

ECOSOC

Study Guide

Ensuring Equitable Access to Green
Technologies

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USG: Nur Elif BATTAL



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I. Letter from the Secretary-General

Highly Esteemed Delegates,

First and foremost, I would like to express my sincere gratitude for your interest and enthusiasm regarding our conference. My name is Yaren Keçili, and I have the honor of serving as your Secretary-General for the 8th edition of the Troy Model United Nations Conference this year. I embrace this role with immense appreciation. Similar to previous years, we have dedicated our efforts to creating a range of engaging and diverse committees for your benefit. We take great pride in the work we have prepared for you and sincerely hope that you will find it beneficial as well. Both the academic and operations teams have been working very hard to serve you to the best of their abilities and give you an unforgettable experience.

I wish to show my gratitude to the chair board and Nur Elif Battal, who is going to serve as your Under-Secretary-General. All my teammates made great efforts in the process leading up to the conference. Hence, they need all the praise for their hard work.

I trust that all our delegates will engage in enlightening discussions throughout the three days they are with us, cultivate creative solutions to global challenges, be at the forefront of diplomacy and academia, and enjoy the experience in the process. Once again, I would like to welcome you all to both the conference and the committee. Buckle up and get ready because we have prepared an incredible ride for you.

Yours Sincerely,

Yaren Keçili

Secretary-General of Troy Model United Nations 2025

II. Letter From The Under-Secretary-General

Esteemed Delegates,

It is an honour to welcome you all to the UN Economic and Social Council of TROYMUN'25 on behalf of my chair board. I am Nur Elif Battal and very excited to be taking part in this conference once again.

I would like to start my letter by applauding your courage to take part in this conference, for I know from myself that it is not easy to decide to stand up and talk in front of so many people. I couldn't do it when I was your age. I was too scared, too anxious. If you are too, don't be. Even after 5 years of MUNing I know when we start this year's conference I will still have the excitement of my first ever roll call, that fast heartbeat when I stood up to raise a motion.

It is also not easy to confront the inequalities people experience around the globe since there will always be some *powerful* voices who will want more than their fair share. But what good is their power if it exploits millions? What can they do if we stand up against injustice?

This year's agenda item is focused on emerging green technology — a powerful tool that can shape the future of our planet. But true progress comes only when everyone, no matter where they live or who they are, has fair access to these innovations. It's up to you delegates to ensure that the benefits of green technology are shared equitably, and that no community is left behind in the fight against climate change. Are you ready to stand up?

Lastly I would like to thank Ms. Çağlayan Nazlıca and Ms. Arzu Kotan for their years of efforts to make TROYMUN conferences a reality for all. And I also would like to thank my Secretary-General Yaren Keçili for supporting us until now.

Sincerely,

Nur Elif Battal

Under-Secretary-General responsible for UN Economic and Social Council

III. Introduction to the Committee: United Nations Economic and Social Council

Economic and Social Council (ECOSOC), one of the six principal organs of the United Nations (UN), responsible for the direction and coordination of the economic, social, humanitarian, and cultural activities carried out by the UN. It is the UN's largest and most complex subsidiary body.

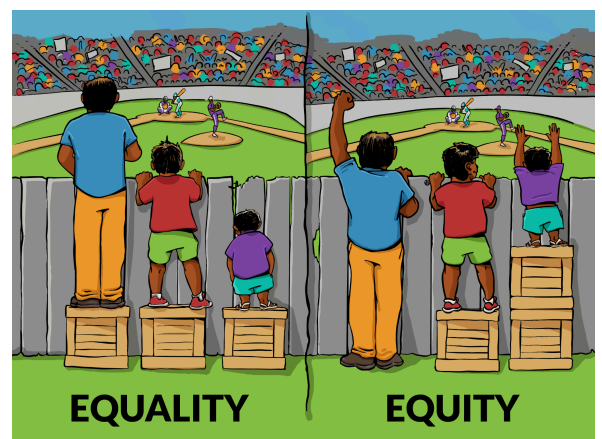


The council was designed to be the UN's main venue for the discussion of international economic and social issues. ECOSOC conducts studies; formulates resolutions, recommendations, and conventions for consideration by the General Assembly; and coordinates the activities of various UN organizations. Most of ECOSOC's work is performed in functional commissions on topics such as human rights, narcotics, population, social development, statistics, the status of women, and science and technology; the council also oversees regional commissions for Europe, Asia and the Pacific, Western Asia, Latin America, and Africa. The UN charter allows ECOSOC to grant consultative status to nongovernmental organizations (NGOs). Consultative status enables NGOs to attend ECOSOC meetings, issue reports, and occasionally testify at meetings. Beginning in the mid-1990s, measures were taken to increase the participation of such NGOs, and by the early 21st century more than 2,500 NGOs had been granted consultative status.[1]

IV. Introduction to the Agenda Item: Ensuring Equitable Access to Green

Technologies

The words equality and equity are often confused because, at a glance, they appear to mean the same thing. They both have to do with the way people are



treated, and both are used in the fields of law, government, economics, and so on. Often, these terms are used to describe actions, laws, or rules that are attempting to end or oppose injustice or unfair treatment of people. However, these two words are not synonyms.

Equality means each individual or group of people is given the same resources or opportunities. Equity recognizes that each person has different circumstances and allocates the exact resources and opportunities needed to reach an equal outcome.

