

Commission on Science and Technology for Development (UNCSTD) Background Guide

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**Cleveland Council on
WORLD AFFAIRS**



United Nations Commission on Science and Technology Development (UNCSTD) Background Guide

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The United Nations Commission on Science and Technology Development (UNCSTD) is the forum for UN discussion on the progression and regulation of science and technology.¹ The UNCSTD is a commission of the UN Economic and Social Council (ECOSOC), established in Vienna, Austria in 1992. This committee is headquartered in Geneva, Switzerland and hosts the annual meeting of the Commission at the Palais de Nations for its rotating 43 member states.² Membership to the commission is voted on by the Economic and Social Council of the United Nations (ECOSOC) every four years.³ These member states are determined by region, with 11 African states, 9 Asian and Asian Pacific states, 8 Latin American and Caribbean states, 5 Eastern European states, and 10 Western European and other states.⁴

The UNCSTD serves to bridge the science and technological gap and address pressing issues within the sector such as the future role of AI, developments in the fields of engineering and biology, among others, and the future of space. The UNCSTD's mission is to guide the future work of the United Nations, develop common policies, and agree on appropriate actions related to technologies and sciences.⁵ The UNCSTD's goals are directed by the results of the World Summit on the Information Society (WSIS). WSIS hosts an annual forum attended by diplomats, UN agents and scientists, which directs the UNCSTD goals, as well as a myriad of other conferences and the consistent pursuit of its goal to close the digital divide through UN related initiatives.⁶ The WSIS sets the agenda and objectives of ECOSOC sub-committees, like the UNCSTD, and commissions with which the UNCSTD has strong ties, such as the Commission on

¹ Commission on Science and Technology Development, "About the CSTD | UNCTAD," [unctad.org](https://unctad.org/topic/commission-on-science-and-technology-for-development/about), n.d., <https://unctad.org/topic/commission-on-science-and-technology-for-development/about>.

² Ibid.

³ UNCTAD, "Membership of the CSTD | Unctad," *Unctad.Org*, accessed July 23, 2026, <https://unctad.org/topic/commission-on-science-and-technology-for-development/membership>.

⁴ Ibid.

⁵ Ibid.

⁶ UNESCO, "World Summit on the Information Society (WSIS)," *Unesco.Org*, 2023, <https://www.unesco.org/en/wsisis>.

Status of Women, Regional Commissions, and the United Nations Educational, Scientific and Cultural Organization (UNESCO).⁷

The UNCSTD establishes various working groups to pursue its objectives as set by WSIS and by the Commission's individual goals. Although it can have multiple working groups, as of the publication of this background guide, there is only one currently active. The current UNCSTD working group is Data Governance, which the UNCSTD established to collect, compile and report on data governance across the globe and the potential of interoperability between regions and nations for databases surrounding things like healthcare and security.⁸ This working group's mission represents some of the specialized and individual goals that the UNCSTD seeks to achieve, with each working group established to meet the ever-changing needs of the science and technology sectors.

Previous working groups include the Enhanced Cooperation on Public Policy Issues Pertaining to the Internet (2013-2014, 2016-2018), and Improvements of the Internet Governance Forum (2011-2012).⁹ The former focused on trying to standardize approaches to public policy regarding the internet but it was unable to come up with a set of recommendations for the UNCSTD.¹⁰ The latter worked to implement the recommendations of the WSIS from 2011.¹¹ This included compiling policy recommendations from WSIS and reviewing them before recommending to the UNCSTD, ECOSOC, and the United Nations General Assembly.¹²

The UNCSTD does not have an individual budget but rather has an allocated budget each year affected by the overall UN budget and then determined and allocated through ECOSOC and

⁷ Commission on Science and Technology Development, "Commission on Science and Technology for Development | UNCTAD," unctad.org, n.d., <https://unctad.org/topic/commission-on-science-and-technology-for-development>.

⁸ Commission on Science and Technology Development, "Working Group on Data Governance at All Levels," UN Trade and Development (UNCTAD), 2023, <https://unctad.org/topic/commission-on-science-and-technology-for-development/working-group-on-data-governance>.

⁹ Commission on Science and Technology Development, "Commission on Science and Technology for Development | UNCTAD," unctad.org, n.d., <https://unctad.org/topic/commission-on-science-and-technology-for-development>.

¹⁰ United Nations Commission on Science and Technology for Development, review of *Working Group on Enhanced Cooperation on Public Policy Issues Pertaining to the Internet (2016-2018)*, UNCTAD, January 29, 2018, <https://unctad.org/topic/commission-on-science-and-technology-for-development/wgec-2016-2018>.

¹¹ United Nations Commission on Science and Technology for Development, "Improvements of the Internet Governance Forum (2011-2012)," UN Trade and Development (UNCTAD), 2012, Improvements of the Internet Governance Forum (2011-2012).

¹² Ibid.

the United Nations Trade and Development Commission (UNCTAD).¹³ The UNCSTD functions with about 400 staff and a budget of approximately 68 million USD from the UN, and another 40 million USD of additional funding for technology from private donors and individual nations.¹⁴ While this may seem like a vast budget for the UNCSTD to pursue its goals, issues surrounding UN budget cuts and lack of full, if any, payment from various Member States limit the ability of the UNCSTD to create immediate and long-lasting change in the sectors of science and technology. Nonetheless, the Commission is dedicated to the pursuit of advancement that betters the world.

The goal of this committee is to assess and understand how various technologies and sciences are aiding in the betterment of the global future. The UNCSTD must understand the immediate and long-term implications of supporting and encouraging global usage of these technologies and scientific strategies. Through this assessment, the UNCSTD should produce its recommendations on the topic to its parent committees of UNCTAD and ECOSOC, and then to the UN overall.

