

COP27 Background Guide

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From November 7-18, 2022, the United Nations Climate Change Conference (UNFCCC / COP27) will be held in Sharm El-Sheikh, Egypt. The 27th edition of the annual conference will address issues related to climate change: governance, sustainable development, international cooperation, adaptation, and mitigation.¹ The primary objective of COP27 is to facilitate global partnerships to address and create tangible solutions for the challenges posed by climate change, including, but not limited to, implementation of existing policies, financing countermeasures, the creation of new technology, capacity building, sustainable agricultural processes, and educational awareness. Building upon the progress made since the 2021 COP26 conference in Glasgow Scotland, COP27 will re-examine how countries around the world have sought to advance measures to counter climate change.

I. Education, Training, and Public Awareness for Addressing Climate Change

Statement of the Issue:

Education is one of the most crucial tools used to raise public awareness and find solutions to climate change's challenges. Universities and other educational organizations play a unique role in bridging the gap that exists between young people, corporations, and governments when it comes to addressing the growing issue of climate change. Educational institutions, alongside academia and young people, require a space at the negotiation table alongside both corporate entities and associated stakeholders in climate action.² Universities are often at the forefront of research that produces new ideas and technology that can combat the effects of climate change. Global Climate Change Week encourages students and staff at universities to engage with their policymakers on promoting sustainable, environmentally-friendly policies.³ This cooperation not only benefits the community at large but encourages members of the university to reflect on their

¹ "UN Climate Change Conference 2022 (UNFCCC COP 27)," IISD, accessed June 22, 2022, <https://sdg.iisd.org/events/2021-un-climate-change-conference-unfccc-cop-27/>

² Prachi Ugle Pimpalkhute, "What role can Universities, Academia and Youth Action do to win on negotiations at Conference of Parties (COP 27) next year?" *Eco Endeavors Network European Wide Initiative*, December 16, 2021, <https://www.cambridge.org/engage/coe/article-details/61aa1e0c704d05fc8b3ea940>.

³ Gabi Mocatta and Rob White, "This is how universities can lead climate action," *The Conversation*, October 19, 2020, <https://theconversation.com/this-is-how-universities-can-lead-climate-action-147191>.

own contribution to emissions and seek solutions to be more eco-friendly whilst raising awareness of climate change. It is not just at the university level that efforts have been made to institute training and raise awareness of climate change, but through the creation of an educational webinar series. The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the United Nations Framework Convention on Climate Change (UNFCCC) have established a free joint educational initiative to provide participants with the necessary skills, awareness, and training to take action on enhancing education policies and curriculum that address the issues posed by climate change.⁴ These webinars are free to the public as part of the United Nations “on the road to COP27” that seeks to foster dialogue and education on its mission. One group that is identified as a core factor in enhancing education and spreading public awareness about climate change is young people.

Including young people is vital in addressing climate change, instituting a curriculum within the education system that provides knowledge and training will lead to more sustainable solutions. Young people, who are acutely at risk of the effects of climate change, have traditionally been absent during the conversation. Almost everyone under the age of 18 will be or have been exposed to at least one climate or environmentally hazardous event, such as heatwaves, cyclones, air pollution, flooding, droughts, and poor crop yield.⁵ As of 2022, there are more than one billion people under the age of 18 that live in countries where their survival is significantly threatened by the high risk of climate change.⁶ This statistic emphasizes the need for greater inclusion of young people, especially those from the most vulnerable regions, to participate in the dialogue concerning climate change.

History:

In-depth education on climate change and its consequences has traditionally been absent from school curricula, especially in developed nations. There is a growing movement to integrate and situate climate change education at the core of school curriculums, focused mainly on K-12. Statistics show that 80% of parents in the United States and 77% of parents in the United

⁴ “Climate changed education for social transformation Webinar 2: How climate change knowledge can become action,” UNESCO, accessed on June 29, 2022, <https://events.unesco.org/event?id=174300767>.

⁵ Giulia Gasparri, Mohamed Eissa, David Imbago-Jácome, & Bhavya Nandini, “Climate emergency: how should COP27 do better for adolescents and young people?” *BMJ*, March 28, 2022, <https://www.bmj.com/content/376/bmj.o816>.

