



SRMUN ATLANTA 2024
November 21-23, 2024
UNIDO_atlanta@srmun.org

Esteemed Delegates,

Welcome to SRMUN Atlanta 2024 and the United Nations Industrial Development Organization (UNIDO). My name is Charles Lenoir, and I have the pleasure of serving as your Director for UNIDO. This will be my third time as a SRMUN Atlanta staff member, having previously served as the Assistant Director of the League of Arab States and the Director for the United Nations Educational, Scientific, and Cultural Organization. I attended SRMUN Atlanta four times as a delegate. I have a BA in Political Science and Anthropology, and I am currently studying law. Our committee's Assistant Directors will be Kathleen Conow and Harper Chassay. This will be Kathleen's fifth time on SRMUN staff, having served on GA Plenary, GA Third, Security Council, and the Food and Agricultural Organization. She also holds a BS in Political Science with minors in European Studies and Diplomacy. This will be Harper's second time on staff, having served as Assistant Director for the United Nations Habitat Assembly, and she is currently pursuing a BS in Political Science with a minor in Prelaw.

UNIDO is currently a specialized agency within the United Nations system but has been present in the system since 1966. UNIDO's goal is to aid in industrial and economic development within Member States to promote prosperity through collaborative frameworks. With 172 Member States, UNIDO promotes these goals through technological cooperation, environmentally conscious development plans, and international partnerships. These goals have been given special consideration for our topics and we anticipate these principles to come out in your work as delegates. The topics we have chosen are relevant to central areas of focus for UNIDO in the present and future.

Focusing on the mission of UNIDO, we have developed the following topics for the delegates to discuss come conference.

- I. Encouraging Sustainable Development through the Advancement of Agriculture and Agro-Industries in Developing States
- II. Developing Affordable Solutions to Limit Greenhouse Gas Emissions in Developing Industry

This background guide will serve as the foundation for your research, yet it should not be the extent of the research. Preparation is given to each topic to help guide delegates in their initial research, and to serve as a starting place for more in-depth studies. It is expected that delegates go beyond this background guide in preparation for their position paper and to better prepare themselves for contribution within the committee in November. Further, each delegation is required to submit a position paper for consideration. Position papers should be no longer than two pages in length (single spaced) and demonstrate your Member State's position, policies, and recommendations on each of the two topics. For more detailed information about formatting and how to write position papers, delegates can visit srmun.org. **All position papers MUST be submitted no later than Friday, November 1st, by 11:59pm EST via the SRMUN website to be eligible for Outstanding Position Paper Awards.**

The Assistant Directors and I are excited for the opportunity to serve as your dais for UNIDO. I wish you all the best of luck in your conference preparation and look forward to meeting and working with each of you. Should questions arise as you begin to prepare for this conference, contacting your dais is always encouraged.

Charles Lenoir
Director
UNIDO_atlanta@srmun.org

Kathleen Conow & Harper Chassay
Assistant Directors
UNIDO_atlanta@srmun.org

Michael Bovi
Deputy Director-General
ddg_atlanta@srmun.org

History of the United Nations Industrial Development Organization

In November of 1966, the General Assembly of the United Nations (UN) A/RES/2151(XXI) established the United Nations Industrial Development Organization (UNIDO) as an autonomous body of the UN.¹ UNIDO is a specialized agency with a mandate to promote, industrialize, and accelerate industrial development.² UNIDO provides support to 172 Member States through four mandated functions: action-oriented research and policy-advisory services; technical cooperation; normative standards-related activities; and fostering partnerships for knowledge and technology transfer.³ UNIDO was established to promote equitable economic development through structural changes and development of the world economy to help meet the UN development goals.⁴ As stated in UNIDO's constitution all states have the sovereign right to their own industrialization, and the body was given broad powers to help states to achieve this goal.⁵

The work of UNIDO has been both a product of shifting international norms and attitudes toward the private sector, and the threat of global climate change.⁶ The first major shift in UNIDO history came in 1979 when the current UNIDO Constitution was adopted.⁷ The Preamble of the Constitution reads:

*It is necessary to establish a just and equitable economic and social order to be achieved through the elimination of economic inequalities, the establishment of rational and equitable international relations, implementation of dynamic social and economic changes and the encouragement of necessary structural changes in the development of the world economy.*⁸

By the early 1990's, with the collapse of the Soviet Union and the purported success of market-capitalism, the world accepted a new system of economic development without UNIDO support.⁹ Several Member States, including the United States, pulled out of UNIDO, leaving the committee underfunded and without much of its leadership.¹⁰ UNIDO was able to re-emphasize equitable economic systems and re-focused its efforts to underdeveloped Member States.¹¹ Since then, UNIDO has expanded its role around the world and became a leader in industrial development.¹²

UNIDO consists of two main operating bodies and one subsidiary body.¹³ The General Conference (GC) is the largest and governing body of UNIDO and includes all Member States that are a party to the Constitution of UNIDO.¹⁴ The GC meets every two years for the dual purpose of approving the budget and work program, and electing Member States' representation to the Industrial Development Board (IDB) and the Programme and Budget Committee (PBC).¹⁵ Member State representatives are elected to the Industrial Development Board (IDB), which meets annually.¹⁶ In its annual meetings, the IDB reviews and recommends a budget to the GC as well as the work

¹ "UNIDO 1996: Annual Report," UNIDO, 1997, https://www.unido.org/sites/default/files/2009-02/1996%20UNIDO%20Annual%20Report_0.pdf, (accessed February 19, 2024).

² "Who We Are," UNIDO, 2024, <https://www.unido.org/about-us/who-we-are>, (accessed February 18, 2024).

³ "Who We Are." UNIDO.

⁴ *Constitution of the United Nations Industrial Development Organization*, Signed at Vienna, Austria, UNIDO (091)/C6, April 8, 1979, United Nations Treaty Series, <https://digitallibrary.un.org/record/7695>.

⁵ *Constitution of the United Nations Industrial Development Organization*, UNIDO.

⁶ "Who We Are." UNIDO.

⁷ "Brief History," UNIDO. <https://www.unido.org/who-we-are/brief-history> (accessed April 14, 2024).

⁸ *Constitution of the United Nations Industrial Development Organization*, UNIDO.

⁹ "Building ideas from data and practice The intellectual history of UNIDO" UNIDO, 2016, [UNIDO_50y_0.pdf](#) (accessed April 15, 2024).

¹⁰ Thalif Deen, "United Nations: Industrial Agency Suffers U.S. Cuts, Chops Staff," Inter Press Service News Agency, February 11, 1996, <http://www.ipsnews.net/1996/02/united-nations-industrial-agency-suffers-us-cuts-chops-staff/>, (accessed on Feb 18, 2024).

¹¹ "Building ideas from data and practice The intellectual history of UNIDO" UNIDO.

¹² "Building ideas from data and practice The intellectual history of UNIDO" UNIDO.

¹³ "Policymaking Organs," UNIDO, 2024, <https://www.unido.org/resources/policymaking-organs-and-other-related-bodies>, (accessed April 15, 2024).

¹⁴ "Policymaking Organs," UNIDO.

¹⁵ "Policymaking Organs," UNIDO.

¹⁶ "Policymaking Organs," UNIDO.

programs.¹⁷ The Programme and Budget Committee (PBC), a full subsidiary body of the IDB, is composed of 27 members that are elected out of the IDB.¹⁸ The PBC prepares the budget and examines the work programmes that UNIDO will incorporate throughout its efforts in global development.¹⁹

UNIDO's current initiatives and programs are aligned with its three main thematic areas: sustainable supply chains, climate action, ending world hunger, poverty reduction, trade capacity building, and energy and the environment. These areas reflect the organization's efforts to address pressing global challenges while promoting sustainable development.²⁰ The first theme centers on sustainable supply chains.²¹ Supply networks are crucial for commerce, and commerce is vital for generating employment, but it is imperative that these supply chains remain sustainable.²² Approximately 450 million individuals are employed in worldwide supply networks with around 190 million of them being female.²³ The second theme focuses on climate action.²⁴ Almost half of the global population faces significant risks from climate-related challenges and extreme water scarcity.²⁵ UNIDO's climate-focused activities are centered around promoting low-emission, climate-resilient development.²⁶ The third theme highlights ending hunger.²⁷ Up to 828 million individuals are uncertain about the source of their next meal.²⁸ However, this can be mitigated by promoting sustainable industrialization, transferring technology and knowledge, and investing in agribusiness.²⁹ One approach is to enhance the processing of agricultural products, which would reduce food waste leading to lower food prices, which enhances food security and creates employment opportunities in rural areas.³⁰ Processing agricultural products in developing countries has significant potential to generate employment, increase export earnings, and stimulate economic growth.³¹

UNIDO's comprehensive approach to sustainable development highlights the organization's strong dedication to creating a brighter future throughout the international community.³² UNIDO strives to establish a world where prosperity is distributed fairly, resources are conserved for future generations, and every person has the chance to succeed by utilizing industrialization, technology transfer, and investment in agribusiness.³³ UNIDO continues to lead in worldwide endeavors to accomplish these crucial objectives.

¹⁷ "The Industrial Development Board," UNIDO, 2024, <https://www.unido.org/resources-policymaking-organs/industrial-development-board>, (accessed May 24, 2024).

¹⁸ "The Programme and Budget Committee," UNIDO, 2024, <https://www.unido.org/resources-policymaking-organs/programme-and-budget-committee>, (accessed May 24, 2024).

¹⁹ "Structure," UNIDO, 2024, <https://www.unido.org/who-we-are/structure>, (accessed February 18, 2024).

²⁰ "Who We Are," UNIDO, 2024, <https://www.unido.org/about-us/who-we-are>, (accessed February 18, 2024).

²¹ "Sustainable Supply Chains," UNIDO, 2024, <https://www.unido.org/our-priorities/sustainable-supply-chains>, (accessed May 24, 2024).

²² "Sustainable Supply Chains," UNIDO.

²³ "Sustainable Supply Chains," UNIDO.

²⁴ "Climate Action," UNIDO, 2024, <https://www.unido.org/our-priorities/climate-action>, (accessed May 24, 2024).

²⁵ "Climate Action," UNIDO.

²⁶ "Climate Action," UNIDO.

²⁷ "Ending Hunger" UNIDO, 2024, <https://www.unido.org/our-priorities/ending-hunger>, (accessed May 24, 2024).