A. Sustainable Development Goals

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

Goal 7 Ensure access to affordable, reliable, sustainable and modern energy for all

A well-established energy system supports all sectors, from businesses, medicine and education to agriculture, infrastructure, communications and high technology.

Energy services are key to preventing disease and fighting pandemics – from powering healthcare facilities and supplying clean water for essential hygiene, to enabling water for essential hygiene, to enabling communications and IT services that connect people while maintaining social distance.

For many decades, fossil fuels such as coal, oil or gas have been major sources of electricity production, but burning carbon fuels produces large amounts of greenhouse gases which

cause climate change and have harmful impacts on people's well-being and the environment. This affects everyone, not just a few. Moreover, global electricity use is rising rapidly. In a nutshell, without a stable electricity supply, countries will not be able to power their economies.

Without electricity, women and girls must spend hours fetching water, clinics cannot store vaccines for children, many schoolchildren cannot do homework at night, and people cannot run competitive businesses. Slow progress towards clean cooking solutions is of grave global concern, affecting both human health and the environment, and if we don't meet our goal by 2030, nearly 22 percent of the world's population – mostly women and children – will continue to be exposed to harmful household air pollution from use of kerosene, paraffin and charcoal.

In rural areas where literacy levels are low and employment opportunities are limited, women, primarily seen as caregivers and responsible for housework, are particularly vulnerable to being marginalised.

The Barefoot College programme, which trains women who have little to no formal education to become solar technicians, is working to simultaneously promote clean energy adoption and foster socioeconomic development. For the Solar Mamas, the programme has become a pathway to emancipation.



“Many opportunities don't reach such women,” said Brenda Geoffrey, the director of programmes and operations at Barefoot College Zanzibar. “We want to

change their mindset from thinking they were just born to be mothers and to raise children to knowing they can be professionals.” [2]

To ensure access to energy for all by 2030, we must accelerate electrification, increase investments in renewable energy, improve energy efficiency and develop enabling policies and regulatory frameworks.

Progress towards Goal 7 has been notable: from 2015 to 2023, global electricity access rose from 87 to 92 per cent, access to clean cooking fuels increased by 16 per cent, and renewable electricity continued to grow. However, progress is slowing –renewables lag in the transport and heating sectors, and energy efficiency gains have stalled. Moreover, only a small portion of global energy investment reaches the areas most in need. Achieving Goal 7 will require a significant boost in investment in emerging and developing economies, in particular in sub-Saharan Africa, to expand access to electricity and clean cooking, scale up renewable energy, improve energy efficiency and strengthen policy and regulatory frameworks.

Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Economic growth, social development and climate action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress. In the face of a rapidly changing global economic landscape and increasing inequalities, sustained growth must include industrialization that first of all, makes opportunities accessible to all people, and second, is supported by innovation and resilient infrastructure.

Since 2015, notable progress has been made however, stark regional disparities persist, and many developing countries continue to face systemic barriers to inclusive and sustainable industrialization. To advance Goal 9, countries must boost investment in resilient

infrastructure and research and development, expand access to finance for small manufacturers and bridge the digital divide by prioritizing affordable broadband and innovation systems in the world's most underserved regions. The United Nations is advancing digital inclusion through initiatives such as the Technology Bank for the Least Developed Countries and the Global Digital Compact, which is aimed at closing connectivity gaps, expanding access to innovation and ensuring digital transformation benefits

Goal 13 Take urgent action to combat climate change and its impacts

Every person, in every country in every continent is impacted in some shape or form by climate change. Climate change is caused by human activities – primarily the burning of fossil fuels like oil, coal and gas – and threatens life on Earth as we know it. With rising greenhouse gas emissions, the impacts of climate change are intensifying and accelerating, including more frequent extreme weather events like droughts, floods and storms, and rising sea levels.

If left unchecked, climate change will undo a lot of the development progress made over the past years. It can also intensify conflicts over resources and force people to move.

Human-induced climate change reached alarming new levels in 2024, with some impacts already irreversible for centuries. Global temperatures broke records and temporarily exceeded the 1.5°C threshold, highlighting the urgent need to curb greenhouse gas emissions.

Extreme weather events – including tropical cyclones, floods and droughts – led to the highest number of new displacements in 16 years, worsening food crises and bringing massive economic losses and social instability. Nonetheless, with bold action, limiting long-term global warming to 1.5°C is still possible. Every fraction of a degree matters in reducing risks, lowering costs and preventing catastrophic and irreversible damage to people and the planet. At the twenty-ninth session of the Conference of the Parties to the United

Nations Framework Convention on Climate Change, States set a new collective quantified goal on climate finance and completed guidance to fully operationalize article 6 of the Paris Agreement on carbon markets, along with making additional commitments on mitigation, adaptation and the operationalization of the Fund for Responding to Loss and Damage.

Goal 17 Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Goal 17 is about revitalizing the global partnership for sustainable development. The 2030 Agenda is universal and calls for action by all countries – developed and developing – to ensure no one is left behind. It requires partnerships between governments, the private sector, and civil society.

The Sustainable Development Goals can only be realized with a strong commitment to global partnership and cooperation to ensure no one is left behind in our journey to development.

Global progress on Goal 17 has shown both advancement and persistent challenges over the past decade. While financial flows to developing countries have increased, driven by both official and private finance, record-high debt servicing costs in 2023 strain low- and middle-income economies. This is compounded by a \$4 trillion annual investment gap for Goal achievement in developing countries. Access to information and communications technology has grown steadily, although digital divides remain stark, in particular in lower-income regions. While data systems and national statistical capacities have improved, many countries still struggle to secure the necessary funding to fully track and implement the Goals, slowing progress in key areas. Strengthened support and renewed global cooperation are critical to bridge these divides and accelerate Goal progress.

