



COMMONWEALTH *of* LEARNING

Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice

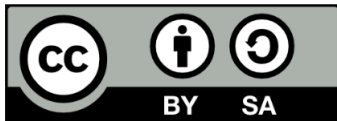
— COURSE —

Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice



The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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About this cCourse

Climate Change and Its Impacts: Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice **Error! No text of specified style in document.** has been produced by the Commonwealth of Learning in collaboration with content developers from the University of Rwanda, College of Education.

You can work through the course content alone or with others to share ideas. You can work entirely offline or entirely online or in a blended mode if your local open school provides such options.

All Courses produced by the Commonwealth of Learning are structured in the same way, as outlined below.



Watch

Course Video Teaser

<https://youtu.be/GZ2Zn4Gc0xo>

How this Course is structured

The course overview

The course overview gives you a general introduction to the course. Information contained in the course overview will help you determine:

- whether the course is suitable for you
- what you will already need to know
- what you can expect from the course
- how much time you will need to invest to complete the course

The overview also provides guidance on:

- study skills
- where to get help
- course assignments and assessments
- activity icons
- units



We strongly recommend that you read the overview *carefully* before starting your study.

The course content

The course is broken down into units. Each unit comprises:

- an introduction to the unit content
- unit outcomes
- new terminology
- core content of the unit with a variety of learning activities
- a unit summary
- assignments and/or assessments, as applicable

Resources

<https://science.nasa.gov/climate-change/>

<https://unfccc.int/topics/education-and-outreach/resources/materials-on-education-and-training>.

<https://www.coursera.org/courses?query=climate%20change>

<https://www.wri.org/initiatives/climate-watch>

Your comments

After you complete *Climate Change and Its Impacts: Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice*, we would appreciate it if you would take a few moments to give us your feedback on any aspect of this course. Your feedback might include comments on:

- course content and structure
- course reading materials and resources
- course assignments
- course assessments
- course duration
- course support (assigned tutors, technical help, etc.)

Your constructive feedback will help us to improve and enhance this course.



Course overview

Welcome to Climate Change and Its Impacts: Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice
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The course will focus on strategies for adapting to climate change's impacts, mitigating its consequences, and addressing climate justice issues. Teacher candidates will engage in discussions about various approaches to climate resilience and explore the ethical dimensions of climate change. By examining real-world examples, participants will gain insights into effective adaptation and mitigation practices, preparing them to promote climate justice in their local areas.

Climate Change and Its Impacts: Climate Change and Its Impacts: Adaptation, Mitigation, and Climate Justice
Error! No text of specified style in document.— **is this course for you?**

This course is designed for both pre-service and in-service primary and secondary school teachers, typically with a graduate-level qualification. Moreover, the course is relevant to a wide range of individuals and teams who are interested in improving their knowledge and skills related to climate change. The course is designed in a flexible manner so that it can be adapted to a diploma or a certificate. The level will be determined by the number of credits. Thus, the credits accumulated can be transferable between qualifications and providers. The qualification titles will allow for



comparability of credits and hence, recognition of qualification at the international level.

This minimum entry requirement is a high school certificate.

Course outcomes

Upon completion of Climate Change and Its Impacts: Climate Change and Its Impacts: Adaptation, Mitigation, and Climate JusticeJustice, **Error! No text of specified style in document.** you will be able to:



Outcomes

- develop an understanding of the concepts of adaptation, mitigation, and justice as they relate to climate change and its impacts.
- analyse the impacts of climate change on vulnerable populations and identify strategies for equitable adaptation and mitigation.
- understand the technical and policy options for climate change adaptation and mitigation and develop skills for assessing their effectiveness and feasibility.
- explore the ethical dimensions of climate change and its impacts and develop skills for identifying and addressing issues of justice and equity.
- analyse the role of institutions and governance structures in promoting climate change adaptation, mitigation, and justice and develop skills for effective advocacy and policy engagement.
- develop an understanding of the global policy frameworks related to climate change adaptation, mitigation, and justice, and the opportunities for advocacy and action at the international, national, and local levels.

Timeframe



How long?

You will need about eight weeks to complete the whole course.

Each unit contains two to four lessons. You will be learning from readings, videos, practical activities, reflections, short quizzes, and optional discussions with others. Examples, scenarios, and case studies come from different countries around the world.

We picture that each lesson will take you one to three hours to complete.

Study skills



As an adult learner, your approach to learning will be different to that from your school days: you will choose what you want to study, you will have professional and/or personal motivation for doing so, and you will most likely be fitting your study activities around other professional or domestic responsibilities.



Essentially, you will be taking control of your learning environment. As a consequence, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to reacquaint yourself in areas such as essay planning, coping with exams, and using the Web as a learning resource.

Your most significant considerations will be *time* and *space* — i.e., the time you dedicate to your learning and the environment in which you engage in that learning.

We recommend that you take time now — before starting your self-study — to familiarise yourself with these issues. There are a number of excellent resources on the Web. A few suggested links are:

- <http://www.how-to-study.com/>

The “How-to-Study” website is dedicated to study skills resources. You will find links to study preparation (a list of nine essentials for a good study place), taking notes, strategies for reading textbooks, using reference sources, and test anxiety.

- https://ucc.vt.edu/academic_support/study_skills_information.html

This is the website of Virginia Tech’s Cook Counseling Center. You will find links to time scheduling (including a “[Where does time go?](#)” tool), a study skill checklist, basic concentration techniques, control of the study environment, note taking, how to read essays for analysis, and memory skills (“remembering”).

- <https://colcommons.org/welcome/coursedetails/13>

Learning to Learn Online is a basic course to help you become a better independent learner and use online courses for personal development.

The above links are our suggestions to start you on your way. At the time of writing, these web links were active. If you want to look for more, go to your search engine of choice and type “self-study basics,” “self-study tips,” “self-study skills,” or similar.



Need help?



Help

This has been set up as a self-directed course.

Your open school may provide a facilitator if the course is offered in blended or online mode, so find out how and when you can communicate with that person.

If a discussion forum has been set up for the course, you can reach out to others that way.

You might be working completely independently. If this is the case, we suggest that you sometimes talk about learning and responses to learning activities with a family member or friend.

We have, in most cases, chosen short videos in case there are Internet bandwidth or accessibility issues. (Even rural areas in highly developed countries still struggle with this problem.) In case you have problems watching the videos related each of the unit of this course, a short synopsis is provided.

Your school may provide technical support.

Assignments



Assignments

In a self-directed course, you decide how to proceed. If you want to find out how well you are learning the material, you will want to do the self-assessment quiz at the end of each module. Answers to the quizzes can be found in the course annexures.

For facilitated versions of this course, some activities have been flagged as possible assignments.

Assessments



Assessments


















A certificate of completion at the end of the course is available for those who complete every quiz in an online version.

Getting around this Course

Margin icons

While working through this Course, you will notice the frequent use of margin icons. These icons serve to “signpost” a particular piece of text, a new task, or a change in activity; they have been included to help you find your way around this Course.

A complete icon set is shown below. We suggest that you familiarise yourself with the icons and their meanings before starting your study.

			
Activity	Assessment	Assignment	Case study
			
Discussion	Group activity	Help	Note it!
			
Outcomes	Reading	Reflection	Study skills
			
Summary	Terminology	Time	Tip
			



Watch

Unit 1

Mitigation and adaptation as responses to climate change and its impacts

Introduction

This unit is designed to provide a basic knowledge of climate change adaptation and mitigation in different activity sectors.

Upon completion of this unit, you will be able to:

- comprehensively understand adaptation concepts and actions
- demonstrate comprehension of mitigation concepts and actions
- suggest and execute mitigation and adaptation measures tailored to specific regions



Outcomes



Watch

Unit 1:

<https://youtu.be/5E5qdCVNIQ8>



Terminology

Mitigation:

Mitigation to climate change refers to actions and strategies aimed at reducing greenhouse gas emissions and enhancing carbon sinks to lessen the impact of human activities on earth's climate system.

Adaptation:

Climate change adaptation is the process of adjusting to the effects of climate change. These can be both current and expected impacts. Adaptation aims to moderate or avoid harm for people as a result of climate change.

1.1 Definition of key concepts

Mitigation refers to actions and strategies that aim to reduce the sources of greenhouse gases (GHG) emissions into the atmosphere and/or enhance GHG sinks. Mitigation is achieved by either reducing the sources of these gases (e.g., by increasing the share of renewable energies), establishing a cleaner mobility system, or enhancing the storage of these gases (e.g., by increasing the size of forests). In short, mitigation is a human intervention that reduces the sources of GHG emissions and/or enhances sinks.

Adaptation involves enhancing the resilience of both human and natural systems to withstand the impacts of climate change. It entails adjusting natural or human systems in response to present or anticipated climatic events or their consequences, thereby minimising harm or capitalising on advantageous opportunities (Smith et al., 2000). For individuals, this entails readiness for climate change through capacity building and the implementation of measures to manage and recover from its impacts. It also entails preparing to coexist with any climate-induced alterations to our environment.

Adaptation to climate change can be either **reactive** or **anticipatory**.

- **Reactive adaptation** refers to adjustments in environmental and socio-economic systems in response to actual climatic stimuli and their effects or impacts.
- **Anticipatory adaptation** refers to anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause or taking advantage of opportunities that may arise.



Activity 1.1. Differentiate mitigation from adaptation.

1.2 Mitigation actions

The following are examples of mitigation actions worth implementing to reduce greenhouse gases emissions and/or enhance GHG sinks.

- **Promotion of the use of e-mobility and hybrid electric vehicles:** Electric and hybrid electric vehicles are highly energy efficient and can thus contribute to the reduction of GHG emissions in the atmosphere.

- **Vehicle emission standards control programmes**, through fixing emission standards for new and existing vehicles, specifications for clean fuels to use, and proper maintenance of vehicles, will reduce greenhouse gas emissions and air pollution in the atmosphere.
- **Use of renewable energy**: Increasing the share of total electricity generated from wind, solar, hydro, and geothermal sources, as well as certain biofuel sources, through the addition of new renewable energy-generating capacity, plays a determinant role in the reduction of greenhouse gas emissions.
- **Using energy-saving cook stoves** leads to less utilisation of forest resources and subsequently reduces GHG emissions. Biogas is much cleaner than firewood or charcoal. Furthermore, bio-digesters reduce the pathogen content of organic materials. The sanitary condition of a household can consequently be enhanced through the use of domestic biogas units.



Figure 1. Energy-saving cook stoves.

Source: Photo taken in the field by the authors.

- Using public buses fuelled by compressed **natural gas** rather than gasoline or diesel reduces GHG emissions. This can be complemented by the construction of sidewalks and bike paths to increase lower-emission transportation choices.



Figure 2. A bicycle path alongside a sidewalk.

Source: Photo taken in the field by the authors.



Activity 1.2. Among the following actions, some are for mitigating climate change and others are not. Select “true” for mitigation actions and “false” for those that are not. The first answer is provided as an example.

Actions	False	True
Using public transport cars		x
Using solar energy to light a house		
Planting agroforestry trees		
Using energy-saving stoves		
Supporting vulnerable groups		
Organising sessions on how to plant trees		
Eating healthy food		
Using biogas for cooking		

1.3 Adaptation actions

- Improving **integrated water management** through water conservation practices, wetlands restoration, water storage, rainwater harvesting, and efficient water use reduces pressure on water resources.



Figure 3. One way of storing water.

Source: Photo taken in the field by the authors.

