current Paris Agreement), global emission reductions remain minimal and coalitions quickly disintegrate. However, in scenarios where a relatively low tariff of 2% is applied to non-members, the “Climate Club” achieves high participation rates. Large economies like China, the European Union and the United States of America[6], prefer to join the club and reduce emissions rather than risk a trade war. This model proves that even without a "central

[6] The United States has chosen to withdraw from all climate laws, including the Paris Agreement, by January 8, 2026, and President Trump has made some rather sensational statements on this matter. https://www.bbc.com/news/articles/cp80ln97py5o The United States has displayed quite contrasting stances on this issue over approximately the last four presidential terms. For more reading on this topic, you can visit this link: https://en.wikipedia.org/wiki/United_States_and_the_Paris_Agreement#Second_withdrawal

authority" or “climate police” in international law, a strong enforcement mechanism can be created by using trade policies as leverage, thereby ensuring a cooperative balance. In summary, the article argues that combating climate change is not merely a matter of environmental science or moral responsibility; it is fundamentally a problem of “restructuring incentives.” Unless unsecured (powerless) agreements are replaced by “club” structures strengthened by trade sanctions, halting global warming is impossible.

However, there is another major problem here, and this is the crucial point where the issue will be discussed: climate club approaches, which have come to the fore in recent years in international climate governance, particularly the theoretical framework developed by William Nordhaus and related tools such as the Carbon Border Adjustment Mechanism (CBAM), aim to overcome the free-riding problem in global emission reduction. These approaches aim to expand carbon pricing through international trading mechanisms and to internalize the cost of carbon on a global scale.

Nonetheless, the design of these mechanisms without considering global economic and technological inequalities creates serious justice problems, especially for developing and least developed countries. Although CBAM and similar arrangements ostensibly serve environmental goals, in practice they reinforce the capital, technology, and institutional capacity advantages of developed economies. While developed countries have access to the financial resources and low-carbon production technologies that can finance the green transition, developing countries often experience such arrangements as an additional trade barrier. This situation leads to carbon pricing functioning less as an environmental tool and more as a new competitive filter in global trade. Particularly noteworthy in this context is the disproportionate negative impact on countries with low emission levels. For example, countries like South Sudan exhibit low carbon emissions in terms of SDG 13 (Climate Action) under the Sustainable Development Goals; however, this is a result of limited industrial capacity and widespread poverty, rather than a conscious success in climate policy. Despite this, lacking the technical and financial capacity to comply with carbon standards, these countries face a greater risk of exclusion from the global trading system. Thus, low emissions are effectively penalized with economic exclusion.



[7]b. Carbon Border Adjustment Mechanisms (CBAM) as a De Facto Enforcement Tool

Figure 1 presents a dynamic model showing how countries' progress towards the Sustainable Development Goals (SDGs) interacts with economic growth and systemic evenness. According to the analysis results, GDP per capita (blue curve) exhibits a stable and positive relationship with the development score. In other words, as a country develops, economic prosperity and SDG achievement progress in parallel, following an S-curve-like structure (R^2=*0.94*). However, the most striking finding of the study is the inverted U-shaped structural behavior observed in the SDG equality parameter (red curve). The data show a critical break in the score range of 57.69 to 72.46 (Decoupling Region). In this range, although the overall development score continues to increase, the internal consistency and equality between the goals undergo a temporary 'sacrifice' process, and the correlation turns negative. (at the point where $x = 66.52$). This situation proves that in the middle stages of development, economic growth can occur at the expense of systemic equilibrium; however, once the score of 72.46 is exceeded, the system recovers and returns to equilibrium. So what does Figure 1 really tell us? A few paragraphs ago, we mentioned that the "climate club" approaches that have come to the fore in international climate governance in recent years, especially with tools such as William Nordhaus's theoretical framework and the Carbon Border Adjustment Mechanism (CBAM) that developed from it, aim to overcome the "free-riding" problem in global emission reduction. And we also said that although these mechanisms aim to achieve environmental goals by internalizing the cost of carbon on a global scale, they create serious justice problems for developing countries when global economic and technological inequalities are ignored.

[7] *Figure 1* The Relationship Between Moving Average SDG Index Score and Partial Correlation Coefficient.

The data presented in this graph strikingly confirms the structural origins of this aforementioned inequality. The blue trend line in the graph shows a strong, positive, and almost deterministic relationship ($R^2=0.94$)[8] between GDP and the Sustainable Development Goals (SDG) score. This statistically proves that "environmental and systemic success" (high SDG score) is directly dependent on "economic capital accumulation" (GDP). While developed countries (right end of the graph) can finance the green transition thanks to their financial resources, developing countries are only at the beginning of this correlation. Therefore, CBAM risks transforming carbon pricing from an environmental tool into a "competition filter" that reinforces the advantage of countries that have completed capital accumulation.

Even more critical is the behavior exhibited by the red curve (SDG Equality/Evenness) in the graph. Countries enter a difficult transition process, defined in the literature as "Decoupling," within a score range of 57.69 to 72.46. Even if a country becomes wealthier within this range, the balance between the targets is disrupted, and the correlation turns negative (it bottoms out at x = 66.52). Developing economies experience a systemic "trade-off" precisely while undertaking industrialization and development; they are forced to sacrifice some targets to meet others. Imposing an external carbon cost on countries in this fragile "Decoupling" phase prevents them from moving to the "Recovery" zone on the right side of the graph and traps them in an economic bottleneck.

In this context, the South Sudan example is critical in exposing the "false success" in the lower left quadrant of the graph. Although South Sudan has a low emission profile under SDG 13 (Climate Action); This situation is not a result of a conscious climate policy success, but rather a consequence of limited industrial capacity and poverty. The weak correlations observed in the low-scoring regions in the graph indicate that these countries have not yet embarked on a systematic development path. Subjecting these countries, lacking technical and financial capacity, to carbon standards as if they were "conscious polluters" would mean punishing low emissions with "economic exclusion." Consequently, instead of spreading the prosperity shown by the blue curve in the graph to the grassroots, the current mechanisms are making the painful transition of developing countries in the "Decoupling Zone" impossible.

[8] R2 (The Coefficient of Determination) is a kind of "reliability score" that measures how tightly and consistently the scattered points on the graph fit together. The closer this score is to 1 (like 0.94), the stronger our ability to say, "This result is not accidental; it is definitely due to this cause (GDP)." In other words, according to this graph, 94% of the increase in a country's SDG success can be explained solely by that country's wealth (GDP), without needing any other contributing factors.

The injustice we have discussed at length above is increasingly debated in the literature using the concepts of "green colonialism" or "climate imperialism." The imposition of new environmental standards by developed countries, historically responsible for the majority of global emissions, without adequately accounting for this historical responsibility, weakens the legitimacy of climate policies. While Nordhaus's climate club model offers an economically sound and incentive-compatible framework, it falls short normatively because it addresses historical emissions, development disparities, and asymmetric capacity issues only secondarily. Imposing equal obligations on unequal actors ultimately deepens inequalities rather than reduces them.

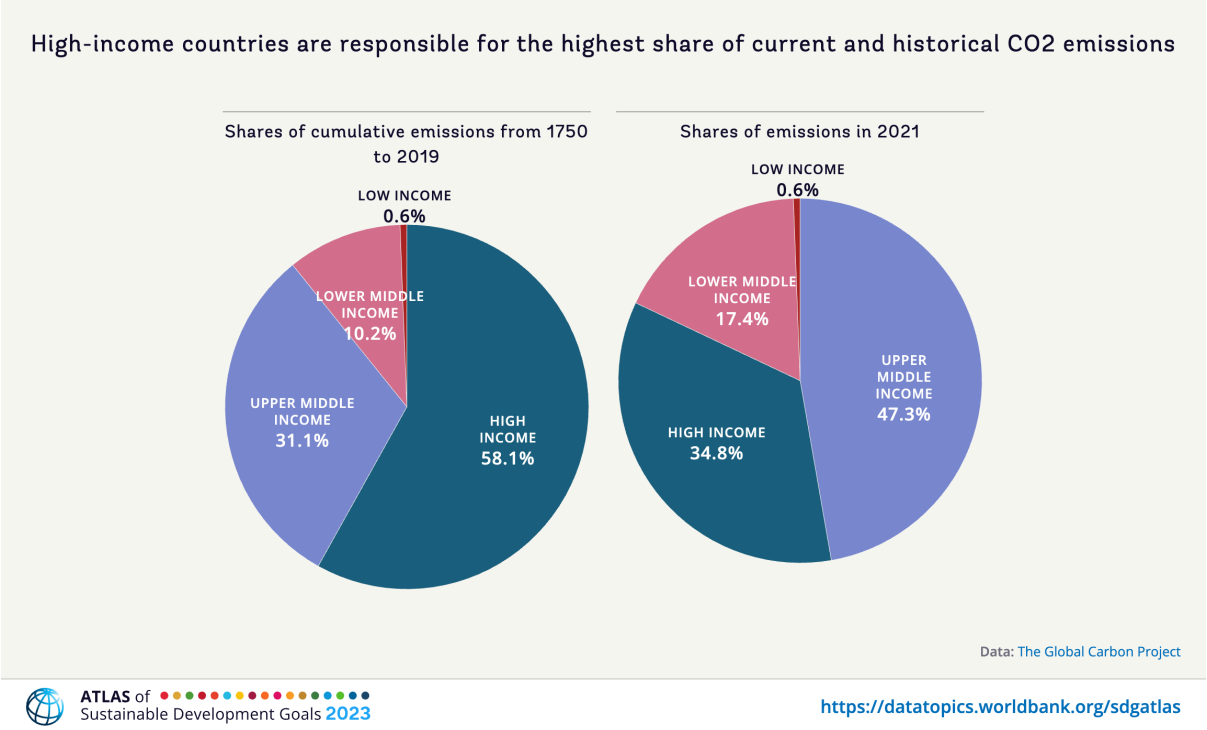


Figure 2: Comparison of cumulative (1750-2019) and annual (2021) CO2 emission shares by income group