Topic I: The Role of AI and the Digital Divide in the Healthcare and Education Sectors

Statement of the Issue:

The UNCSTD convenes to discuss the future role of AI amidst the global digital divide, with emphasis on the healthcare and education sectors. The role of AI is a paramount focus of the UNCSTD as the world moves further into the digital age. AI, or artificial intelligence, is “technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy.”¹⁵ The digital divide this committee is addressing is defined as the “gap between those who have and who do not have access to

¹³ Commission on Science and Technology Development, “UNCTAD’S Programme Budget and Financing of Technical Cooperation Activities,” UN Trade and Development (UNCTAD), 2024, <https://unctad.org/page/unctads-programme-budget-and-financing-technical-cooperation-activities>.

¹⁴ Ibid.

¹⁵ Cole Stryker and Eda Kavlakoglu, “What Is Artificial Intelligence (AI)?,” IBM, August 9, 2024, <https://www.ibm.com/think/topics/artificial-intelligence>.

computers, technology, and the Internet.”¹⁶ This committee is dedicated to examining the digital divide, the gap in access to technology and reliable internet connectivity, as it affects healthcare and education across different states and regions globally, and to exploring how AI can help close this gap.

This session of the UNCSTD marks the first foray into the effects of AI in healthcare for the UNCSTD. There are few existing regulations and norms regarding AI in this sector; however, there are other initiatives by non-UN affiliated groups and foundations to aid this issue. The MacArthur Foundation, Omidyar Network, and eight other major philanthropies launched Humanity AI, a five-year, \$500 million initiative to ensure that the future of AI is formed by and useful for humanity.¹⁷ The UNCSTD seeks to acquire funding both from member states as well as donors like those funding the Humanity AI project.

The existing digital gap in medical care is great. Community healthcare facilities and hospitals operate at worryingly low net margins, with reports of the average community facility net margin being only 1.3% percent in 2023, compared to 4.5% in 2022.¹⁸ Concern over these margins creates a greater need for more efficient and sustainable solutions for the future of global healthcare and the ability of governments, hospitals, and healthcare facilities to treat patients. One of these proffered solutions is the large-scale institution of AI across the healthcare industry. Over eighty-five percent of leading healthcare professionals in the most advanced healthcare systems are in the process of or have already adopted generative AI. Despite this use in well-funded and supported healthcare systems, much of the global healthcare community lacks access and infrastructure to effectively integrate AI. The UNCSTD would seek solutions to lessen the digital gap and is committed to investigating the potential benefits of AI in the healthcare sector to ease the global digital healthcare divide.¹⁹

¹⁶ Charlie Muller and João Paulo de Vasconcelos Aguiar, “What Is the Digital Divide?,” Internet Society, March 3, 2022, <https://www.internetsociety.org/blog/2022/03/what-is-the-digital-divide/>.

¹⁷ Lisa Fitzpatrick, “How AI Innovation Is Widening the Digital Health Divide,” *Forbes*, May 15, 2026, <https://www.forbes.com/sites/lisafitzpatrick/2026/05/15/tech-ignored-how-ai-innovation-is-widening-the-digital-health-divide/>.

¹⁸ Emily Olsen, “AI Could Transform Healthcare. Can Safety-Net Providers Keep Up?,” Healthcare Dive, October 2, 2025, <https://www.healthcaredive.com/news/healthcare-ai-artificial-intelligence-digital-divide-safety-net-providers/801809/>.

¹⁹ Engineering for Professionals Program - Johns Hopkins University, “AI in Healthcare: Applications and Impact,” Johns Hopkins Engineering Online, September 3, 2025, <https://ep.jhu.edu/news/ai-in-healthcare-applications-and-impact/>.

The UNCSTD also considers the potential benefits of AI in reducing the digital gap in the education sector. The UN believes in the benefit of AI in education, which widens access to information for teachers and students across the globe. This is bolstered by the UN's principle that access to a quality education is an inherent human right of every individual.²⁰ Regarding the implementation of AI in education, the UNCSTD faces the following difficulties: lack of funding to implement and bring nations [06] to the level of access to technology, quality education, and resources [06] of states with strong education systems; lack of training in AI/tech for educators; and lack of regulation with AI implementation and student use.

The UNCSTD raises questions regarding the impact of AI in the healthcare and education sectors and whether it would be a positive tool in closing the digital divide, or whether it would exacerbate existing gaps in education and healthcare. AI has the potential to benefit both sectors, and the UNCSTD has been tasked with assessing ways to improve the effectiveness of AI in lessening the digital divide.

History:

AI rose to prominence in the late 20th century and early 21st century. Since the dawn of the new millennium, AI has become incredibly popular both inside and outside the science and technology sectors. A key early version of AI is Apple's Siri, which is used by billions of people globally every day.²¹ AI use became even more widespread when Google integrated Gemini into its search engine, placing AI-generated summaries at the top of search results.²² The growing integration of AI beyond its early use in Internet search engines has demonstrated its capability and value by improving operations across various systems and industries. However, this growth has also drawn attention to inequalities within these systems that may limit people's abilities to benefit from its use. As AI's rapid growth outpaces international efforts to build policies and infrastructure around its usage, global governments and organizations such as the United Nations have stepped forward to examine and respond to its potential benefits and drawbacks for the broader global good. AI has transformed from an assistive tool to an adaptive agent that aids in a

²⁰ United Nations News, "Global Education Must Integrate AI, Centred on Humanity," UN News, January 24, 2025, <https://news.un.org/en/story/2025/01/1159381>.