- Constructing **radical and progressive terraces** is among the best practices for dealing with soil erosion, landslides, and runoff. These practices need to be accompanied by agricultural inputs such as organic fertilizers; better seeds, pesticides, and insecticides; and post-harvest processing and storage, to improve agricultural outputs.



Figure 4. Radical terraces.

Source: Photo taken in the field by the authors.

- **Green buildings**, by efficiently using water and energy, employing renewable energy sources, and utilising eco-friendly materials, help to reduce the negative impacts of climate change on the natural environment.
- The **Climate-Smart Mining Initiative** aids resource-rich developing nations in capitalising on rising mineral demand while managing the mining sector to reduce environmental and climate impacts. It promotes sustainable mineral extraction for clean energy technologies, aiming to minimise social, environmental, and climate footprints across the value chain through increased technical assistance and investments.
- Climate change awareness can be enhanced through regular training and improving the critical analysis of the **local people** on what is happening in their environment.



Activity 1.3. Among the following actions, some are for adaptation to climate change and others are not. Select “true” for adaptation actions and “false” for those that are not. The first answer is provided as an example.

Actions	False	True
Developing a rainwater harvesting system to collect water from rooftops		x
Promoting multi-cropping systems in agriculture		
Using individual cars for transport		
Planting trees across roads		
Using more firewood for cooking activities where there are enough forests		
Constructing scattered houses for vulnerable people		
Training local communities on climate change		
Protecting wetlands		
Cutting trees in mining areas to boost incomes and improve livelihoods in local communities		

1.4 Synergies and trade-offs between adaptation and mitigation

Adaptation encompasses the process of adjusting to both current and anticipated effects of climate change, including coping with and recovering from its impacts. Conversely, mitigation concentrates on reducing the severity of these impacts by preventing or decreasing the emission of greenhouse gases into the atmosphere and/or enhancing carbon sinks. Consequently, it is crucial that actions addressing both adaptation and mitigation be carried out concurrently to effectively manage the impacts of climate change.



It is noteworthy that adaptation and mitigation differ primarily in their objectives. Mitigation aims to tackle the root causes of climate change, such as the accumulation of greenhouse gases in the atmosphere, whereas adaptation focuses on addressing the consequences of climate change. Additionally, adaptation and mitigation vary in terms of their temporal scales and the economic sectors they target (Locatelli et al., 2010).

Table 1. Comparison of mitigation and adaptation

Consideration	Mitigation	Adaptation
Spatial scale	Primarily an international issue, as mitigation provides global benefits	Primarily a local issue, as adaptation mostly provides benefits at the local scale
Time scale	Mitigation has a long-term effect because of the inertia of the climatic system	Adaptation can have a short-term effect on reducing vulnerability
Sectors	Mitigation is a priority in the energy, transportation, industry, and waste-management sectors	Adaptation is a priority in the water and health sectors and in coastal or low-lying areas
Sectors for both	Both mitigation and adaptation are relevant to the agriculture and forestry sectors	

Furthermore, both mitigation and adaptation are essential to effectively address the impacts of climate change. On the one hand, despite robust mitigation efforts, the climate is projected to undergo continued change in the coming decades, necessitating adaptation to these shifts. Conversely, while adaptation efforts are crucial for managing the consequences of climate change, they alone cannot completely mitigate all negative impacts. Therefore, mitigation measures are indispensable for constraining alterations in the climate system.

To achieve carbon emissions reduction targets and mitigate projected climate change impacts, it is crucial to enhance the synergy between mitigation and adaptation strategies. This can be accomplished through developing policies that integrate the implementation of the most appropriate mitigation and adaptation measures (Thomas et al., 2017). Moreover, some actions serve dual roles in both mitigation and adaptation. Below are a few illustrative examples.

- **Afforestation, reforestation, and agroforestry** serve dual roles in both mitigation and adaptation efforts. In terms of mitigation, they diminish greenhouse gas emissions by acting as carbon sinks. Conversely, in terms of adaptation, they aid in soil protection against

erosion, landslides, and runoff. Additionally, they generate income for landowners.



Figure 5. An afforested area.

Source: Photo taken in Rwanda by the authors.

- Constructing **climate-resilient settlements** fulfils both mitigation and adaptation objectives. These settlements mitigate greenhouse gas emissions by reducing energy consumption and emissions. Simultaneously, they contribute to adaptation efforts by minimising land degradation.
- Constructing **hydropower dams** similarly function as both a mitigation and an adaptation measure. By utilising green energy, they mitigate against GHGs. Additionally, they play a role in adaptation by safeguarding species against displacement and relocation due to changing environmental conditions.



Activity 1.4. Give three examples of other actions/activities that play both mitigation and adaptation roles, and explain those roles.

Unit summary



Summary

In this unit, you have been introduced to the pressing global issue of climate change, which carries significant environmental, social, economic, and educational ramifications. Since the onset of the Industrial Revolution, our planet has witnessed a marked increase in the concentration of greenhouse gases in its atmosphere. This surge in GHGs has led to a corresponding elevation in global temperatures, resulting in various impacts and dire consequences stemming from climate change. Numerous initiatives are currently underway to either mitigate or adapt to the effects of climate change, aimed at reducing the vulnerability of communities. However, the effectiveness of these endeavours could be compromised if awareness of climate change, along with efforts in mitigation and adaptation, remains confined to a select few. The primary objective of this unit, therefore, was to elucidate the concepts of adaptation and mitigation in response to climate change, followed by proposing actionable steps for coping with its effects. The unit concluded by highlighting the interconnectedness and mutual reinforcement between mitigation and adaptation strategies.

Assessment



Assessment

Multiple-choice questions

1. In relation to climate change, what is the primary goal of adaptation actions?
 - a) to prevent all climate change impacts
 - b) to reduce greenhouse gas emissions
 - c) to adjust and respond to the effects of climate change
 - d) to promote industrial growth and development
2. Which of the following is an example of a climate change adaptation strategy for agriculture?
 - a) expanding coal-fired power plants
 - b) implementing water-saving irrigation techniques
 - c) encouraging deforestation for agricultural expansion
 - d) increasing the use of fossil fuels for transportation



3. Which sector is most vulnerable to the impacts of climate change and requires urgent adaptation measures?
 - a) healthcare
 - b) education
 - c) tourism
 - d) smallholder farmers
4. What is the term used to describe actions that seek to protect vulnerable communities from the impacts of climate change?
 - a) climate mitigation
 - b) climate adaptation
 - c) climate justice
 - d) climate resilience
5. Which factor is crucial for the success of climate change adaptation actions?
 - a) ignoring the involvement of local communities
 - b) focusing solely on economic benefits
 - c) collaboration and stakeholder engagement
 - d) relying heavily on fossil fuel industries
6. Which of the following is an example of a renewable energy source that can help mitigate climate change?
 - a) coal
 - b) natural gas
 - c) solar power
 - d) oil
7. Which of the following activities contributes the most to deforestation and subsequent climate change?
 - a) planting new forests
 - b) logging and timber production
 - c) recycling paper products
 - d) organic farming
8. Which of the following is a potential benefit of adopting energy-efficient technologies and practices?
 - a) increased greenhouse gas emissions
 - b) lower energy costs
 - c) depletion of natural resources
 - d) increased air pollution
9. Which sector is the largest contributor to greenhouse gas emissions globally?
 - a) agriculture

- b) transportation
 - c) industrial processes
 - d) residential and commercial buildings
10. How does afforestation contribute to climate change mitigation?
- a) by converting forests into agricultural land
 - b) by reducing soil erosion
 - c) by increasing carbon dioxide emissions
 - d) by sequestering carbon dioxide through tree growth

References



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- Smith, B., Burton, I., Klein, R. J. T., & Wandel, J. (2000). An anatomy of adaptation to climate change and variability. *Climatic Change*, 45(1):223–251. <http://dx.doi.org/10.1023/A:1005661622966>
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Unit 2

Climate justice and social issues

Introduction

This second unit discusses the ways of addressing climate justice. It is designed to provide a basic knowledge of climate justice issues and how they may be addressed individually and collectively. Addressing climate injustice is vital in creating a more equitable and sustainable future for all.

Upon completion of this unit, you will be able to:



Outcomes

- understand the interconnectedness between climate change and social injustices
- demonstrate cases of climate injustice
- analyse the complexities of climate justice issues globally and locally
- evaluate the ethical, legal, and political dimensions of climate justice
- develop practical strategies and solutions to promote climate justice



Watch

Unit 2:

<https://youtu.be/XNRoY6j4sXE>



Terminology

Climate justice: Climate justice is an approach to climate action that focuses on the unequal impacts of climate change on marginalised or otherwise vulnerable populations. Climate justice wants to achieve an equitable distribution of both the burdens of climate change and the efforts to mitigate climate change (Oxfam, 2023).

Climate injustice: Climate injustice occurs when the impacts of climate change disproportionately affect certain communities or groups, particularly those that are already marginalised or vulnerable.

2.1 Understanding climate justice issues

Climate justice is the idea that the impacts of climate change are not distributed equally and that addressing climate change should take into account the social, economic, and political dimensions of the issue.

It emphasises the ethical and moral responsibilities to ensure that the burdens of climate change and the benefits of mitigation and adaptation are fairly shared among all people, regardless of their contribution to the problem. Climate justice advocates for fair treatment and inclusion of these communities in decision-making processes related to environmental policies.

Addressing climate injustice involves not only mitigating the causes of climate change but also ensuring that adaptation and resilience efforts are equitable and inclusive. It requires acknowledging historical responsibilities, empowering vulnerable communities, and promoting policies that prioritise social and environmental justice (NAACP, 2010).

How is climate injustice manifested?

Here are a few ways in which climate injustice manifests (Preston, 2014):

- **Disproportionate impact:** Vulnerable communities, often in developing countries, may bear the brunt of climate change impacts such as extreme weather events, rising sea levels, or changes in agricultural patterns. These communities may lack the resources to adapt or recover effectively.
- **Unequal contributions:** Developed countries and industrialised nations historically have contributed significantly to greenhouse gas



emissions that drive climate change. Yet, it is often developing nations and marginalised communities that suffer the most severe consequences.

- **Limited access to resources:** In the face of changing climate conditions, resources such as water, arable land, and food become scarcer. Vulnerable communities may have limited access to these resources, exacerbating existing social and economic inequalities.
- **Inadequate representation:** In many cases, the voices of those most affected by climate change are not adequately represented in decision-making processes. This lack of representation can lead to policies that do not adequately address the needs of vulnerable communities.
- **Forced displacement:** Climate change can lead to environmental degradation and extreme weather events that force communities to migrate. Often, those with fewer resources face displacement, and this can lead to conflicts over resources and exacerbate existing social tensions.

Why climate justice?

The impacts of climate change and the resources needed to address them are distributed unequally around the world. More frequent climate-related disasters are considerably increasing social inequalities and crippling social justice.

Around the planet, lives are being lost and homes destroyed, crops are failing, livelihoods are jeopardised, and cultural heritage is being wiped out. However, low-income countries, and vulnerable populations within those countries, are more susceptible to climate-induced loss and damage (NAACP, 2010).

Climate justice therefore matters to compel the global community and those most responsible for the climate crisis to work with and support those bearing its brunt. Furthermore, climate justice helps address a systemic problem — the fundamental cause of climate change and related disasters (Walker et al., 2006).

Thus, there are three main rationales for climate justice: ethical, legal, and pragmatic.