²⁸ "Ending Hunger" UNIDO.

²⁹ "Ending Hunger" UNIDO.

³⁰ "Ending Hunger" UNIDO.

³¹ "Ending Hunger" UNIDO.

³² "UNIDO's contribution to the Sustainable Development Goals," UNIDO, 2024, <https://www.unido.org/unido-sdgs>, (accessed May 24, 2024).

³³ "UNIDO's contribution to the Sustainable Development Goals," UNIDO.

I. Encouraging Sustainable Development through the Advancement of Agriculture and Agro-Industries in Developing States

Introduction

Agro-industry and agriculture are economic fields which involve the growing of crops and the development of economic systems and industry surrounding the growing and processing of agricultural goods.³⁴ Agricultural fields have been heavily scrutinized for their effect on climate change, being the largest producer of greenhouse gasses outside of the energy sector.³⁵ This makes up about 30 percent of global greenhouse emissions, with animal waste and use of chemical fertilizer being the main contributors.³⁶ Climate change also affects the ability to maintain agriculture, as hotter and shifting growing cycles make consistent yearly farming practices more difficult to maintain.³⁷ Climate change particularly affects developing Member States as their economies tend to mostly rely on agriculture and industry, so the need to address these issues as soon as possible became apparent as the effects of climate change become more apparent.³⁸ To protect these Member States in a global economy that is increasingly focused on industry and an environment that threatens the livelihoods of their citizens, the United Nations Industrial Development Organization (UNIDO) has refined its mission to address agro-industry and industry quickly and sustainably.³⁹ UNIDO's work on agriculture and agro-industry has been largely focused on the development of industry, technology, and economic chains, which help Member States to process and manufacture their agricultural goods for sale.⁴⁰

History

Sustainable agricultural development has been important in developing farming systems for centuries, as the ability to develop processes that utilize different environments allowed agricultural societies to maximize their food output with limited resources.⁴¹ Studies on the use of sustainable agriculture, and the need for further development of sustainable agriculture systems, have been published since the early 20th century.⁴² The late 19th and early 20th century development of more efficient agricultural practices through industrial farming led to the explosive growth of industrial farming practices worldwide, as the use of machinery and developments in pesticides and livestock rearing created new opportunities for economic growth.⁴³

One of the first global issues of sustainable development in agriculture came with the discovery in the 1950s and 60s that widely-used pesticide Dichlorodiphenyltrichloroethane (DDT) was incredibly toxic to the surrounding environment.⁴⁴ Evidence that DDT was carcinogenic to humans and made wildlife unable to reproduce led to the U.S Government to act and ban its use in agriculture in 1972.⁴⁵ Other Member States followed suit in introducing DDT bans in the decades following, such as Chile's total ban on DDT use in 1985 and a ban on agricultural use in

³⁴ "About," UNIDO Department of Agribusiness, accessed April 10, 2024, <https://www.unido.org/department-agribusiness>.

³⁵ "One Nature One World Our Future," ECOSOC, accessed June 18, 2024, <https://www.un.org/en/ecosoc/docs/pdfs/agriculture.pdf>.

³⁶ "Greenhouse Gas Reduction," IAEA, accessed June 18, 2024, <https://www.iaea.org/topics/greenhouse-gas-reduction>.

³⁷ "Climate Change Impacts on Agriculture and Food Supply," Environmental Protection Agency, June 4, accessed June 18, 2024, <https://www.epa.gov/climateimpacts/climate-change-impacts-agriculture-and-food-supply#topc>.

³⁸ "About," UNIDO Department of Agribusiness.

³⁹ "About," UNIDO Department of Agribusiness.

⁴⁰ "About," UNIDO Department of Agribusiness.

⁴¹ Anastasia Mathews, "History of BIPOC Sustainable Agricultural Practice," Each Green Corner, February 17, 2022, accessed June 18, 2024, <https://www.eachgreencorner.org/2022/02/17/history-of-bipoc-sustainable-agricultural-practices/>.

⁴² Alex Platt, "The History of Sustainable Agriculture in South Africa," RegenZ, May 20, 2022, accessed June 18, 2024, <https://regenz.co.za/blog/the-history-of-sustainable-agriculture-in-south-africa/>.

⁴³ "Industrialization of Agriculture," Johns Hopkins Center for a Livable Future, accessed June 18, 2024, <https://foodsystemprimer.org/production/industrialization-of-agriculture>.

⁴⁴ "DDT - A Brief History and Status," Environmental Protection Agency, last updated March 12, 2024, accessed June 18, 2024, <https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status>.

⁴⁵ "DDT Ban Takes Effect," Environmental Protection Agency, December 31, 1972, accessed June 18, 2024, <https://www.epa.gov/archive/epa/aboutepa/ddt-ban-takes-effect.html>.

all European Economic Community Member States in 1988.⁴⁶ This would eventually lead to the 2001 United Nations Convention on Persistent Organic Pollutants (POPs) to eliminate the use of DDT and similar pesticides in agriculture worldwide.⁴⁷ Also in 1972, the president of the French agriculture organization Nature et Progrès founded the International Federation of Organic Agriculture (IFOAM), a non-governmental organization (NGO) focused on furthering the development of organic and sustainable agriculture worldwide.⁴⁸ In the 1990s, the need for sustainable agriculture became apparent as environmental catastrophes such as the 1993 Sudanese famine came to the global consciousness, caused in part by unsustainable consolidation of local farming practices into a collective industrial farming framework.⁴⁹

UNIDO's International Symposium on Industrial Development was held in 1967 to address the changing global economic landscape.⁵⁰ This change came about as agriculture was being replaced by industry and manufacturing as the main economic sector for developing Member States.⁵¹ One of the first issues recognized by UNIDO in tackling threats to agriculture and agribusiness from industrialization was addressing the need to include farmers and agricultural sector employees in emerging Information and Communication Technologies (ICTs).⁵² Involving farmers in ICTs allowed these workers to take advantage of the benefits of logistics and communication technologies that emerged in the 1970s.⁵³ These ICTs would allow agriculture and agribusiness workers to become more directly involved in supply chains, more educated in sustainable development methods such as digitalization of agricultural data, and facilitate small-scale by allowing farmers to share and receive information with other farmers on best farming practices in their region and the.⁵⁴ These ICTs have also included connectivity initiatives that farmers can access to educate themselves on agricultural markets, connect directly with consumers and suppliers, and adapt their production to meet the needs of these markets.⁵⁵ ICTs have also been utilized to combat illegal activity's impacts on agriculture and food production, such as the use of location technology to combat illegal fishing's impact on a Member State's fishing industry.⁵⁶

In 1992, UNIDO participated in the United Nations Conference on Environment and Development, or "The Earth Summit," which promoted sustainable development and cooperation in many sectors, including agriculture and agribusiness.⁵⁷ In regards to agriculture, the Earth Summit focused on the diversification and protection of specialized production in farming systems, and the movement of employees towards related industries such as agribusiness in Member States that could not increase their capacity for agricultural production beyond what was available at the time.⁵⁸ This conference would result in the establishment of Agenda 21, which created a plan of action for mitigating human environmental impacts and utilizing principles of sustainable development in Member States

⁴⁶ "Decision Guidance Documents DDT" Food and Agriculture Organization / UN Environment Programme, 1991, accessed July 24, 2024, http://www.pic.int/Portals/5/DGDs/DGD_DDT_EN.pdf.

⁴⁷ "History of the negotiations of the Stockholm Convention," UN Environment Programme,, accessed June 18, 2024, <https://www.pops.int/TheConvention/Overview/History/Overview/tabid/3549/Default.aspx>.

⁴⁸ "Our History & Organic 3.0," IFOAM, accessed July 24, 2024, <https://www.ifoam.bio/about-us/our-history-organic-30>.

⁴⁹ John Morris, "Distributing Food Aid as a Civilization is Dismantled: The Case of Sudan," *Refuge: Canada's Journal on Refugees* 14, no. 1 (April 1994): 26-31.

⁵⁰ United Nations General Assembly resolution 2178 (XXI), *International Symposium on Industrial Development*, A_RES_2178(XXI), (December 9, 1966). <https://digitallibrary.un.org/record/203186?ln=en&v=pdf#files>.

⁵¹ United Nations General Assembly resolution 2178 (XXI), *International Symposium on Industrial Development*.

⁵² LI Yong, et al., *Building ideas from data and practice The intellectual history of UNIDO* (United Nations Industrial Development Organization, 2016), 54, https://www.unido.org/sites/default/files/2016-11/UNIDO_50y_0.pdf.

⁵³ LI Yong, et al., *Building ideas from data and practice*, 54.

⁵⁴ "Agriculture Extension," Digital Green Trust, accessed June 18, 2024, <https://digitalgreentrust.org/agriculture-extension/>

⁵⁵ "Market Linkages" Farmer's Pride International, accessed June 18, 2024, <https://www.farmersprideinternational.org/market-linkages>.

⁵⁶ "Regional Fisheries Livelihood Programme (RFLP) for South and Southeast Asia – Cambodia," FAO, accessed June 18, 2024, <https://openknowledge.fao.org/server/api/core/bitstreams/714aa4e7-0287-483e-ae9d-7574c722fd1c/content#:~:text=In%20an%20effort%20to%20tackle,the%20sustainable%20management%20of%20aquatic>.

⁵⁷ United Nations General Assembly resolution 44/228, *United Nations Conference on Environment and Development*, A/RES/44/228, (December 22, 1989).

<https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F44%2F228&Language=E&DeviceType=Desktop&LangRequested=False>.