⁶ Gasparri, Eissa, Imbago-Jácome, & Nandini, "Climate emergency."

Kingdom support teaching about climate change.⁷ Educator opinions largely support those of parents, with 86% of teachers in the US, 69% of teachers in the UK, and 71% of teachers in Europe wanting to include climate change in the curriculum.⁸ Most educators have identified their lack of training on the topic as the main reason behind excluding it from the lesson plan. Initiatives created by UNESCO have helped to fill in the gaps formed by the lack of formal climate change education, aimed at providing accessible education, training, and raising public awareness about this pressing issue. But climate change is not absent from schools in every country, many nations where climate change is being felt the most have integrated it in one way or another.

As climate change carries unique socio-economic and environmental issues on a scale never dealt with before, there is an urgent need for environmental scientists and geographers to assist schools with implementing educational frameworks. This approach has been applied in schools throughout Singapore and the Philippines. Education systems in both countries have approached teaching climate change through different methods: the Philippines uses an interdisciplinary structure through social studies whilst Singapore uses a single-discipline method primarily rooted in geography studies.⁹ Though the approaches to teaching climate change are different, the positive impacts are significant. Introducing climate change education at a young age has shown that individuals are more likely to engage with environmentally-friendly practices and encourage the people around them to do so as well. Encouraging young people to personally connect with the issues posed by climate change fosters a sense of personal responsibility and empowers them to address the issue.¹⁰ Formal educational curricula have also been implemented in the Middle East, an initiative that many national governments in the region have deemed as vital given the semi-arid climate and growing concern about access to fresh water. Israel, Jordan, and Palestine have all implemented some form of climate change courses in schools, primarily

⁷ Anya Kamenetz, "Most Teachers Don't Teach Climate Change; 4 in 5 Parents Wish They Did," *NPR*, April 22, 2019, <https://www.npr.org/2019/04/22/714262267/most-teachers-dont-teach-climate-change-4-in-5-parents-wish-they-did>.

⁸ "Do you think learning about climate change should be part of the school curriculum?" YouGov, published on January 22, 2020, <https://yougov.co.uk/topics/education/survey-results/daily/2020/01/22/d1cab/1>.

⁹ Li-Ching Ho & Tricia Seow, "Disciplinary boundaries and climate change education: teachers' conceptions of climate change education in the Philippines and Singapore," *International Research in Geographical and Environmental Education*, no. 3 (May 2017).

¹⁰ Eugene C. Cordero, Diana Centeno, & Anne Marie Todd, "The role of climate change education on individual lifetime carbon emissions," *PLoS ONE* 15, no. 2 (February 2020).

targeting middle schools.¹¹ Jordan and Palestine have made climate change education mandatory, seeking to raise awareness about the unique environmental issues they face within their region and encouraging students to think of sustainable solutions. Though frameworks for formal education on climate change have been created within Israel, the nation falls behind others in the region in its successful implementation as courses on climate change are not mandatory in schools.¹² A school-based curriculum focused on ensuring climate change education is integrated within lesson plans has been successfully implemented in Guatemala at the K-12 Atitlán Multicultural Academy.¹³ At Atitlán, students are provided with an education that fully captures the importance of and integrates climate change into its curriculum, fostering personal agency, inspiring students to become environmental leaders within their community, and raising public awareness. Schools are not the only places in which climate change education can be implemented, and young people are not the only audience. Adult education institutions and universities also have played a role in providing teaching, training, and raising awareness about climate change.

Innovative curricula aimed at providing training to and raising awareness for adults about the issue of climate change have been implemented internationally, especially in developing nations. Successful adult education facilities in Haiti and Pakistan have been implemented that provide training on how to address and create solutions to the issues the global community faces from climate change. These facilities help to educate and train adults to be community ambassadors who encourage eco-friendly initiatives and lobby national governments to make addressing climate change a priority.¹⁴ In the United States, libraries have become a vessel for education, training, and raising public awareness about climate change. The American Library Association (ALA) has created frameworks and programs for libraries across the country to host public events to encourage citizens to engage with and brainstorm solutions to the issues that climate changes pose, especially within their communities.¹⁵ As the threat of climate change and the challenges that the international community already faces continue to grow, it is necessary to

¹¹ Fernando M. Reimers, *Education and Climate Change: The Role of Universities* (Cham: Springer, 2021).