- **Ethical climate justice** is rooted in human rights, where fairness in experiencing the consequences of climate change is the central issue to be addressed. In this respect, certain countries, groups, communities, and individuals, usually with lower incomes, are impacted most by the effects of climate change while contributing least to causing it. Additionally, they participate less in decision making about mitigation and adaptation responses and yet are required to implement signed



agreements at the same pace as those with higher incomes, thereby suffering procedural injustice (Preston et al., 2013).

- **Legal climate justice** is embedded in various international legal frameworks, including the 1992 United Nations Framework Convention on Climate Change (UNFCCC), which commits governments to reducing greenhouse gases and considers equity in the “common but differentiated responsibility” of signatory states in doing so, with developed countries expected to take the lead. However, while there has been considerable discussion at the international level about a fair and equitable sharing of burdens and benefits associated with climate change, these discussions have only begun recently, especially in the 27th and 28th sessions of the Conference of the Parties (COP 27 and 28) to the UNFCCC, which took place in Sharm El-Sheikh, Egypt, in 2022 and in Dubai in 2023, respectively.
- **Pragmatic climate justice** refers to the acceptance and support of climate change mitigation and adaptation policies based on a fair balance of responsibility, capability, and need. Additionally, wider participation and a fair process in implementing mitigation and adaptation actions would help in managing climate change impacts fairly.

What are climate justice issues?

Many people are suffering from the impacts of climate change without having a direct or indirect hand in causing it. Injustice arises when the countries and people mainly responsible for accelerating climate change do not contribute to losses and damages payment or rehabilitation. The following are some selected cases:

- Climate change increases occurrences of injury, disease, or death in many regions, due to climate-induced heat waves and wildfires, malnutrition linked to crop failures, changes in food- and waterborne illnesses, and upsurges in ground-level ozone.
- Climate-related disasters are causing the displacement of families, groups of people, and communities. When people are forced to leave their homes, communities, and jobs, they may experience poverty and economic shocks. Separation from family and community members, loss of shelter, and the overall breakdown of social norms and cohesion that can accompany extreme disasters particularly increase social risks such as human trafficking for vulnerable populations. Furthermore, vulnerable groups, including the elderly and the disabled, are unable to move to emergency shelters.
- People in rural areas face serious income loss due to the decline in agricultural productivity accompanying extreme weather events, which are

expected to increase with climate change, as well as slow-onset climate events such as droughts, long dry spells, or sea-level rise.

- Decreased agricultural productivity means more than lost rural income; it also means food prices will become more volatile and food availability less predictable. Food-insecure families, including those in urban food deserts, may face an increased risk of malnutrition.
- Droughts and other severe weather patterns damage and disrupt water supplies, causing shortages for domestic, agricultural, and industrial uses. Conversely, heavy rainfall resulting in floods destroys water facilities and may also pollute drinking water. All these negatively impact the livelihoods of affected people and communities.
- Essential infrastructure systems, including water and waste management systems, public transportation, roads and railways, schools, health facilities, and energy supply, can be threatened by interrelated climate change impacts.

Therefore, when extreme weather events occur, individuals, communities, groups of people, and countries respond differently to climate-related disasters, depending on their adaptive capacity.



Activity 2.1. Give two examples demonstrating climate injustice in your local area.

2.2 Strategies for addressing climate justice issues

The following are some strategies for addressing climate change issues:

- ✓ Fossil fuels are responsible for over 75% of global GHG emissions, accounting for 90% of CO₂ emissions. There is no climate justice without a just phase-out of all fossil fuels: coal, oil, and gas (Danielle et al., 2021). The only path to a sustainable and resilient world and to achieving climate justice is to adopt an alternative economic model that quickly moves away from its addiction to fossil energy and prioritises people and sustainability over profits and extractivism. Therefore, developed and emerging countries, as the main contributors to greenhouse gas emissions, should take the lead in emissions reduction. This will require reducing the use of fossil fuels and advancing the use of clean energy.
- ✓ Make clean energy affordable to low- and moderate-income communities to ensure that benefits are experienced by those who need them most.



- ✓ The UNFCCC should take the lead in assessing timely progress in reducing GHG emissions towards overall targets at national and international levels, and in anticipating climate change impacts. It should then take appropriate measures to reduce climate-related risks and disasters in the near future.
- ✓ Achieving both climate and social justice requires addressing the historic and ongoing injustices that have contributed to the current existential climate crisis, and empowering local communities to participate in climate decision-making processes. This involves acknowledging that historically polluting countries and industries are responsible for the crisis the world is facing, and that those who have contributed the least to the problem are now suffering the most. It starts by holding polluting corporations and countries accountable and demanding that they pay for the damage they have caused and continue to cause.
- ✓ Creating sustainable disaster recovery budgets at national, regional, and international levels should be a critical step moving forward. This should take into account not only the cost of restoring property and economic losses, but also the human costs associated with climate change.
- ✓ Accelerating policies that improve safety for pedestrians and cyclists, such as vision zero programmes, and highlighting model programmes that incentivise non-vehicle modes of transportation.
- ✓ Funding and incentivising non-vehicle mobility programmes in states and municipalities, including zero-emission zones



Activity 2.2. Identify ways of addressing climate injustice in your local area

2.3 Building partnerships and collaboration to address climate justice issues

Despite the aforementioned initiatives, there is still a need to improve climate justice through:

- establishing at international, regional, and national levels a loss and damage finance facility to provide quick support where it is needed, especially in the case of disasters.



- The UNFCCC and funding institutions should act as international overseers of progress, identifying gaps in loss and damage actions.
- Additionally, there is a need to scale up existing knowledge and skills to the regional, national, and international institutions in charge of climate change.
- Furthermore, concrete technical and financial support should be provided to governments through national, regional, and international organisations.



Activity 2.3. Outline two initiatives undertaken to forge partnerships for tackling climate change within your region or country.

Unit summary



Summary

Climate change exacerbates existing inequalities and vulnerabilities. Therefore, addressing climate justice and social justice is vital in creating a more equitable and sustainable future for all. Climate justice is rooted in recognising that climate change is causing a multitude of detrimental social, economic, health, and other impacts on vulnerable communities that often have contributed the least to the climate crisis. In this lesson, you have learned the following:

- **What climate justice is:** Climate justice advocates for fair treatment and inclusion of different countries or people in decision-making processes to address climate issues.
- **Why climate justice should be promoted:** Climate justice matters to compel the global community and those who bear most responsibility for the climate crisis to work with and support those bearing its impacts.
- **What climate injustice is:** Climate injustice occurs when climate change disproportionately affects certain communities or groups, particularly those already marginalised or vulnerable.
- **Strategies for addressing climate justice issues:** Numerous strategies are possible for addressing climate justice.



Assessment



Assessment

Multiple-choice questions

1. What does “climate justice” refer to?
 - a) The pursuit of climate policies that benefit the wealthiest nations.
 - b) The fair and equitable distribution of the costs and benefits of climate change mitigation and adaptation.
 - c) The belief that climate change is a natural phenomenon and not influenced by human activities.
 - d) Advocacy for reducing greenhouse gas emissions without considering social equity.
2. Why is climate justice particularly relevant for vulnerable communities?
 - a) Vulnerable communities are more responsible for causing climate change.
 - b) Vulnerable communities have better resources to cope with the impacts of climate change.
 - c) Vulnerable communities are disproportionately affected by climate change but have fewer resources to adapt and recover.
 - d) Climate change has no significant impact on vulnerable communities.
3. Which of the following is an example of climate justice in action?
 - a) A government imposing heavy taxes on renewable energy sources to promote fossil fuel consumption.
 - b) A company setting emission reduction targets to increase profits.
 - c) A community-driven initiative that provides solar panels and energy-efficient appliances to low-income households.
 - d) A city implementing policies to limit public transportation options to reduce carbon emissions.
4. How can climate justice be promoted on a global scale?
 - a) By providing financial incentives to the wealthiest nations to invest in renewable energy.
 - b) By prioritising economic growth over environmental concerns.
 - c) By empowering and including marginalised communities in climate policy decisions.
 - d) By focusing solely on reducing emissions without considering social and economic impacts.
5. How can climate justice benefit both developed and developing countries?



- a) By providing financial compensation to developed countries for their historical carbon emissions.
 - b) By prioritising technological advancements in developed countries to reduce their emissions.
 - c) By supporting sustainable development and climate adaptation in developing countries to prevent future crises.
 - d) By restricting access to climate-friendly technologies in order to reduce competition between countries.
6. What role do corporations play in climate justice?
- a) Corporations have no responsibility for climate justice issues.
 - b) Corporations can help address climate justice by maximising their profits and contributing to economic growth.
 - c) Corporations should focus solely on their business interests and not get involved in climate justice matters.
 - d) Corporations can influence climate justice through their practices, policies, and support for sustainable initiatives.
7. Which of the following is an example of a climate justice policy?
- a) A law that allows corporations to pollute freely without consequences.
 - b) A government programme that subsidises fossil fuel industries.
 - c) A policy that sets emission reduction targets for each industry based on their historical carbon footprint.
 - d) A regulation that prohibits the use of renewable energy sources in the energy sector.
8. What is a key strategy to promote climate justice on a global scale?
- a) Establishing carbon offset programmes.
 - b) Implementing cap-and-trade systems.
 - c) Supporting renewable energy projects in developing nations.
 - d) Encouraging individual carbon footprint reduction.
9. How can governments ensure climate justice for marginalised communities?
- a) Providing tax breaks to corporations for sustainable practices.
 - b) Implementing policies that prioritise the needs of vulnerable populations.
 - c) Offering financial incentives for fossil fuel industries.
 - d) Reducing funding for climate education and awareness programmes.
10. How can the international community support climate justice in developing countries?
- a) Imposing trade sanctions on countries with high carbon emissions.
 - b) Providing financial aid for clean-energy projects and climate adaptation efforts.
 - c) Encouraging developed nations to increase their carbon emissions.
 - d) Exporting fossil fuel technologies to developing countries.



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Unit 3

Developing skills for helping to address climate justice issues and equity

Introduction

A warm welcome to this third unit of the course. This unit is about developing skills for helping to address climate justice issues and equity. In this unit, you will learn how to address climate justice issues and promote equity in addressing climate change impacts.

Upon completion of this unit, you will be able to:



Outcomes

- explain the concepts of climate justice and climate equity
- develop skills that help to address climate justice issues
- apply skills that help to address climate justice issues
- promote equity in addressing climate change impacts



Watch

Unit 3:

<https://youtu.be/QT1TV9gQHg8>



Terminology

Climate justice:	Climate justice advocates for addressing the unequal impacts of climate change on marginalised or vulnerable populations. It aims to ensure a fair distribution of both the challenges posed by climate change and the measures taken to mitigate its effects.
Climate equity:	Climate equity ensures the just distribution of the benefits of climate protection efforts and alleviates unequal burdens created by climate change.
Environmental justice:	Fair treatment and meaningful involvement of all people with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

3.1 Understanding climate justice and equity

It is important to understand that not all people contribute to climate change the same way. The world's richest 10% are responsible for 50% of GHG emissions, whereas the poorest 50% are only responsible for 10%, despite population and energy consumption increasing (Chancel, 2022). Therefore, in efforts to address climate change, the burden should not be borne by those that have contributed the least. This is what climate justice and equity are about.

Climate justice and climate equity are the two concepts that reflect fairness in dealing with climate change issues. Concern is raised about how countries and organisations design their response to the climate crisis. Climate equity thus highlights the fair sharing and equitable distribution of the burdens of climate change and the mitigation measures.