²¹ Tim Mucci, "History of Artificial Intelligence," Ibm.com (IBM, October 21, 2024), <https://www.ibm.com/think/topics/history-of-artificial-intelligence>.

²² Ibid.

multitude of ways. It is the duty of this committee to not only understand the possibilities for AI in closing the digital divide in education and healthcare, but also to understand how the progression of AI use may affect these industries in the future.

The growing use of AI introduces a multitude of possibilities. The current global digital divide is more about the connectivity and limits of technology usage, rather than access to the technology itself.²³ For lower-income nations and regions embroiled in conflict, access to the benefits of healthcare AI can be difficult. This limits healthcare facilities access to things like online diagnosis, and explanations of healthcare issues such as disease prevention, medication prescription for common ailments like; influenzas, impetigo, and tick removal. With the assistance of AI technology, in the event of the outbreak of a virus, doctors across the world have the potential to understand the symptoms of an outbreak before it spreads, aiding in both better care for sick patients, as well as understanding how to prevent the spread of illness, and for everyday things like diagnosing common ailments.

One of the tools that has aided in closing the global digital divide is the development and implementation of large language models (LLMs).²⁴ These are key in bridging communication between humans and AI by translating between different languages and dialects. However, despite the many abilities of AI to aid in communication, teaching, diagnosis/treatment, and data recording and storage, fears surrounding its accuracy and gaps in knowledge have led to some skepticism about the ability of AI to improve the depth of the digital divide in the health and education sectors.

In recent decades, AI in the healthcare and education sectors has developed massively from a research assistant to a full-fledged predictive helper in both industries. AI in healthcare started with the use of systems like MYCIN, which was designed to help diagnose bacterial infections and recommend antibiotics.²⁵ By the mid 2000s, AI in healthcare had progressed to assisting radiology departments, which led to AI being able to recognize patterns in CTs and

²³ Maya Saint Germain, “Bridging the Digital Divide in the Age of AI - an Ethical Perspective,” Thepalladiumgroupusa.com, 2025, <https://thepalladiumgroupusa.com/news/Bridging-the-Digital-Divide-in-the-Age-of-AI-An-Ethical-Perspective>.

²⁴ Ibid.

²⁵ Keragon Team, “When Was AI First Used in Healthcare? The History of AI in Healthcare,” *Keragon.Com*, December 3, 2024, <https://www.keragon.com/blog/history-of-ai-in-healthcare>.

MRIs, leading to the ability to detect early signs of disease.²⁶ In the education sector, AI has been in use since the 1960s, beginning at the University of Illinois with the implementation of the PLATO (Programmed Logic for Automatic Teaching Operations) which delivered interactive lessons and introduced features like instant feedback and online quizzes, revolutionizing the ability for online and remote learning.²⁷

The UNCSTD is dedicated to pursuing the possibilities of AI's improvement in these industries and closing the digital gap using AI in a safe, regulated, and sustainable way that benefits all the Member States of the UN.

Analysis:

This committee's aims should focus on weighing the application of AI in the sectors of healthcare and education, and whether the potential reported negative aspects of AI usage outweigh the useful aspects. Should the committee decide that the future the UNCSTD wants to pursue involves advanced usage of AI in healthcare and education, it needs to dictate the application of such technology in order to reduce the digital gap.

AI in the healthcare sector could add an estimated 60-110 billion USD annually in the American healthcare system alone. Even though this is a single example of the potential advantages of widespread AI implementation, this figure represents an already highly developed healthcare system.²⁸ There are concerns about the potential benefits of AI in healthcare systems that do not have as advanced or established healthcare infrastructure, where the pressing issues include access to healthcare itself, drug supplies, and a lack of qualified medical staff.

This committee must consider what steps must be taken to decrease the digital divide in this sector, and whether the immediate implementation of AI is the correct first step in achieving this goal, or if other steps should be taken first to ensure each healthcare structure across the globe can utilize AI to its full beneficial extent to alter the digital divide. Many of the healthcare systems "aggressively pursuing" AI right now are those with the infrastructure and funding to do

²⁶ Ibid.

²⁷ Graham Attwell, review of *AI Has Been in Education for Decades – AI Pioneers*, *Aipioneers.Org*, February 25, 2026, <https://aipioneers.org/ai-has-been-in-education-for-decades/>.

²⁸ Engineering for Professionals Program - Johns Hopkins University, "AI in Healthcare: Applications and Impact," Johns Hopkins Engineering Online, September 3, 2025, <https://ep.jhu.edu/news/ai-in-healthcare-applications-and-impact/>.

so, particularly in the Global North.²⁹ An additional part of this issue lies in the reliance on health systems to have individuals trained in technology and AI systems to both implement and maintain these systems. These systems need to be maintained and have staff trained with the ability to protect the information in these AI systems, creating a massive barrier for healthcare facilities across the globe that already struggle.³⁰

Recognizing the staffing issues of medical facilities is important to understanding the ways in which AI could be beneficial to both patient and healthcare providers. For example, an early AI crowdsourcing platform was used to help healthcare officials combatting the Ebola virus in Sierra Leone in 2014 by using surveyed responses for the healthcare workers to understand a cumulative cultural willingness to accept or reject healthcare regulations in the country.³¹ This means that an AI aided platform was used to give a survey to the population of Sierra Leone about their opinions on new healthcare regulations for the nation, which helped healthcare professionals in the country understand a wider cultural opinion on regulations in Sierra Leone.