¹² Reimers, *Education and Climate Change*.

¹³ Lina Lopez Lalinde & Carrie Maierhofer, "Creating a Culture of Shared Responsibility for Climate Action in Guatemala Through Education," in *Education and Climate Change*, (Cham: Springer, 2021), 85-112.

¹⁴ Ho & Seow, "Disciplinary boundaries."

¹⁵ "Resilient Communities: Libraries Respond to Climate Change," American Library Association, last modified on February 4, 2020, <https://www.ala.org/tools/programming/climatechange>.

expand the spaces in which people can receive education, training, and raise awareness about these socio-environmental issues.

Analysis:

Schools, universities, and adult education facilities play an important role in not just educating, but training individuals and raising public awareness about climate change. Expanding the spaces in which individuals can engage with this complex issue is vital. Non-formal education opportunities are often provided through initiatives set forth by UNESCO and organizations such as the Climate Justice Alliance which brings together a plethora of groups to provide education and training, spread awareness, and lobby international governments to make addressing climate change a top priority. Groups that participate in the Climate Justice Alliance include the Indigenous Environmental Network (IEN), Grassroots Global Justice Alliance (GGJ), Just Transition Alliance (JTA), and Jobs with Justice (JwJ).¹⁶ Encouraging non-formal education opportunities to address climate change allows for the greater participation of individuals to engage with the issue whilst pushing for collective action through grassroots movements that can implement sustainable solutions at both the community and national levels.

A push for greater expansion of school-based climate change curricula internationally, but most especially in developed countries, is necessary. It is estimated that “if only 16% of high school students in high- and middle-income countries were to receive climate change education, we could see a nearly 19 gigaton reduction of CO₂ by 2050.”¹⁷ Fostering a sense of personal connection to the issue of climate change amongst students in developed countries is necessary in order to properly raise awareness and educate the general population about the dire situation that the environment faces. Leveraging the power of education and empowering young people is instrumental in reducing carbon dioxide levels and instituting long-lasting, sustainable solutions to climate change. One such method can be the implementation of Climate Action Projects in all schools by the year 2025. Climate Action Projects would encourage students to design and lead projects that directly address and develop solutions to the challenges posed by climate change, which in turn encourages advocacy, improves national implementation of environmental

¹⁶ “COP27 - UN Climate Change Conference 2022,” Climate Justice Alliance, accessed July 11, 2022, <https://climatejusticealliance.org/cop27/>.

¹⁷ Cordero, “The role of climate change education.”

policies, and mitigates the harmful impacts of climate change.¹⁸ Successful examples of Climate Action Projects have been found at the Runesu Primary School in Zimbabwe and Kingsmead Secondary School in the United Kingdom. In Zimbabwe, the Runesu Primary School installed a solar-powered water system that nourishes the school's vegetable garden and provides students with the opportunity to learn new skills, think critically, and create new solutions to better their communities.¹⁹ At the Kingsmead Secondary School in the UK, student-led projects have been implemented such as the creation of a vegetable garden, walk-to-school campaigns, and recycling competitions.²⁰ Climate Action Projects supported by UNESCO would provide schools with the ability to incorporate some form of student-led engagement on climate change, encouraging young people to become advocates for the environment.

Conclusion:

As the COP 27 conference draws nearer, it is vital to encourage wider education, training, and public awareness about climate change. Pushing for better climate change curricula in schools, encouraging universities to have a larger role in the conversation, and establishing adult education institutions serve as the best methods to enhance public awareness and engagement. Ensuring that young people have a seat at the table when it comes to the mitigation of climate change is vital as one of the most vulnerable populations, especially those in developing nations. If comprehensive climate change is integrated into the school curriculum at an early age, it provides a better opportunity to train individuals on how to address these issues within their local community and become advocates for better environmental policies at the national level.

Questions:

1. What types of Climate Action Projects could best be implemented in schools globally?
2. How can the international community better engage young people in conversations around climate change?