Climate justice

Climate justice implies acting for a just transition to a sustainable future by recognising the disproportionate effects of climate disruption on marginalised groups and future generations. It is concerned with inequities that arise from climate disruption that occur between generations (inter-generational equity) and those that occur among people living today (intra-generational equity). Viewing climate change through a justice “lens” means asking questions such as: Who has power and access to resources, and who doesn't? As a result, who feels the disproportionate effects of things like climate change, and who will cope with climate changes better as a result of their privileged position in society? It also means taking action to address these inequities and disrupt systems of oppression through community and civic engagement.



Reading

Climate Justice in Your Classroom (online book)

<https://uw.pressbooks.pub/climatejustice/front-matter/introduction/>

Climate equity

“Climate equity is the goal of recognising and addressing the unequal burdens made worse by climate change, while ensuring that all people share the benefits of climate protection efforts. Achieving equity means that all people—regardless of their race, color, gender, age, sexuality, national origin, ability, or income—live in safe, healthy, fair communities.” (United States Environmental Protection Agency, 2021)



Reading

Climate equity

<https://www.epa.gov/climateimpacts/climate-equity>

In fact, the benefits of a clean environment and the burdens of pollution are not shared equally in societies, despite the apparent concern and commitment of all countries about climate issues. All people have equal rights of access to key resources, while protecting vulnerable communities and populations from environmental hazards, regardless of race, income, or other characteristics.

Unfortunately, people are not equally affected by climate change. Some communities experience disproportionate impacts because of existing vulnerabilities, historical patterns of inequity, socioeconomic disparities, and systemic environmental injustices. People who already face the greatest burdens are often the ones affected most by climate change.

Climate equity is anchored in climate justice through the recognition that climate crisis effects are not felt evenly around the world. For example, extreme heat, flooding, and crop failures resulting from global warming disproportionately affect countries and communities in the Global South (Global Witness, 2023).

Climate equity and environmental justice

“Climate equity is a part of the overarching aim of environmental justice, which is the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Striving for climate equity is putting these same values into practice when tackling climate change impacts and ensuring that everyone has equal access to resources and safe spaces.” (United States Environmental Protection Agency, 2021)

The reality is that the Global North, or wealthy countries, which are more industrialised, emit far more greenhouse gas emissions than developing nations. Therefore, they bear the greatest responsibility and burden for taking action to address climate change. In the interest of climate justice and equity, they must support developing nations in adapting to avoid pollution — for example, through financing and technology transfer (Shah, 2012).

To achieve climate justice and equity, rich nations must acknowledge their historical culpability and take action by supporting developing countries in various initiatives, such as the transition to clean energy to reduce pollution. These countries must also take legislative action to hold companies headquartered within their borders accountable for the harms they cause to both people and the environment overseas. That includes upholding the right of indigenous persons and communities to safeguard forests, as these people play an outsized role in protecting the natural world and are severely impacted by its destruction.

Furthermore, climate policy negotiations have for too long been dominated by the interests of wealthy corporations and countries. There is no justice and equity in that. The voices of the countries and communities that have for a long time been affected by the climate change crisis should also be acknowledged (Global Witness, 2023).



Activity 3.1. Referring to the paper by Anup Shah available at <https://www.globalissues.org/article/231/climate-justice-and-equity>, describe how the discussion on climate change responsibility raises concerns about climate justice and equity among developed and developing countries.

3.2 Key skills for addressing climate justice and equity (e.g., awareness and understanding)

A comprehensive framework is needed to address climate change issues by ensuring justice and equity. The fundamental skills to address climate justice and equity must be based on creating understanding and awareness of climate issue in different categories of people. Climate equity can be woven into broader efforts to address the socioeconomic, sociocultural, and physical impacts of climate change. The following ways can help governments, community leaders, and community members develop their



awareness and consideration of climate change justice and equity in daily practices:

1. Engaging multilateral actors with diverse backgrounds and experiences to address community issues and develop innovative approaches for climate action.
2. Creating a participative approach and an open and honest conversation with various categories of people in their various areas, such as in schools, community centres, business activities, and religious organisations.
3. Dealing with community leaders who are more influential in decision making and have sufficient skills to address community issues.
4. Promoting a knowledge co-creation approach by valuing indigenous and local knowledge to understand climate change effects and bring sustainable solutions.
5. Promoting initiatives for youths to tackle climate change issues from their local community perspectives and suggest sustainable solutions within their local environment.
6. Establishing a permanent communication network with communities and sharing information and data that can help them prepare for and adapt to climate impacts as well as refine their climate resiliency efforts, and empower them to develop targeted, grassroots solutions.
7. Fostering climate-resilient solutions based on equity and justice that boost resilience while improving livelihoods and social and economic well-being. These solutions can include improving the efficiency of buildings, investing in low-carbon transportation networks, and adding green spaces in urban areas.
8. Thinking on climate solutions that result in a positive externality by promoting other local benefits and by mitigating the effects of urbanisation, reducing air pollution and global warming, and strengthening community interaction.
9. Predicting and prioritising vulnerable categories: think about an effective disaster response and a well-planned intervention in case of extreme events by considering how to assist the overburdened and underserved groups in emergency situations.
10. Justice and equity involve considering the diversity and differences of countries. This calls for elaborating climate actions and making policies by considering the vulnerable people, communities, and poor countries that struggle to respond to climate recommendations in a global context. Considering the diversity of needs and capacities is a part of efficient, good climate governance.



Activity 3.2. Referring to the practices suggested above, give examples of any other five practices that could be practical in your own locality.

3.3 Developing skills for climate justice and equity

The sustainable way of developing climate skills is to exploit various types of education through formal, informal, and non-formal education by promoting training opportunities for various categories of people. There is a need to engage communities in different practical actions.

Bridging knowledge creation and dissemination about climate justice and equity

The current extent of climate issues calls for action by all individuals. In this context, education must play a cornerstone role. Climate change concerns should be present in all courses as crosscutting issues at all levels of education, from nursery to university. Through this exposure, students will gain width and breadth of knowledge on climate changes, learn what to do with that knowledge, and make connections within their careers and communities to take action.

There is a need to instil in students the knowledge, skills, responsibility, efficacy, commitment, and values that are all important qualities in a good citizen. This is where civic and community engagement comes in. Civic and community engagement involves collaboration with others to improve the community. It can be done through political or non-political means and by anyone, no matter their age. It can involve a wide range of actions, such as talking with a friend about a climate justice issue, volunteering with a community climate justice organisation, intervening in local administration and city councils, organising awareness events, and even posting on social media (Wang & Jackson, 2005).

For example, universities are critically important places of knowledge production, perpetuation, and dissemination. Therefore, during this era of climate change issues, universities are called upon to apply this knowledge capacity to advance systemic social change through research outputs and by producing agents of change in society. In fact, climate justice requires a community-engaged approach that expands beyond the individual institution of higher education (Kinol et al., 2023).



In the context of education, there must be good teaching approaches that help engage youths to act on climate crisis. They must be empowered for action through formal education and training that includes:

- teaching and learning that enables more young people to harness scientific knowledge to come up with innovative ideas and solutions in the face of the urgent and complex problems they are likely to face over their lifetimes
- empowering young people with creativity and critical thinking skills, thereby supporting them to be at the forefront of the green transition to inclusive low-emission economies
- developing creativity and critical thinking for climate action in the classroom: for example, by applying knowledge about restoring natural resources in learners' environments and supporting indigenous communities to face climate issues
- using adapted teaching methods and aids that allow students to come up with climate skills — for example, skills to manage the impact of farmed animals on the environment, produce different models describing global warming, investigate the degradation of resources and design new approaches to recover them, and develop models of managing wastes and protecting wetlands

Promoting community-based action and awareness for climate justice and equity

It is important to promote a community-centred approach to climate action by ensuring representation, inclusion, and rights protection for those most vulnerable to the effects of climate change. This is because the designed solutions in such a framework promote equity, protect their access to basic resources, and ensure that young people can live, learn, play, and work in healthy and clean environments. Therefore, it is necessary to:

- create new education, training, and employment programmes in emerging sectors tailored to the skills of the residents in their communities
- increase community involvement in decision-making processes, including those for environmental, conservation, energy, and climate mitigation and adaptation projects, other cultural activities, and adaptable information and services
- adopt stronger policies that promote meaningful involvement and due process for vulnerable communities
- organise public meetings on environmental/climate justice issues to gather public input as a baseline of communication and participation
- provide technical support and capacity building to local governments and community groups representing disadvantaged communities for them to implement climate actions
- create opportunities for all people to increase their knowledge about climate issues



Unit summary



Summary

In this unit, you learned more about the concepts of climate justice and equity, as well as the key skills for addressing climate justice and equity and ways for developing these skills.

The following key elements have been highlighted:

- Climate justice and climate equity are the two concepts that reflect fairness in dealing with climate change issues.
- The fundamental skills to address climate justice and equity must be based on creating understanding and awareness of climate issues in different categories of people and actors, including governments, community leaders, and community members.
- The sustainable way of developing climate skills is to use education by promoting training for various categories of people and advocating for community-based action and awareness around climate justice and equity.



Assignment



Assignment

Describe two actions that you can use to develop awareness for climate justice and equity in your community.

Assessment



Assessment

Multiple-choice questions

1. What is the primary focus of climate justice and equity?
 - a) reducing greenhouse gas emissions
 - b) ensuring equal access to clean energy
 - c) fairly addressing the impacts of climate change and the distribution of mitigation measures
 - d) promoting sustainable development in developing nations
2. What does climate equity aim to achieve?
 - a) ensuring all countries have equal contributions to climate action
 - b) sharing the benefits of climate protection efforts among all people
 - c) making wealthy nations responsible for climate change impacts
 - d) prioritising climate action in industrialised countries
3. Climate justice emphasises fairness in dealing with climate change issues based on:
 - a) ensuring equal distribution of resources among all countries
 - b) recognising the disproportionate effects of climate disruption on marginalised groups
 - c) holding corporations accountable for environmental harms
 - d) promoting technological advancements in clean energy
4. How can governments and community leaders promote awareness and understanding of climate justice and equity?
 - a) engage with diverse actors to address community issues
 - b) focus solely on political means for climate action
 - c) ignore indigenous and local knowledge in climate solutions
 - d) prioritise climate solutions without considering local benefits
5. What is the primary goal of promoting community-based action and awareness for climate justice and equity?