Similarly to issues with implementation within the healthcare sector, concerns surrounding the digital divide in education are based in access, existing infrastructure, funding, and ability of these systems to regulate, staff, and safely maintain AI implementation. These are not the only concerns that the UNCSTD raises about AI usage for closing the digital divide in education, there are also millions of children who are unable to access their national or state level education system due to factors like geographical location, social background, gender-based prevention, or existing conflicts in their region.³² This committee must focus on not only the possibility of implementing and closing of the digital education gap using AI, but also its regulation for students in order to be effective as a teaching tool, rather than a crutch used to bypass the learning process.

²⁹ Emily Olsen, “AI Could Transform Healthcare. Can Safety-Net Providers Keep Up?,” Healthcare Dive, October 2, 2025, <https://www.healthcaredive.com/news/healthcare-ai-artificial-intelligence-digital-divide-safety-net-providers/801809/>.

³⁰ Ibid.

³¹ Uyi Stewart, “AI Can Help to Bridge the Digital Divide and Create an Inclusive Society,” AI for Good, April 23, 2018, <https://aiforgood.itu.int/ai-can-help-to-bridge-the-digital-divide-and-create-an-inclusive-society/>.

³² United Nations News, “Global Education Must Integrate AI, Centered on Humanity,” UN News, January 24, 2025, <https://news.un.org/en/story/2025/01/1159381>.

Much of the current conversation around AI and its ability to close the digital gap in education is hindered by concern around AI usage for students leading a decline in critical thinking skills and cognitive abilities, and thus any positive effects of AI in closing the digital education gap being negated. Concerns surrounding the overuse of AI in school have led to worries that students will lose critical thinking skills. If students or teachers become too reliant on AI assistants and programs in the classroom, then the entire goal of education is lost, as students would not be learning skills, techniques, and concepts, but rather how to input information into AI, negating any thinking that they could do for themselves. This could not only undermine education overall, but could also have long-term negative impacts on society. Without critical thinking skills, many sectors could suffer and lack the progression that new ideas or human innovation bring. Other worries about AI concern how the advancement of AI technologies in education will affect the need for, and effectiveness of teachers. If AI becomes a primary teaching tool in classrooms across the globe, the need for human teachers could diminish. Not only would this hurt the livelihood of educators and make teaching jobs much more competitive to get, but it would also continue to make students reliant on AI, and students around the globe without access to AI technologies would see an increase in the educational digital divide. Despite these worries, there is still negative discussion surrounding AI in schools focused on cheating rather than on the loss of critical thinking, or the impact on education professionals. However, studies have found that the usage of AI for the purpose of cheating, rather than as a tool, is only around 13 percent in surveyed American high school students, which is arguably significantly less common than many believe AI cheating is.³³

Despite the potential of academically immoral uses of AI, there are also many promising benefits that global implementation would bring to the education sector such as personalized learning for students with both pace and topic, as well as ability to translate between various languages and regional dialects.³⁴ Education technology has advanced the use of AI through programs like Khanmigo, which is an AI-powered tutor and teaching assistant.³⁵ These tools

³³ Mark Toner, “Generative AI and Global Education | NAFSA,” www.nafsa.org, January 10, 2024,

<https://www.nafsa.org/ie-magazine/2024/1/10/generative-ai-and-global-education>.

³⁴ Ibid.

³⁵ Ibid.

emphasize students' explanation of answers over a simple multiple choice to reinforce the information behind concepts as opposed to strictly teaching the correct answer.³⁶

AI has the potential to bridge the global education gap with tools like Khanmigo, because as long as a student has access to a classroom with technology, or a laptop, iPad, or PC, they have access to learning systems that serve various functions. Whether it be concept practice sites like Khan Academy, IXL, and Quizlet, or full-length online curriculums for high school, college, or university. AI could be the tool that levels the playing field for global education and closes the digital divide that impacts the access, scope, and quality of learning for millions of students.³⁷

Addressing the global digital divide and the role of AI in shaping its future cannot be done without observing the impact of Wi-Fi and data center access across the world. The majority of AI data centers are in the Global North, mostly in North America, Europe and China.³⁸ This is a major facet of the digital divide, as initial access and maintained quality of AI technologies are reliant on having both the energy and internet capability to run AI technologies. Many countries across Sub-Saharan Africa and South Asia lack the access to Wi-Fi needed to run these AI technologies because they do not have the necessary infrastructure or funding to support the data centers and widespread internet.

This committee needs to recognize all potential outcomes and aspects of this topic, being cognizant of both the potential lessening of the digital divide versus inadvertently growing the existing gap between countries with better funded healthcare and education infrastructures and those nations who are already struggling to fund, staff, and train professionals in both healthcare and education sectors.

Conclusion:

The rapid development and implementation of AI technologies pose a great opportunity for the UNCSTD to address the global digital divide in healthcare and education. AI has the ability to accelerate hospital patient intake and spread valuable lifesaving tactics and medical

³⁶ Ibid.

³⁷ Ibid.

³⁸ Statista, review of *Data centers worldwide by territory 2026* | Statista, Statista, 2026, <https://www.statista.com/statistics/1228433/data-centers-worldwide-by-country/?srsltid=afmbooptvvcqwaagwjzskomswtd7hztene8mfz1psuzqe8ccjyu3h1>.

information across the globe. The lack of existing infrastructure globally for consistent sources of internet is another barrier. This committee needs to recognize that the complications of AI must be addressed when considering its implementation, such as; differences in existing infrastructures, lack of Wi-Fi access, effects on healthcare and educational professionals and a potential decrease in critical thinking skills. These complications are the aspects of the digital divide most prevalent for healthcare and educational professionals across the globe and the objectives of this committee should focus on alleviating the strain of the digital divide to maximize the potential benefits of AI technologies. This includes addressing the gaps in resources and physical internet infrastructure and global connectivity across nations, which are foundational for any AI tools to be successfully integrated. Therefore, when considering applying AI on a widespread scale, it must have an equal, if not greater, positive impact on those nations who currently trail behind nations with mass funding for healthcare and education.