B. What is Green Technology?

There is not a commonly accepted or internationally agreed definition of green technology. The term can be broadly defined as technology that has the potential to significantly improve environmental performance relative to other technologies. It is related to the term “environmentally sound technology,” which was adopted under Chapter 34 of Agenda 21. In general, green technologies are considered those that “protect the environment, are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual waste in a more acceptable manner than the technologies for which they were substitutes.” When more narrowly focusing on production processes, in concrete terms, technologies for cleaner production may take two forms: 1) energy technologies that are greener and used to power the production; and 2) technologies for process improvement, e.g., reduction of energy or materials used per unit of output which can be achieved with the introduction of new technology.

Several definitions are related to greener energy technologies, such as green energy, renewables, sustainable energy, and clean energy. They are generally associated with solar, wind, biomass/biogas, and green hydrogen technologies.

Green energy power: The greatest environmental benefit

Not all sources used by the renewable energy industry are green. For example, power generation that burns organic material from sustainable forests may be renewable, but it is not necessarily considered green due to the CO₂ produced by the burning process itself. Large hydro projects are also typically not regarded as green. Green power/energy is a subset of renewable energy and represents those renewable energy resources and technologies that provide the highest environmental benefit. Customers often buy green power for its zero-emissions profile and carbon footprint reduction benefits.

Renewable energy: An unlimited source of power

Renewable energy includes resources that rely on fuel sources that restore themselves over short periods and do not diminish. Such fuel sources include the sun, wind, moving water, organic plant, and waste material (eligible biomass), and the earth's heat (geothermal).

Although the impacts are small, some renewable energy technologies can have an impact on the environment. For example, large hydroelectric resources can have environmental trade-offs on such issues as fisheries and land use. Not all renewable energy is sustainable but improving the sustainability of renewables can have environmental benefits.

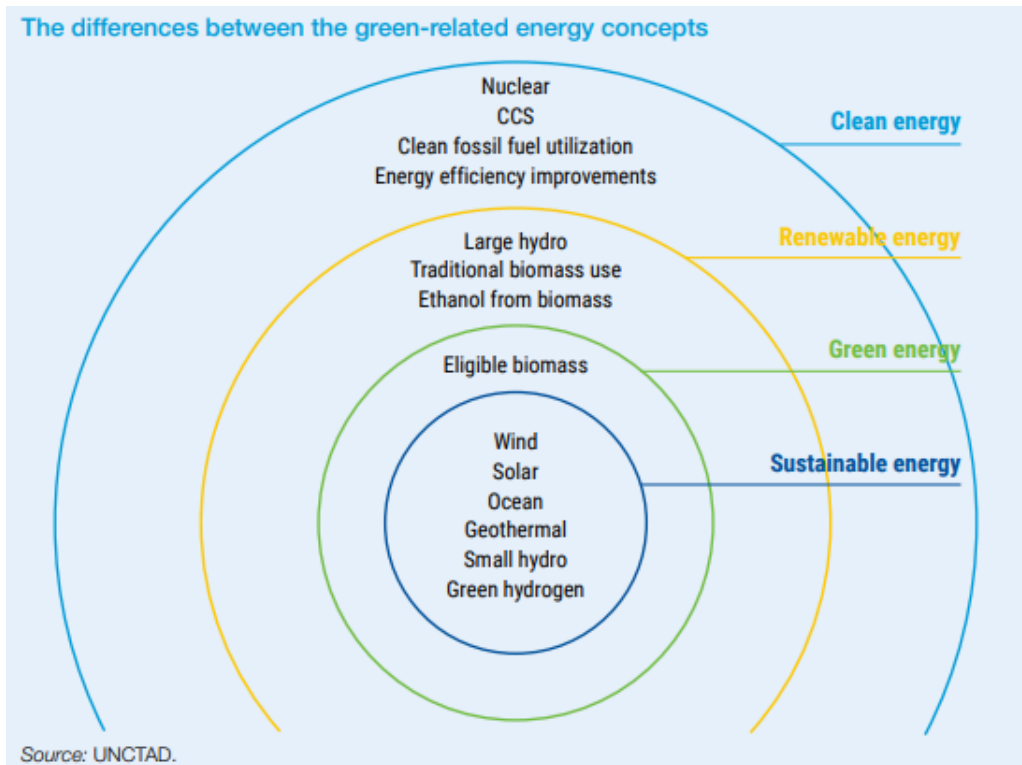
Sustainable energy: Replenish faster than depleted

Sustainable energy comes from sources that can fulfil our current energy needs without compromising future generations. It also involves collection and distribution; the energy must be efficiently acquired and distributed to be sustainable. It includes geothermal, hydropower, solar and wind.

Clean energy: Zero emissions, but not always renewable

Clean energy is defined as energy derived from renewable, zero-emissions sources ("renewables"), as well as energy saved through energy efficiency ("EE") measures.