⁵⁸ United Nations General Assembly conference 151/26, *Report of the United Nations Conference on Environment and Development*, A/CONF.151/26/Rev.1, (January, 1993), <https://www.un.org/en/conferences/environment/rio1992>.

across the world.⁵⁹ Section 14 of this agreement focused on agriculture and productivity in farming in a world economy that increasingly relied on international trade and collaborative production regarding farm goods and agricultural products.⁶⁰ These focuses reflected trends, especially in “Least Developed Countries (LDCs)”, of falling rates of employment in the agricultural sector.⁶¹ This also served to combat a growing trend globally to inseparably associate industrialization with positive economic development.⁶²

Current Situation

The United Nations maintains a list of Member States with the lowest development outcomes, called the LDCs,” to determine which Member States are most in need of assistance from other Member States and United Nations Programs.⁶³ These LDCs experience high rates of poverty, and are especially vulnerable to climate-related disasters such as those resulting from climate change, due to a lack of sustainable development and impediments to further development.⁶⁴ There are currently 45 Member States designated as LDCs, making up about 12 percent of the world’s population but only comprising between one to two percent of the global economy.⁶⁵ Of the 45 currently designated LDCs, 33 are located in Africa, eight are located in Asia, three are island nations in the Pacific Ocean, and Haiti is the only recognized LDC in the western hemisphere.⁶⁶ Africa’s high percentage of LDCs puts over 60 percent of Member States on the continent in the category of underdeveloped and needing aid to bolster their economies and development sectors and gives it high priority in the consideration of aid given for development such as agribusiness.⁶⁷ Agricultural impacts affect LDCs especially, as about 70 percent of the population in these LDCs are engaged in agriculture.⁶⁸

Agriculture has remained one of the dominant economic sectors throughout Africa, making up 14 percent of the Gross Domestic Product (GDP) of Sub-Saharan Africa.⁶⁹ Agriculture makes up the majority of some economies’ GDP throughout the continent, such as Chad with over 50 percent of its GDP coming from agriculture and over 75 percent of its citizens working as subsistence farmers as of 2019.⁷⁰ Africa also has huge swaths of land used for agriculture, having over 25,000 square kilometers of land used for crops and pasturing, and is estimated to contain about 60 percent of the world’s uncultivated arable land.⁷¹ This agricultural production is limited by a lack of development of agro-industry in the region, with 75 percent of agro-industry having low productivity and limited market access.⁷² This has led to relatively low economic gains from these agricultural goods, as international processing has limited the growth of regional industry and its ability to utilize locally produced goods.⁷³ UNIDO

⁵⁹ “United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992 AGENDA 21,” *United Nations Sustainable Development*, June 1992, accessed May 14, 2024, <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>.

⁶⁰ “United Nations Conference on Environment & Development,” *United Nations Sustainable Development*, June 1992.

⁶¹ “The Least Developed Countries In Facts & Figures,” OHRRLLS, February 2024, accessed June 20, 2024, www.un.org/ohrrlls/sites/www.un.org.ohrrlls/files/pamphlet.pdf.

⁶² “The State of Food and Agriculture 1966,” FAO, June 1966, accessed June 20, 2024, <https://www.un-ilibrary.org/content/books/9789210472821c004>.

⁶³ “UN recognition of the least developed countries,” *UN Trade and Development*, accessed May 14, 2024, <https://unctad.org/topic/least-developed-countries/recognition>.

⁶⁴ “UN recognition of the least developed countries,” *UN Trade and Development*.

⁶⁵ “UN recognition of the least developed countries,” *UN Trade and Development*.

⁶⁶ “UN list of least developed countries,” *UN Trade and Development*, accessed May 14, 2024, <https://unctad.org/topic/least-developed-countries/list>.

⁶⁷ UN list of least developed countries,” *UN Trade and Development*.

⁶⁸ “Sustainable agriculture and food security in LDCs,” UNCTAD, May 2011, accessed June 18, 2024, https://unctad.org/system/files/official-document/presspb20116_en.pdf.

⁶⁹ “Agriculture in Africa 2021,” *Oxford Business Group*, April 2021, accessed April 9, 2024, https://oxfordbusinessgroup.com/wp-content/uploads/files/blog/specialreports/960469/OCP_Agriculture_Africa_Report_2021.pdf.

⁷⁰ “Agriculture in Africa 2021,” *Oxford Business Group*, April 2021.

⁷¹ “Agriculture in Africa 2021,” *Oxford Business Group*, April 2021.

⁷² “Agriculture in Africa 2021,” *Oxford Business Group*, April 2021.

⁷³ “Agriculture in Africa 2021,” *Oxford Business Group*, April 2021.

also has a large number of Member States located in Sub-Saharan Africa, requiring focused action to aid these states that are affected by agricultural impacts.⁷⁴

Increased temperatures, rising sea levels, and weather changes resulting from climate change all pose a substantial threat to agriculture in Sub-Saharan Africa.⁷⁵ Aggravated by the COVID-19 pandemic, climate change has impacted food security and water availability in the region which has the compounded effect of compromising people's ability to sustain themselves through agriculture.⁷⁶ Left unchecked, climate change is projected to drop mean crop production yields by eight percent in East and Southern Africa and 13 percent in West and Central Africa.⁷⁷ Climate change is also projected to cause a GDP loss of over 12 percent for the continent at its worst, especially impacting West, Central, and East Africa.⁷⁸ Small Island Developing Nations (SIDS), that already import 80-90 percent of the food they consume, are also at high risk as rising sea levels continue to reduce the already scarce arable land they are able to utilize.⁷⁹ In South America, about 0.44 percent of arable land, or about 765,000 Hectares, would become unusable for agriculture if current climate trends continue.⁸⁰ A 1.5 degree Celsius increase in global temperatures would lead to a 13 percent drop in crop revenues for Southeast Asia, about USD 93,000,000,000, and a 3 degree increase would raise this to a loss of about USD 195,000,000,000.⁸¹ Globally production of staple crops such as corn are expected to decline 24 percent as a result of climate change, expected to begin as soon as 2030.⁸²

There has also been a push for "Smart Agribusiness," which utilizes ICTs such as the internet and communication technologies to further digital literacy and allow agricultural workers to participate in creating regional prosperity.⁸³ Besides Sub-Saharan Africa, Southeast Asian Member States, such as Myanmar and Cambodia, have the lowest rates of internet connectivity, with only 33 percent of the region's population having consistent internet access.⁸⁴ This internet connectivity allows farmers to communicate directly with each other, and with local policymakers, which allows rural agricultural workers opportunities to address pressing issues more directly.⁸⁵ In South and Southeast Asia, the support of regional startups has shown promise in extending needed technological infrastructure to agricultural workers, and these regions are noted for their leadership in developing and extending this infrastructure throughout and beyond their borders.⁸⁶ Latin America is also noted for its lack of access to needed technological infrastructure for efficient agriculture, having lower rates of smart agribusiness development than Asia or Africa despite the need for this development in the region.⁸⁷ UNIDO projects in Latin America have shown promise in increasing agribusiness employment within Member States, such as the development of textile

⁷⁴ *Constitution of the United Nations Industrial Development Organization*, 21 June, 1985, United Nations, Treaty Series, vol. 1401, p. 3, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=X-9&chapter=10&clang=en.

⁷⁵ "Climate Change Is an Increasing Threat to Africa," *The United Nations Framework Convention on Climate Change*, October 21, 2010, accessed April 10, 2024, <https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa>.

⁷⁶ "Climate Change Is an Increasing Threat to Africa," *The United Nations Framework Convention on Climate Change*.

⁷⁷ "Climate Change Is an Increasing Threat to Africa," *The United Nations Framework Convention on Climate Change*.

⁷⁸ "Climate Change Is an Increasing Threat to Africa," *The United Nations Framework Convention on Climate Change*.

⁷⁹ Nemat Sadat, "Small Islands, Rising Seas," UN Chronicle, accessed June 20, 2024, <https://www.un.org/en/chronicle/article/small-islands-rising-seas>.

⁸⁰ Onil Banerjee, et al., "Climate Change Impacts on Agriculture in Latin America and the Caribbean: An Application of the Integrated Economic-Environmental Modeling (IEEM) Platform," Inter-American Development Bank, November 2021, accessed June 18, 2024, <https://publications.iadb.org/publications/english/document/Climate-Change-Impacts-on-Agriculture-in-Latin-America-and-the-Caribbean-An-Application-of-the-Integrated-Economic-Environmental-Modeling-IEEM-Platform.pdf>.

⁸¹ Robert Mendelsohn, "The Impact of Climate Change on Agriculture in Asia", *Journal of Integrative Agriculture* 13, no. 4 (April 2014): 660-665.

⁸² Ellen Gray, "Global Climate Change Impact on Crops Expected Within 10 Years, NASA Study Finds" NASA, November 2, 2021, accessed June 18, 2024, <https://climate.nasa.gov/news/3124/global-climate-change-impact-on-crops-expected-within-10-years-nasa-study-finds/>.

⁸³ Michele Clara, et al., *Smart Agribusiness Issue Paper* (United Nations Industrial Development Organization, 2021). https://hub.unido.org/sites/default/files/publications/Smart%20Agribusiness%20Issue%20Paper_2021.pdf.

⁸⁴ Michele Clara et al., *Smart Agribusiness Issue Paper*.

⁸⁵ Don Richardson "The Internet and rural and agricultural development: an integrated approach" FAO, 1997, accessed June 18, 2024, <https://www.fao.org/4/w6840e/w6840e01.htm#pre>.

⁸⁶ Michele Clara et al., *Smart Agribusiness Issue Paper*.

⁸⁷ Michele Clara et al., *Smart Agribusiness Issue Paper*.

production and refining infrastructure in Ecuador which increased employment in this sector by 60 percent.⁸⁸ The Latin America and the Caribbean region still faces large obstacles to this agribusiness development, notably a lack of efficient transmission systems and agrotechnology development that would allow more efficient implementation and standardization of sustainable development practices across the region.⁸⁹

Actions Taken by the United Nations

In 1979, UNIDO ratified its constitution, allowing UNIDO to take all necessary and appropriate action to further its goals, including the ability to assist in the establishment and maintenance of industries, including agro-industry in developing Member States.⁹⁰ Article 2 lists the methods and sectors covered by UNIDO, including developing and running studies on development trends and their effect on Member States, monitoring rates of industrial development, facilitating the spread of industrial technology, and promotion of cooperation among other powers.⁹¹ In 1997, Member States adopted an overhaul for the future role and functions of UNIDO to meet the needs of Member States more effectively in a changing global economic environment through the “Business Plan for the Future Role and Functions of UNIDO.”⁹² This refocused UNIDO’s activities towards certain actions and fields, and laid the groundwork for UNIDO’s operations in the coming years by concentrating on facilitating sustainable development.⁹³ Section B of this plan focused on cleaner sustainable development, including strategies and standards in environmentally sustainable development.⁹⁴ These strategies include focusing services to LDCs, assisting in the integration of agro-industry into national economies, and integrating small and medium sized business into national economies.⁹⁵ Section B also lists activities to be discontinued, such as promotion of unproven technologies, research outside of target issues, and activities in non-agro-based industries.⁹⁶

Adopted by the United Nations General Assembly in 2015, the Sustainable Development Goals (SDGs) are an agenda made up of 17 guidelines for the United Nations to follow in creating equality and sustainability worldwide by 2030.⁹⁷ UNIDO states its mandate aligns with the SDG 9 “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation,” which aims to facilitate industrial development and economic growth in Member States that lack the capacity to achieve these goals otherwise.⁹⁸ This includes facilitating the adoption of sustainable technology in development of developing Member States, sustainable and resilient development in Africa and other LDCs.⁹⁹ While SDG 9 most closely aligns with UNIDO’s goals, all 17 goals are utilized in their approaches to relevant issues such as their agribusiness projects.¹⁰⁰ SDG 8 “Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all” is also relevant to agribusiness and agriculture, addressing topics such as facilitating trade for LDCs, mitigating the effects of environmental degradation on Member States’ productive capacity, and the promotion of small-scale localized

⁸⁸ *Uruguay Revival of the textiles/garment industry* (United Nations Industrial Development Organization, 2011), https://hub.unido.org/sites/default/files/publications/Smart%20Agribusiness%20Issue%20Paper_2021.pdf.