The pie charts in *Figure 2* above are another supporting example of this issue, and the World Bank's SDG 2023 Atlas consists of a visualized presentation of the data it has collected (note: you can also view versions comparing the data of a specific country to the world by selecting the country you are interested in via the same link). At a time when even the world's largest economies are considering withdrawing from climate laws for fear that it will weaken their current economic conditions, imposing Climate Laws on the weakest economies in the South is another point of contention and the heart of this agenda item. Therefore, CBAM and Nordhaus-derived mechanisms can only serve global climate justice through complementary regulations. Redistributing the revenues from carbon border regulations to support the green transition of developing countries, treating low-carbon

technologies as a global public good through mandatory and cost-effective technology transfer, and establishing differentiated liability mechanisms that include historical emissions responsibility are critically important in this regard. Otherwise, such climate policies risk becoming tools that, while providing environmental benefits, also make the Global South more dependent on foreign aid and reinforce structural inequalities.

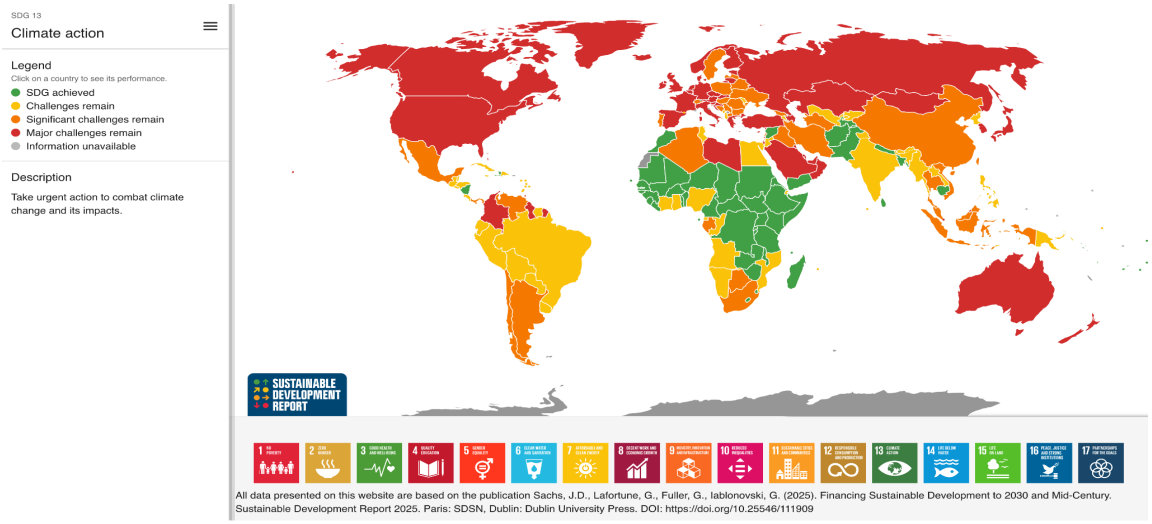
c. Climate Justice Challenges of Responsibility Mechanisms

One of the fundamental normative problems emerging in global climate governance is the structural tension between SDG 8 (Decent Work and Economic Growth) and SDG 13 (Climate Action) goals within the Sustainable Development Goals. While SDG 8 defines industrialization, productive employment, and economic growth as key development tools, especially for developing countries; SDG 13 mandates the rapid abandonment of carbon-intensive production models and the limitation of emissions. Although these two goals appear largely compatible for developed countries, they create a serious policy contradiction in the context of the Global South, where economic growth is still based on carbon-intensive sectors. This demonstrates that if climate policies are not designed in coordination with development goals, they can deepen socio-economic vulnerabilities while providing environmental benefits. The theoretical solution to this contradiction lies in the Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) approach, one of the fundamental principles of international climate law. Adopted under the United Nations Framework Convention on Climate Change, this principle acknowledges that states share a common responsibility in combating climate change, but argues that this responsibility should be differentiated according to historical emissions and differences in economic and technological capacity. While normatively strong, this principle theoretically aims to protect both climate justice and the right to development.

However, the practical impact of the CBDR-RC principle has gradually weakened. Particularly after the Paris Agreement, the climate regime's reliance on voluntary national contribution declarations (NDCs) has prevented the differentiated responsibility principle from becoming binding policy instruments. Border carbon regulations, such as CBAM, do not directly incorporate the CBDR-RC principle; rather, they aim to create de facto equality by making the carbon cost a universal trading rule. This situation results in countries with different initial conditions being subjected to the same policy instruments, undermining normative consistency in climate governance.

In this context, the structural limitations of the global climate regime become more visible. The current system addresses climate change primarily through market-based tools and cost-effectiveness analyses; development, poverty, and structural inequality issues are considered secondary. However, low emission levels are often a result of economic deprivation rather than environmental success, and this point has been discussed in detail in the previous subheading. Therefore, the application of emission-based performance measures independently of development indicators leads to the global South being relegated to a passive adaptor position within climate policies.

In conclusion, when the tension between SDG 8 and SDG 13 is considered together with the weakening implementation capacity of the CBDR-RC principle, it is seen that Nordhaus-derived climate club approaches and mechanisms such as CBAM, in their current forms, are far from ensuring global climate justice. Unless these tools are supported by binding differentiation regimes that include complementary income transfer mechanisms, mandatory technology sharing, and historical responsibility, they risk transforming the fight against climate change into a governance arena that reproduces global inequalities. Therefore, the success of climate policies should be evaluated not only by the level of emission reduction, but also by their relationship with global development and justice goals.



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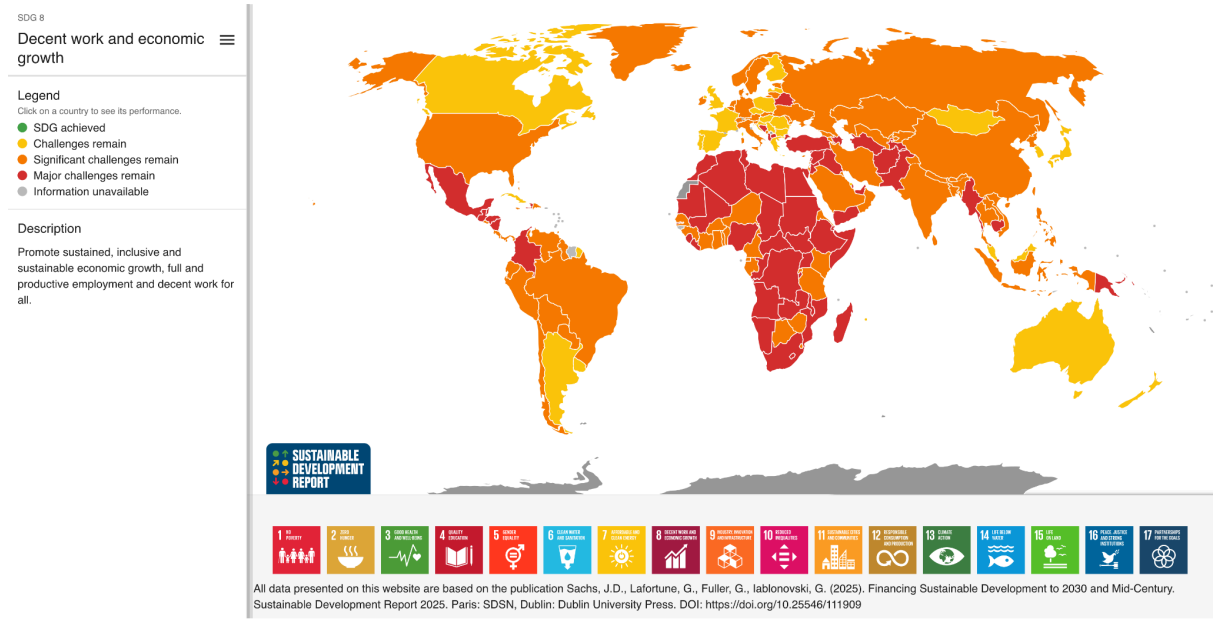
[9] In order to see the infographic better, click the link below https://dashboards.sdgindex.org/map/goals/sdg13/



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7. Questions to be Addressed

1. To what extent does the absence of binding and universal enforcement mechanisms in international climate law encourage states to fail to fulfill their climate commitments, and how can this structural gap be addressed within the existing UNFCCC-Paris Agreement architecture?