Renewable energy is derived from sources that can naturally replenish themselves — wind and sun are the two most obvious examples — while clean energy encompasses all zero-carbon energy sources. The clean energy or zero-carbon energy tent is wider; it not only leaves the door open to 100 per cent renewables, but it also includes nuclear energy and the carbon-neutralizing impact of technologies like carbon capture and sequestration (CCS). [3]



Green technology initiatives play an important role in addressing climate change. Greenhouse gas emissions from human activities (such as burning fossil fuels and deforestation) are producing unprecedented levels of carbon dioxide in the Earth's atmosphere. These concentrations lead to global warming and its consequences, including rising sea levels, extreme weather events and ecosystem disruption. According to the Intergovernmental Panel on Climate Change (IPCC), immediate steps must be taken to limit global warming to 1.5°C (34.7°F) above preindustrial levels.

Adopting sustainable technologies can help mitigate emissions and reduce the carbon footprints of countries and companies. They can conserve resources, preserve biodiversity and reduce ecosystem disruption. But the benefits of green technology extend beyond environmental protection. They include:

Financial savings

Implementing energy-efficient technologies and renewable energy systems can lead to lower costs over time.

Economic gains

Green tech companies are part of a growing industry with the potential to create new jobs in fields such as renewable energy, sustainable manufacturing and environmental consulting.

Improved public health

Reducing pollution can also reduce the incidence of respiratory diseases and other health issues.

Company reputation

Investing in green technology might improve a company's brand image, as adopting sustainable practices can attract environmentally conscious customers and investors.

There are several types of green technology, including:

Renewable energy

Also known as clean energy or green energy, renewable energy is generated from natural sources that are replenished faster than they are used. Power sourced from renewable resources and alternative fuels generally produces zero carbon emissions and minimal air pollutants. Types of renewable energy sources include solar energy, wind power, hydroelectric power, geothermal energy and biomass. Solar panels and wind turbines are common examples of this technology.

Energy efficiency

Monitoring and optimizing energy consumption can reduce both waste and costs. From a

green technology perspective, it involves creating or improving products and systems to use less energy. Examples of this technology in action include energy-efficient appliances and LED lighting, energy storage technologies, smart meters and energy management systems.

Waste management

Green technology can help make the disposal of resources and products more sustainable. Waste management technologies include advanced recycling facilities that convert waste into valuable resources, such as energy or raw materials for manufacturing. They also include waste-to-energy systems that use controlled incineration to convert waste products into power.

Transportation

Electric cars, trucks and buses that are powered by rechargeable batteries help reduce emissions from fossil fuels. Biofuels and alternative low-carbon fuel technologies also fall into this category. Advancements in public transportation and urban infrastructure to support electric vehicles (EVs), bicycle and foot transit are also part of this effort.

Water and wastewater treatment

Technologies that purify water for safe reuse also fall under green tech. Examples include low-flow fixtures, rainwater harvesting and advanced filtration technologies that remove contaminants from wastewater, making it safe for irrigation or industrial processes.

Agriculture

Smart farming and sustainable agriculture practices aim to reduce the environmental impact of food production and maintain food security. Examples include precision agriculture, which uses data analytics and sensors to optimize resource use, and vertical farming, which grows crops in stacked layers and uses LED lighting and hydroponic systems.

Carbon capture technologies

Carbon capture and storage (CCS) involves capturing carbon dioxide (CO₂) emissions from industrial processes or the atmosphere and storing them permanently to prevent their release into the atmosphere. Other carbon capture technologies include direct air capture (DAC) systems that remove CO₂ directly from the air. The category also includes bioenergy with carbon capture and storage (BECCS), which combines biomass energy production with CO₂ capture and storage.

Sustainable buildings and construction

Green building technologies reduce the environmental impact of the construction and operation of buildings. Examples include energy-efficient design, green roofs and the use of sustainable materials, such as bamboo or recycled steel. These practices help reduce energy consumption, water usage and waste generation in buildings.



The Edge, globally acknowledged most sustainable and smartest office building in the world.

Carbon tracking software

Carbon tracking software helps organizations monitor, measure and report their greenhouse gas emissions. These tools enable companies to identify emission hotspots, set reduction targets and track progress toward sustainability goals. Examples include carbon accounting

platforms, risk management solutions and supply chain management software that incorporates emissions data.

To put it shortly: Green tech—or green technology—is an umbrella term that describes the use of technology and science to reduce human impacts on the natural environment.

Green technology encompasses a wide area of scientific research, including energy, atmospheric science, agriculture, material science, and hydrology.

Many green technologies aim to reduce emissions of carbon dioxide and other greenhouse gases in order to prevent climate change.

Solar power is one of the most successful green technologies and is now cheaper to deploy than fossil fuels in many countries.

Investors can support green technology by buying stocks, mutual funds, or bonds that support environmentally friendly technology. [4]

C. What is Environmental Justice?

Environmental justice essentially means that everyone—regardless of race, color, national origin, or income—has the right to the same environmental protections and benefits, as well as meaningful involvement in the policies that shape their communities. But rarely has this been the reality for people of color and those with low incomes. That's because virtually all environmental injustice is shaped by the same patterns of racism and inequality that have existed all this time.

1. Gender Inequality

A report by UN Women titled “Feminist Climate Justice: A Framework for Action” shows how crises around the world, ranging from economic inequality to geopolitical gridlock, are amplified by climate change and have disproportionate impacts on women and girls.

The impacts of climate change escalate social, political and economic tensions in fragile and conflict-affected settings – areas in which women and girls are already vulnerable to all forms of gender-based violence. For instance, in rural economies, a prolonged drought or powerful flood that hits local agriculture can destroy sources of income, as well as access to food and clean water. This can be the match that strikes the powder keg in areas of existing political destabilization. Research shows that the instability and poverty that follow these climate-fueled conflicts lead to more instances of conflict-related sexual violence, human trafficking and child marriage.