⁸⁹ Nelson Larrea, “Towards Sustainability of Agribusiness in Latin America and the Caribbean,” *Development Bank of Latin America and the Caribbean*, last modified November 28, 2022, <https://www.caf.com/en/knowledge/views/2022/11/towards-sustainability-of-agribusiness-in-latin-america-and-the-caribbean/>.

⁹⁰ *Constitution of the United Nations Industrial Development Organization*, 21 June, 1985, United Nations, Treaty Series, vol. 1401, p. 3, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtsg_no=X-9&chapter=10&clang=en.

⁹¹ *Constitution Of The United Nations Industrial Development Organization*, UNIDO.

⁹² “Brief History,” UNIDO, 2024, accessed August 7, 2024, <https://www.unido.org/who-we-are/brief-history>.

⁹³ “Business Plan On The Future Role And Functions Of UNIDO,” UNIDO, IDB.17/De, 1997, https://www.unido.org/sites/default/files/2014-02/IDB.17_-_Dec.2_Business_Plan_of_UNIDO-1_0.pdf.

⁹⁴ “Business Plan On The Future Role And Functions Of UNIDO,” UNIDO.

⁹⁵ “Business Plan On The Future Role And Functions Of UNIDO,” UNIDO.

⁹⁶ “Business Plan On The Future Role And Functions Of UNIDO,” UNIDO.

⁹⁷ United Nations General Assembly resolution 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development*, A/Res/70/1, (October 21, 2015), https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf.

⁹⁸ “Industry,” *UN Department of Economic and Social Affairs*, accessed May 14, 2024, <https://sdgs.un.org/topics/industry>.

⁹⁹ “Industry,” *UN Department of Economic and Social Affairs*.

¹⁰⁰ “Industry,” *UN Department of Economic and Social Affairs*.

economic growth.¹⁰¹ UNIDO's goals in agriculture and agribusiness economies also align with SDG 12 "Ensure sustainable consumption and production patterns."¹⁰² SDG 12's targets include the sustainable use and management of natural resources, mitigation of food loss in consumption and production (including post-harvest losses which cause food to be destroyed between harvest and processing or shipping), and increasing the technological capacity of developing states to facilitate sustainable production.¹⁰³

The focus of the UNIDO Department of Agribusiness in recent years has shifted to sustainable development in the face of the climate crisis through technological innovation and implementation in developing Member States, as well as responses to economic downturns caused by the COVID-19 pandemic.¹⁰⁴ Through the Department of Agribusiness, UNIDO has developed three divisions of development: Agro-Industries and Industrial Development; Rural Entrepreneurship, Job Creation and Human-Security; and Sustainable Food Systems.¹⁰⁵ These divisions specialize in fields such as the creation of agricultural sector jobs, through promoting competitive business development in the agro-industry and food sectors by promoting systems allowing agricultural workers to connect with financial institutions directly.¹⁰⁶ These programs also focus on the development of industry in the production of non-food agricultural products, like promotion of integrating these industries' industrial byproducts into agricultural use.¹⁰⁷

UNIDO has also developed collaborations with numerous other United Nations organizations, such as the World Trade Organization, the United Nations Educational, Scientific and Cultural Organization, and the World Food Programme, to allow for specialized approaches to specific problems of agriculture and related development.¹⁰⁸ These collaborative efforts include addressing challenges to agro-industry in the global economy with the UN Food and Agriculture Organization through the Agrifood Systems Transformation Accelerator to foster more inclusive food systems in LDCs.¹⁰⁹ These collaborations have also included promoting local food processing and collaboration with local suppliers with the World Food Programme by investing in harvest and post-harvest storage technologies.¹¹⁰ Collaborations have also included encouraging funding initiatives to regional industry in partnership with the World Trade Organization, such as funding the cotton industry in West and Central Africa.¹¹¹

The United Nations has also adopted several resolutions in recent years addressing current issues in Member States regarding agricultural development and agribusiness and how to tackle these issues through collaboration.¹¹² One of these resolutions was the 2020 United Nations General Assembly Resolution A/RES/75/235 which utilized previous developments and resolutions such as the SDGs to address the impacts of impediments to sustainable development

¹⁰¹ "Goal 8 Targets and Indicators," *UN Department of Economic and Social Affairs*, accessed May 14, 2024, https://sdgs.un.org/goals/goal8#targets_and_indicators.

¹⁰² "Goal 12 Targets and Indicators," *UN Department of Economic and Social Affairs*, 2024, accessed August 7, 2024, https://sdgs.un.org/goals/goal12#targets_and_indicators.

¹⁰³ "Goal 12 Targets and Indicators," *UN Department of Economic and Social Affairs*.

¹⁰⁴ "Department Of Agribusiness Promoting Inclusive and Sustainable Agribusiness Development," UNIDO, accessed March 8, 2024, www.unido.org/sites/default/files/files/2022-07/AGR_BROCHURE_WEB.pdf?token=1841845782.

¹⁰⁵ "About," UNIDO Department of Agribusiness, accessed April 10, 2024, <https://www.unido.org/department-agribusiness>.

¹⁰⁶ "Agribusiness-and-rural-entrepreneurship-development," UNIDO, accessed June 18, 2024, <https://www.unido.org/agribusiness-and-rural-entrepreneurship-development>

¹⁰⁷ "Our-focus-creating-shared-prosperity-agribusiness-development," UNIDO, accessed June 18, 2024, <https://www.unido.org/our-focus-creating-shared-prosperity-agribusiness-development/agro-industries-and-industrial-skills-development#:~:text=Agro%2DIndustries%20and%20Skills%20Development,their%20populations%20with%20sustainable%20livelihoods>

¹⁰⁸ "Department Of Agribusiness Promoting Inclusive and Sustainable Agribusiness Development," UNIDO.

¹⁰⁹ "FAO and UNIDO Director-Generals launch Agrifood Systems Transformation Accelerator," UNIDO, March 6, 2023, <https://www.unido.org/news/fao-and-unido-director-generals-launch-agrifood-systems-transformation-accelerator>.

¹¹⁰ "UNIDO and Food Security," UNIDO, August 2023, accessed June 28, 2024, www.unido.org/sites/default/files/unido-publications/2023-11/UNIDO%20and%20Food%20Security.pdf.

¹¹¹ "UNIDO and Partners of the Cotton Initiative make strides to mobilize investment for a sustainable cotton industry in West Africa," UNIDO, June 27, 2024, accessed June 28, 2024, <https://www.unido.org/news/unido-and-partners-cotton-initiative-make-strides-mobilize-investment-sustainable-cotton-industry-west-africa>.

¹¹² "Decade of Action on Nutrition UN Resolutions," *United Nations*, accessed May 15, 2024, <https://www.un.org/nutrition/resources/un-resolutions>.

in food industry and agriculture, such as the COVID-19 Pandemic.¹¹³ The United Nations General Assembly also passed United Nations General Assembly Resolution A/RES/78/134 in 2023, which encourages the creation of more equitable and sustainable agricultural trade practices and addresses the role of domestic support for agriculture in new World Trade Organization mandates regarding agriculture and food security in developing Member States.¹¹⁴

Conclusion

UNIDO has worked independently and collaboratively to facilitate economic growth through the development of agriculture and industry within developing states, but these systems have had a local or regional focus over short periods of time.¹¹⁵ To create a standardized system of development and aid, these developments must have a broader focus both geographically and timewise.¹¹⁶ To tackle these emerging challenges, UNIDO has focused its efforts towards facilitating sustainable development.¹¹⁷ Through collaboration and specialization, UNIDO has moved to encourage sustainable agriculture and the industry surrounding it throughout the developing world.¹¹⁸

Committee Directive

The directive of this committee is to develop systems to facilitate mutual growth of agriculture and industry and the relationships between agriculture and development within and between Member States. Delegates should consider the broad impacts of their policy suggestions to create systems which achieve the goals of sustainable development and mutual growth while maintaining other industries and networks already in place in developing states. Delegates will answer questions on mitigating the effects of climate change, establishing programs to aid in expanding agricultural industries, integrating farming into industrial sectors, and many others. Delegates should consider questions such as how to implement solutions in a way that can be implemented in many different Member States, how to utilize the SDGs in furthering the goals of UNIDO, and how to create solutions that benefit the varied types of agriculture and industry that Member States specialize in or especially require aid in developing.

¹¹³ United Nations General Assembly resolution 75/235, *Agriculture development, food security and nutrition*, A/RES/75/235, (December 30, 2020), <https://digitallibrary.un.org/record/3896790?ln=en&v=pdf>.

¹¹⁴ United Nations General Assembly resolution 78/134, *International trade and development*, A/RES/78/134, (December 21, 2023), https://unctad.org/system/files/official-document/a_res_78_134_en.pdf.

¹¹⁵ “About,” UNIDO Department of Agribusiness, accessed April 10, 2024, <https://www.unido.org/department-agribusiness>.

¹¹⁶ “About,” *UNIDO Department of Agribusiness*.

¹¹⁷ “Department Of Agribusiness Promoting Inclusive and Sustainable Agribusiness Development,” UNIDO, accessed March 8, 2024, www.unido.org/sites/default/files/files/2022-07/AGR_BROCHURE_WEB.pdf?token=1841845782

¹¹⁸ “Department of Agribusiness Promoting Inclusive and Sustainable Agribusiness Development,” UNIDO.