- a) to create awareness about climate change
 - b) to mobilise communities to take action against climate change
 - c) to promote climate justice and equity within communities
 - d) all of the above
6. Which of the following is a key skill required for addressing climate justice and equity?
- a) promoting exclusive solutions that benefit specific groups
 - b) prioritising economic growth over environmental concerns
 - c) fostering climate-resilient solutions based on equity and justice
 - d) ignoring the impacts of climate change on marginalised communities
7. How can community-centred climate action promote climate justice and equity?
- a) by excluding vulnerable communities from decision-making processes
 - b) by creating new education and employment programmes without considering the residents' skills
 - c) by ensuring representation, inclusion, and protection of the rights of vulnerable communities
 - d) by avoiding public meetings and gathering input from the community
8. What is the goal of climate equity in relation to the impacts of climate change?
- a) ensuring that the poorest communities are the least affected by climate change
 - b) balancing the burden of climate change among all countries equally
 - c) recognising and addressing unequal burdens made worse by climate change
 - d) allocating resources and support solely based on population size
9. What is one way to foster climate-resilient solutions based on equity and justice?
- a) ignoring the historical patterns of inequity and systemic environmental injustices
 - b) investing only in low-carbon transportation networks
 - c) prioritising urban areas for green spaces and energy efficiency projects
 - d) boosting resilience while improving livelihoods and social and economic well-being
10. Why is it essential to engage in a permanent communication network with communities regarding climate issues?
- a) to enforce strict climate policies on communities
 - b) to empower communities to develop targeted, grassroots solutions



- c) to discourage community involvement in decision-making processes
- d) to ensure communities are solely reliant on external support for climate action

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Unit 4

Identifying impacts of climate change on vulnerable populations and strategies for equitable adaptation and mitigation

Introduction

Welcome to Unit 4. In this unit, you will learn how to identify the impacts of climate change on vulnerable populations and how to establish strategies for equitable adaptation and mitigation. The content consists of:

- features of vulnerable populations
- impacts of climate change on vulnerable populations
- equitable adaptation strategies for vulnerable populations
- equitable mitigation strategies for vulnerable populations

Upon completion of this unit, you will be able to:

- analyse the impacts of climate change on vulnerable populations
- apply strategies to achieve equitable adaptation and mitigation for vulnerable populations in your own context



Outcomes



Watch

Unit 4:

<https://youtu.be/qxFPZFgWeII>



Terminology

Vulnerable population:

A group of individuals who are at a higher risk of experiencing adverse health, social, or economic outcomes compared to the general population

Equitable adaptation strategies for vulnerable populations:

Addressing the impacts of climate change, disasters, and other environmental challenges in a fair and just manner for vulnerable populations.

Equitable mitigation strategies for vulnerable populations:

Reducing greenhouse gas emissions and promoting sustainable practices while ensuring that these efforts do not exacerbate the vulnerabilities and inequalities faced by vulnerable populations.

4.1 Understanding vulnerable populations

The term “vulnerable population” refers to a group of individuals who are at a higher risk of experiencing adverse health, social, or economic outcomes compared to the general population. The characteristics of a vulnerable population can vary depending on the specific group in question and the context in which they are being examined. However, some common characteristics often associated with vulnerable populations include the following (Chippewa Valley, n.d.):

- **Socioeconomic disadvantage:** Poor or low-income people have limited access to essential resources like food, housing, education, and healthcare.
- **Geographic location:** Residents in remote or underserved areas may experience higher vulnerability due to limited access to resources, emergency services, and disaster relief.
- **Health issues:** Higher rates of chronic illnesses, infectious diseases, or mental health issues are prevalent, often due to limited access to healthcare, unhealthy living conditions, or other social determinants of health.
- **Age-related vulnerability or dependency:** Both the very young (e.g., infants, children) and the elderly are often considered vulnerable due to their specific healthcare needs, reliance on caregivers, and potential cognitive or physical limitations. Relying on others for their care and well-being may make them susceptible to exploitation or neglect.



- **Disasters and emergencies:** Vulnerable populations are often disproportionately affected during natural disasters, public health emergencies, or humanitarian crises, as they may lack the resources and support needed to cope with such situations.
- **Homeless people:** People experiencing homelessness often lack stable living conditions, leading to increased health risks and reduced access to healthcare and other essential services.

Regarding **climate change**, the vulnerable include low-income persons, indigenous peoples, children and pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with pre-existing or chronic medical conditions. These people experience disproportionate, multiple, and complex risks to their health and well-being in response to climate change. For example, people living in impoverished urban or isolated rural areas, floodplains, coastlines, and other at-risk locations are more vulnerable not only to extreme weather and persistent climate change but also to social and economic stressors (Gamble, 2016).

Recognising and understanding the vulnerabilities of these populations is crucial for policy makers and social service providers to implement targeted interventions and support systems to address specific needs, especially various climate change stressors.

4.2 Impacts of climate change on vulnerable populations

Climate change has resulted in negative impacts upon rural communities, notably in the Global South. These impacts expose vulnerabilities that exist on individual and societal levels, necessitating the consideration of adaptive capacity in the face of climate change, as well as the role of government in responding to hazards and encouraging resilience and sustainability (Atkinson, 2023). Climate change causes direct effects — including death and destruction through the impact of extreme events, such as floods, wildfires, and hurricanes/typhoons — and indirect effects, like the disruption of plant and animal species, and individual trauma (Bell et al., 2013).

Around the world, climate change affects rural communities that heavily depend on their agriculture and natural resources for their livelihood. Increased frequency and severity of climate events disproportionately affects women, as well as rural, dry-land, and island communities. Vulnerable populations may have limited financial resources and/or cultural, language, or citizenship barriers that restrict their access to health care, social services, and safe, nutritious food (United States Environmental Protection Agency, 2023).

Specifically, this section details the impacts of climate change on agriculture-dependent rural communities, along with elders, women, persons with albinism (PWA), and cultural practices.

1. Impacts on rural communities

Climate change is expected to worsen disaster risk and the severity of weather events in the developing world. While climate change has affected and will continue to affect all of civilisation, the most serious impacts are frequently seen in vulnerable areas, including rural places, with indigenous and disadvantaged populations being exposed to heightened inequality (Bell, 2013).

Climate change has intensified agricultural drought, which has altered rural areas in ways that threaten food security. Drought has implications beyond agriculture, necessitating water planning (Kiem, 2013). Because of climate change, some areas have seen more frequent and larger floods. Floods are especially damaging in rural areas from a business perspective because the business location and employees are both more likely to be affected by the event. In addition, forest-based work has been affected by climate change, due to fluctuations in rain and temperature, the threat of forest fires, and the incidence of pests, with non-wood products being more vulnerable (Ofoegbu, 2017).

2. Impacts on the elderly

The older adults are affected throughout all phases of a disaster and are less able to respond proactively to the impacts of calamitous situations caused by climate-induced disasters in the Global South (Yadav & Barve, 2017). Elderly individuals in developing regions often lack the resources to cope with extreme weather events, leaving them vulnerable to poor living conditions and the aftermath of disasters like floods or droughts. Factors such as limited income, mobility constraints, disabilities, and frailty increase their susceptibility to heat- and cold-related illnesses. Additionally, physiological changes associated with aging make them more prone to dehydration and vulnerable to viral and bacterial infections.

3. Impacts on women

Amongst the vulnerable populations, women are severely impacted by climatic change and variations, with the most affected being rural women, who are primarily reliant on agriculture. Rural women consider agriculture their only security for sustaining their already poverty-stricken livelihoods, families, and communities. Food hierarchies are likely to make women (possibly pregnant or breastfeeding) and children susceptible to the increased risks of malnutrition and water shortages during and after disasters. In addition, in the aftermath of disasters, women, children, the elderly, and people with disabilities find it difficult to bounce back because of income inequality and financial dependence (Ayeb-Karlsson et al., 2020).

4. Impacts on persons with albinism

The well-being and health of persons with albinism (PWA) have been disproportionately affected by changes in temperatures as a result of climatic changes and variations (Astle et al., 2023). In addition, discrimination against and the marginalisation of PWA still persists, even though PWA are protected by the Convention on the Rights of Persons with Disabilities (CRPD) (Astle et al., 2023). Consequently, the devastating effects of climate change and its variations unprecedentedly impact these and other people living with disabilities, increasing their poverty and unemployment (Stein & Stein, 2022).

5. Impacts on cultural practices

Vulnerable populations affected by climate change experience devastating damages to the core of their lifestyles, including the loss of culture (traditional practices, indigenous knowledge) and friendships, through death and dislocation (Harvey, 2019). These effects lead to the loss of traditional practices and ways of living.

The loss of cultural practices can lead to reduced social cohesion and society-wide mental health challenges, because an individual's culture is closely linked with their sense of identity and belonging to a community. However, cultural heritage is intimately tied to, and reliant on, humans' interactions with their natural environment (Ngcamu, 2023).

4.3 Equitable adaptation strategies for vulnerable populations

Equitable adaptation strategies for vulnerable populations are essential to ensure that the impacts of climate change, disasters, and other environmental challenges are addressed in a fair and just manner. These strategies aim to reduce the disparities and vulnerabilities faced by these groups and empower them to cope with and adapt to changing conditions. The following are some key equitable adaptation strategies for vulnerable populations (Malloy, 2020; Thomas & Twyman, 2005):

1. **Community-led approaches:** Develop targeted outreach and communication efforts to ensure that vulnerable populations are aware of adaptation plans, resources, and support available to them. Use culturally appropriate and accessible communication methods to reach these communities effectively.
2. **Capacity building and training:** Provide training and capacity-building programmes to empower vulnerable populations to actively participate in adaptation efforts. This includes providing education on climate change impacts, disaster preparedness, and sustainable practices.
3. **Addressing basic needs:** Ensure that adaptation strategies address the basic needs of vulnerable populations, such as access to clean water,



food security, and safe shelter, which are fundamental to their resilience.

4. **Supporting livelihood diversification:** Assist vulnerable communities in diversifying their livelihoods to reduce reliance on climate-sensitive activities and create alternative income-generating opportunities.
5. **Building climate-resilient infrastructure:** Develop infrastructure that considers the unique needs of vulnerable populations, such as shelters designed to withstand extreme weather events and flood-resistant housing.
6. **Social safety nets:** Establish social safety nets and financial support mechanisms to assist vulnerable populations during and after climate-related events or disasters.
7. **Healthcare and mental health support:** Strengthen healthcare systems and mental health support services to address the physical and psychological impacts of climate change and disasters on vulnerable populations.
8. **Ecosystem-based adaptation:** Implement ecosystem-based adaptation strategies that not only protect vulnerable communities from climate impacts but also promote the conservation and sustainable use of the natural resources on which they depend.
9. **Collaborative partnerships:** Foster collaboration among governments, non-governmental organisations, academia, and local communities to implement equitable adaptation strategies effectively.
10. **Inclusive decision-making:** Involve vulnerable populations in the planning and decision-making processes for adaptation initiatives. Engage with community members, including representatives from vulnerable groups, to understand their needs, concerns, and priorities.
11. **Enhancing access to information:** Improve access to reliable information about climate change risks, adaptation measures, and available resources for vulnerable groups. This may include creating multilingual and easy-to-understand materials.
12. **Long-term planning:** Develop adaptation plans that consider the long-term needs and interests of vulnerable populations, with a focus on building resilience for future challenges.

By prioritising equity and inclusivity in adaptation efforts, societies can work towards reducing the vulnerability of marginalised communities, ensuring a more sustainable and just future.



4.4 Equitable mitigation strategies for vulnerable populations

Vulnerable populations have been severely affected by the disastrous effects of climate change; these are being perpetuated by huge socio-economic gaps, unequal power relations, poor governance and increased risks, with limited and ineffective adaptation and mitigation strategies. Equitable mitigation strategies for vulnerable populations aim to reduce greenhouse gas emissions and promote sustainable practices while ensuring that these efforts do not exacerbate the vulnerabilities and inequalities faced by these groups. There are various mitigation strategies to put in place, such as:

- promoting renewable energy projects, such as solar and wind installations, and incentivising energy efficiency measures in buildings and industries
- encouraging the use of public transportation and supporting the development of cycling and pedestrian infrastructure to reduce reliance on fossil fuel-powered vehicles
- implementing waste reduction and recycling programmes to reduce methane emissions from landfills and carbon dioxide emissions from incineration
- creating and enforcing regulations that encourage sustainable land use practices, including protecting forests and wetlands as carbon sinks
- reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (for example, the burning of fossil fuels for electricity, heat, or transport) or enhancing the “sinks” that accumulate and store these gases

It is necessary to think about vulnerable populations when elaborating and implementing these strategies. Below are some key equitable mitigation strategies with a focus on improving access to clean energy for vulnerable populations, which have been applied in various contexts (San Mateo County 2021).