2. While preserving the principles of state sovereignty and auto-limitation, what indirect yet effective tools (such as transparency frameworks, reporting obligations, and peer pressure) can realistically be strengthened to enhance state compliance with the climate regime?

3. What is the practical impact of soft law instruments (including COP decisions, political declarations, and voluntary commitments), and under what conditions can these tools evolve into hard law or effectively substitute for binding legal obligations?

4. In light of the principle of Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC), how should a fair burden-sharing system between developed and developing countries be designed? Is the current NDC-based framework sufficient to ensure such fairness, and if not, where does it fall short?

5. What role can national legal systems play in the implementation and enforcement of international climate obligations, and to what extent can domestic court rulings generate de facto precedents or normative pressure at the global level?

[10] In order to see the infographic better, click the link below https://dashboards.sdgindex.org/map/goals/SDG8/

6. To what extent are trade-based measures (such as carbon border adjustment mechanisms and climate clubs) legitimate and feasible tools for addressing the free-rider problem? Are these instruments fair to developing countries, and if not, how can equity concerns be effectively balanced?

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8. Introduction to the Agenda Item B: Balancing Economic Growth and Environmental Sustainability amid Urban Expansion

Balancing rapid urban growth with environmental sustainability is one of the most pressing challenges of our time. Cities today drive the global economy - they are "magnets of talent and investment, creating vibrant hubs" that ignite national growth and competitiveness, but they also concentrate environmental pressures. Approximately half of humanity now lives in cities, which consume two‑thirds of the world's energy and account for over 70% of global greenhouse gas emissions. In many developing and emerging economies, cities are expanding faster than planning systems can manage, leading to phenomena such as unplanned sprawl, traffic congestion, pollution, and resource strain. If unchecked, such growth can produce "unacceptable human settlements" that are "aggravated by inequitable economic growth and uncontrolled urbanization". This Agenda calls for strategies that harness urbanization's economic benefits while enforcing spatial policies that protect the environment and improve quality of life. Economic growth in cities (higher GDP, jobs, and investment) must therefore be pursued in tandem with environmental sustainability (clean air and water, green spaces, low-carbon infrastructure), recognizing that the two goals are deeply interconnected.

Economic Growth: Cities have historically been engines of innovation and prosperity. In Jane Jacobs's view, large, diverse cities spawn "new work" and innovation that fuel sustainable development. Modern urban economists echo this: cities' dense networks of people and firms enable knowledge spillovers and productivity. For example, the OECD notes that well-designed cities *"harness [digital transformation] to elevate people's quality of life"* and implement policies to unleash growth and achieve the Sustainable Development Goals. However, growth can be uneven and exclude the poor, leading to slums or social conflict if not managed. Policymakers stress that focusing solely on GDP (growth) without considering equity and environment (development) is inadequate. Economic strategies must therefore be broad enough to include infrastructure, human capital, and ecological health.

Environmental Sustainability: Rapid expansion can jeopardize natural systems. Urban sprawl often replaces farmland and forests with impermeable surfaces, exacerbating floods and heat-islands. Traffic congestion from sprawled development greatly raises CO_2 and NO_x emissions; a Warsaw case study found that unchecked suburban expansion could increase commuter CO_2 emissions by 47%. At the same time, dense city living can reduce per-capita emissions: one analysis shows that *doubling* metropolitan density could cut household travel emissions almost in half. Recognizing these trade-offs, sustainable urban planning seeks to stay within planetary boundaries. According to the OECD, although urbanization stresses natural resources, cities have "unique potential to forge pathways towards a net-zero future by reimagining their development model within planetary boundaries". Sustainable cities emphasize renewable energy, mass transit, waste recycling, green infrastructure, and resilience to climate change. The Brundtland Commission's seminal definition is instructive here: **"**sustainable development" means meeting today's needs without compromising future generations. Cities, in turn, are considered instruments of development that must deliver both economic and ecological well-being.

Urban Expansion and Spatial Reciprocations: Urban expansion patterns (e.g. sprawl vs. compact growth) and spatial policies (zoning, transit orientation) mutually reinforce outcomes for growth and sustainability. Unplanned sprawl tends to "encourage car use" and lengthen commutes, increasing emissions and infrastructure costs. By contrast, *compact city* strategies – mixing uses and increasing density – can lower total emissions even if local exposure to pollution rises slightly. Spatial planning theories emphasize this reciprocity: a city's layout influences travel behavior and energy use, and in turn, transportation and land-use policies shape the city's footprint. Without strong planning, rapid growth often leads to the loss of green areas and informal settlement growth, undermining sustainability. Conversely, policies like transit-oriented development or green belts can channel growth into sustainable forms. Thus, *where* and *how* cities grow is as important as *how much* they grow – a fact underlined by the WHO and urban ecology studies. In short, urban spatial policies and economic policies must be reciprocally aligned to guide expansion into more sustainable patterns.

9. Key Terminology

Urbanization: The process by which populations increasingly concentrate in urban areas. Over 4 billion people (about 58% of world population) now live in cities, a share projected to rise above 68% by 2050.

Economic Growth vs. Development: *Growth* refers to quantitative increases (e.g. GDP), while *development* encompasses qualitative improvements in well-being (education, equity, environment). Cities must balance growth with inclusive development.

Sustainable Development: Defined by the Brundtland Commission (1987) as *"meeting the needs of the present without compromising the ability of future generations to meet their own needs"*. In urban context, this implies enabling prosperity now while preserving ecosystems and resources for tomorrow.

Urban Sprawl: Low-density, auto-dependent expansion of urban areas into rural land. Sprawl increases infrastructure costs and emissions and reduces open space.

Compact City / Smart Growth: Planning approaches that concentrate growth in compact, walkable urban centers, mixing uses and prioritizing public transit. These aim to limit sprawl and reduce environmental impacts.

Green Infrastructure / Nature-based Solutions: Incorporating parks, urban forests, green roofs, and wetlands into cities to absorb pollutants, manage stormwater, and mitigate heat islands.

Ecological Modernization Theory: The idea that advanced technology and policy can eventually decouple economic growth from environmental harm. Many urban policies reflect this (e.g. zero-emission vehicles, circular economy).

Environmental Kuznets Curve (EKC): A hypothesized inverted-U relationship where pollution first rises with income, then falls after a certain development level. Recent analyses (in e.g. Gulf countries) provide mixed support for EKC and stress proactive policies.

Resilience: The capacity of cities to absorb shocks (climate disasters, resource scarcity) while maintaining function. Urban resilience strategies often align with sustainability goals.

10. Theoretical Approaches

a. Growth vs. Development:

Economic theorists differentiate between growth (GDP increase) and broader human development. A city can grow (higher output) without developing (e.g., if growth is uneven or degrades the environment). Sustainable development frameworks call for pursuing growth that translates into health, education, and ecological benefits. Jane Jacobs argued that cities are sites of endogenous growth – *"cities first, rural development later"* – driven by innovation in local economies. She saw cities as *"organized complexity"* where diverse talents and trades cluster, generating new economic pathways. Jacobs therefore links growth to *urban diversity and innovation*. In contrast, some economic models focus on capital accumulation or markets. Modern urban economist Edward Glaeser (2011) similarly celebrates cities as *"the greatest invention"* of humankind, crediting density for fostering knowledge spillovers and entrepreneurship. Though not easily quoted here, Glaeser's work implies that high-density cities can raise productivity, with evidence that doubling urban density could cut per-capita travel and residential emissions by roughly 40–50%.

b. Urban Economics Theories:

Traditional urban economics (e.g. Alonso's bid-rent theory, Krugman's agglomeration models) examine how land use and location decisions affect urban form and growth. In the agglomeration literature (cf. Glaeser, Henderson), cities attract firms because clustering reduces production costs. However, such models often omit sustainability. Newer work overlays environmental externalities: for instance, concentration raises productivity but also local pollution; expanding land use lowers local density. Spatial equilibrium models suggest optimal city size when balancing agglomeration economies against commuting and land costs. Jacobs's work (though qualitative) complements this by emphasizing human networks and urban design. Contemporary urban theorists like Saskia Sassen introduce the global city concept: world cities concentrate finance and services, entwining local growth with global networks. Sassen's framework warns that global cities (New York, London, Tokyo) face unique sustainability challenges (e.g., inequality, resource import dependency) as well as opportunities (global climate leadership). While Sassen's original work did not explicitly focus on the environment, it underscores that highly connected cities must consider transnational environmental impacts.

c. **Spatial Planning Theories:**

How planners shape city form is central to our topic. Smart Growth and New Urbanism advocate dense, mixed-use, pedestrian-friendly development to reduce sprawl. These contrast with earlier suburbanization models (e.g. Garden City expansions) that valued low-density single-family homes. Theories of *transit-oriented development* hold that siting housing near transit lines can mitigate car use. Conversely, planning neglect or car-centric zoning can lock in environmentally harmful patterns. Spatial policy also encompasses *green belts*, urban growth boundaries, and infill programs. For example, the NILU-led study on Warsaw found that without planning ("continuous sprawling"), transportation CO_2 would rise dramatically, whereas a compact alternative reduced total emissions (though it required complementary measures to address local air quality). In planning theory terms, this illustrates that *urban form* and *policy measures* must be integrated: compactness alone reduces emissions only if matched with investments in transit and pollution controls. The **Ecological Urbanism** approach argues that planning should hybridize nature and city (e.g. blue-green infrastructure) to achieve sustainability.