II. Developing Affordable Solutions to Limit Greenhouse Gas Emissions in Developing Industry

Introduction

The 1992 United Nations (UN) Framework Convention on Climate Change embraced the landmark principle of common but differentiated responsibilities of climate change reform.¹¹⁹ The principle recognizes that Member States bear various degrees of responsibility for climate change due to their differing economic capacities.¹²⁰ Fossil fuels, including coal, gas, and oil, contribute to over 75 percent of all global greenhouse emissions and nearly 90 percent of all global carbon dioxide emissions.¹²¹ Over 60 percent of these emissions come from developed Member States such as the United States of America, the People’s Republic of China, and the European Union.¹²² These emissions are produced by generating power, using transportation, and the overconsumption of raw materials.¹²³

Overconsumption in industry is largely associated with the excessive burning of fossil fuels.¹²⁴ According to the 2023 UN-Habitat Emissions Gap Report, there has been a 1.1 degree Celsius increase in average global temperature since pre-industrial times.¹²⁵ This increase in temperature is directly tied to the increase in greenhouse emissions since the Industrial Revolution.¹²⁶ If emissions continue to increase at the current rate, there is a projected four degree Celsius increase in global temperature by the end of the 21st century.¹²⁷ A guiding principle of the United Nations Industrial Development Organization (UNIDO) is to establish universal access to low emission, climate resilient development.¹²⁸ By promoting policies and programs to allow Member States to take climate action, UNIDO is able to aid in establishing universal sustainable and equitable opportunities for industrial development.¹²⁹

History

In the late 1950s, a group of American scientists, led by Canadian physicist Gilbert Plass, initiated efforts to increase awareness among the public concerning the probable future repercussions of greenhouse gas emissions.¹³⁰ In 1958, the leading expert in the field of atmospheric carbon dioxide, Dr. Charles Keeling, utilized an international study leading to the discovery of primary evidence confirming the impact of carbon emissions on global temperatures.¹³¹ This discovery was a result of analyzing carbon dioxide levels found in the atmosphere and correlating these findings with the increasing utilization of fossil fuels.¹³² Global CO₂ emissions have risen approximately 90 percent

¹¹⁹ “Working Together on Global Supply Chains Can Help Prevent Climate Disaster,” UNIDO, accessed March 10, 2024, <https://www.unido.org/stories/working-together-global-supply-chains-can-help-prevent-climate-disaster>.

¹²⁰ “Common But Differentiated Responsibilities (CBDR),” German Council on Foreign Relations, accessed May 12, 2024, <https://dgap.org/en/research/glossary/climate-foreign-policy/common-differentiated-responsibilities-cbdr#:~:text=The%20principle%20acknowledges%20that%20responsibility.and%20their%20varying%20economic%20capacities.>

¹²¹ “Causes and Effects of Climate Change,” *United Nations*, accessed March 10, 2024, <https://www.un.org/en/climatechange/science/causes-effects-climate-change>.

¹²² “Net Zero Coalition,” *United Nations*, accessed March 10, 2024, <https://www.un.org/en/climatechange/net-zero-coalition>.

¹²³ “Causes and Effects of Climate Change,” *United Nations*.

¹²⁴ “Sources of Greenhouse Gas Emissions,” *United States Environmental Protection Agency*, December 29, 2015, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

¹²⁵ “Causes and Effects of Climate Change,” *United Nations*.

¹²⁶ “Causes and Effects of Climate Change,” *United Nations*.

¹²⁷ “Updated: What Will the Weather Be like in 2050?” *United Nations Sustainable Development* (blog), March 13, 2015, <https://www.un.org/sustainabledevelopment/blog/2015/03/what-will-the-weather-be-like-in-2050/>.

¹²⁸ “Climate Action,” UNIDO, accessed June 22, 2024, <https://www.unido.org/our-priorities/climate-action>.

¹²⁹ “Climate Action,” UNIDO.

¹³⁰ “Keeling Curve,” *American Chemical Society*, accessed June 24, 2024, <https://www.acs.org/education/whatischemistry/landmarks/keeling-curve.html#:~:text=Charles%20David%20Keeling%20earned%20renown.of%20Oceanography%2C%20UC%20San%20Diego.>

¹³¹ “Keeling Curve,” *American Chemical Society*.

¹³² “Global Greenhouse Gas Emissions Data,” *United States Environmental Protection Agency*, January 12, 2016, <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>.

since the 1970s.¹³³ Activities including the combustion of fossil fuels, producing goods such as steel, and growing food, produce large amounts of CO₂ and other environmental pollutants such as methane and nitrous oxide.¹³⁴ In the 18th century, the British industrial revolution initiated a period of massive industrial development, which later extended across Europe and North America.¹³⁵ This era was distinguished by the rapid transition of manufacturing sectors to the adoption of machinery, as opposed to the use of human labor.¹³⁶ Carbon dioxide production and consumption have been steadily increasing since the industrial revolution, and has continued to rise.¹³⁷ Through the 1850s to the mid-20th century, there was a significant increase in greenhouse emissions across the globe.¹³⁸ This development was primarily a result of the rapid industrialization and population expansion in the United States and Europe.¹³⁹ In 1887, the United States became the highest emitter of CO₂ and experienced significant growth in emissions over the following ninety years.¹⁴⁰ The United Kingdom and Germany also witnessed notable increases in their emissions during this period. CO₂ emissions have reached record highs as a direct result of human development and industry.¹⁴¹ There is no indication of a decrease in the significant rise of greenhouse gas and carbon dioxide emissions in near future.¹⁴²

Developing Member States have experienced difficulties in gaining access to sustainable energy sources, encountering various challenges that do not impact developed Member States as heavily.¹⁴³ Developing Member States have been significantly less likely to have access to sustainable energy, with the top 20 access-deficient Member States accounting for 81 percent of the world's population without access to sustainable energy.¹⁴⁴ Sustainable energy sources have played a crucial role in powering various industries throughout history.¹⁴⁵ The earliest confirmed application of sustainable wind energy dates back to 200 BCE in the People's Republic of China (PRC), where Chinese cultivators utilized it to move water for paddy-mills.¹⁴⁶ Solar renewable energy sources can be traced back to the Roman Empire, when mirrors were utilized to transfer heat.¹⁴⁷ Hydropower gained popularity in the 1800s due to the development of the Francis turbine.¹⁴⁸ Accessing sustainable energy sources has proven to be very difficult for developing Member States, even with the industry's lengthy history and recent technical developments.¹⁴⁹ In developing nations, the inequality in obtaining renewable energy sources is driven by a variety of factors, such as economic constraints, insufficient infrastructure, and restricted access to advances in technology.¹⁵⁰ The monetary assets and technological capabilities of developed Member States enable them to

¹³³ "Global Greenhouse Gas Emissions Data." *United States Environmental Protection Agency*, January 12, 2016. <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>.

¹³⁴ "Keeling Curve," American Chemical Society, accessed June 24, 2024, <https://www.acs.org/education/whatischemistry/landmarks/keeling-curve.html#:~:text=Charles%20David%20Keeling%20earned%20renown.of%20Oceanography%2C%20UC%20San%20Diego>.

¹³⁵ Kara Anderson "What Was the Industrial Revolution's Environmental Impact?" *Greenly Institute*, April 9, 2024. <https://greenly.earth/en-us/blog/ecology-news/what-was-the-industrial-revolutions-environmental-impact>.

¹³⁶ Kara Anderson "What Was the Industrial Revolution's Environmental Impact?" *Greenly Institute*.

¹³⁷ Kara Anderson "What Was the Industrial Revolution's Environmental Impact?" *Greenly Institute*.

¹³⁸ Vigna, Leandro. n.d. "The History of Carbon Dioxide Emissions." *World Resources Institute*, accessed July 18, 2024. <https://www.wri.org/insights/history-carbon-dioxide-emissions>.

¹³⁹ Vigna "The History of Carbon Dioxide Emissions." *World Resources Institute*.

¹⁴⁰ Vigna "The History of Carbon Dioxide Emissions." *World Resources Institute*.

¹⁴¹ Vigna "The History of Carbon Dioxide Emissions." *World Resources Institute*.

¹⁴² Kara Anderson "What Was the Industrial Revolution's Environmental Impact?" *Greenly Institute*.

¹⁴³ "Is the Gap Widening? Assessing the Current Renewable Energy Policies in Developing Countries," *World Bank*, accessed April 11, 2024, <https://blogs.worldbank.org/en/energy/gap-widening-assessing-current-renewable-energy-policies-developing-countries>

¹⁴⁴ "Universal access to sustainable energy will remain elusive without addressing inequalities," *United Nations*, accessed April 11, 2024, <https://www.un.org/es/desa/universal-access-sustainable-energy-will-remain-elusive-without-addressing-inequalities>.

¹⁴⁵ Alice Gomstyn, "The History of Renewable Energy." IBM, February 8, 2024, accessed July 27, 2024, <https://www.ibm.com/blog/renewable-energy-history/>.

¹⁴⁶ "Wind Explained, History of Wind Power" *United States Energy Information Administration*, April 20, 2025, <https://www.eia.gov/energyexplained/wind/history-of-wind-power.php>.

¹⁴⁷ Alice Gomstyn, "The History of Renewable Energy." IBM.

¹⁴⁸ "Major historical developments in the design of water wheels and Francis hydroturbines" *IOP Science*, January 2020, <https://iopscience.iop.org/article/10.1088/1755-1315/22/1/012020>.

¹⁴⁹ Alice Gomstyn, "The History of Renewable Energy." IBM.