The identification of nations or regions in which AI technologies would be most needed and most effective should be of the utmost importance to the goals of this committee. The UNCSTD must acknowledge how the application of AI technologies in these sectors will not only be applied but upkept and maintained at a working and useful level, so as to not burden the nations in need of technology, but also to prevent further levels of strain on the workers of the education and healthcare sectors.

Questions to Consider:

1. What strategies are within the capacities of this committee to guide implementation of AI in education and healthcare (i.e. direct funding to nations, funding of AI literacy programs for healthcare and education professionals, funding for tablets, computers, or systems with AI built in)?
2. What responsibilities do governments have in the upkeep and advancement of AI technologies within their nations? What obstacles or limitations exist in the way of these responsibilities?
3. What factors contribute to the digital divide in the education and healthcare sectors? Do these factors vary from state to state, and if so, how does the committee recognize and adapt its strategies to meet the individual needs of each nation? Consider resources and

relationships existing between countries and private companies and non-state actors that are key players in the AI field.

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Topic II. Environmental Rehabilitation and Reclamation Efforts

Statement of the Issue:

The UNCSTD gathers to discuss the topic of Environmental Rehabilitation and Reclamation Efforts. In recent decades, the consequences of climate change have become increasingly important and visible. The negative impacts of rapid industrialization since the Industrial Revolution have placed emphasis on environmental rehabilitation and reclamation efforts. Environmental rehabilitation is defined as the “restoration of disturbed areas and seeks to reverse negative environmental impacts.”³⁹ Environmental reclamation on the other hand is defined as the process by which land, forests, or water habitats are returned to their natural condition as they existed before the impacts of climate change and human interaction. This convention of the UNCSTD should recognize those efforts by assessing the potential short and long-term benefits of specific technologies, sciences, and initiatives, and deciding which will have the most cumulative benefits across the globe. These initiatives have the capability to help reduce and counteract the negative impacts of hundreds of years of environmental damage. Thus, it is the role of this committee to select, recommend, and support the most promising of these initiatives to its parent body ECOSOC for the best chance at rehabilitating and reclaiming the earth’s ecosystems.

The United Nations Decade on Restoration (2021-2030) is a 10-year UN initiative focused on making a positive response against the negative impacts of climate change.⁴⁰ The subprojects and partners of the United Nations Decade on Restoration cover every type of reclamation and restoration effort, spanning reforestation, reviving endangered plant and animal species, and preserving and growing biodiversity.⁴¹ Current highlighted efforts of the UN Decade on Restoration are the rewilding of native horse populations in Kazakhstan, the Agave Restoration Initiative in North America, and large-scale coastal restoration in Europe.⁴² For the purpose of this committee meeting, this guide shall focus on the North American Bison

³⁹ Kerkmeester, “Environmental Rehabilitation Management | AES.” <https://appliedes.com.au/environmental-rehabilitation/>

⁴⁰ UN, “UN Decade on Restoration,” UN Decade on Restoration, 2021, <https://www.decadeonrestoration.org/>.

⁴¹ Ibid.

⁴² Ibid.

Rewilding, the Shellfish and Great Barrier Reef initiatives, the efforts of reforestation in Sub-Saharan Africa and the Eden Reforestation Projects.

This committee should consider the overall benefits of each program, deciding which initiatives are of the most value to the UNCSTD, ECOSOC, and the UN at-large as the pressure for effective and efficient environmental rehabilitation and reclamation efforts grow. This committee should analyze each program and decide not only which causes are most effective, but which technologies and sciences work the best and therefore are of the most value to support, ultimately with the goal of encouraging the further use, development, and funding of said projects through the recommendation of the UNCSTD to its parent body of ECOSOC.

History:

The Industrial Revolution began in Britain at the end of the 18th century and spread across the globe throughout the 19th and 20th centuries. This included the mass advancement of machinery and technology, as well as the now common use of fossil fuels like coal.⁴³ Since the global Industrial Revolution, over one-sixth of the planet's forestry has been lost to deforestation, which occurs due to the practices of the timber and lumber industries and a drive to expand cities and towns where forests previously existed.⁴⁴ The global deforestation of the Industrial Revolution damaged the environment in more ways than one. Greenhouse gases, which are gases such as methane and nitrous oxide that trap solar heat in the atmosphere, became abundant and led to widescale environmental destruction.⁴⁵ Although the Industrial Revolution was driven largely by development in the Global North, its consequences fell disproportionately on the Global South and on formerly colonized nations.

Throughout the Industrial Revolution and following it, deforestation was not the only detrimental environmental change made. In the United States, the government pursued the hunting and eradication of the Great Plains Bison population, which decimated the ecological system of much of the American Plains, spanning from Pennsylvania to California. It is estimated

⁴³ Kara Anderson, "What Was the Industrial Revolution's Environmental Impact?," *greenly.earth* (Greenly, August 25, 2024), <https://greenly.earth/en-us/blog/ecology-news/what-was-the-industrial-revolutions-environmental-impact>.

⁴⁴ Hannah Ritchie, "How Much Forest Has Been Lost to Deforestation Globally?," *World Economic Forum*, February 25, 2021, <https://www.weforum.org/stories/2021/02/ice-age-forest-lost-demand-agriculture/>.