1. **Renewable energy access:** Facilitate access to renewable energy sources, such as solar, wind, and biomass, for vulnerable communities. This may involve installing solar panels on community buildings or providing subsidies for renewable energy installations.
2. **Microgrids and community-based energy projects:** Encourage the establishment of community-based energy projects, such as microgrids or co-operatives, that provide clean and reliable energy to underserved areas.
3. **Green job creation:** Support the creation of green jobs and workforce development programmes in clean energy industries that will provide



employment opportunities and economic empowerment to vulnerable populations.

4. **Education and training:** Offer education and training programmes on clean energy technologies and sustainable practices to increase awareness and build capacity within vulnerable communities.
5. **Community outreach and engagement:** Conduct community outreach and engagement campaigns to raise awareness about the benefits of clean energy and involve community members in decision-making processes.
6. **Access to clean energy:** Develop and promote affordable clean energy solutions tailored to the needs and economic constraints of vulnerable populations, ensuring they can transition away from fossil fuels without financial hardship.
7. **Inclusive policy development:** Ensure that vulnerable populations have a voice in the development of clean energy policies and that these policies address the specific needs and challenges faced by these groups.
8. **Financial incentives and subsidies:** Provide financial incentives, grants, and subsidies to support the adoption of clean energy solutions among vulnerable populations.
9. **Access to clean cooking solutions:** Address indoor air pollution and health risks in vulnerable communities by promoting access to clean cooking solutions, such as improved cook stoves or biogas systems.
10. **Partnerships and collaboration:** Collaborate with local organisations, governments, and international agencies to implement comprehensive and inclusive clean energy initiatives for vulnerable populations.
11. **Resilient energy infrastructure:** Build energy infrastructure that can withstand climate impacts and extreme weather events, ensuring continuous access to clean energy during disasters.
12. **Energy efficiency programmes:** Implement energy efficiency initiatives targeted at vulnerable communities to reduce energy consumption and lower energy costs. This could include providing energy-efficient appliances, weatherising homes, and offering energy audits to identify areas for improvement.

By focusing on equitable clean energy solutions, we can ensure that vulnerable populations benefit from the transition to a low-carbon and sustainable future, improving their quality of life and fostering resilience to the impacts of climate change.



Activities 4.3 and 4.4: Provide a practical example tailored to your local area for each of the climate change adaptation and mitigation strategies for vulnerable populations mentioned above. You can refer to section 7.3, “The role of local institutions in climate change adaptation, mitigation, and justice,” and section 7.4, “Institutions and governance structures involved in promoting climate change,” for guidance.

4.5 Case Studies



1. Rwanda

Despite the country’s overall positive growth and development over the past 25 years, Rwanda is still highly vulnerable to impacts from climate change through its high dependence on rain-fed agriculture, as well as the need to improve its road networks, health sector, and water resource management. In Rwanda, high levels of poverty and the low degree of development limit the capacity of poor households and communities to manage climate risk, increasing their vulnerability to climate-related shocks (World Bank, 2021).

Rwanda is at risk for numerous natural hazards, including droughts, floods, earthquakes, landslides, storms (windstorms, lightning, rainstorms and thunderstorms), wildfire, diseases, and epidemics. These events have had significant impacts on the lives and livelihoods of Rwandans. Since early 2000, the frequency and severity of disasters, particularly caused by floods, landslides and droughts, have significantly increased, resulting in rising human casualties as well as economic and environmental losses (Ministry of Disaster Management and Refugee Affairs, 2016).

2. Africa

The World Meteorological Organization says that climate change increasingly threatens human health, food and water security, and socio-economic development in Africa. The worst hit is always the most vulnerable, with impacts felt through food insecurity, population displacement, and stress on water resources.

In particular, Sub-Saharan Africa (SSA) is the most vulnerable region in the world to climate change and variability. Rainfall anomalies, rising temperatures, and rising sea levels are exacerbating the frequency and intensity of climate-related risks such as droughts, floods, storms, and resulting epidemics, resulting in the transformation of the region’s geography.

Recent natural disasters such as the devastating cyclones Kenneth and Idai in 2019, the flooding and ongoing locust outbreaks in Eastern Africa, the droughts in Southern and Eastern Africa, and the Sahel's desertification have contributed to food insecurity and mass migration that have threatened millions of people and livelihoods in the region (Sono, 2021).

Undeniably, there has been considerable progress in socio-economic development in recent decades. However, the region's ability to prepare for, respond to, and recover from disasters is limited due to broader ineffective political, economic, social, environmental, and institutional conditions (Sono, 2021).

Unit summary



Summary

In this unit, you learned who vulnerable populations are and how they are affected by the impacts of climate change. You also explored strategies for equitable adaptation and mitigation that consider categories of people with different vulnerabilities. The following have been noted:

- People vulnerable to climate change include those with low income, indigenous peoples, children and pregnant women, older adults, vulnerable occupational groups, persons with disabilities, and persons with pre-existing or chronic medical conditions.
- Climate change causes direct effects, including death and destruction through the impact of extreme events, such as floods, wildfires, and hurricanes/typhoons, and indirect effects, like the disruption of plant and animal species, and individual trauma.
- Equitable adaptation strategies for vulnerable populations aim to reduce the disparities and vulnerabilities faced by these groups and empower them to cope with and adapt to changing conditions.
- Equitable mitigation strategies for vulnerable populations aim to reduce greenhouse gas emissions and promote sustainable practices while ensuring that these efforts do not exacerbate the vulnerabilities and inequalities these groups already face.



Assignment



Account for the impacts of the climate change in your community and how they affect its vulnerable populations. Suggest two equitable adaptation strategies and two equitable mitigation strategies in their favour.

Assignment

Assessment



Multiple-choice questions

Assessment

1. Vulnerable populations are groups of individuals who:
 - a) have high income and access to essential resources.
 - b) are at a lower risk of experiencing adverse outcomes.
 - c) are at a higher risk of adverse health, social, or economic outcomes.
 - d) live in urban areas with access to healthcare and emergency services.
2. Which of the following is NOT a characteristic often associated with vulnerable populations?
 - a) socio-economic disadvantage
 - b) geographic location
 - c) high access to healthcare and essential resources
 - d) health issues
3. Vulnerable populations are disproportionately affected during natural disasters because:
 - a) they are less likely to be affected by extreme weather events.
 - b) they have access to better resources and support systems.
 - c) they lack the resources and support needed to cope with disasters.
 - d) they are immune to the impacts of climate change.
4. Climate change impacts on rural communities primarily affect their:
 - a) dependence on renewable energy sources.
 - b) access to clean water and sanitation facilities.
 - c) vulnerability to infectious diseases.
 - d) livelihoods, particularly in agriculture and natural resources.



5. Which vulnerable population is likely to experience increased risks of malnutrition and water shortages during and after disasters?
 - a) persons with albinism (PWA)
 - b) elderly individuals
 - c) pregnant women
 - d) children
6. Equitable adaptation strategies for vulnerable populations aim to:
 - a) address the basic needs of vulnerable populations.
 - b) prioritise economic growth over social welfare.
 - c) promote discrimination and exclusion.
 - d) limit the access of vulnerable populations to information.
7. One of the key equitable mitigation strategies for vulnerable populations involves:
 - a) providing financial incentives for fossil fuel consumption.
 - b) reducing access to clean energy solutions.
 - c) encouraging the establishment of community-based energy projects.
 - d) limiting access to healthcare and mental health support.
8. The case study of Rwanda highlights that the country is highly vulnerable to climate change due to its:
 - a) low dependence on rain-fed agriculture.
 - b) high economic development and low poverty levels.
 - c) low risk of natural hazards and disasters.
 - d) high dependence on rain-fed agriculture and low economic development.
9. Sub-Saharan Africa is the most vulnerable region in the world to climate change because of:
 - a) decreasing trends in temperature and sea levels.
 - b) the absence of natural hazards and disasters.
 - c) the increasing frequency and intensity of climate-related risks.
 - d) high levels of economic development and strong political institutions.
10. Equitable adaptation strategies for vulnerable populations should include:
 - a) excluding vulnerable populations from decision-making processes.
 - b) developing infrastructure that neglects the unique needs of vulnerable populations.
 - c) addressing the basic needs and access to clean energy for vulnerable populations.
 - d) fostering competition among governments, NGOs, and local communities.



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Unit 5

Planning technical and policy options for climate change adaptation and mitigation

Introduction

This unit discusses ways of addressing climate justice. It is designed to provide a basic knowledge of climate justice issues and how they may be addressed individually and collectively. Addressing climate injustice is vital for creating a more equitable and sustainable future for all.

Upon completion of this unit, you will be able to:



Outcomes

- examine the technical and policy options for climate change adaptation and mitigation
- assess the effectiveness and feasibility of technical and policy options for climate change adaptation and mitigation



Watch

Unit 5:

<https://youtu.be/deBxEx4X5wM>



Terminology

Planning for climate change mitigation:

This involves planning to reduce or prevent the emissions of greenhouse gases and enhancing activities that absorb and store carbon dioxide.

Planning for climate change adaptation:

This involves a combination of strategic and technical approaches, transitioning from the phase of awareness to the phase of making strategies and implementing the most appropriate adaptation measures to deal with the impacts of climate change.



5.1 Strategic and technical planning for climate change mitigation

Mitigating climate change involves reducing or preventing the emission of greenhouse gases and enhancing activities that absorb and store carbon. Here's a strategic and technical approach to climate change mitigation (Wang, 2023):

1. Emission Inventory

- Conduct a comprehensive inventory of greenhouse gas emissions from various sources.
- Identify major contributors, such as energy production, transportation, industry, and agriculture.

2. Renewable Energy Transition

- Strategically plan for the transition to renewable energy sources (solar, wind, hydro, etc.).
- Incentivise and invest in renewable energy infrastructure and technologies.

3. Energy Efficiency

- Implement energy efficiency measures across all sectors, including buildings, transportation, and industrial processes.
- Adopt and enforce energy efficiency standards and codes.

4. Transportation Transformation

- Promote public transportation, cycling, and walking to reduce reliance on individual car travel.
- Support the development and adoption of electric vehicles.

5. Carbon Capture and Storage (CCS)

- Invest in the research and development of CCS technologies.
- Implement CCS in industries with high emissions, such as power plants and cement production.

6. Afforestation and Reforestation

- Plan and execute tree planting programmes to absorb carbon dioxide.
- Protect and restore forests, which act as vital carbon sinks.

7. Sustainable Agriculture Practices

- Promote sustainable agricultural methods to reduce emissions from deforestation, soil degradation, and livestock.
- Encourage precision farming and organic practices.

8. Circular Economy

- Encourage a circular economy to minimise waste and promote recycling.
- Reduce the use of single-use plastics and adopt sustainable production and consumption practices.

9. Green Building Standards

- Enforce green building standards to improve energy efficiency and reduce emissions in the construction sector.
- Promote the use of eco-friendly materials.

10. International Collaboration

- Collaborate with other countries to address global emissions, sharing technology and best practices.
- Engage in international agreements and commitments to reduce overall emissions.

11. Policy and Regulatory Frameworks

- Develop and enforce policies that incentivise low-carbon practices.
- Implement carbon pricing mechanisms to internalise the social cost of carbon emissions.