¹⁵⁰ "Overview and Key Findings – World Energy Outlook 2020 – Analysis - IEA." n.d. IEA, accessed July 18, 2024. <https://www.iea.org/reports/world-energy-outlook-2020/overview-and-key-findings>.

invest in sustainable energy initiatives; however, developing Member States frequently encounter difficulties in obtaining the requisite investments and expertise.¹⁵¹ Their economic growth is hindered by this disparity, which further contributes to their prolonged dependence on fossil fuels and impedes their potential migration to sustainable energy alternatives.¹⁵²

Current Situation

Following the Paris Agreement at COP21 in 2015, Member States first started to consider heavy industry to be a necessary challenge to address.¹⁵³ Processing materials with coal, overproduction of goods, and heavy manufacturing of steel in industry have had negative effects on the environment and the economy.¹⁵⁴ In 2020, 3.1 billion tonnes of carbon emissions were produced by industry.¹⁵⁵ These emissions largely come from the burning of fossil fuels and other conventional energy sources which produce carbon dioxide.¹⁵⁶ Industry-related emissions accounted for 24 percent of greenhouse gas (GHG) emissions globally in 2022.¹⁵⁷ Of the Member States who have pledged to follow the Paris Agreement, only one Member State, The Gambia, is currently on track to meet the main objectives of the agreement.¹⁵⁸ Of the most developed economies, including the G-20, none are on track to meet the Paris Agreement's goals as of 2021.¹⁵⁹

The projected average cost for establishing clean energy in Member States is USD 2,042 per person annually, an amount unfeasible for most Member States in need of clean energy.¹⁶⁰ There are less pre-existing sustainable and conventional energy sources in developing Member States to build upon for new sustainable infrastructure.¹⁶¹ In addition, the cost of establishing sustainable energy infrastructure is far more expensive for developing Member States than developed Member States.¹⁶² It is estimated that the total cost to establish sustainable energy sources in developing Member States exceeds USD one trillion a year.¹⁶³ This is largely due to developing Member States often lacking pre-existing sustainable energy infrastructure to build upon that many developed Member States possess, such as larger solar energy plants and hydroelectric dams.¹⁶⁴ However, the cost to establish clean energy has been declining as of 2022.¹⁶⁵ This decline has been linked to fossil fuel prices continuing to reach all-time highs, causing an increase in public interest in sustainable energy, although support is largely from developed Member States.¹⁶⁶

¹⁵¹ "Overview and Key Findings – World Energy Outlook 2020 – Analysis - IEA." IEA.

¹⁵² "Overview and Key Findings – World Energy Outlook 2020 – Analysis - IEA." IEA.

¹⁵³ "Heavy Industry: What Effects of the Paris Climate Agreement?" IDDRI, December 12, 2015. accessed July 18, 2024. <https://www.iddri.org/en/publications-and-events/blog-post/heavy-industry-what-effects-paris-climate-agreement>.

¹⁵⁴ "Heavy Industry: What Effects of the Paris Climate Agreement?" IDDRI.

¹⁵⁵ Hannah, Ritchie, Pablo Rosado, and Max Roser, "Breakdown of Carbon Dioxide, Methane and Nitrous Oxide Emissions by Sector." *Our World in Data*, January 5, 2024. <https://ourworldindata.org/emissions-by-sector>.

¹⁵⁶ "Sources of Greenhouse Gas Emissions," *United States Environmental Protection Agency*, December 29, 2015, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

¹⁵⁷ "Global Greenhouse Gas Emissions Data." *United States Environmental Protection Agency*, January 12, 2016. <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>.

¹⁵⁸ Olivia Lai, "Every G20 Country Is Failing to Meet Paris Agreement On Climate Change," *Earth.Org*, September 17, 2021, <https://earth.org/every-g20-country-is-failing-to-meet-paris-agreement-on-climate-change/>.

¹⁵⁹ Olivia Lai, "Every G20 Country Is Failing to Meet Paris Agreement On Climate Change." *Earth Org*.

¹⁶⁰ "The Costs of Achieving the SDGs: Energy Transition," UNCTAD, accessed April 11, 2024. <https://unctad.org/sdg-costing/energy-transition>.

¹⁶¹ "The Costs of Achieving the SDGs: Energy Transition," UNCTAD

¹⁶² "Breaking Down Barriers to Clean Energy Transition," *World Bank*, May 16, 2024, <https://www.worldbank.org/en/news/feature/2023/05/16/breaking-down-barriers-to-clean-energy-transition>.

¹⁶³ "Breaking Down Barriers to Clean Energy Transition." *World Bank*.

¹⁶⁴ Holt, Victoria, Alex Hopkins, David Mozersky, and Sherwin Das. "Transitioning to Renewable in United Nations Field." *The Stimson Center*, 2019. https://www.stimson.org/wp-content/uploads/2020/02/Powering-Peace-Interim-Report_0.pdf.

¹⁶⁵ "Renewable Power Generation Costs in 2022." IRENA, August 1, 2023. accessed July 11, 2024. <https://www.irena.org/Publications/2023/Aug/Renewable-Power-Generation-Costs-in-2022>.

¹⁶⁶ "Renewable Power Generation Costs in 2022." IRENA

Renewable energy solutions have already proven to be a more cost efficient alternative to conventional energy sources.¹⁶⁷ Solar and wind power sources have been found to be 37 percent more cost-effective than new gas plants and 66 percent more cost-effective than new coal plants.¹⁶⁸ In addition to this, around 86 percent of all renewable energy infrastructure is more affordable than conventional energy infrastructure.¹⁶⁹ The UNIDO CLEANTECH Small & Medium Enterprise Accelerators Programme has predicted that the global clean technology industry has the potential to save small and medium enterprises over 6.4 trillion USD over the next decade.¹⁷⁰ However, the cost of establishing the infrastructure for sustainable energy sources presents a challenge for developing industry efforts.¹⁷¹

Actions Taken by the United Nations

In 1988, the United Nations General Assembly established the United Nations Environment Programme and the World Meteorological Organization.¹⁷² The Committee's objective is to furnish policymakers spanning all regions with scientific data that can be applied to formulate climate regulation policies.¹⁷³ The General Assembly endorsed the formation of the Intergovernmental Panel on Climate Change (IPCC).¹⁷⁴ The IPCC's initiative is to enlighten the 195 Member States' legislators on various hazards that result from fossil fuel emissions and are increasing climate change.¹⁷⁵ The IPCC drafted the "First Assessment Report" in 1990, accurately predicting the future rate of global warming.¹⁷⁶ In March 2023, the IPCC published a synthesis report, incorporating the organization's scientific findings dating back to 1990.¹⁷⁷ The report served as a guide to reducing the risks and consequences of climate change.¹⁷⁸ The report included a three-part initiative, focusing on the physical science on climate change; the impacts, adaptation, and vulnerability for ecosystems and the human population regarding climate change; and mitigating climate change.¹⁷⁹ Despite the IPCC's efforts and concerns for three years, the reports have made little to no impact on the global community due to the inadequate actions taken by domestic policymakers to prevent further warming.¹⁸⁰ The level of concentration of carbon dioxide in the atmosphere has reached unprecedented levels, surpassing any recorded measurements from the past two million years.¹⁸¹

On March 21, 1994, the United Nations established the United Nations Framework Convention on Climate Change (UNFCCC), the first international treaty aimed to reduce greenhouse gas emissions and counteract climate change.¹⁸² This legislation was ratified by 197 Member States and resulted in the 1995 Kyoto Protocol, which obligated industrialized countries and economies to restrict and decrease greenhouse gas emissions based on agreed

¹⁶⁷ "Renewables Competitiveness Accelerates, Despite Cost Inflation," IRENA, August 29, 2023.

<https://www.irena.org/News/pressreleases/2023/Aug/Renewables-Competitiveness-Accelerates-Despite-Cost-Inflation>.

¹⁶⁸ Dana Nuccitelli, "Fighting Climate Change: Cheaper than 'business as Usual' and Better for the Economy," *Yale Climate Connections*, November 30, 2020, <http://yaleclimateconnections.org/2020/11/fighting-climate-change-cheaper-than-business-as-usual-and-better-for-the-economy/>.

¹⁶⁹ "Renewable Power Generation Costs in 2022," IRENA, August 1, 2023, accessed July 11, 2024.

<https://www.irena.org/Publications/2023/Aug/Renewable-Power-Generation-Costs-in-2022>.

¹⁷⁰ James New, "The UNIDO Experience, 4th IEF-OFID Symposium on Energy Poverty," *UNIDO*, 2019.

https://www.ief.org/_resources/files/events/4th-ief-ofid-symposium-on-energy-poverty/2-james-new-unido.pdf.

¹⁷¹ "Renewable Power Generation Costs in 2022," IRENA.

¹⁷² "Frequently Asked Questions," UN Environment Programme, accessed May 12, 2024, <https://www.unep.org/who-we-are/frequently-asked-questions#:~:text=When%20was%20UNEP%20founded%3F,the%20world's%20greatest%20environmental%20challenges>.

¹⁷³ Phil Johnstone and Caitriona McLeish, "World Wars and the Age of Oil: Exploring Directionality in Deep Energy Transitions" National Library of Medicine, November 2020,

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7471716/>.

¹⁷⁴ "A Brief History of Climate Change," UK Research and Innovation, accessed March 10, 2024.

<https://www.discover.ukri.org/a-brief-history-of-climate-change-discoveries/index.html>.

¹⁷⁵ "IPCC Climate Change Reports: Why They Matter to Everyone on the Planet," NRDC, March 26, 2024.

<https://www.nrdc.org/stories/ipcc-climate-change-reports-why-they-matter-everyone-planet#sec-target>.

¹⁷⁶ "IPCC Climate Change Reports: Why They Matter to Everyone on the Planet," NRDC.

¹⁷⁷ "IPCC Climate Change Reports: Why They Matter to Everyone on the Planet," NRDC.

¹⁷⁸ "IPCC Climate Change Reports: Why They Matter to Everyone on the Planet," NRDC.

¹⁷⁹ "IPCC Climate Change Reports: Why They Matter to Everyone on the Planet," NRDC.

¹⁸⁰ Phil Johnstone and Caitriona McLeish, "World Wars and the Age of Oil: Exploring Directionality in Deep Energy Transitions," Elsevier, November 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7471716/>.

¹⁸¹ Johnstone and McLeish, "World Wars and the Age of Oil."