⁴⁵ Katherine Mansfield and NASA Science, "What Are Greenhouse Gases?," NASA Science, September 11, 2025, <https://science.nasa.gov/kids/earth/what-are-greenhouse-gases/>.

that there were approximately 60 million bison across this region before the rampant overhunting, with modern estimates of a surviving population of around 500,000.⁴⁶ This was done both to clear land from bison populations for settlers relocating from the eastern half of the United States and to eradicate Indigenous American populations from the area by eliminating a main source of food. The extermination of the bison had significant environmental impacts as well. Bison helped to aerate the soil, playing a vital role in the ecosystem, and without their presence, the ecosystem fell apart, resulting in the extinction of other plant and animal species.⁴⁷ The loss of the native bison populations in the United States represents just one example of the negative impacts that the loss of a species in a region can have.

Another important ecosystem that has been greatly impacted by both climate change and human decisions are the coral reefs, particularly the Great Barrier Reef off the coast of Australia as well as similar coral and coastal reefs across the region of Oceania. These reefs have been impacted by coral bleaching, which occurs due to high water temperatures, UV radiation, or change in water quality, ultimately causing the coral to expel nutrients and turn a stark white, effectively killing the reefs and damaging coastal plant and animal populations.⁴⁸ Coral bleaching has been an issue for many decades, but was first noticed and recorded in the Great Barrier Reef in 1998.⁴⁹

These are examples of environmental issues which threaten not only the smaller ecosystems and surrounding regions but also reflect broader challenges facing the global environment across a wide range of ecosystems. It is the duty of this committee to dedicate itself to evaluating the efforts of reclamation and rehabilitation efforts across the globe and recommend the continuing and growing of physical and financial support for these initiatives.

Analysis:

⁴⁶ Erick Dowell, "The Buffa-Low-Down: The Ecological Past, Present, and Future of the American Bison," School of Marine and Environmental Affairs, May 10, 2023, <https://smea.uw.edu/currents/the-buffa-low-down-the-ecological-past-present-and-future-of-the-american-bison/>.

⁴⁷ Ibid.

⁴⁸ Great Barrier Reef Foundation, "Coral Bleaching," Great Barrier Reef Foundation, 2025, <https://www.barrierreef.org/the-reef/threats/coral-bleaching>.

⁴⁹ Coral Vita, review of *Great Barrier Reef Bleaching: Understanding the Crisis and Pathways Forward*, Coral Vita, October 24, 2025, <https://coralvita.co/coral-cafe/great-barrier-reef-bleaching/>.

The pursuit of Environmental Rehabilitation and Reclamation Efforts is of the upmost importance to the UNCSTD. The understanding and recognition of effective sciences and technologies should be the mission of this committee in pursuit of counteracting negative changes that have occurred in ecosystems across the globe. The loss of important species of populations like the Great Plains Bison, and the damage to reefs and forests across the globe is undeniable. The focus on widespread implementation and support of sciences and technologies that combat the devastating effects of climate change and industrialization will be a deciding factor in the survival of global ecosystems as they are known today.

The efforts of rewilding Great Plains Bison require deep dedication and involvement from programs working on rewilding, and constant observation. Before the devastation of the Great Plains Bison population, this species was a key player in the plains' ecosystem. The herd movements aerated soil and waste from the species provided nutrients to both the soil and native plant species that were reliant on bison to survive.⁵⁰ Additionally, bison helped to disperse seeds across the plains, furthering the spread of native plant life, and their scat provided food for bugs, which in turn were eaten by birds.⁵¹ Thus, without the massive herds to benefit this ecosystem, plants died, animals lost their food supply, and the soil became uninhabitable for many species, decimating this region. However, through the efforts of UN financially backed and ideologically supported programs like American Prairie and EarthJustice, bison rewilding efforts have shown great promise at reviving the plains region in the United States. Bison were the backbone of the plains region of the United States, and the reestablishment of a large population within the region will bring back an ecosystem that has been suffering from the loss of the Great Plains Bison for generations.

The achievements of this UN-backed program creates a strong precedent for other rewilding efforts, like the efforts to rewild both bison populations in Azerbaijan, and horse population rewilding efforts in Kazakhstan, which are being done to improve soil quality and bring life back into suffering climates.⁵² The success of this one project in the United States is not only a strong example for rewilding efforts for animals, but the potential success of

⁵⁰ Erick Dowell, "The Buffa-Low-Down: The Ecological Past, Present, and Future of the American Bison," School of Marine and Environmental Affairs, May 10, 2023, <https://smea.uw.edu/currents/the-buffa-low-down-the-ecological-past-present-and-future-of-the-american-bison/>.

⁵¹ Ibid.

⁵² UN, "UN Decade on Restoration," UN Decade on Restoration, 2021, <https://www.decadeonrestoration.org/>.

population rebuilding of endangered or dying plant species and the revival of unique ecosystems around the globe. The positive impact that this rewilding effort has made on its unique ecosystem shows that there is potential for endangered species to not only be brought back but to bring life into ecosystems suffering everywhere, and that the support of the U.N, and the individual efforts of nations and organizations is incredibly impactful.

In the case of bison rewilding in the U.S, organizations complete their rewilding mission through the purchase of land across places like Montana, South Dakota, and Colorado and create protected wildlife reserves for these populations to grow and reproduce.⁵³ Indigenous tribes and initiatives such as American Prairie have been working together to reintroduce and support the population growth of the bison population in this region, with the protection of these populations on Native American reservations.⁵⁴ These efforts have proven fruitful, showing how monitoring and encouraging natural reproduction, as well as the establishment of legal protection for these bison populations through the use of Native American lands and working towards the establishment of more wildlife reservations.⁵⁵ Without the rewilding efforts of UN backed programs, this ecosystem would likely become desolate. The population growth of the bison shows great promise for both restoring an endangered species as well as reviving the region and the plants and animals native to it.