¹⁸ Christina Kwauk & Rebecca Winthrop, "Unleashing the creativity of teachers and students to combat climate change: An opportunity for global leadership," *Brookings*, March 26, 2021, <https://www.brookings.edu/research/unleashing-the-creativity-of-teachers-and-students-to-combat-climate-change-an-opportunity-for-global-leadership/Educating>.

¹⁹ Kwauk & Winthrop, "Unleashing the creativity."

²⁰ Kwauk & Winthrop, "Unleashing the creativity."

3. What educational initiatives should be implemented at the school, university, and adult level to enhance training and raise public awareness on the issues of climate change?

II. Regional Adaptation and Implementing Action

Statement of the Issue:

As the issues posed by climate change continue to grow and threaten the international community each year, it is more important than ever to institute regional adaptation and implementation policies. The COP 27 conference in Sharm el-Sheikh, Egypt will focus on a wider approach to regional adaptation and implementation measures by encouraging a multi-level approach. The UNFCCC's Paris Climate Agreement recognizes that local and subnational regions play a crucial role in implementing and achieving international mitigation and adaptation commitments to address climate change.²¹ Solely relying on national adaptation policies is no longer sufficient to address these issues, rather multi-level climate governance provides much more comprehensive, substantial, and sustainable solutions. This approach has been adopted in Italy, as climate governance policies aimed at implementing existing policies and adapting to the reality of contemporary climate issues seek a more multi-lateral structure. It is no longer simply at the national Italian level, but at the level of regions, provinces, and individual cities that climate adaptation measures are being addressed and created.²² As different regions in Italy face varied impacts of climate change, the multi-layered approach allows for a more tailored adaptation and implementation of action policy to confront specific issues. For example, in October of 2020, the local government in Venice constructed a MOSE flood barrier to stabilize water levels that have been gradually rising in order to protect the city and the Venetian Lagoon from perpetual flooding.²³ In other cities throughout Italy, regional governments have launched campaigns to better protect urban centers from heat waves, floods, and droughts through a variety of resilience-building methods and the implementation of national adaptation strategies. The Adaptation Communication of Italy focuses on tailoring adaptation and implementation

²¹ Filomena Pietrapertosa et al., "Multi-level climate change planning: An analysis of the Italian case," *Journal of Environmental Management* 289 (July 2021).

²² Pietrapertosa et al., "Multi-level climate change."

²³ Rosella Alba, Silja Klepp, and Antje Bruns, "Environmental justice and the politics of climate change adaptation – the case of Venice," *Geographica Helvetica* 75, no. 4 (October 2020): 363-368.

measures to the vulnerabilities of the Italian territory, spreading public awareness, and encouraging technological developments to provide solutions.²⁴ The cooperation of the national, local, and regional governments has led to a more comprehensive and successful implementation of climate-related policies.

Nations with significant coastlines have been at the forefront of recent regional adaptation measures to counter the growing threat of climate change. For populations residing in coastal cities, the threat of flooding has grown as it has become an increasingly common phenomenon, especially in developing nations. Policies of climate change adaptation are required to address these issues and better protect the most vulnerable populations. In Jakarta, Indonesia and Ho Chi Minh City, Vietnam, city planners have integrated climate adaptation measures in a bid to prevent catastrophic flooding, including seawalls and sluice gates.²⁵ Infrastructure development projects in these cities have adopted a transforming adaptation approach that targets the issues climate change poses for the population. Regional councils are another method in which adaptation policies and implementation measures are created. In Florida (United States), the Florida Oceans and Coastal Council conducts research and promotes policies to adapt to and mitigate the impacts of climate change along its coastline and protect the state's unique biodiversity.²⁶ With rising sea levels increasingly becoming an issue for countries and cities around the world, a greater focus has been placed on establishing regional mitigation and adaptation measures.

History:

Regional adaptation and implementing action plans have been at the forefront of global climate change policies. The United Nations has made addressing the issue of climate change a top priority, with initiatives established by multiple branches such as the UN Sustainable Development and UNESCO. The 2022 UN COP 27 is building off the work done by previous

²⁴ "Adaptation Communication of Italy," Ministry of Ecological Transition, submitted in November 2021, https://unfccc.int/sites/default/files/resource/UNFCCC_Italy_2021.pdf.