Jobs, livelihoods and decent work are under threat, particularly for women, many of whom work in informal and vulnerable jobs. The more than 1.2 billion jobs, or 40 per cent of the global labour force, that are directly or heavily dependent on the environment and ecosystems are at serious risk, with women expected to be severely affected due to their high participation in sectors prone to climate change impacts, such as agriculture.

Mounting evidence has revealed the differentiated impacts of climate change and environmental degradation on women and girls, especially those in vulnerable and marginalized situations, including Indigenous women, ethnic minorities, those living with disabilities and with HIV, women of African descent and LGBTIQ+ persons (as synthesized in the latest IPCC reports). These impacts are compounded by women’s persistently unequal access to decent work, land and natural resources, finance, technology, knowledge, mobility and other assets which constrain their ability to respond and build resilience to climate and

environmental crises and disasters. As such, women are most susceptible to climate impacts and most at risk of being left out of the process and benefits of a just transition.

The report calls for a clear vision of feminist climate justice that integrates women's rights into the global fight against environmental catastrophe. It's critical to prioritize women's and girls' rights and leadership in climate action. That means increasing investments and access to green jobs, like care work, sustainable agriculture and renewable energy. By addressing gender inequality for all women and girls, we can better understand the complex and varying impacts of climate change. And the more we understand these impacts, the stronger and more sustainable our climate solutions will be.[5]

The vision for feminist climate justice is a world in which everyone can enjoy the full range of human rights, free from discrimination, and flourish on a planet that is healthy and sustainable. The report suggests we;

a. Recognize women's rights, labour, and knowledge

Policies must recognize that women can offer unique knowledge and expertise—including among indigenous, rural, and young populations—that can be used to support effective climate action.

Women and girls around the world have been at the forefront of climate activism and have used a variety of methods to protect the environment and push back against damaging extraction projects. Women farmers have also formed cooperatives and groups to share their workloads and increase their productivity and income.

Policies should build on these successes while also recognizing that women shoulder disproportionate care responsibilities, have fewer economic resources than men, and have

lower levels of literacy and access to technology. These inequalities are exacerbated by climate change.

The existing burden of unpaid family care is worsened when food prices climb due to poor harvests, or when family members' healthcare needs increase amid rising temperatures. Girls are more likely to drop out of school in areas prone to drought. Governments must ensure that women's and girls' needs and rights are integrated into policies on disaster response, gender-based violence, food production, economics, social discrimination, and other topics that intersect with the climate crisis.

b. Redistribute economic resources

Reversing climate change will require moving resources away from extractive and environmentally damaging activities, and towards those that prioritize care for people and the planet.

Policies must ensure that a transition to a green economy aids women's access to employment opportunities, land, education, and technology. Publicly financed social protection systems should support women and girls' economic and social well-being and their resilience as the climate changes.

For example, school-based food programmes are not only able to alleviate some of women's unpaid care work by supplying children with nutritious food, but can further support feminist climate policy by sourcing meals from small-scale, environmentally friendly women farmers.

c. Represent women's voices and agency

Women human rights defenders, feminist groups, and others pushing for a gender-responsive approach to climate change must be integrated into environmental policymaking at all levels.

At present, women are underrepresented in environmental protection ministries at the national level. While women's participation in national delegations to the UN COP climate conferences rose from 30 to 35 per cent from 2012 to 2022, the proportion of delegations headed by women declined slightly from 21 to 20 per cent over the same period.

One promising example is La Via Campesina, a global organisation representing some 200 million farmers, rural labourers, and peasants. Women and people with diverse gender identities have established a Women's Assembly within the organization that works to ensure gender parity, integrates a gender-based approach to the group's demands, and empowers them in decision-making on food systems and climate at every level, from local communities to the UN System. [6]

2. Development and Distribution Gap (North and South Gap)

We live in a time of stunning technological wizardry, but unfortunately, not all of us benefit from it. Many have already been left behind and risk falling even further behind due to the political, economic and social consequences of rapidly expanding inequality. Tremendous technological leaps are being made, but the economic and social benefits remain geographically concentrated, primarily in developed countries. Too often the least developed countries (LDCs) remain far behind if not excluded entirely. Many have little choice beyond the use of obsolete technologies, such as those used in the garment or agricultural sectors.

This is not because LDCs lack the determination or the will to catch up with the rest of the world. What we are seeing is a result of the serious and manifold development challenges these countries continue to face, experiencing delays in their efforts to eradicate poverty, achieve sustainable development and participate fully in an increasingly competitive global market. One of the root causes is found in structural limitations, as there are marked gaps between LDCs and other countries in such areas as science, technology and innovation (STI).

If these gaps are not closed sooner rather than later, LDCs will not be able to achieve the 2030 Agenda and its Sustainable Development Goals (SDGs). This will also mean that we will not have reached our objective of “leaving no one behind”.

The shortcomings of STI find their origin in a range of factors. Traditional development approaches based on the trickle-down assumption that increasing imports of capital goods and direct foreign investment would lead, through the diffusion of technology and innovation, to development gains, did not work out to the extent expected. More importantly, low levels of investment in research and development (R&D), low enrolment rates in higher education and thus a limited supply of skilled labor, and inadequate or unstable policy and regulatory environments capable of promoting progress, all play a role in the poor state of science, technology and innovation in LDCs.