¹⁸² "A Brief History of Climate Change," *UK Research and Innovation*.

individual targets.¹⁸³ The Paris Agreement, implemented in 2015, mandates that Member States decrease their carbon emissions to limit global warming to 1.5°C compared to pre-industrial levels.¹⁸⁴

The UN has focused on climate change and its global effects in the 21st century. Officials throughout the International community convene at the 15th Conference of the Parties (COP15) of the UN Biodiversity Conference to establish intentions that aim to stop and reverse biodiversity loss over the following ten years and into the future via the Convention on Biological Diversity (CBD).¹⁸⁵ In 2009, at the 15th Conference of Parties (COP15), Member States dedicated the collective mobilization of USD 100 billion per year to taking action against climate change.¹⁸⁶

In 2015, 195 parties signed the Paris Agreement, setting long-term goals for reducing carbon emissions and combating the climate crisis.¹⁸⁷ These goals direct Member States to prevent global temperature increases to greater than two degrees Celsius, periodically assess collective progress in fields such as reducing industrial emissions, and provide financing to developing Member States to mitigate climate change.¹⁸⁸ While the Paris Agreement's objectives need a significant increase in efforts to address climate change, the period since its implementation has stimulated the development of low-carbon solutions and the emergence of new markets allowing development of lower-emission frameworks in emissions-heavy fields.¹⁸⁹ An increasing number of governments, regions, cities, and organizations are setting goals to achieve carbon neutrality.¹⁹⁰ The category of zero-carbon solutions are becoming cost-effective in certain economic sectors that account for 25% of emissions.¹⁹¹ The electricity and transport industries have seen a significant increase in this tendency, leading to the emergence of several lucrative business prospects for those who act early.¹⁹²

In 2021, UNIDO formed the Global Programme on Green Hydrogen in Industry.¹⁹³ Green Hydrogen, also known as GH2, is defined as hydrogen generated by renewable energy or from low-carbon power.¹⁹⁴ The aim of the Programme is to assist developing Member States in overcoming identified barriers and encourage the transition to hydrogen energy while taking into account social and environmental needs.¹⁹⁵ Currently, there is no mature GH2 market.¹⁹⁶ The United Nations is developing programs at UNIDO to assist developing countries in achieving this objective and leveraging the opportunities for sustainable industrialization that will result.¹⁹⁷ Considering the early stage of development, it is crucial to provide the necessary support and incentives for the GH2 market to rapidly and effectively expand.¹⁹⁸ Additional financial support mechanisms are required to balance out prices in the market for environmentally friendly products in comparison to those derived from fossil fuels.¹⁹⁹ UNIDO perceives a GH2 transition as an opportunity for the development of new industrial pathways and the enhancement of skills, in addition to the widely recognized advantages outlined above.²⁰⁰ This holds particularly true for developing nations,

¹⁸³ "A Brief History of Climate Change," UK Research and Innovation, accessed March 10, 2024.

<https://www.discover.ukri.org/a-brief-history-of-climate-change-discoveries/index.html>.

¹⁸⁴ "A Brief History of Climate Change," *UK Research and Innovation*.

¹⁸⁵ "UN Biodiversity Conference (COP 15)," UNEP, accessed June 24, 2024,

<https://www.unep.org/un-biodiversity-conference-cop-15>.

¹⁸⁶ "The Paris Agreement," *United Nations*, accessed March 11, 2024. <https://www.un.org/en/climatechange/paris-agreement>.

¹⁸⁷ "The Paris Agreement," *United Nations*.

¹⁸⁸ "The Paris Agreement," *United Nations*.

¹⁸⁹ "The Paris Agreement," *United Nations*.

¹⁹⁰ "The Paris Agreement," *United Nations*.

¹⁹¹ "The Paris Agreement," *United Nations*.

¹⁹² "The Paris Agreement," *United Nations*.

¹⁹³ "Working Together on Global Supply Chains Can Help Prevent Climate Disaster." UNIDO.

¹⁹⁴ "Identifying the differences in between green low carbon and renewable hydrogen". accessed March 10, 2024.

<https://c2e2.unepccc.org/wp-content/uploads/sites/3/2023/03/identifying-the-differences-in-between-green-low-carbon-and-renewable-hydrogen.pdf>.

¹⁹⁵ "Global Programme on Green Hydrogen in Industry," UNIDO, 2024, accessed August 7, 2024,

<https://www.unido.org/hydrogen>.

¹⁹⁶ "Green Hydrogen: The Energy Opportunity for Decarbonization and Developing Countries | Industrial Analytics Platform." Industrial Analytics Platform, November 1, 2022, accessed July 17, 2024.

<https://iap.unido.org/index.php/articles/green-hydrogen-energy-opportunity-decarbonization-and-developing-countries>.

¹⁹⁷ "Green Hydrogen" *Industrial Analytics Platform*.

¹⁹⁸ "Green Hydrogen" *Industrial Analytics Platform*.

¹⁹⁹ "Green Hydrogen" *Industrial Analytics Platform*.

²⁰⁰ "Green Hydrogen" *Industrial Analytics Platform*.

many of which have great potential to become producers of GH2 due to their abundant renewable energy resources.²⁰¹ Therefore, UNIDO is directing its assistance toward those Member States in order to maximize their GH2 potential.²⁰²

As of 2024, all parties within the Paris Agreement have begun reporting to an Enhanced Transparency Framework (ETF).²⁰³ The ETF was designed to ensure the effective implementation of the Paris Agreement by building mutual trust and confidence.²⁰⁴ In February of 2024, a flagship project called the UNIDO the Global Clean Hydrogen Programme was approved to go into action.²⁰⁵ Through the five-year project, UNIDO will assist eight Member States in establishing national clean-energy projects, as well as a global knowledge and information exchange platform.²⁰⁶

Case Study

Pakistan

Pakistan is a developing Member State nearly entirely dependent on natural gas and oil for its domestic energy and industry needs, where natural gas represents 41.2 percent of the energy resources used and oil represents 34.2 percent.²⁰⁷ In 2021, Pakistan's CO₂ emissions reached an all-time high, with over 216 million tonnes of CO₂ emissions recorded.²⁰⁸ The overall dependence on conventional energy sources combined with rapid industrial growth has led to an energy shortage in Pakistan.²⁰⁹ The energy gap in Pakistan is estimated to be between 5,000 and 8,000 megawatts.²¹⁰ Energy gaps are defined as the difference between the increasing demand for energy and a Member State's capacity to produce energy.²¹¹ Conventional energy source gaps have in turn caused rapid fluctuation in fuel prices for Pakistani citizens.²¹² Pakistan's current Transmission and Distribution Capacity (T&D) is largely overloaded and is prone to grid failures due to its high reliance on oil and gas and low use of sustainable energy sources.²¹³ As of 2023, the T&D of Pakistan is 22,000 MegaWatts (MW).²¹⁴ However, there is a 3,000 MW deficit in power for the Member State.²¹⁵ By incorporating the use of sustainable energy in T&D, the Pakistani government is officially attempting to make electricity both more accessible and affordable for Pakistan's

²⁰¹ Green Hydrogen: The Energy Opportunity for Decarbonization and Developing Countries | Industrial Analytics Platform." Industrial Analytics Platform, November 1, 2022, accessed July 17, 2024.

²⁰² "Green Hydrogen" *Industrial Analytics Platform*.

²⁰³ "Preparing for the Enhanced Transparency Framework." *United Nations Climate Change*, accessed April 11, 2024.

²⁰⁴ "ETF Definition." *United Nations Climate Change*, accessed April 11, 2024. <https://unfccc.int/process-and-meetings/transparency-and-reporting/support-for-developing-countries/consultative-group-of-experts/enhanced-transparency-framework-technical-material>.

²⁰⁵ "Global Programme on Green Hydrogen in Industry," UNIDO, 2024, accessed August 7, 2024, <https://www.unido.org/hydrogen>.

²⁰⁶ "Global Programme on Green Hydrogen in Industry," UNIDO.

²⁰⁷ Yongrong Xin, Muhammad Khyzer Bin Dost, Hamza Akram, and Waqas Ahmad Watto. "Analyzing Pakistan's Renewable Energy Potential: A Review of the Country's Energy Policy, Its Challenges, and Recommendations." *Sustainability* 14, no. 23 (January 2022): 16123. <https://doi.org/10.3390/su142316123>.

²⁰⁸ "Pakistan: Fossil CO₂ Emissions 1970-2022." Statista, accessed May 12, 2024. <https://www.statista.com/statistics/486054/co2-emissions-pakistan-fossil-fuel-and-industrial-purposes/>.

²⁰⁹ Yongrong Xin et al., "Analyzing Pakistan's Renewable Energy Potential"

²¹⁰ Yongrong Xin et al., "Analyzing Pakistan's Renewable Energy Potential"

²¹¹ "Rising Energy Demands and The Energy Gap," *Edexcel IGCSE Geography*, June 13, 2015. <https://maxwatsongeography.wordpress.com/section-b/economic-activity-and-energy/rising-energy-demands-and-the-energy-gap/>.

²¹² Yongrong Xin et al. "Analyzing Pakistan's Renewable Energy Potential"

²¹³ Sadia Malik, "Green Finance in Pakistan: Barriers and Solutions," *Asian Development Bank*, October 15, 2018. <https://www.adb.org/publications/green-finance-pakistan-barriers-and-solutions>.

²¹⁴ Wisal Kamal, "Energy Crisis in Pakistan— Electricity Transmission and Distribution Analysis" *Scientia Magazine*, March 15, 2022. <https://scientiamag.org/energy-crisis-in-pakistan-electricity-transmission-and-distribution-analysis/>.