²⁵ "Transforming Adaptation to Climate Change in Coastal Cities: Ho Chi Minh City and Jakarta," UNRISD, published on August 19, 2019, <https://reliefweb.int/report/indonesia/transforming-adaptation-climate-change-coastal-cities-ho-chi-minh-city-and-jakarta>.

²⁶ "Florida Oceans and Coastal Council," Florida Department of Environmental Protection, accessed on July 11, 2022, <https://floridadep.gov/rcp/rcp/content/florida-oceans-and-coastal-council>.

conferences in targeting regional adaptation measures and enhancing implementing actions. Much of the regional adaptation work has traditionally focused on the agricultural sector, especially in African nations.

Agricultural adaptation in Africa has been at the forefront of climate change-related regional adaptation measures and implementing actions. It is estimated that more than 1 in 5 Africans experienced hunger in 2020, a number that is expected to rise as a result of global food insecurity brought on by wars and climate change.²⁷ For the past decade, African countries have already begun to experience the impact of climate change on their agricultural sectors as a result of increasing temperatures and extended droughts, impacting the most vulnerable communities on the continent. This has forced countries to develop regional adaptation measures to lessen the impact of a changing climate. Zambia has acutely felt the impact of climate change on its agricultural sector. Rainfall has progressively declined in the Western and South regions of the country as the overall temperature continues to rise. Lack of rainfall and increased temperatures are leading to widespread droughts that are affecting the agricultural sector the most. By 2050, the country's crop yield and production are expected to reduce massively, especially maize.²⁸ In 2010, the Zambian government developed the National Climate Change Response Strategy (NCCRS) to create and implement a national framework to adapt, encourage technological developments, establish financing schemes, public awareness initiatives, and mitigation measures to address climate change.²⁹ Zambian national initiatives for regional adaptation have combined scientific and Indigenous knowledge to create solutions. Indigenous communities, aided by technological investments by scientific communities in developed countries, have been employed to deal with regional-specific challenges posed by climate change, especially in developing methods of resilience to floods and droughts.³⁰ Enhanced regional adaptation measures supported by the international community are needed to improve Africa's agricultural productivity and sustainability as the demand for viable agricultural land grows.

²⁷ Claire Hickson, "Innovation for Agricultural Adaptation in Africa: The Case for a Political Declaration at COP27," *E3G*, April 1, 2022.

²⁸ Hambulo Ngoma et al., "Impacts of climate change on agriculture and household welfare in Zambia: an economy-wide analysis," *Climatic Change* 167, no. 55 (August 2021).

²⁹ Ngoma et al., "Impacts of climate change."

³⁰ George Kasali, "Integrating Indigenous and Scientific Knowledge Systems for Climate Change Adaptation in Zambia," in *Experiences of Climate Change Adaptation in Africa: Climate Change Management*, ed. Walter Leal Filho (Berlin: Springer, 2011).

In the Midwestern region of the United States, climate change-related regional adaptation for agriculture has been a key issue. The Midwestern agricultural sector has experienced an increase in heavy rainfall, leading to floods that prevent on-time seed planting, delayed and decreased harvesting, increase in operating costs, and loss of soil nutrients.³¹ New practices and methods for farming have been employed in a bid to adapt to the changing climate, creating a more sustainable agricultural sector. The Agricultural Conservation Planning Framework (ACPF) and USDA Natural Resources Conservation Services (NRCS) have worked together with Midwestern farmers and ranchers to improve agricultural productivity and conservation policies.³² In addition, the Midwest Cover Crop Selection Tool is a government resource to help farmers in choosing cover crops to include in rotations of vegetables and field crops. As the reality of a changing climate has impacted the agricultural sector of multiple regions, regional adaptation measures have become a top priority.