12. Public Awareness and Education

- Raise awareness about the importance of individual actions in mitigating climate change.
- Provide education on sustainable living and the impact of consumption choices.

Strategic planning for climate change mitigation requires a combination of government policies, technological innovation, and public participation. It's a collective effort that involves multiple stakeholders working towards a common goal.



Activity 5.1. List any four strategic and technical approach to climate change mitigation applicable in your region and/or country.

5.2 Strategic and technical planning for climate change adaptation

Planning for climate change adaptation is crucial, and it involves a combination of strategic and technical approaches. Adaptation to climate change is transitioning from the phase of awareness to the phase of making strategies and planning and implementing the most appropriate adaptation measures to deal with the impacts of climate change. Therefore, good adaptation to climate change should be integral to national development priorities and sectoral planning and should follow



the steps presented below (UNFCCC, 2012).¹ The following are strategic and technical approaches to climate change adaptation:

1. Risk Assessment:

- Identify the potential climate change impacts specific to your region (e.g., extreme weather events, sea-level rise, temperature changes).
- Assess the vulnerabilities of critical infrastructure, ecosystems, and communities.

2. Stakeholder Engagement

- Involve a diverse group of stakeholders, including local communities, businesses, government agencies, and NGOs.
- Understand their concerns, priorities, and knowledge to create a comprehensive plan.

3. Policy and Regulatory Frameworks

- Develop and strengthen policies that support climate change adaptation.
- Align local policies with national and international frameworks.

4. Infrastructure Resilience

- Upgrade and design infrastructure with climate resilience in mind.
- Consider innovative engineering solutions, such as green infrastructure, to enhance adaptability.

5. Community Awareness and Education

- Educate the public on climate change impacts and adaptation measures.
- Foster a culture of resilience and sustainable practices within communities.

6. Data and Monitoring

- Establish a robust monitoring system to track climate changes and adaptation efforts.
- Use technology and data analytics to enhance early warning systems.

7. Natural Resource Management

- Implement sustainable resource management practices.
- Protect and restore ecosystems that provide critical services, such as water regulation and flood protection.

¹ The 18th session of the Conference of the Parties to the UNFCCC and the 8th session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol opened on 26 November and continued until 8 December 2012 at the Qatar National Convention Centre in Doha, Qatar.

8. Capacity Building

- Enhance the skills and capacity of local institutions and communities to respond effectively.
- Provide training on new technologies and adaptive strategies.

9. Research and Innovation

- Invest in research to understand local climate patterns and potential adaptation strategies.
- Encourage innovation in technology and practices that promote resilience.

10. International Collaboration:

- Collaborate with neighbouring regions and countries to address shared climate challenges.
- Access international funding and expertise for large-scale adaptation projects.

Remember, flexibility is key. Climate change is dynamic, so adaptation plans should be regularly reviewed and adjusted based on new information and changing circumstances.



Activity 5.2. List any four strategic and technical approaches to climate change adaptation applicable in your region and/or country.

5.3 Integrated planning for climate change adaptation and mitigation

Integrated planning for climate change adaptation and mitigation should take into consideration the following (IMF, 2021):

- **Holistic Approach:** Recognise that adaptation and mitigation are interlinked components of climate action. A comprehensive strategy requires addressing both aspects to ensure long-term sustainability.
- **Shared Goals and Trade-offs:** Integrate adaptation and mitigation into climate policies with shared goals in mind. Consider potential trade-offs between actions, and seek solutions that align with multiple objectives.
- **Sectoral Integration:** Embed adaptation and mitigation considerations into sectoral policies such as agriculture, forestry, energy, and transportation. Maximise co-benefits and minimise conflicts between climate goals and sectoral objectives.
- **Balancing Trade-offs:** Focus on balancing trade-offs and synergies between adaptation and mitigation actions. Aim for strategies that offer co-benefits to various stakeholders and sectors.

- **Climate-Resilient Development:** Ensure that climate change considerations are deeply integrated into long-term national development plans, strategies, and visions. Make adjustments to reduce vulnerabilities and enhance resilience.
- **Stakeholder Engagement:** Engage stakeholders from various sectors, including government, private sector, civil society, and local communities. Encourage collaborative decision-making to achieve integrated outcomes.
- **Policy Coherence:** Strive for coherence between climate policies, development plans, and poverty reduction strategies. Avoid policies that inadvertently exacerbate climate risks or hinder adaptation efforts.
- **Regular Review and Adaptation:** Continuously review and update integrated plans to account for changing climate trends and evolving sectoral priorities. Flexibility is crucial to staying aligned with goals.
- **Capacity Building:** Strengthen institutional capacity for integrated planning, implementation, and monitoring. Provide training and resources to government agencies and organisations responsible for climate action.
- **Mainstreaming Climate Action:** Work toward mainstreaming climate considerations into every level of decision making, from national policies to local development plans. This ensures that climate adaptation and mitigation become intrinsic parts of governance and development processes.



Activity 5.3. Indicate any two activities that could be undertaken for an integrated strategic and technical approach to climate change adaptation and mitigation.

5.4 Policy formulations for climate change adaptation and mitigation

Policy formulations for climate change adaptation and mitigation should be generated through the following steps:

- **Incorporating a Climate Lens:** Embed a “climate lens” approach in the formulation of national visions, strategies, and policies. Evaluate how climate change risks and opportunities might impact the effectiveness and longevity of the proposed policies.
- **Vulnerability Assessment:** Conduct thorough assessments to identify potential vulnerabilities of policies, strategies, and regulations to climate variability and change. This includes



considering how climate impacts could undermine the intended outcomes of these policies.

- **Climate Risk Integration:** Ensure that climate change risks are explicitly considered during the formulation of new programmes and policies. This integration helps avoid increasing vulnerability or missing out on potential opportunities arising from climate change.
- **Climate-Proofing Existing Plans:** For existing policies, strategies, regulations, or plans that are being revised, assess how they might be adapted to address climate risks and opportunities. This involves revising and amending these documents to better align with changing climate conditions.
- **Long-Term Development Goals:** Align climate change adaptation and mitigation actions with longer-term development goals, such as poverty reduction and sustainable development. Integration at the policy level ensures consistency across objectives.
- **Cross-Sectoral Co-ordination:** Facilitate co-ordination and collaboration between sectors to ensure that climate considerations are integrated across policies. Cross-sectoral alignment reduces conflicts and maximises synergies.
- **Multi-Stakeholder Engagement:** Involve a wide range of stakeholders — including government agencies, civil society, private sector, and local communities — in the policy formulation process. Diverse perspectives lead to more comprehensive and effective policies.
- **Climate-Compatible Strategies:** Develop strategies that promote low-emission development pathways compatible with global climate objectives, such as those outlined in the United Nations Framework Convention on Climate Change and the Paris Agreement.
- **Adaptive Management Approach:** Embrace an adaptive management approach to policy formulation, allowing for flexibility and adjustments in response to changing climate conditions, emerging knowledge, and evolving societal needs.
- **Capacity Building and Awareness:** Invest in building the capacity of government agencies, institutions, and stakeholders involved in policy formulation. Raise awareness about the importance of integrating climate change adaptation and mitigation considerations into policies and plans.



Activity 5.4. With two clear examples, show how policy can support planning for climate change adaptation and mitigation.

Unit summary



Summary

Climate change has rapidly emerged as one of the most serious threats to sustainable development, with projections made a decade ago revealing that developing countries are most likely to be negatively impacted by changes in climate (IPCC, 2014). Hence, there is a need for these countries to constantly plan for appropriate mitigation and actions, by improving their climate adaptation capacities for risk management and preparedness in the face of the expected changes. This unit has covered:

- strategic and technical planning for climate change mitigation
- strategic and technical planning for climate change adaptation
- integrated planning for climate change adaptation and mitigation
- policy formulations for climate change adaptation and mitigation

Assessment



Assessment

Multiple-choice questions

1. What is the primary purpose of strategic and technical planning for climate change adaptation?
 - a) To accelerate the pace of global temperature rise.
 - b) To minimise the importance of adaptation in national policies.
 - c) To identify and implement measures to address the impacts of climate change.
 - d) To prioritise mitigation actions over adaptation actions.



2. Which of the following steps is NOT part of the strategic and technical planning process for climate change adaptation?
 - a) Identifying available information on climate change impacts.
 - b) Evaluating historical greenhouse gas emissions.
 - c) Assessing development needs and climate vulnerabilities.
 - d) Launching awareness campaigns about climate change.
3. What is the primary goal of climate change mitigation?
 - a) To increase the rate of global temperature rise.
 - b) To adapt to the impacts of climate change.
 - c) To reduce the release of greenhouse gas emissions.
 - d) To accelerate deforestation for economic development.
4. What does "climate benefits" refer to in the context of climate change mitigation planning?
 - a) Economic gains resulting from mitigation actions.
 - b) Social equality achieved through emission reduction.
 - c) Reduction in greenhouse gas emissions and improved sequestration.
 - d) Ecosystem benefits exclusively focused on biodiversity conservation.
5. What is the role of an integrated climate change mitigation strategy?
 - a) To focus exclusively on one sector's emissions reduction.
 - b) To combine strategies to shift towards low-emission development.
 - c) To increase the complexity of mitigation planning.
 - d) To prioritise adaptation actions over mitigation.
6. How can integrating adaptation and mitigation at the policy level contribute to addressing climate change?
 - a) By focusing solely on mitigation actions to reduce greenhouse gas emissions.
 - b) By promoting competition between sectors for climate funding.
 - c) By isolating adaptation and mitigation actions to specific sectors.
 - d) By seeking mutually supportive outcomes and avoiding negative trade-offs.
7. What is the main objective of integrating climate change adaptation and mitigation in sectoral policies?
 - a) To prioritise adaptation over mitigation for immediate results.
 - b) To create conflict between climate goals and sectoral objectives.
 - c) To maximise trade-offs between climate change and other goals.
 - d) To achieve co-benefits and minimise conflicts between climate and sectoral objectives.
8. What is the primary purpose of integrating climate change adaptation and mitigation into national development plans?
 - a) To prioritise mitigation actions over adaptation actions.
 - b) To align with international climate agreements exclusively.
 - c) To minimise the need for cross-sectoral co-ordination.
 - d) To ensure coherence between climate goals and broader development objectives.



9. Which approach involves considering potential trade-offs and co-benefits between adaptation and mitigation actions?
 - a) Sectoral isolation
 - b) Integrated planning
 - c) Stand-alone planning
 - d) Exclusive focus
10. What is the purpose of applying a "climate lens" to policy formulation?
 - a) To reject policies those are not directly related to climate change.
 - b) To create policies exclusively focused on mitigation.
 - c) To evaluate how climate change risks and opportunities affect policy outcomes.
 - d) To streamline policies for faster implementation.

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Unit 6

Identifying ethical dimensions of climate change and its impacts

Introduction

Unit 6 identifies ethical dimensions of climate change and its impacts, and provides knowledge and skills to help detect the impacts of climate change at local, regional, national, and transnational levels.

Upon completion of this unit, you will be able to:



Outcomes

- explore various ethical theories and frameworks relevant to climate change
- examine the ethical implications of climate change impacts on vulnerable communities
- identify the ethical dimensions of climate change
- assess ethical issues and challenges



Watch

Unit 6:

<https://youtu.be/TisH5dI4JhU>



Terminology

Climate change impacts:

Climate change impacts encompass the wide-ranging effects of changes in the Earth's climate on both natural and human environments. Rising global temperatures lead to more frequent heatwaves, melting glaciers, and rising sea levels, causing coastal flooding and erosion. Altered precipitation patterns result in severe droughts and floods, disrupting water supplies and agriculture. Ecosystems suffer habitat loss and biodiversity declines, while human health risks increase with heat-related illnesses and disease spread. Economically, infrastructure damage and rising recovery costs threaten livelihoods, highlighting the urgent need for mitigation and adaptation efforts.