Coral and coastal reefs represent another critical ecosystem in need of support to recover from the damaging effects of climate change. The Great Barrier Reef is home to more than 400 species of coral and over 1,500 kinds of fish and marine life.⁵⁶ The shellfish populations living in these reefs have been decimated by mass coral bleaching. A coral reef relief organization found that of 462 individual colonies of coral being tracked by scientists, 80% had been at least partially bleached by April of 2024, and by July of the same year 44% of the bleached colonies had died.⁵⁷ These coral populations are incredibly vital to these ecosystems not only because

⁵³ OneEarth, “The American Bison: How This Powerful Icon Is Restoring the Prairie,” One Earth, May 2025, <https://www.oneearth.org/species-of-the-week-american-bison/>.

⁵⁴ Ibid.

⁵⁵ Erick Dowell, “The Buffa-Low-Down: The Ecological Past, Present, and Future of the American Bison,” School of Marine and Environmental Affairs, May 10, 2023, <https://smea.uw.edu/currents/the-buffa-low-down-the-ecological-past-present-and-future-of-the-american-bison/>.

⁵⁶ Coral Vita, review of *Great Barrier Reef Bleaching: Understanding the Crisis and Pathways Forward*, Coral Vita, October 24, 2025, <https://coralvita.co/coral-cafe/great-barrier-reef-bleaching/>.

⁵⁷ Ibid.

they filter water and provide nutrients to species living in these reefs, but because they also serve as the habitat for many species within the ecosystem. Small fish, crustaceans and other species that are reliant on these coral populations for habitats cannot survive without the coral, and thus these populations leave the ecosystems. Not only do these decimate these coastal reefs, but it pushes fish farther out to sea, damaging fishing industries and food supplies for semi-aquatic species and people living in the coastal regions. Without the continued efforts to rehabilitate coral populations, food sources will be lost, the ecosystems will die out, and many more species than just coral will perish.

Scientific pursuit of the rebuilding and reclamation of reefs, such as the Great Barrier Reef, have shown great promise in rehabilitating both lost coral populations and the return of other species that live in the ecosystem. The Shellfish Reef Building Program in Australia, which is administered, supported, and funded by the United Nations Decade on Ecosystem Restoration, has found great success through its scientific methods of rehabilitating and protecting the coral reefs off Australia's coast. Since the UN's establishment of the Decade on Ecosystem Restoration programs, the reef initiative has partially or fully restored 62 hectares, which is over 62,000 square feet of reefs.⁵⁸ Additionally, the program is projected to create 2,700 green jobs by 2030, meaning that this initiative creates jobs to maintain, protect and ensure the continued thriving of the reef ecosystem.⁵⁹

The survival of oyster and mussel populations along the reefs plays a crucial role in the rehabilitation efforts of the Shellfish Reef Building Program. The decline in these populations due to pollution and overharvesting have prevented these species from aiding significantly in the fight against coral bleaching and climate change damage.⁶⁰ This is because with the reintroduction of shellfish into depleted coral reefs, they provide both nutrients and a food source for other species of plants and animals native to the reefs. This UN flagship program is projected to reach 30% restoration by the end of the 2030, making Australia the first nation in the world to successfully recover a critically endangered ecosystem.⁶¹ The program implements restorative technologies by planting and seeding more temperature resistant corals and over 30 million

⁵⁸ United Nations Decade on Restoration, review of *Shellfish Reef Building Program in Australia*, UN Decade on Restoration, 2021, <https://www.decadeonrestoration.org/shellfish-reef-building-program-australia>.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

native oysters and mussels into the reef systems.⁶² These scientific approaches were developed through both modern technology as well as techniques of Aboriginal tribes and have been implemented in the Great Barrier Reef and other reefs, including Port Phillip Bay near Melbourne.⁶³

These techniques have revitalized individual coral reef systems that were damaged to near extinction. Constant maintenance – cleaning and replanting the strongest strains of coral in dead zones -- by programs like the Shellfish Reef Building Program have gradually led to the revival and reclamation of these crucial coral reef systems. Temperature resistant coral strains have been cultivated through the scientific speeding up of the evolutionary process by cross breeding species that survived coral bleaching naturally.⁶⁴ Without the technologies and scientific strategies such as temperature resistant coral and placing native shellfish back into the ecosystems, the unique and endangered reefs surrounding this region would perish in a matter of years.

Reforestation is a widely known reclamation and rehabilitation strategy to combat climate change, and efforts be witnessed on every continent. Trees are of the utmost importance to the survival of every ecosystem on Earth. 80% of animals and plants that live among forests globally are reliant on trees for survival.⁶⁵ The UN Decade on Ecosystem Restoration's focus on reforestation is through the Ferncliffe Forest Wilding project, which focuses on the reforestation efforts of the Eastern Mistbelt forest habitat, near Pietermaritzburg, South Africa. This project represents the efforts to rebuild a unique ecosystem that also has the potential to create public green spaces and potential jobs for locals.⁶⁶ The success rate of the strategies and approaches that the Ferncliffe project uses has led to a 90-95% survival rate of saplings, showing great promise

⁶² The Nature Conservancy Australia, "Rebuilding Australia's Lost Shellfish Reefs," The Nature Conservancy Australia, accessed July 13, 2026, <https://www.natureaustralia.org.au/what-we-do/our-priorities/oceans/ocean-stories/restoring-shellfish-reefs/>.