d. **Resilience Based Approaches:**

Urban areas serve as the center of human civilization, vivid hubs of activity where millions reside, work, and thrive. According to the World Bank, today, more than 80% of global GDP is generated in cities and some 56% of the world's population – 4.4 billion inhabitants – live in cities. This trend is expected to continue, with the urban population more than doubling its current size by 2050, at which point nearly 7 of 10 people will live in cities (2023). Thus, the very nature of urban life makes these spaces vulnerable to a variety of challenges, from environmental hazards to social upheavals and if not resolved efficiently their effect can far exceed the geographical scope of the suffering area. As Uchtdorf once said, "It's your reaction to adversity, not adversity itself that determines how your life's story will develop" (n.d.). The only way for cities to cope with adversities is to be resilient, which means to withstand, adapt and recover quickly; and that comes only with conscious planning and implementation of scientifically proven strategies without ignoring any aspect of the challenges. By acknowledging their interconnectedness and implementing strategic measures to address them, cities can tangibly become more sustainable and resilient. That is why resilient urban planning encompasses three crucial subcategories: building resilience to climate change, to social disasters, and to natural disasters.

Climate change is one of the main issues that should be taken into consideration when doing urban planning. Global climate change causes irreparable and perhaps impossible damage to other systems of nature, living things and societies. Cities have a large share in the production of greenhouse gases that cause climate change. Therefore, within the scope of climate change mitigation policies, the strategy of reducing greenhouse gas emissions produced by urban activities becomes important. Urban planning stands out as one of the action areas where mitigation strategies can be implemented. One of the sub-scopes of climate change is drought. Drought is a natural event that can have serious consequences. The main reasons are the lack of rain, hail and snow. Social reasons are also effective in their formation. The causes of drought are climate disruption and change. For example, drought affects ecosystems, plants, animals and people. Therefore, materials created and recorded in the same region are important in determining this problem. As noted by Aldous et al., Climate change is expected to have significant impacts on hydrological regimes and freshwater ecosystems; however, very few basins have adequate numerical models to guide the development of freshwater climate adaptation strategies. Such strategies could build on existing freshwater conservation activities and incorporate projected climate change impacts. (Aldous et al., 2010) In addition, drought needs to be examined very carefully and systematically. Because accurate monitoring and recording is the most important part of the solution. As noted by Kim et al., the drought risk analysis framework provides a unified and consistent approach to solving inference and decision-making problems under uncertainty caused by climate change, such as hydro-meteorological modeling, drought frequency estimation, hybrid forecast models, etc. and water resources management. (Kim and Jehanzaib, 2020) The World Economic Forum Global Risk Report 2016 states that disasters such as drought, floods and water crises caused by climate change will have their greatest global impacts in the coming decades and that it is necessary to reduce their consequences. In recent years, experts say that the intensity of rainfall has increased and urban floods have become more prevalent than in the past. They agree that it happens a lot and causes great damage to the city. Again, scientists suggest that increases in the frequency and intensity of precipitation will continue in the coming years. In addition to floods, drought-related water shortage is also increasing in cities. Research shows that one in four cities in the world currently experiences water shortage, and that this problem will increase further with the effects of climate change in river basins close to cities. Accompanied by research, these developments and projections are brought to cities. It requires reconsideration of water supply and water services management. Naturally, this need needs to be addressed with an

integrated approach. For this reason, planning of cities enables the implementation of these plans and the management of basic needs.We need a change of understanding that recognizes the integrated approach to sustainable water and wastewater management.

Air pollution, one of the environmental problems, is caused by changes in the values of the main substances in the composition of the air. It can be defined as harming living and non-living life as a result of the change or incorporation of different types of pollutants. Every element that causes air pollution; there are various sources of air pollution, including natural sources and artificially sourced pollutants as a result of human activities. However, artificial pollution from natural sources is seen as more important than pollution from natural sources. Therefore, another important issue that should be taken into consideration in creating resilient urban planning is air pollution. Air pollution is one of the most important contexts of urban planning. Clean air space is at the forefront of planning. Because air pollution poses great dangers to human, animal and plant health. When creating a city, all these elements must be carried out from a single source and in a clean manner. The land and climate conditions of the city are responsible for the elements that cause air pollution. As a result of incorrect construction of climate maps when planning cities, without taking into account data other than their conditions; unplanned urbanization and industrialization, heat loss in buildings, climatic events, urban texture suitable for the environment and natural environment. There are several basic reasons behind these problems (Al-Delaimy et al., 2020). First of all, the lack of green spaces in urban areas significantly affects the environment and the well-being of urban residents. Green spaces play a very important role in absorbing carbon dioxide, cleaning the air and providing habitat for various species. In addition, inadequate waste management systems contribute to the inability to effectively neutralize garbage. Inadequate recycling facilities, improper waste disposal methods and lack of public awareness about reducing waste all contribute to the accumulation of garbage in the environment. Overcoming these challenges requires joint efforts from both policy makers and society to prioritize sustainability, implement appropriate waste management practices, and increase the number of green spaces in urban areas. It is possible to create a more sustainable and environmentally friendly living environment for everyone through collaborative action. As Orru et al. say, air pollution modeling is an important issue for local governments, especially the weather. Knowing air pollution in advance, depending on meteorological conditions, in winter months when pollution increases, in order to take timely precautions and minimize the negative effects of air pollution, will make a significant contribution. Although

air quality is determined by outdoor measurements, the number of measurement points is always limited because it is expensive and takes a long time. While determination of the current situation is achieved through regular measurement networks, at the same time emission air quality models that are run using inventories and adjusted with these measurement results are also. Therefore, using appropriate models and making air pollution mapping, it will create a favorable situation for air quality information to become more widespread in the study area. In this way, air quality at a broader level can be determined and future air quality outputs can be obtained (Orru et al., 2017).

The last effect of climate change that resilient planning should cope with is hurricanes. They cause immediate economic problems due to their devastating effects on infrastructure, homes, and businesses. In the wake of a hurricane, the first challenges faced by communities and industries and a period of economic recession occur. For this reason, city planning must be done accordingly. Land use change is widely adopted as a planning approach to ensure regional resilience and reduce disaster risk. Ensuring regional resilience is related to urban resilience. Urban resilience relates to the ability of urban systems to adapt to sudden changes in ecological and socio-economic networks and the ability of systems to develop the capacity to change and adapt rapidly. As Vigdor notes, the Maraza New City initiative was proposed in 1996 to replace the administration of Beira below sea level; However, nothing could be done about it until Cyclone Idai occurred in 2006, and thus approximately 90% of the city was flooded. This situation has led to different section planning problems and problems such as which part of the city can be transformed, which land uses can be used, and whether it needs to be repositioned in a different way in the city. Land use changes can provide spatial land use plans that promote spatial equity, accessibility, and connectivity in a variety of formats. In this context, urban policies, land use decisions, urban design, strategic planning and urban form determinants will play an important role (Vigdor, 2008). Research reveals the reluctance of communities to relocate for a variety of physical, socioeconomic and cultural reasons, such as location dependence, difficulty of economic compensation, perception of risk, economic benefits of coastal areas, climate differences and access to the coast. On the other hand, it is emphasized in various studies that resilience against hurricanes can be increased with other measures, especially effective land use planning. The United Nations, 'City Resilience Framework' was used in the research, and a qualitative analysis method supported by literature review and in-depth interviews with experts was used. Findings show that spatial planning tools emerge as important resilience

factors influencing urban land use, designs, policies, spatio-temporal components of human activities, and ecology. Therefore, a combination of land use conversion and changes and relocation and redevelopment strategies are vital for Beira. They are becoming important solutions in increasing the durability of coastal areas. The basis of strengthening urban and regional resilience should be that this independent variable is guided by spatial planning and how urban plans are made based on this guidance. Accordingly, considering spatial planning controls, urban form, land use, policies and designs, the study suggests that spatial planning plays an important role in building urban resilience. As Merrill mentions in his article, vertical shear is less in intensifying hurricanes, especially those with a radius of 1,000 km or more. This reduces the environmental impact. As a result of the analysis, motion calculations are made and the layout plan is vertical. (Merrill, 1987).