One way to illustrate the challenges that LDCs are up against is to consider the scarcity of publications in peer-reviewed journals. In 2013, only 7 scientific and technical journal articles were published for every 1 million people in African LDCs. In comparison, in the member countries of the Organisation for Economic Co-operation and Development, about 1,100 scientific and technical journal articles were published for every 1 million people.

The correlation between investment in research and development (R&D) and economic growth is well accepted. Incidentally, the notion of moving to a “green economy” **relies on research and development**, as does the advent of a “blue economy” based on the sustainable use of ocean resources. Simply put, the greater the investment in R&D, the broader the scope for innovation that can drive growth. Yet for most LDCs, the ratio of expenditure on R&D to gross domestic product remains low, at less than 1 per cent. This presents a key problem to building competitiveness and capacity to absorb and adapt to existing state-of-the-art technologies. If we are to talk about LDCs leapfrogging to modern technologies, we will have

to take into account hardware as well as software issues. Although investment in technological infrastructure is essential, investing in capacity-building to adapt to existing technology is just as important.

The case of the “newly industrialized countries” is a potent reminder of this. They used technologies from abroad to grow their industrial base before creating their own scientific and technological breakthroughs. However, this effort required an educated and skilled workforce—in short, a wide base of science-literate citizens. This is key to advancing STI. But here too, LDCs are facing obstacles. In 2015, almost 40 per cent of all out-of-school children and adolescents in the world lived in LDCs. The gross enrolment ratio in tertiary education was less than 9 per cent in 2013, compared with 33 per cent worldwide. We know that secondary school enrolment is a predictor of higher rates of Internet use. STI is driven by and has made incredible leaps because of computing power, as well as the use of the Internet for data and the exchange of information and ideas. We therefore cannot leave the LDCs behind in this regard and must ensure that secondary and indeed tertiary enrolments are increased in those countries.

In terms of the hardware obstacle, the lack of high-speed connectivity in LDCs poses a major challenge. Inadequate connectivity prevents access to the most promising broadband applications for education, health, finance and other sectors, as well as to global and regional knowledge networks. Most LDCs face great difficulties in making broadband Internet access available and affordable for all. Digital technologies have great potential to bring economic and social development benefits to these nations. For that to happen, considerable effort is required to empower and equip Governments and the private sector with the capacity to leverage it.

Our task lies in supporting LDCs in order to make access to technology and knowledge available to everyone, and to unleash the potential of people's creativity and ingenuity. Difficulties are there to be overcome. Lagging behind does not need to be an eternal curse for LDCs. They do not need to remain tied to outdated and inefficient technologies. A critical first step would be to recognize and act on the need to support this group of countries, to help them catch up. [7]

a. The Skills Gap Issue/Importance of Skilled Labour

A substantial component of the development-distribution gap is the skills gap. Even when green technologies are financially available, deploying, operating, maintaining, and innovating them requires a workforce with specialized competencies.

Across OECD countries, the share of workers performing "green-tasks" (jobs where at least 10% of tasks support sustainable development) rose modestly from 16% in 2011 to 18% in 2021. However, within countries, those in major urban or capital regions tend to experience much greater concentrations of such jobs compared to more remote or rural regions. This spatial inequality aggravates regional development gaps. [8]

Globally, demand for green skills is accelerating. Between 2022 and 2023, for example, the share of job postings requiring at least one green skill increased by ~22.4%, while the share of workers possessing even a single green-skill only rose by ~12.3%. This mismatch indicates that supply of green skills lags behind demand. [9]

Wage premiums associated with green jobs are evident, especially for skilled workers. In OECD settings, workers with higher education are overrepresented in green-task jobs and tend to enjoy wage advantages relative to non-green jobs. This tends to deepen income inequalities unless access to training is broadened.[8]

In underdeveloped countries, these gaps are even more severe: educational systems may not provide vocational or technical training aligned with green tech (renewables, energy efficiency, grid modernization, climate resilient agriculture, etc.), and institutional support for retraining or upskilling is often weak. As a result, even when green technology becomes more financially or physically available, the human capacity to utilize it safely, efficiently, and sustainably is often lacking.

b. Issues with Technology Transfer

Technology transfer refers broadly to processes by which innovations, patents, know-how, manufacturing processes, and technical expertise are shared from entities or countries with greater capacity to those with less, often under negotiated terms that might include licensing, training, joint ventures, or concessional financing. Robust technology transfer is essential if developing countries are to leapfrog older, more polluting technologies and adapt solutions to local environmental, economic, and social contexts.

However technology transfer also comes with its problems for developing nations.

Technologies are often protected by patents or trade secrets, which raises costs or restricts local production or adaptation. Even when the technology is available or licensable, costs of import, tariffs, shipping, or setup (infrastructure, grid, etc.) can be prohibitive, particularly if grants or concessional financing are limited. Local infrastructure, regulatory frameworks, standards, maintenance capability and technical skills all must be present; otherwise the technology may underperform or deteriorate due to lack of upkeep. Technologies developed in one climate, context, or economy may not work well in another, so local innovation and adaptation are essential. Effective technology transfer means accompanying the technology with training, curricula, research partnerships, and possibly local manufacturing where feasible.