⁶³ United Nations Environment Programme, "How Recycled Oyster Shells Are Reviving Australia's Lost Reefs," UNEP (United Nations Environment Programme, June 15, 2026), <https://www.unep.org/news-and-stories/story/how-recycled-oyster-shells-are-reviving-australias-lost-reefs>.

⁶⁴ Australian Institute of Marine Science, "Scientists Successfully Develop 'Heat Resistant' Coral to Fight Bleaching," *AIMS*, 2021, <https://www.aims.gov.au/information-centre/news-and-stories/scientists-successfully-develop-heat-resistant-coral-fight-bleaching>.

⁶⁵ Victoria Deng, "Uniting One World with 8 Billion Trees," UNA-USA, October 2021, <https://unausa.org/uniting-one-world-with-8-billion-trees/>.

⁶⁶ Ibid.

for the techniques and maintaining of saplings by the project⁶⁷ Through the mixing of planting and the creation of an urban space, this scientific approach allows for a sustainable approach to reforestation and urban development, creating both a green space for locals as well as creating jobs surrounding the protection and upkeep of the Eastern Mistbelt biome.

Another key reclamation effort is the Eden Reforestation Project (renamed Eden: People+Planet) which operates mainly in countries across Latin America and Africa. The Eden projects being carried out in African countries such as Madagascar, Mozambique, and Kenya are of great importance, as these are nations that have faced deforestation in the past.⁶⁸ The nation in which Eden Reforestation has completed the most reforestry efforts, is Madagascar.⁶⁹ Madagascar faced over 90% deforestation, the majority of which occurred post 1950 as a result of colonial practices, which devastated not only the environment but the animals, people, and infrastructure of the island nation.⁷⁰ To combat this, the project planted over 407 million trees from 2007-2021 in Madagascar.⁷¹ To have completed such large-scale planting in one nation alone, showcases both the dire need for reforestation efforts. Not only did this initiative succeed in reforestation, but provided over four million workdays to locals, boosting the economy and creating strong investment from the community in the protection and growth of their environment.⁷² Eden Reforestation has successfully planted over 1 billion total seeds, and is focused on their reforestation efforts that aid in more than the ultimate goal of reforestation.⁷³ For example, their efforts in Kenya provide more than just trees, these trees protect people and infrastructure from floods and landslides that occur, which saves lives in addition to improving ecosystems that have been damaged by the forestry industry.⁷⁴

⁶⁷ Ibid.

⁶⁸ United Nations Department of Economic and Social Affairs Sustainable Development, review of *Eden Reforestation Projects* | *Department of Economic and Social Affairs*, sdgs.un.org, accessed July 8, 2026, <https://sdgs.un.org/partnerships/eden-reforestation-projects>.

⁶⁹ Richard Dickinson, "Play It Green," Play It Green, July 20, 2021, <https://playitgreen.com/eden-reforestation-projects-a-year-in-review/>.

⁷⁰ World Rainforest Movement, "Madagascar: Colonialism as the Historical Root Cause of Deforestation | World Rainforest Movement," *Www.Wrm.Org.Uy*, January 2, 2003, <https://www.wrm.org.uy/bulletin-articles/madagascar-colonialism-as-the-historical-root-cause-of-deforestation>.

⁷¹ Ibid.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

These promising technologies and initiatives covering a multitude of reclamation and rehabilitation efforts across the planet provide hope that the negative impacts of human action and climate change can be reversed. The UNCTSD should focus on the long-term potential success of each of these initiatives and provide recommendations to parent bodies so as to create the greatest opportunity for science and technological development to aid in environmental rehabilitation.

Conclusion:

The UNCSTD must carefully assess all these programs and the significance of the technological and scientific strategies that they employ in their missions for rehabilitation and reclamation of ecosystems around the world. Without the efforts of environmental initiatives like those presented, the effects of climate change, deforestation, and animal hunting would destroy every biome on this planet.

It is due to this that the committee must take into careful consideration which programs and topics to place UNCSTD recommendation and support behind. These causes, among many other rehabilitation efforts, are vital and each one plays its part. However, it is the duty of this committee to contemplate the time, resources, and long-term reliability of these various environmental reclamation and rehabilitation causes.

Despite existing fears regarding climate change and the possibility that irreparable damage has already been done to a multitude of unique ecosystems around the globe, these UN backed initiatives have shown great promise in the potential scale and success rate of their reclamation and rehabilitation efforts for various environmental causes across the planet. The UNCSTD should do everything within its power to assess and promote the environmental initiatives with the greatest possible benefit for the regions they impact.

Questions to Consider:

1. How should the committee consider the differing values that individual nations might place on a specific area of environmental reclamation efforts due to their individual

climates and environmental makeup (i.e. aquatic life and reef repair, reforestry, land or species reclamation)?

- a. Consider the geography and landscapes of the countries you represent. How might coastal nations prioritize certain environmental areas over landlocked nations, for example? How can the committee find points of intersection for these priorities to reach mutually beneficial solutions?

2. Is it the responsibility of the UN to fund these projects globally, or is it the responsibility of individual nations? Should it be the responsibility of nations who have caused these large changes in the environment? Should the nations with the largest environmental footprints bear the majority of the responsibility to see these projects to completion?
 - a. Consider who the committee determines to be responsible for funding, supporting, and maintaining these environmental rehabilitation goals. How would the committee assess or determine the culpability of member states while addressing negative environmental impacts?

3. Consider the long-term payoff and purpose of the solutions you are proposing versus their short-term requirements. Are the immediate resources needed to fulfill these projects and solutions (materials, time, staffing, financial support, political and legislative changes, reallocation of resources from other national priorities etc.) worth the ultimate completion of environmental rehabilitation and reclamation goals?

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