The second main field of resilience in urban planning is addressing social upheavals. To begin with, man-made disasters form an essential part of the aforementioned type of challenges. Understanding the nature and cause of the problem helps in preventing it. For example, in the case of all industrial accidents the best approach is zoning regulations. According to Morsy, to prevent severe casualties after a nuclear accident, there are four regulatory zones around a nuclear power plant. The first is Exclusion Area (dEAB): the area surrounding the reactor where the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property. The second is low Population Zone (dLPZ): before a nuclear installation is built an area around it with low population density is required. In emergency planning the number and density of residents is of concern because certain protective measures (such as notification and instructions to residents) need to be systematically accomplished. The third is Population Centre Distance (dPCD): a population center distance of at least one and one-third times the distance from the reactor to the outer boundary of the low population zone. In applying this guide, according to the concentration of population the boundary of the population center shall be determined. Political boundaries are not affecting the application of this regulation. A greater distance may be necessary because of the consideration of total integrated population dose in very large cities. The fourth zone is 32 km outward radial distance or: a reactor should be located so that, at the time of initial plant approval within about 5 years thereafter, the population density, including weighted transient population, averaged over any radial distance out to 32 km (cumulative population at a distance divided by the circular area at that distance), does not exceed 194 persons per square kilometer. A reactor should not be located at a site where the population

density is much exceeding this value (2022). As for chemical spills, the same measures could be implemented but with more reference to land use. For instance, the first level of proximity could include only workplaces, while in the second level very low-density dwelling units could be incorporated. The third level may contain more housing development and shopping centers and the fourth can finally include hospitals and public buildings for more than 1000 people (Struckl, 2019). The second man-made social disaster to which cities should be resilient is wars. In case of an interstate war one of the strategies towards resilience is called pre-documentary mapping. Architectural and urban planning experts create detailed maps outlining the growth of cities, towns, or urban areas. It's imperative to securely store these maps both physically and digitally. In the event of a war, these maps serve as invaluable resources for reconstructing infrastructure and reinstating city functions post-conflict. This measure aids in restoring the city to its former state, thereby alleviating psychological distress among the populace. Furthermore, these maps contain essential insights into a city's historical and cultural heritage, informing future development and restoration endeavors. By documenting urban assets, such maps assist international aid organizations in assessing the extent of war-induced destruction. They also facilitate the identification of potential conflict zones or vulnerable areas likely to be targeted. Additionally, the maps can advocate for the rights of local communities during post-war reconstruction efforts (Abusaada & Elshater, 2023). Another strategy is ensuring mobility in the city. In times of increased disaster risk, particularly during wartime, municipal authorities must ensure the provision of mobile urban services. These services should encompass not only sanitation facilities but also mobile food markets or distribution services for humanitarian aid. This is imperative because cities become fragmented and vulnerable areas during disasters. Mobility is a key aspect of urban resilience, as it can provide enhanced security for residents. It is essential that urban services are able to reach people directly in their residential areas within the city, without forcing people to move to get them (Pilav, 2012). As for civil wars, the most vital approach is conflict-sensitive urban design: urban planning in response to civil wars should prioritize conflict-sensitive design principles to mitigate violence and protect urban populations. This involves designing urban spaces with features that enhance visibility, surveillance, and safety. For instance, streets can be designed to maximize visibility and minimize hiding spots for potential attackers. Additionally, public spaces can incorporate physical barriers or protective features to safeguard critical infrastructure and prevent unauthorized access during periods of conflict. The second strategy is spatial protection of vulnerable populations meaning urban planning efforts during civil wars prioritizing the protection and support of vulnerable

populations who are disproportionately impacted by violence and displacement. This includes internally displaced persons, refugees, and marginalized communities. This implies a close work with humanitarian agencies to establish safe zones, safe escape routes, refugee camps, or temporary shelters to provide shelter and security for displaced persons taking into consideration all topographical and climatic features of the region.

In addition to man-made disasters, economic disasters pose another significant challenge that resilient urban planning approaches must address. For instance, during financial crises, cities often experience a severe deterioration in their fiscal situations, placing immense strain on local governments. Moreover, the decline in purchasing power among households exacerbates the situation for economically disadvantaged citizens. Consequently, it becomes imperative to implement policies aimed at revitalizing the fragile housing market, which bears a substantial burden on vulnerable populations. One key strategy involves diversifying the housing supply to cater to a broad spectrum of demand. This entails establishing a housing market that is friendly to low- and medium-income individuals and families. This can be achieved through initiatives such as affordable housing projects, social housing programs with life-long rent schemes, and long-term interest-free mortgage loan programs (IPA, 2021). By providing affordable housing options, cities can mitigate the adverse effects of economic downturns on vulnerable communities. Another critical aspect that requires attention during economic crises is the commercial real estate sector, including offices, bureaus, and other workplaces. Economic downturns often result in increased acquisition and maintenance costs for commercial properties, leading to imbalances and, in some cases, stagnation in the market. To address this challenge, a regional planning approach is necessary. According to Cohen, regional planning involves decentralizing social, service, and infrastructure investments to less developed regions. By spreading investments across a wider geographical area, cities can alleviate and distribute the negative impact of economic crises. This approach helps prevent a complete collapse of the city's economy and mitigates the risk of skyrocketing prices in the commercial real estate market (2011). The second major economic crisis is labor market failure. One tangible resilient urban planning strategy to address it is the establishment of a comprehensive workforce development program tailored to the needs of affected communities. This program would encompass various initiatives aimed at enhancing the skills, employability, and resilience of the local workforce. By implementing targeted skills training programs designed to equip workers with the specific competencies demanded by emerging industries or sectors within the local economy and

collaborating with local educational institutions, vocational training centers, and industry partners to develop curriculum and training modules aligned with market demands, the workforce will adapt more easily to sudden negative changes and thus will contribute to a more resilient and stable labor market (Grinberg & Samuels, 2018). Another strategy could be establishing job placement centers and career counseling services based on spatial distribution and density of the targeted population to assist displaced workers in finding employment opportunities suited to their skills and interests (ILO,2020). And last but not least, encouraging entrepreneurship and self-employment as viable alternatives to traditional employment offering resources and support services for aspiring entrepreneurs, including business incubation programs, access to financing, and mentorship opportunities plays a pivotal role in alleviating the severity of the crisis and increasing the economic resilience of affected urban areas.

The last type of disasters to which cities should be resilient are natural hazards such as earthquakes, floods, and wildfires that constantly endanger lives and essential infrastructures. Efficient urban risk management requires the participation of different entities to minimize urban risks. First of all, earthquakes, caused by sudden movements of plates along faults within the Earth, are among the most destructive natural disasters. The impact of an earthquake can extend over vast areas. They can cause damage to buildings and infrastructure, and loss of life and injuries. The effects will rise significantly with the rise in population and infrastructure facilities. Although earthquakes are inevitable and cannot be stopped, it is possible to mitigate the effects by identifying potential risks, building more secure structures and educating the public on earthquake safety. Pre-disaster measures can be prepared in advance by considering estimated damage scenarios. Disaster mitigation is an ongoing attempt to reduce the effects of disasters on communities, structures, and the economy. By using mitigation technologies, critical service facilities such as hospitals and fire stations can be strengthened to ensure they can either remain operational or after a disaster. Mitigation measures can also help businesses and industries prevent damage and continue their operations during a catastrophe. During the preparedness stage, development of a response plan is one of the important tasks. The response plan outlines a structured hierarchy, detailing specific duties and responsibilities assigned to different organizations. This organized approach minimizes confusion and ensures a prompt and coordinated response. Response actions carried out during, and immediately after the earthquake, with the goal of saving lives, minimizing financial damages, and alleviating suffering. Common

recovery measures include clearing debris, providing financial aid to individuals and local authorities, reconstructing infrastructure and key facilities, and providing ongoing support to those affected.

The second natural disaster is floods which are triggered by heavy rainfall, storm surges, or the overflow of rivers and lakes. Early warning systems are extremely important in flash flooding situations as they enable residents to prepare for the rising floodwaters. A floodplain is a piece of land next to a river that extends from the riverbanks to the bottom of the surrounding valley walls. It gets flooded when the river water rises due to heavy rain. The most sustainable way of minimizing the risk is to prevent further development in floodplains (NAO, 2023). The production of flood risk maps which show areas prone to flooding based on historical flood and rainfall data is the best way of reducing the risk to individuals and property. Essential infrastructure, including dams, levees, and wastewater treatment plants, may end up underwater, resulting in contamination of water supplies and widespread disruptions. Floods have the potential to damage water supply systems, contaminating the water and making it unsafe to drink. This shortage of clean water can quickly become a crisis, leading to the spread of waterborne diseases and worsening the emergency situation. To mitigate these risks, a strong water supply and treatment infrastructure is essential. This includes flood-resistant water facilities, backup treatment systems, and maintaining reserves of clean water to meet the needs of affected communities. Redirecting floodwaters into wetlands, floodplains, canals, pipes, reservoirs, or other channels helps mitigate flooding by allowing a controlled release of water away from urban areas. Floodplains store excess stormwater, reducing the number of floods and their severity. Regular maintenance of creeks and stormwater drainage systems is essential in preserving the hydraulic performance of drains. Developing and reviewing a regular maintenance schedule for regions prone to flooding can provide significant benefit during rainy seasons. Clearing of creek systems may not always mitigate the effects of major flood events but it does help reduce the impact of smaller, more frequent floods. Green infrastructure mitigates flood hazards and strengthens the ability of communities to withstand climate challenges by collecting rainwater where it falls and keeping it away from drainage systems and waterways. Examples of green technologies include retention/detention ponds, swales, green roofs, rain gardens, and permeable paving. (Shaw & al., 2023). During a flood, sandbags are commonly used to redirect the water flow. The best way of survival is to avoid floodwaters, as many deaths occur when people try to drive through flooded areas. Floodwater can be contaminated with

sewage and other hazardous materials, a threat to the environment. It also may carry electrical charges from underground sources or fallen power lines. It is crucial to stay away from damaged areas to allow ongoing rescue and emergency efforts. Post-disaster activities include warnings and evacuations, search and rescue operations, providing shelter and medical assistance, repairing or rebuilding essential infrastructure like storm drains and diversion dams, carrying out drying and cleanup tasks.