But still, global intellectual property regimes, trade barriers, and the dominance of technology suppliers in the Global North often make access challenges worse: those who develop the technologies frequently control licensing, standards, and global value chains, constraining how easily innovations flow to low-income markets.

c. COP29 outcomes and their implications

UN Climate Change Conferences (COPs) take place every year, and are the world's only multilateral decision-making forum on climate change that brings together almost every country on Earth.

The COP is where the world comes together to agree on the actions to address the climate crisis, such as limiting the global temperature rise to 1.5 degrees Celsius, helping vulnerable communities adapt to the effects of climate change, and achieving net-zero emissions by 2050.

The most recent climate negotiations at COP29 in Baku yielded some modest steps toward bridging climate finance and technology gaps—but also revealed significant shortcomings in addressing deeper structural inequities.

One of the headline outcomes was the decision to adopt a New Collective Quantified Goal (NCQG) to triple climate finance flowing to developing countries, targeting USD 300 billion annually by 2035 and framing a broader ambition to mobilize USD 1.3 trillion from public and private sources. The Green Climate Fund (GCF) and other multilateral bodies were signaled to have expanded roles under the new mandate. [10]

However, the COP29 outcome has drawn criticism from many advocacy groups and Global South delegates. Some argue that the pledged amounts remain far below what is needed to compensate for cumulative climate debt and to close the technology gap. For example, the

Asia Pacific Forum on Women, Law and Development described the deal as “a bad deal,” pointing out that only a fraction of the proposed finance, USD 300 billion out of the demanded USD 1.3 trillion, would take the form of grants, with much reliant on loans which would put further strain on developing countries and LDCs’ backs. [11]

Even more fundamentally, questions remain about how those finance flows will translate into equitable distribution of green technologies. Without concerted mechanisms for capacity building, local manufacturing, technology transfer, and training, resources may primarily benefit large projects or national elites, leaving marginal regions and communities behind.

In effect, COP29 reinforces that meeting climate finance targets is a necessary but not sufficient condition for closing the development–distribution gap. The outcomes signal political will to scale up funding, but not yet robust frameworks for ensuring that developing countries can absorb, adapt, and deploy renewable energy, carbon capture, sustainable agriculture, and other green innovations in an inclusive manner.

3. Lack of Racial Diversity in Environmental Organizations and Sciences

Climate change and racism are two of the biggest challenges of the 21st Century. They are also strongly intertwined. There is a stark divide between who has caused climate change and who is suffering its effects. People of colour across the Global South are those who will be most affected by the climate crisis, even though their carbon footprints are generally very low. Similar racial divides exist within nations too, due to profound structural inequalities laid down by a long legacy of unequal power relationships.

“As a white person in the environmental sciences field, I acknowledge that I have a position of power, privilege, and profit in this space. I benefit from the racist white supremacist

system that perpetuates environmental racism and inequities, among other terrible injustices. In my field, I see mostly people that look like myself. In my program, I am taught by mostly white professors. In my future career, the color of my skin will probably allow me opportunities and freedoms that my fellow colleagues of color could perhaps not access.

We have made this “green” space white. Professional interest in the environment is largely synonymous with white interest. The environmental movement is rooted in the protection and conservation of nature, which has a history of exclusion and racism. From the get-go, many of the representations of environmental science have portrayed a focus solely on environmental conservation and not on social justice issues, potentially disconnecting students of color from the field. Black or African American students received only about 3 percent of the nation’s environmental science degrees in 2017. White students received nearly 69 percent of those degrees, with Hispanics or Latinos receiving the next highest share, at around 10 percent. Native Hawaiians or other Pacific Islanders had the lowest share at 0.2 percent. These demographics make environmental sciences among the least diverse fields of scientific study.

More diversity and inclusion in the environmental field means enhanced problem-solving and innovation, exposure to diverse world views, and intersectional solutions. More inclusion in the field means more inclusion in research and projects, as environmental professionals of color are more likely to study and conduct research with communities of color. Reaching these communities means creating a more comprehensive and equitable understanding of and approach to environmental issues.” states Victoria Bortfeld in her article. [12]

While environmental organizations made significant progress on gender diversity until now the gains have mostly gone to white women. The percentage of females in leadership positions and on the staff of environmental organizations has increased over time however,

men are still more likely to occupy the most powerful positions than females. There is a significant gender gap as more than 70% of the presidents and chairs of the board of conservation/ preservation organizations are male. The presidents of the largest conservation and preservation organizations (budgets over \$1 million) are overwhelmingly male (90%). Men also dominate the executive director positions in government environmental agencies.

The current state of racial diversity in environmental organizations is troubling and lags behind gender diversity. Once hired in environmental organizations, ethnic minorities are concentrated in the lower ranks. As a result, ethnic minorities occupy less than 12% of the leadership positions in the environmental organizations. None of the largest conservation and preservation organizations (budget over \$1 million) has a president who is an ethnic minority. Ethnic minorities are severely underrepresented in the environmental workforce. The diversity manager's position is the only position that minorities are more likely to hold than white people in environmental organizations. And only a few of them have such a position.[13]

In order to find effective solutions to urgent problems all around the globe diversity is needed. Because diversity will provide us with a fresh point of view in tackling these issues for all.

V. Questions to Address

1. How can your country contribute to equitable tech access?
2. Should green technologies be considered a public good to reduce costs?