²¹⁵ Wisal Kamal, "Energy Crisis in Pakistan— Electricity Transmission and Distribution Analysis" *Scientia Magazine*.

citizens.²¹⁶ Pakistan is well suited for solar and wind energy solutions.²¹⁷ The World Bank reports utilizing just 0.071% of the land for solar energy would meet Pakistan’s current electricity demand.²¹⁸ Pakistan has wind corridors reaching speeds of over 7.1 meters per second across 10 percent of the Member State.²¹⁹ This makes Pakistan an ideal candidate for wind energy solutions.²²⁰

As a means to incorporate sustainable energy into industry, Pakistan has achieved great progress with solar and wind energy projects.²²¹ Pakistan partnered with UNIDO in 2024 to start the National Rural Support Programme (NRSP), a financial and developmental organization that provides loans to Pakistani farmers and factory owners for installing sustainable energy solutions including solar and wind energy.²²² The interest payments are covered by UNIDO, making the loans entirely interest-free.²²³ The Programme has shown significant success, reducing emissions by over 17,000 metric tons of CO₂ emissions thus far.²²⁴ Since the launch of the program, 80 percent of respondents to the program saved 63 USD a month on energy costs for their farms or factories.²²⁵ The other 20 percent of respondents reported saving even more than 63 USD.²²⁶

Conclusion

UNIDO has deemed climate change as a serious risk to developing Member States and has applied itself to mitigating its impacts across the world.²²⁷ Industrial excessive consumption is attributable to the unwarranted usage of fossil fuels.²²⁸ The molecular reaction generated by such gasses produces supplementary greenhouse emissions.²²⁹ Universal access to climate-resilient, low-emission development is a fundamental principle of UNIDO. Through the promotion of policies and programs that enable Member States to implement climate action, UNIDO’s intentions continue to remain centered on contributing to the development of all-encompassing, sustainable, and inclusive career prospects.²³⁰ Programs to combat pollutants, such as carbon and hydrogen emissions in industrial development, special focus has been given to combating rising global temperatures and pollutants in affected regions.²³¹ UNIDO recognizes the immeasurable risks that result from unchecked pollution and emissions and has continued to work to combat these pollutants in the 21st century.²³²

Committee Directive

The directive of this committee is to develop systems and frameworks to mitigate the effects of existing emissions and pollutants, and to protect against future impacts that would result if these pollutants continued unchecked. While conducting their research, delegates should consider the following: What mechanisms can be used to further eliminate the increase of greenhouse gases? What existing programs can be improved upon or developed to further educate policymakers on their decisions regarding the excessive use of carbon emissions? Should developing Member States take on the leading role in reducing the global communities carbon emissions? What kind of infrastructure could improve the lives of individual citizens in their respective Member States regarding the decrease

²¹⁶ Sadia Malik, “Green Finance in Pakistan: Barriers and Solutions,” *Asian Development Bank*.

²¹⁷ “Expanding Renewable Energy in Pakistan’s Electricity Mix.” *World Bank*, November 11, 2020, accessed May 12, 2024. <https://www.worldbank.org/en/news/feature/2020/11/09/a-renewable-energy-future-for-pakistans-power-system>.

²¹⁸ “Expanding Renewable Energy in Pakistan’s Electricity Mix.” *World Bank*, November 11, 2020, accessed May 12, 2024. <https://www.worldbank.org/en/news/feature/2020/11/09/a-renewable-energy-future-for-pakistans-power-system>.

²¹⁹ “Expanding Renewable Energy in Pakistan’s Electricity Mix.” *World Bank*.

²²⁰ “Expanding Renewable Energy in Pakistan’s Electricity Mix.” *World Bank*.

²²¹ “Pakistan’s Farmers Feel the (Solar) Power” UNIDO, accessed April 11, 2024. <https://www.unido.org/stories/pakistans-farmers-feel-solar-power>.

²²² “Pakistan’s Farmers Feel the (Solar) Power” UNIDO.

²²³ “Pakistan’s Farmers Feel the (Solar) Power” UNIDO.

²²⁴ “Pakistan’s Farmers Feel the (Solar) Power” UNIDO.

²²⁵ “Pakistan’s Farmers Feel the (Solar) Power” UNIDO.

²²⁶ “Pakistan’s Farmers Feel the (Solar) Power” UNIDO.

²²⁷ “Resilient, carbon neutral growth and circular economy.” UNIDO. Broken Record. accessed March 11, 2024.

<https://www.unido.org/our-focus-building-better-future/resilient-carbon-neutral-growth-and-circular-economy>.

²²⁸ “Resilient, carbon neutral growth and circular economy.” UNIDO.

²²⁹ “Resilient, carbon neutral growth and circular economy.” UNIDO.

²³⁰ “Resilient, carbon neutral growth and circular economy.” UNIDO.

²³¹ “Resilient, carbon neutral growth and circular economy.” UNIDO.

²³² “Resilient, carbon neutral growth and circular economy.” UNIDO.

of carbon emissions? What are some incentives to developing a sustainable framework to reduce carbon emissions that would encourage Member States to actively participate?

Annotated Bibliography

I. Encouraging Sustainable Development through the Advancement of Agriculture and Agro-Industries in Developing States

Cervantes-Godoy, D., S. Kimura and J. Antón. "Smallholder Risk Management in Developing Countries," *OECD Food, Agriculture and Fisheries Papers*, No. 61, OECD Publishing, Paris, June 10, 2013.
DOI: 10.1787/5k452k28wljl-en.

The Organisation for Economic Co-operation and Development (OECD) Food, Agriculture, and Fisheries Papers are a series analyzing policy issues in the agriculture and fishing industries. This paper examines the risk management strategies of small-scale farms in developing Member States in response to economic shocks such as natural disasters. Developing Member States often have policies preventing access to risk management strategies for farmers, resulting in strategies that propagate poverty such as selling productive assets to afford necessities. The paper analyzes the risks for smallholders and provides more effective approaches to policy making, emphasizing the importance of access to credit and insurance for farm households while considering the impact of policy on different types of households.

Bold, Tessa, Selene Ghisolfi, Frances Nsonzi, and Jakob Svensson. "Market Access and Quality Upgrading: Evidence from Four Field Experiments." *American Economic Review*, 112 (8): 2518-52, August 8, 2022.
DOI: 10.1257/aer.20210122.

American Economic Review is an academic journal covering economic issues relating to general interests. This study investigates obstacles to smallholders implementing produce quality upgrading in west Uganda. Agricultural produce generated by smallholders in developing Member States is typically of little productivity or quality, despite an increase in produce quality being seen as a viable method of increasing productivity and income. Access to higher quality production resulted in financial gains in some instances but the lack of demand for higher quality produce mitigated many of the benefits of quality upgrading. The study explains the obstacles facing Member States wanting to reform quality-upgrading programs and provides potential solutions that can be implemented to overcome these obstacles.

Akiwumi, Paul, and Ratnakar Adhikari. "It's time to put productive capacities at the heart of every development strategy." United Nations Conference on Trade and Development, last modified October 12, 2022,
<https://unctad.org/news/blog-its-time-put-productive-capacities-heart-every-development-strategy>.

This article from the UN Conference on Trade and Development discusses the disparity between economic growth and positive development outcomes in Least Developed Countries (LDCs). Despite economic growth, there is not a positive correlation between increased economic development and development outcomes as LDCs struggle with poverty and food insecurity with this development. The article calls for a restructuring of agriculture-based economies through the implementation of agro-industry alongside local agriculture to grow both production and local manufacturing for these agricultural products. The article notes the low return of exporting raw agricultural products versus processed goods. This article shows the necessity of considering the relationship between agriculture and growth and developing systems considering the interactions of economic development beyond only mutual industry growth.

De Souza, Joao Paulo. "Growth Complementarity Between Agriculture and Industry: Evidence from a Panel of Developing Countries." University of Massachusetts at Amherst 2014, accessed March 7, 2024,
https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1177&context=econ_workingpaper.

Growth Complementarity Between Agriculture and Industry: Evidence from a Panel of Developing Countries explores the relationship between agriculture and industry in developing states. The review finds a direct relationship of mutual growth between agriculture and industry. Agricultural growth corresponded to more favorable trade policy on manufacturing and industry by alleviating economic constraints on trade and international economic relationships. This considers both public and private agricultural investments, both of which had long-term benefits on economic development capacity despite short-term "shocks" to the

system being common in the data. This paper shows how single-industry investment in agriculture can lead to broad positive economic impacts in industry and manufacturing.

II. Developing Affordable Solutions to Limit Greenhouse Gas Emissions in Developing Industry

Goldthau, A., Eicke, L., Weko, S. “The Global Energy Transition and the Global South.” *In The Geopolitics of the Global Energy Transition. Lecture Notes in Energy*, vol 73. Springer, Cham, June 10, 2020, DOI: 10.1007/978-3-030-39066-2_14.

The Geopolitics of the Global Energy Transition examines the political facets of the transition to clean energy and provides specific examples of issues relating to this transition. The chapter “The Global Energy Transition and the Global South” investigates the implications of the global transition to net-zero carbon emissions on developing Member States. The “Global South” is largely unaddressed in discussions of the global energy transition, only being discussed in regards to producer economies and their role relative to more developed Member States. The perspective of the Global South is necessary to properly design effective policy integrated into the global economy. This chapter explains the three primary perspectives of the Global South’s role in the global energy transition and highlights both problems and potential solutions for Member States to investigate.

Müller, Gerd. “Working together on global supply chains can help prevent climate disaster.” UNIDO, last modified June 2, 2022, <https://www.unido.org/stories/working-together-global-supply-chains-can-help-prevent-climate-disaster>.

This article from UNIDO focuses on development of sustainable industry in supply chains and the mitigation of greenhouse emissions. This is explored through four different mechanisms: clean energy, innovation and technology transfer, regulation and standards, and multilateral partnerships. Specifically, this focuses on decarbonization and balancing development with sustainability requirements in industrialization and collaborative frameworks for supply chains in developing states. This article gives examples of frameworks and systems put in place to mitigate future greenhouse emissions as well as goals for UNIDO to pursue in future development.

Willis, Scott. “UNIDO: Supporting Industrial decarbonisation in developing countries.” World Trade Organization, last modified May 17, 2022, https://www.wto.org/english/tratop_e/tessd_e/unido_17may22.pdf.

This publication from the UNIDO Department of Energy lays out a multi-step program involving global partnership and technical cooperation. This proposal focuses on a bi-lateral approach to green hydrogen in industry for developing states and transition economies. On global partnership this focuses on policy and production in building awareness and increasing development capacity, and on technical cooperation this focuses on development of industrial corridors and technical training. This also lays out 3 working groups focusing on data and reporting, low carbon standards, and green procurement respectively to facilitate these developments. This release lays out a framework developed by UNIDO in combatting carbon emissions and breaks down its elements and their interactions.

Jungclaus, Matt, Rebecca Esau, Victor Olgyay, and Audrey Rempher. “Reducing Embodied Carbon in Buildings: Low-Cost, High-Value Opportunities.” RMI, 2021, <http://www.rmi.org/insight/reducing-embodied-carbon-in-buildings>.

Rocky Mountain Institute is a nonprofit research institute focused on developing zero-carbon energy systems with market-driven solutions. This report identifies primary sources of carbon in prevalent construction methods and establishes a framework for reducing embodied carbon in a cost-effective manner. Structural systems account for the majority of up-front embodied carbon emissions in building construction, with concrete and steel providing the largest opportunities emission reductions. These reduction methods are designed with future policy-making and affordable construction in mind. The report includes case studies and effective policies that have lowered local emissions and the costs of construction.