And last but not least, forest fires, also known as wildfires are large and destructive fires, a threat to civilizations and wildlife. Wildfires may be triggered by natural or human factors. Lightning strikes, sparks from rockfalls, and spontaneous combustion are among the most common natural causes of wildfires. On the other hand, debris burning, carelessness, and arson are the main man-made causes. Wildfires differ from other fires in their size, speed and unpredictability. They can change direction and leap across large distances as burning embers and sparks are carried by the wind. Wildfires can start in just seconds and spread within minutes, resulting in the destruction of extensive areas of ecosystems. From an emergency management perspective, wildfires can be extremely catastrophic. Wildfire disaster management is the process of planning, preventing and fighting fires in order to protect people, property and forest resources. To overcome the increasing risk of wildfires, policies and programs have been developed to enhance preparedness. Effective government coordination is essential in wildfire preparation and prevention. Legislation provides necessary resources like equipment, training, and financial support for fire crews. Environmental laws also encourage public involvement in developing and implementing wildfire management plans. Raising public awareness can build public support for wildfire management projects. Firewise communities organize regular meetings to bring residents together and connect them with firefighters, wildfire experts, and forestry officials. The purpose of these meetings is to educate citizens about the factors that contribute to wildfires and teach them how to prevent and prepare for such incidents. Increased interactions between wildfire agencies and the community build trust and increase support for public initiatives focused on preventing wildfires (Huber, 2018). A forest management plan details the planned forestry activities. The forestry industry actively contributes to climate change mitigation by increasing carbon storage in growing trees and soils, and improving the sustainable supply of renewable resources through responsible forest management. Management techniques in forestry include harvesting timber, planting different species, constructing and maintenance of roads and pathways within the forest, and fire prevention. During the drought season,

when temperatures are high, relative humidity is low, and dry winds prevail, the conditions become optimal for fires to start and spread quickly. Wind influences moisture and, as a result, wildfire in several ways. It can accelerate evaporation by replacing moist air near trees with drier air. While drying winds dry the plantation very quickly, strong winds cool trees and slow the drying process. After a fire begins, wind supports combustion by increasing oxygen levels and it also causes fire spread by carrying heat and burning embers. As Neyisci stated, all plant materials are flammable but some are less flammable than others. Dead needles and leaves on the branches are highly flammable because they are fully exposed to the air and drier. Although none are completely fire resistant, some trees and plants, such as maple, cypress, red alder and white oak, are more resilient to the fire than others. Fire prevention strategies should not solely rely on replacing highly flammable species with other less flammable ones. Instead, forest fire management should use preventive silvicultural techniques and aim to control the fuel load in key areas by either reducing or removing it. Silviculture is the art and science of managing forests to meet landowner objectives, which includes treatments such as thinning, pruning, underburning, and a wide variety of other techniques (Fitzgerald & Bennett, 2013). The key strategy is to surround highly flammable plantations with thick barriers that burn slowly. The effectiveness of these barriers depends on the spacing between plantations and the number of rows. Multiple row barriers provide protection against fire and wind, while also offering potential future timber supply. Principles of fire resistant forests include reducing surface fuels. Tree spacing does not need to be uniform. In certain areas, tighter spacing can benefit specific wildlife. By opening up the forest stand, more light, wind and heat can reach the surface fuels, aiding in their drying process. This may increase the intensity and speed of surface fires. In addition, thinning the forest allows more light to reach the forest floor, which can result in the regrowth of small trees and shrubs, becoming new fuels over time. Wide tree spacing can also increase risk of trees being blown down, reduce future timber production and require extra reforestation efforts. Thinning the forest to improve fire resistance is removing smaller trees and keeping larger, healthier trees. Larger trees have thicker bark, making them more resistant to fire. To maintain tree health, pruning, removing lower branches, and increasing the height of the tree crown can be combined with thinning. While small trees and shrubs are damaged, larger trees will only be scorched, which reduces soil damage and fire intensity and makes it easier for firefighters to suppress the fire (DOI, n.d.). By implementing all the aforementioned strategies for mitigation and recovery, resilience can definitely be achieved.

In conclusion, resilient urban planning approaches serve as effective strategies in addressing climate change, social and natural disasters. Firstly, by providing solutions to drought, air pollution and hurricanes a city can be deemed as resilient to climate change. Secondly, by implementing zoning regulations resilience to man-made disasters such as industrial accidents can be achieved. Resilience to the other type of man-made disasters, wars, can be provided by documentary mapping and enhanced service mobility as well as advanced surveillance systems and secure temporary urban fabric including camps and safe routes. As for economic disasters the main pillar of resilience is the efforts to maintain stability in the real estate and labor market. Thirdly, cities resilient to natural catastrophes such as floods and wildfire can be established through pre-disaster mitigation and post-disaster recovery strategies. Thus, with wise approaches all disasters can be addressed in a way minimizing the negative effects, and, as Tulley said, ‘‘Persistence and resilience only comes from having been given the chance to work through difficult problems’’ (n.d.).

11. Case Studies and Practices

a. Türkiye (İstanbul)

Istanbul exemplifies a megalopolis wrestling with growth vs. sustainability. Turkey’s economic vision has prompted massive infrastructure mega-projects in Istanbul (new airports, bridges, canals) aimed at stimulating growth. However, studies warn these projects risk undermining sustainability. As one analysis notes, *“the key issue with mega-projects is the danger of losing green areas to business development”*. Rapid expansion northward—driven by these projects—jeopardizes natural resources and alters community fabric, with experts finding low levels of sustainability in planning and execution. In practice, this has fueled debates: policymakers tout new highways and transit lines as growth enablers, while critics caution about habitat loss and social dislocation.

In response, Istanbul’s government has begun adopting more sustainable urban policies. A prominent example is the Sustainable Urban Mobility Plan (SUMP), the first of its kind for a megacity in Türkiye. Developed with international partners, Istanbul’s SUMP marks a “paradigm shift” away from car-centric infrastructure toward people-centered transport. It prioritizes public transit, walking, and cycling, aiming to reduce vehicle emissions and noise. Likewise, the municipality has pledged deep climate targets: Istanbul

plans to cut greenhouse gases ~52% by 2030 and achieve net-zero by 2050. To meet these goals, the city launched a Sustainable Energy and Climate Action Plan (SECAP) focusing on energy efficiency, renewable generation, and smart-grid management. Notably, Istanbul is already converting landfill gas into electricity at a scale that avoids roughly 3.5 million tonnes of CO_2 per year (enough for 400,000 homes). The city is also greening its infrastructure: it added over 527 km of bike lanes and manages 60 million m² of municipal green space using GIS systems.

These efforts demonstrate an evolving policy stance. Istanbul's mayor emphasizes that climate action must be "inclusive" and multilevel. The city has joined global networks (Covenant of Mayors, ICLEI) to share best practices and finance. While challenges remain (legacy growth patterns, seismic risk, informal housing), Istanbul is gradually integrating sustainability into its booming urban agenda: locking in green corridors, improving transit, and aligning local regulations with ecological goals.

b. Brazil (Recife, Pernambuco)

The development model observed in Pernambuco presents a hybrid development regime that goes beyond the one-dimensional understanding of growth frequently emphasized in the literature, while simultaneously reproducing inequalities. Over the past two decades, the state has experienced significant economic growth, particularly through investments in industry, logistics, and the knowledge economy. Initiatives such as the Suape Port and Industrial Complex and Porto Digital have increased Pernambuco's integration into global value chains and expanded its high value-added production capacity (Silva & Lima, 2019; Suape Port Authority, 2023). However, the spatial and social impacts of this transformation have been uneven. This situation confirms Pike, Rodríguez-Pose, and Tomaney's (2017) argument that development must be examined through the questions of "what kind" and "for whom." As demonstrated in the report, growth has occurred in Pernambuco; yet rather than reducing spatial and social inequalities, this growth has in many cases reproduced them.

Coastal areas—particularly the Recife metropolitan region—have become core zones where industrial, service, and knowledge-economy investments are concentrated (IBGE, 2022; IPEA, 2021). In contrast, the state's interior regions are characterized by low productivity, limited infrastructure, and high poverty rates. The fact that poverty rates in rural areas are significantly higher than in urban areas (World Bank, 2014), and that unemployment rates remain above the national average (IBGE, 2024), indicates that the development process

has not been sufficiently inclusive for broad segments of society. Income distribution indicators further support this assessment. Pernambuco is among the states with the highest levels of inequality in Brazil, and its high Gini coefficient reveals that the benefits of growth are shared by only a limited segment of the population (IBGE, 2022). Investments such as Suape and Porto Digital have disproportionately benefited highly educated and in-migrant labor, while local and low-skilled populations are largely concentrated in low-wage and precarious employment (Silva & Lima, 2019; OECD, 2013). In this context, it can be argued that the winners of development are confined to specific social groups, while the losers are predominantly rural and low-income populations.