3. How can we provide developing and least developed countries with necessary infrastructure and green technology to achieve our climate goals? *or* Are there others ways to achieve Goal 13 by 2030?
4. How can we make green industries more inclusive for marginalized communities like people of color (POC), LGBTQ, ethnic minorities and women?
5. What steps can ECOSOC take to encourage countries to cooperate better on global issues?
6. How can ECOSOC make sure that all countries take equitable responsibility for solving global problems?
7. Which international organizations can ECOSOC collaborate with to achieve Goal 7 more quickly?
8. How can nations increase the number of skilled workers for newly emerging green industries and close the skill gap?

VI. Further Reading

Please take a look at these articles to get information on some projects related to our topic.

‘Solar Mamas empower our people by giving them electricity’: the women lighting up Zanzibar

<https://www.theguardian.com/world/2025/jan/15/solar-mamas-empower-our-people-by-giving-them-electricity-the-women-lighting-up-zanzibar>

<https://barefoot.college/impact/solar/>

How clean energy is transforming Asia and the Pacific

<https://www.undp.org/stories/how-clean-energy-transforming-asia-and-pacific>

IFC India: SELCO - Last Mile Solar Powered Energy for Rural India

<https://www.hbs.edu/environment/blog/post/IFC-India-2024-SELCO>

https://unctad.org/system/files/official-document/tir2023ch3_en.pdf

Wuhan Sponge City Programme: achieving harmony among people, water and city

<https://networknature.eu/networknature/article/wuhan-sponge-city-programme-achieving-harmony-among-people-water-and-city>

Tanzanian entrepreneur develops innovative water filter

<https://www.wipo.int/web/wipo-magazine/articles/tanzanian-entrepreneur-develops-innovative-water-filter-39252>

This Amsterdam office is one of the world's most sustainable buildings

<https://www.ube.ac.uk/whats-happening/articles/the-edge-amsterdam/>

La Via Campesina

https://www.socioeco.org/bdf_organisme-196_en.html

VII. Bibliography

[1] The Editors of Encyclopaedia Britannica. (1998, July 20). *Economic and Social Council (ECOSOC)*. Encyclopedia Britannica.

<https://www.britannica.com/topic/Economic-and-Social-Council>

[2] Mureithi, C. (2025, May 12). ‘Solar Mamas empower our people by giving them electricity’: the women lighting up Zanzibar. *The Guardian*.

<https://www.theguardian.com/world/2025/jan/15/solar-mamas-empower-our-people-by-giving-them-electricity-the-women-lighting-up-zanzibar#:~:text=For%20the%20Solar%20Mamas%2C%20the,too%20advanced%20in%20their%20education>.

[3] Green technology: Concepts and main characteristics. (2023). In *United Nations eBooks* (pp. 4–6). <https://doi.org/10.18356/9789210028295c006>

Access pdf here: https://unctad.org/system/files/official-document/dtltikd2023d2_en.pdf

[4] McGrath, A., & Jonker, A. (2025, July 22). Green technology. *IBM*.

<https://www.ibm.com/think/topics/green-technology>

[5] *How gender inequality and climate change are interconnected* | UN Women – Headquarters. (2025, April 21). UN Women – Headquarters.

<https://www.unwomen.org/en/articles/explainer/how-gender-inequality-and-climate-change-are-interconnected>

[6] New report shows how feminism can be a powerful tool to fight climate change | UN Women – Headquarters. (2023, December 2). UN Women – Headquarters.

<https://www.unwomen.org/en/news-stories/feature-story/2023/12/new-report-shows-how-feminism-can-be-a-powerful-tool-to-fight-climate-change>

Access report here:

<https://www.unwomen.org/sites/default/files/2023-12/Feminist-climate-justice-A-framework-for-action-en.pdf>

[7] United Nations. (n.d.). *Closing the technology gap in least developed countries* | United Nations.

<https://www.un.org/en/chronicle/article/closing-technology-gap-least-developed-countries>

[8] OECD. (2023, March 14). *Action on jobs, skills and regional disparities vital for the green transition, says OECD* [Press release].

<https://www.oecd.org/en/about/news/press-releases/2023/03/action-on-jobs-skills-and-regional-disparities-vital-for-the-green-transition.html>

[9] Weston, C., Zhu, J. T., & Muthukumar, P. (2024, July 9). LinkedIn green skills data available in 77 countries via Prosperity Data360. *World Bank Blogs*.

<https://blogs.worldbank.org/en/opendata/linkedin-green-skills-data-available-in-77-countries-via-prosper>

[10] UNFCCC. (2024, November 24). *COP29 UN Climate Conference Agrees to Triple Finance to Developing Countries, Protecting Lives and Livelihoods* [Press release].

<https://unfccc.int/news/cop29-un-climate-conference-agrees-to-triple-finance-to-developing-countries-protecting-lives-and>

[11] Apwldadmin. (n.d.). URGENT: For Endorsement: The Bali Package is a Bad Deal for Women. Asia Pacific Forum on Women, Law and Development (APWLD).

<https://apwld.org/urgent-for-endorsement-the-bali-package-is-a-bad-deal-for-women/>

[12] Guest. (2020, August 23). *This 'Green' space shouldn't be so white*. State of the Planet.

<https://news.climate.columbia.edu/2020/08/21/environmental-sciences-anti-racism/>

[13] Taylor, D. E. (2018). *The state of diversity in environmental organizations*.

<https://doi.org/10.13140/RG.2.2.34512.40962>

Access pdf here:

https://diversegreen.org/wp-content/uploads/2021/01/FullReport_Green2.0_FINAL.pdf