Analysis:

The rise in global climate-related issues requires the expansion of regional adaptation initiatives and implementing action policies. These initiatives need to be implemented in cooperation with local communities to achieve more sustainable, long-lasting solutions. In the agricultural sector, ensuring that infrastructure sustainability plans are created in collaboration with local farmers is vital. Collaboration between the national government and local farmers is key to regional adaptation in Africa to address climate change. By decentralizing the policies and methods aimed at regional adaptation within Africa, local farmers and their communities can play a great role in mitigation efforts to lessen the impact of climate change.³³ Enhancing international cooperation on regional adaptation frameworks is another key factor. The European Union and Latin America formed the EUROCLIMA Regional Partnership that encourages multi-national dialogue on climate change adaptation and mitigation strategies that can be turned into national public policies.³⁴ The support of the United Nations in these initiatives strengthens international

³¹ Dan Dostie, "Adaptation Resources for Agriculture in the Midwest and Northeast," *USDA*, February 21, 2017, <https://www.usda.gov/media/blog/2016/05/20/adaptation-resources-agriculture-midwest-and-northeast>.

³² "Agricultural Adaptation in a Changing Climate," *USDA*, accessed July 11, 2022, <https://www.climatehubs.usda.gov/agricultural-adaptation-changing-climate>.

³³ Chinwe Ifejika Speranza, "Resilient adaptation to climate change in African agriculture," *IDOS Studies*, no. 54 (2010). <https://www.econstor.eu/handle/10419/199179>.

³⁴ "Responding to climate change," *UN Environment Programme*, accessed July 11, 2022, <https://www.unep.org/regions/latin-america-and-caribbean/regional-initiatives/responding-climate-change>.

cooperation which can create tangible solutions to mitigating climate change. COP27 needs to dedicate greater attention to the impact of climate change on agriculture and the necessity for better global cooperation to create solutions. To improve regional adaptation measures and support communities in developing nations, more implementing actions need to be taken.

One necessary implementation action is increasing investment within developing countries to support regional adaptation measures. Investment in developing countries can take the form of providing better access to national and global markets, credit services, and technological developments to assist farmers.³⁵ Improving the level of investment in the developing world is key to assisting countries in sustainably adapting to a changing climate as well as boosting efforts in developed nations. For example, Microfinance for Ecosystem-based Adaptation (MebA) in Latin America and the Caribbean provides at-risk rural and urban populations with funds that microfinance services or products that improve sustainability, better climate resilience, and raise their local income.³⁶ Projects such as this are vital in ensuring that developing nations are not left behind in regional adaptation measures and are provided with the opportunity to protect their land and people from climate change-related catastrophes. International organizations also provide a unique opportunity to provide tools to encourage investment in climate adaptation and resilience measures. The World Bank and International Finance Corporation have created a joint blueprint for national governments to maximize private investment in regional adaptation. This strategy spearheaded by the World Bank focuses on encouraging financial incentives for the private sector to establish climate resilience and create sustainable solutions to issues related to climate change.³⁷ Encouraging cooperation between the private and public sectors could maximize the level of investment in sustainable development projects that implement regional adaptation policies.

Conclusion:

³⁵ Rashid M. Hassan & Charles Nhemachena, "Determinants of African farmers' strategies for adapting to climate change: Multinomial choice analysis," *African Journal of Agricultural and Resource Economics* 3, no. 2 (2008): 83-104.

³⁶ UN Environment Programme, "Responding."

³⁷ "Unlocking Private Investment in Climate Adaptation and Resilience," The World Bank, last modified on March 4, 2021, <https://www.worldbank.org/en/news/feature/2021/03/04/unlocking-private-investment-in-climate-adaptation-and-resilience>.

As the issues posed by climate change continue to rise and impact the international community, it is more important than ever to support regional adaptation and implementing action plans. Though important to all nations, a special focus needs to be placed on ensuring developing nations are provided with the funds and tools to adapt to climate change. The United Nations must continue to support international cooperation and a multi-level approach to addressing the issues posed by climate change. Creating and encouraging more investment opportunities aimed at improving regional adaptation in developing nations is vital in establishing long-term, sustainable solutions to the challenges posed by climate change.

Questions:

1. What are some ways the international community can support regional adaptation measures?
2. What investment projects can be implemented to support developing nations in establishing sustainable solutions to climate change?
3. What are the benefits of using a multi-level approach to regional adaptation?

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