These findings align with the dynamics of unequal growth frequently discussed in the Latin American context. As highlighted in Furtado's (1963) classic analysis of Northeast Brazil, development in the region has historically been shaped by the needs of core areas, with the strengthening of local social structures remaining secondary. The case of Pernambuco can be interpreted as a contemporary continuation of this historical model. Investments have been concentrated in sectors aimed at integration into global markets, while local agriculture, small-scale production, and endogenous economic networks have been largely neglected (Cano, 2008).

Institutional structures and governance mechanisms have played an important role in Pernambuco's development process; however, they have not, on their own, guaranteed inclusive development. Significant financial resources have been directed to the state through SUDENE, Banco do Nordeste, and federal incentive mechanisms (Banco do Nordeste, 2024; SUDENE, 2019). International organizations such as the World Bank and the Inter-American Development Bank have also intervened through projects in water, sanitation, fiscal management, and digitalization (World Bank, 2024; IDB, 2023). Nevertheless, deficiencies in institutional capacity, shortages of technical personnel, and problems of inter-institutional coordination have limited the social benefits of these investments (IPEA, 2023). These findings demonstrate that development is directly related not only to the volume of investment or growth rates, but also to the quality of governance and institutional capacity. As emphasized by Pike et al. (2017), even well-designed policies may fail to produce expected outcomes in weak governance environments.

In Pernambuco, centralized and top-down policymaking processes have failed to adequately account for local needs and differences, while participatory mechanisms have

remained limited across the state (Wampler & Avritzer, 2004; IBGE, 2022). In this context, development emerges as a dynamic process that is continuously redefined. Pernambuco's development strategies have evolved from import-substitution industrialization to neoliberal globalization, and subsequently toward models centered on the knowledge economy and logistics. However, each new model has failed to fully eliminate existing inequalities and has often produced new forms of inequality. This demonstrates that development is not a linear or automatic process of increasing prosperity; rather, it is shaped by contradictions, conflicts, and distributive struggles (Pike et al., 2017; Harvey, 2005).

At this point, the quality of development becomes a central issue. The "Leaving No One Behind" (LNOB) principle within the framework of the Sustainable Development Goals (SDGs) requires development policies to explicitly target the poorest and most vulnerable groups. Similarly, the idea of "Leaving No Place Behind" calls for development to be directed not only toward dynamic core areas but also toward disadvantaged and peripheral regions (World Bank, 2017). The case of Pernambuco clearly demonstrates the extent to which these two principles have not been effectively implemented. Investments concentrated in coastal and metropolitan areas have failed to resolve the structural problems of the interior regions; on the contrary, they have deepened spatial disparities (UN-Habitat, 2020).

In conclusion, Pernambuco offers a concrete example of the contradictions inherent in state-led development strategies supported by global financial actors in the Global South. While the state has achieved significant gains in terms of economic growth and global integration, these gains have remained limited with respect to social inclusion, spatial justice, and the reduction of inequalities. For this reason, the Pernambuco experience strongly underscores the need for development policies to focus not only on "how much growth" is generated, but also on "what kind of growth" and "for whom." Within this framework, it is evident that achieving sustainable and equitable development requires new policy approaches that place the LNOB and LNPL principles of the SDGs at their core and directly target spatial and social inequalities.

c. Japan (Tokyo)

Tokyo, one of the world's largest megacities, has long pursued a high-tech path to sustainability. Japanese policymakers view Tokyo as a testbed for low-carbon innovation and smart urban design. In 2019 Tokyo published the Zero Emission Tokyo Strategy, a comprehensive roadmap to achieve carbon-neutrality by 2050. This strategy covers six key

sectors, including energy, building infrastructure, and transport. Notable targets include: supplying 100% of Tokyo government facilities' power from renewables by 2030, increasing the city-wide share of renewable electricity to 30%, and reducing overall energy consumption by roughly 38% (from 2000 levels) by 2030. Simultaneously, Tokyo plans to scale up hydrogen and solar power, expand energy-sharing grids, and push 50% of new vehicles to be zero-emission by 2030.

Building on this, the Tokyo Metropolitan Government launched the Tokyo eSG (Environmental-Social-Governance) Project – effectively a new "ESG city" in Tokyo Bay. On reclaimed land, Tokyo will build a climate-resilient urban district to be carbon-neutral by 2050. The plan includes high-tech features: all energy from renewables (hydrogen, wind, solar) managed by smart grids, 100% energy-efficient (zero-emission) buildings, zero-emission vehicles and public transit, and the promotion of a circular ("sharing") economy. This is complemented by policies to make transport and commuting greener: e.g., Tokyo aims to cut its CO_2 by 30% from 2000 levels by 2030 through building efficiency and switching the vehicle fleet to electric or hydrogen.

Tokyo's approach explicitly ties technology and planning to growth objectives. By constructing a new eco-district, Tokyo intends not only to cut emissions but also to stimulate economic activity: attracting foreign green-tech investment, startups, and talent into an "urban laboratory". The government recognizes that Japan must boost competitiveness (digitalization, 5G expansion, startup incubation) while greening the city. Thus Tokyo exemplifies a strategy where economic innovation and environmental goals are pursued simultaneously: transit and energy projects are framed as engines for new industries. The city's ambition to meet 100% of its energy needs through renewables and hydrogen by mid-century is mirrored by active pursuit of global leadership, e.g. Governor Koike touting Tokyo as a template for sustainable cities worldwide.

d. France (Paris)

Paris provides a prominent European example of reorienting urban form and policy for sustainability. Under Mayor Anne Hidalgo (elected 2014), Paris has aggressively pursued a "15-minute city" model where residents can meet most daily needs within a 15-minute walk or bike ride. As part of this transformation, the city has systematically removed car infrastructure. In 2016, Paris famously converted a heavily congested highway along the Seine (formerly carrying 40,000 vehicles/day) into a car-free linear park. This not only

improved air quality – pollution along the river had *"regularly exceeded EU limits"* – but also created new public spaces and encouraged walking. Paris reports that, as a result of such policies, it has reduced its overall carbon emissions by ~40% since 2014.

Other key initiatives include banning cars from parts of the city center, expanding pedestrian zones, and promoting electric mobility. The city plans to eliminate 60,000 parking spaces, replacing them with trees and parks. Its 2024–2030 climate plan (titled *"Faster, Fairer, More Local"*) pledges 300 hectares of new green space by 2030 and aims for 80% reduction in CO_2 by mid-century. Paris also pioneered the "cool roofs" and "cool islands" program (white-painted roofs, shade trees) to combat urban heat waves, a nature-based adaptation measure. All new buildings are limited to 12 stories (to preserve light and wind flow), and a new transit-oriented strategy has been introduced on the Ring Road (dedicating lanes for carpools and transit). These spatial policies directly link growth and sustainability by curbing private-vehicle use and preserving liveability.

In short, Paris demonstrates how established cities can retrofit growth and environment balance through urban design. Its transformation of public space – for example, turning the Seine banks into a "makeshift beach" and floating pools – is emblematic of a shift away from cars toward people and nature. President Emmanuel Macron's government has generally supported these changes (e.g. special subsidies for biking), and the City has garnered international awards for its leadership in climate action. While Paris faces ongoing challenges (housing affordability, aging infrastructure), its recent track record underscores that consistent policy choices (pedestrianization, greening, energy efficiency) can yield substantial environmental dividends in a growing economy.

12. International Frameworks

Efforts to reconcile urban growth with sustainability have been embedded in multiple UN and global frameworks:

United Nations Conferences on Human Settlements (Habitat I, II, III): The 1976 Vancouver Conference (Habitat I) issued a declaration warning that uncontrolled urbanization and inequitable growth would worsen living conditions, and it called for bold spatial planning and environmental protection measures. Two decades later, Habitat II (Istanbul 1996) produced the Habitat Agenda, a global blueprint for sustainable cities. The Agenda emphasizes that *"adequate shelter and basic services, a healthy and safe environment, and*

productive employment" should be the rule in urbanization, and it enshrined the right to adequate housing as a government obligation. Habitat III (Quito 2016) elevated these commitments with the New Urban Agenda, declaring that well-planned urbanization can be *"a transformative force for sustainable development"*. The New Urban Agenda lays out five pillars (national policies, legislation, planning, local economy/finance, and local implementation) to guide sustainable city-making.

Sustainable Development Goals (SDGs): Adopted in 2015, the 2030 Agenda includes SDG 11 ("Make cities inclusive, safe, resilient and sustainable"), with targets on housing, transport, disaster resilience, and green public spaces. SDG 11 explicitly links urban growth with sustainability by calling for compact and resilient urban planning. For example, target 11.2 promotes affordable, sustainable transport systems, and 11.6 calls to reduce city environmental impact. The SDGs have galvanized national and local action plans that align with urban sustainability principles.

Other UN and International Initiatives: The 1992 Earth Summit produced Agenda 21, whose Chapter 7 focuses on promoting sustainable human settlement development. More recently, the Paris Agreement (2015) frames cities as key to climate mitigation, with many cities committing to net-zero carbon targets. The Global Covenant of Mayors and UN Cities Programme have mobilized local governments worldwide. The European Union has integrated the New Urban Agenda into its Urban Agenda for the EU, using multi-level governance and monitoring tools to implement SDGs locally. Multilateral development banks (World Bank, EBRD, Inter-American Development Bank) now routinely fund "sustainable city" programs with defined green criteria. The Habitat world conferences and WUF (World Urban Forum) sessions continually review progress on urban sustainability commitments, while organizations like UN-Habitat produce global reports on city trends.

These frameworks collectively emphasize that urban expansion must be guided by integrated planning and cooperation across levels of government. For example, the EU notes that its commitment to the New Urban Agenda has led to data-driven tools for comparing urbanization metrics and strengthened city-to-city cooperation on the green and digital transitions. In sum, the international agenda affirms that economic development and environmental protection in cities are not contradictory objectives, but complementary parts of the SDG vision.

13. Key Stakeholders and Opinions

International Organizations: Agencies like UN-Habitat, UN Environment Programme, and UN Development Programme champion sustainable urbanization. UN-Habitat's mandate explicitly is *"socially and environmentally sustainable towns and cities"*. The OECD provides policy guidance to member and partner countries, stressing that cities can be competitive growth engines *"while addressing… issues from managing urban expansion… to encouraging… environmental sustainability"*. The OECD highlights that decarbonizing transport and buildings is essential to reconcile growth with environmental limits. Similarly, the World Bank and IMF have begun integrating climate risk into urban lending. The IPCC (via its Special Report on Cities [in progress]) is also likely to emphasize urban mitigation/adaptation.

Global city networks influence policy: the C40 Cities group (40 mega-cities) provides a platform for climate and sustainability commitments, where cities like Tokyo and Paris announce net-zero goals. Local government bodies such as ICLEI (Local Governments for Sustainability) and UCLG (United Cities and Local Governments) advocate for resources and policies for sustainable cities. For example, ICLEI notes that Istanbul aims for carbon neutrality by 2050 and is cutting emissions 52.2% by 2030, illustrating how municipal actors set ambitious targets. Private-sector associations (real estate, finance) are also stakeholders: they often push for stable, forward-looking policies that allow for green infrastructure investment. NGOs and academic experts frequently weigh in, with figures like Jane Jacobs and Edward Glaeser cited for foundational ideas (Jacobs on urban diversity and innovation, Glaeser on density and productivity).

Regional Bodies: The European Union has a strong collective policy framework (European Green Deal, Urban Agenda for the EU) that pressures member cities to meet climate targets and invest in sustainable transport. In Latin America and Asia, regional forums (e.g. MERCOSUR, ASEAN Smart Cities) encourage member states to share sustainable urban solutions. The African Union and Arab League have begun to address rapid urbanization in regional development plans, often focusing on informal settlements and renewable energy in cities.

Member States: Governments' approaches vary. Many developed countries emphasize green infrastructure and regulation (e.g. France's national climate plan supports

Paris's initiatives, Germany funds public transit heavily). Emerging economies may prioritize economic growth and infrastructure first, but are increasingly integrating sustainability under international pressure. For instance, Brazil's federal programs have supported urban mobility (city bus systems, metro lines) and favelas upgrading, reflecting a growth-with-inclusion model. Turkey has traditionally emphasized large-scale development (mega-projects) but is now incrementally adding sustainability elements (as seen in Istanbul's recent plans). Japan's national policies encourage its cities to become low-carbon tech hubs, aligning with Tokyo's strategies. The United States, lacking a national urban policy, leaves cities considerable autonomy but still supports "smart city" grants and EPA clean-energy initiatives. Overall, opinions range from seeing environmental regulation as an economic burden to viewing it as an opportunity for innovation; however, the UN consensus is that investments in green infrastructure and efficient planning pay long-run economic dividends.

14. Previous Attempts to Resolve the Issue

Historically, the UN and global community have repeatedly tackled the growth–environment balance in cities:

Habitat Conferences: As noted, each UN-Habitat conference advanced the agenda of sustainable urbanization. Habitat I (1976) sounded the alarm on uncontrolled urbanization, leading to the creation of UN-Habitat (then UNCHS). Habitat II (1996) produced the *Habitat Agenda*, which reaffirmed the need for green, equitable cities with civil society partnership. Habitat III (2016) issued the *New Urban Agenda* which explicitly links good urban planning to the Sustainable Development Goals.

Earth Summit / Agenda 21 (1992): The UN Conference on Environment and Development (Rio 1992) included a chapter on sustainable cities, recognizing human settlements as a critical intersection of development and environment. It called for integrated planning and the development of urban indicators. This laid groundwork for later initiatives.

Millennium Development Goals (2000–2015): The MDGs included slum targets (target 7D) which pushed countries to improve basic services in rapidly growing urban slums. This emphasis on improving poor urban neighborhoods set a precedent for multi-level partnerships, although critics note the MDGs lacked strong environmental metrics.

Sustainable Development Goals (2015–2030): SDG 11, along with SDG 13 (climate action) and others, have mobilized action. Progress reports indicate mixed results: some advances in housing and transit, but rising urban CO_2 globally. The UN holds periodic review sessions on SDG 11; the High-Level Political Forum often highlights innovative urban policies and calls for scaling successful models.

Paris Agreement (2015): By putting cities in the spotlight (e.g. through the global goal of "well below 2°C"), the Paris Agreement has spurred urban climate commitments. Major cities pledged, through networks like C40, to align with Paris goals, recognizing that national targets depend on city-level implementation.

World Urban Forum (WUF): Convened by UN-Habitat since 2002, WUF gatherings have served as platforms for exchanging best practices on sustainable urbanization. The Forum themes often include balancing growth and sustainability, e.g. WUF-10 (2020) focused on the "Urban Opportunity".

While these efforts have raised awareness and produced frameworks, implementation gaps remain. Many urban growth trends continue to overshoot environmental limits in practice. Thus, ongoing diplomatic and technical efforts (e.g. the UN's 2022 High-Level Meeting on the New Urban Agenda) are seeking to reinvigorate commitments. In sum, multiple international attempts, from the Habitat conferences to the SDGs , have explicitly aimed at harmonizing city growth and green goals. Each highlights the principle that sustainable urbanization requires integrated, multi-scalar solutions, even if much work remains to turn declarations into on-the-ground results.

15. Questions to be addressed

1. How can cities pursue economic growth without increasing inequality, informal settlements, or spatial segregation?
2. What types of economic activity (e.g., manufacturing, finance, green technology, services) are most compatible with sustainable urban development?
3. How can governments ensure that urban growth benefits both national economies and local communities?
4. What role should innovation, digitalization, and the knowledge economy play in creating environmentally sustainable urban growth?

5. How can cities in developing countries grow economically without repeating the environmentally destructive urbanization pathways of industrialized nations?
6. What minimum environmental standards should all rapidly growing cities be required to meet?
7. How can cities reduce greenhouse gas emissions while continuing to expand their infrastructure and housing stock?
8. What role should renewable energy, energy efficiency, and circular economy models play in urban development?
9. How can urban green spaces, forests, wetlands, and waterways be protected and expanded despite development pressures?
10. How can cities adapt to climate risks such as flooding, heat waves, and sea-level rise while still attracting investment and population growth?
11. How can urban sprawl be limited without restricting access to affordable housing?
12. Should compact cities and transit-oriented development be promoted as global planning standards?
13. What planning tools (zoning, growth boundaries, density regulations, land-value capture) are most effective in guiding sustainable urban growth?
14. How can informal settlements be upgraded in an environmentally sustainable and socially inclusive manner?
15. How should cities balance private development interests with long-term environmental and social goals?
16. What responsibilities should national governments have in guiding and regulating urban sustainability?
17. What powers and resources should be given to local governments to implement climate and sustainability policies?
18. How can international financial institutions support sustainable urbanization without increasing debt burdens?
19. Should there be a global funding mechanism for sustainable cities, similar to climate finance mechanisms?
20. How can corruption, weak governance, and lack of planning capacity be addressed in fast-growing cities?
21. How can the New Urban Agenda and SDG 11 be more effectively implemented at the national and municipal levels?

22. Should there be a global system for monitoring and comparing urban sustainability performance?
23. How can best practices from cities such as Paris, Tokyo, and Recife be transferred to cities in developing countries?
24. What role should the United Nations, UN-Habitat, and international city networks play in coordinating sustainable urbanization efforts?
25. How can sustainable urban development be made socially inclusive rather than increasing housing costs and displacement?
26. How should the needs of vulnerable populations, such as the urban poor, migrants, and informal workers , be protected during urban redevelopment?
27. Should access to clean air, water, green space, and public transport be treated as fundamental urban rights?
28. How can cities simultaneously be engines of economic growth and models of ecological responsibility?
29. What commitments should Member States make today to ensure that future generations inherit livable, resilient, and prosperous cities?

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