Ethical dimensions of climate change:

Ethics constitute the substantial core of any commitment. As a mobilising force, ethics can steer action, facilitate arbitration, resolve conflicting interests, and establish priorities. Ethics have the capacity to connect theory with practice, general principles with political will, and global awareness with local actions.

6.1 Impacts of climate change

There is a wide range of climate change impacts, some of which are presented below:

- **Increase in temperatures:** Nearly all land areas are seeing more hot days and heat waves due to the progressive increase in temperatures. Since 1880, average global temperatures have increased by about 1°C, and it is projected to warm by about 1.5°C by 2050 and another 2–4°C by 2100. This will continue to cause extreme heat waves and natural wildfires in many parts of the world.
- **Increased drought:** Droughts and long dry spells are becoming frequent in different parts of the world. Droughts often have knock-on effects, such as on transport infrastructure, agriculture, forestry, water, and biodiversity. They reduce water levels in rivers and ground water, stunt tree and crop growth, and increase pest attacks.
- **More severe storms:** Changes in temperature are likely to cause changes in rainfall, which results in more severe and frequent storms. These lead to flooding, landslides, and soil erosion, destroying homes and communities and causing losses of human

lives, crops, and livestock. The costs of repair and recovery are substantial.



Figure 6: Photo showing the effects of a severe storm.

Source: Take in the field by the author.

- **Fluctuations and irregularities in rainfall:** Erratic changes in rainfall patterns lead to low agricultural production, thus creating food insecurity, especially in countries dependent on rain-fed agriculture. Agricultural activities are planned based on natural rainfall patterns. Any change in rainfall frequency and intensity also affects water storage, irrigation networks, and water supply systems, as they are designed according to annual rainfall patterns.
- **Extreme weather events:** Climate change increases the frequency and intensity of extreme weather events such as hurricanes, typhoons, floods, and droughts. These events can cause significant damage to infrastructure, agriculture, and human lives.
- **Increase in sea and ocean levels:** Oceans heat up, causing water to rise as warm water expands and polar and mountainous ice sheets melt. Current projections suggest a sea level rise of six metres over the next 100–200 years. This threatens coastal and island communities. Even a one-metre sea level rise and storm surges will force the movement of tens of millions of people and result in the loss of strategic agricultural land.
- **Ocean acidification:** Increased carbon dioxide levels in the atmosphere lead to higher carbon dioxide concentrations in the oceans, causing ocean acidification. This harms marine life, particularly coral reefs and shellfish.
- **Loss of species:** Climate change poses risks to the survival of species on land and in the ocean. Some species will be able to relocate and survive, but others will not. Factors such as temperature increase, forest fires, extreme weather, invasive pests, and diseases threaten fauna and flora. Climate change also indirectly impacts biodiversity through changes in land use, habitat destruction (peatlands, mangroves, and wetlands), invasive species, pollution, and over-consumption.
- **Health risks:** Climate change is the single biggest health threat facing humanity. Climate impacts harm health through air

pollution, disease, extreme weather events, forced displacement, mental health pressures, increased hunger, and poor nutrition. Higher temperatures increase heat-related illnesses and can make it more difficult to work and move around. The ocean's absorption of carbon dioxide makes it more acidic, endangering marine life.

- **Increase of vector-borne diseases:** Climate change results in an increase in vector-borne diseases, such as the spread of mosquitoes causing malaria, especially in tropical zones.
- **Economic impact:** The wide-ranging effects of climate change strain economies through increased disaster recovery costs, reduced agricultural productivity, declining property values, and disruptions in supply chains. Climate change may affect workforce availability due to population health decline and additional occupational health constraints.
- **Migration and displacement:** Sea-level rise, extreme weather events, and environmental degradation can force communities to migrate or become displaced, leading to conflicts over resources and increased pressure on already overcrowded regions.
- **Acid rain:** Acid rain seeps into the ground, dissolving nutrients like calcium and magnesium, necessary for tree health. It also releases aluminium into soil and water bodies, causing detrimental effects on trees, freshwater, and soils, and destroying insects and aquatic life forms. Additionally, it may cause paint to peel, corrosion of steel structures such as bridges, and weathering of stone buildings and sculptures, and has negative effects on human health.
- **Urban heating:** Increased carbon dioxide causes temperatures to rise most in urban areas. Buildings absorb more heat than vegetation, and buildings and roads reduce evapotranspiration.² Heat generated from vehicle and building emissions is trapped by tall buildings, contributing to urban areas being warmer than their surroundings, known as the urban heat island effect.



Activity 6.1. Identify and describe any three climate change impacts that have a particular impact in your local area.

² The Intergovernmental Panel on Climate Change (2022, p. 2908) defines evapotranspiration as: “The combined processes through which water is transferred to the atmosphere from open water and ice surfaces, bare soil and vegetation that make up the Earth’s surface.”



6.2 Identifying ethical dimensions of climate change

Climate change infringes upon various human rights, including the rights to life, health, food, water, and shelter. It amplifies existing disparities and disproportionately impacts vulnerable groups, such as low-income communities, indigenous peoples, and small island developing states.

Hence, a more effective approach to addressing climate change involves conceptualising it as a collective challenge with diverse facets necessitating clear commitments. Ethics play a fundamental role in any such commitment. Serving as a catalyst, ethics can guide action, facilitate negotiation, reconcile conflicting interests, and establish priorities.

Ethics possess the potential to bridge theory and practice, overarching principles and political determination, as well as global consciousness and local initiatives. In November 2015, UNESCO declared six ethical principles of climate change.

1. **Prevention of harm:** To better anticipate, avoid, or minimise the consequences of climate change and implement responsible and effective policies to mitigate and adapt to climate change through low greenhouse gas emissions initiatives and promotion of transnational co-operation to foster climate resilience.
2. **Precautionary approach:** Do not postpone the adoption of measures to anticipate, prevent, minimise, or mitigate the adverse effects of climate change on the grounds of a lack of definitive scientific evidence.
3. **Equity and justice:** Respond to climate change in a way that benefits all, in a spirit of global partnership, justice, and equity. The interaction of people and ecosystems is particularly important, given the high dependence of one upon the other. Allow those who are unjustly affected by climate change (due to insufficient measures or inadequate policies) to access judicial and administrative proceedings, including redress and remedy.
4. **Sustainable development:** Adopt new paths for development that make it possible to sustainably preserve our ecosystems, while building a more just and responsible society that is more resilient to climate change. Special attention must be paid to areas where the humanitarian consequences of climate change can be dramatic, such as food, energy, water insecurity, the oceans, desertification, land degradation, and natural disasters, especially to vulnerable groups.
5. **Solidarity:** Support, individually and collectively, the people and groups most vulnerable to climate change and natural disasters, particularly in the least developed countries (LDCs) and small island developing states (SIDS). Strengthen timely co-operative



action in various areas, including technology development and transfer, knowledge sharing, and capacity building.

6. **Scientific knowledge and integrity in decision making:** Strengthen the interface between science and policy to optimally aid decision making and the implementation of relevant long-term strategies, including risk prediction. Promote the independence of science and widely disseminate its findings to as many people as possible, for the benefit of all.



Activity 6.2. Indicate any three ethical dimensions of climate change.

6.3 Ethical issues and challenges

Climate change raises numerous ethical concerns and challenges to be taken into consideration. The following highlight the ethical dimensions of this global issue:

- **Intergenerational justice:** Climate change poses risks and consequences for future generations, who have had little to no role in contributing to the problem. Ensuring their well-being and equitable access to resources is an ethical imperative.
- **Intergenerational equity:** The decisions made today about greenhouse gas emissions and environmental policies have long-term consequences for future generations. Ethical concerns arise when current actions compromise the well-being and opportunities of future populations.
- **Global equity and justice:** Climate change disproportionately affects vulnerable communities and developing countries that have contributed less to the problem. The ethical question revolves around the responsibility of developed nations to provide assistance, technology transfer, and support to those who are most impacted.
- **Common but differentiated responsibilities:** This principle, enshrined in the United Nations Framework Convention on Climate Change, acknowledges that while all nations share the responsibility to address climate change, developed countries bear a greater responsibility due to their historical emissions and higher capacities.



- **Environmental justice:** Climate change exacerbates existing inequalities by disproportionately affecting marginalised and low-income communities. These communities often lack resources and political influence to adapt to or mitigate the impacts, raising ethical concerns about fairness and equal treatment.
- **Climate refugees and displacement:** As sea levels rise and extreme weather events become more frequent, communities may be forced to migrate. This creates ethical questions about the rights of climate refugees, their access to new lands, and the responsibilities of countries to provide refuge.
- **Environmental stewardship:** Ethical perspectives emphasise the moral obligation to act as responsible stewards of the planet, protecting the environment for current and future generations. This principle encourages sustainable practices and a sense of responsibility towards the Earth's ecosystems.
- **Corporate and individual responsibility:** Individuals and corporations contribute to greenhouse gas emissions. Ethical considerations revolve around the responsibility of these entities to reduce their carbon footprint and contribute to climate solutions.
- **Climate denial and misinformation:** Deliberate misinformation campaigns that cast doubt on climate science raise ethical questions about the responsibility for disseminating accurate information and ensuring public awareness of the issue.
- **Prioritising the global commons:** Climate change highlights the interconnectedness of the global ecosystem. Ethical discussions arise about the need to prioritise the well-being of the planet and its shared resources over short-term economic interests.
- **Ethics of technological solutions:** The development and deployment of technologies for climate mitigation and adaptation raise questions about their potential risks, unintended consequences, and equitable access to benefits.
- **Responsibility and accountability:** Assigning responsibility for climate change and its consequences involves ethical considerations. Those who have contributed the most to greenhouse gas emissions and have the capacity to act bear a greater moral responsibility to mitigate and adapt to climate change.
- **Human rights:** Climate change impacts various human rights, including the rights to life, health, food, water, shelter, and self-determination. Ensuring these rights are protected in the face of climate change is an ethical imperative.
- **Fair distribution of burdens and benefits:** Ethical principles demand a fair distribution of the burdens of climate change mitigation and adaptation efforts, as well as the benefits derived

from such actions, particularly considering historical contributions to the problem.

- **Trade-offs and prioritisation:** Ethical dilemmas arise in determining how to prioritise actions and allocate resources in the face of competing interests and limited capacities, considering both short-term and long-term consequences.

These ethical dimensions of climate change underscore the need for informed decision-making, co-operation, and international agreements that consider both present and future generations, while promoting fairness, justice, and environmental stewardship.



Activity 6.3. Indicate any three ethical climate change issues.

Unit summary



Summary

The climate system involves interactions between the living and non-living worlds (IPCC, 2001). Anything that can alter any of the components in this system can lead to climate change. Countries have different coping capacities. Thus, climate ethics play a fundamental role in any process of eliminating climate injustice, as ethics can guide action, facilitate negotiation, reconcile conflicting interests, and establish priorities. In this lesson, you have covered:

- impacts of climate change
- identifying ethical dimensions of climate change
- ethical issues and challenges

Assessment



Assessment

Multiple-choice questions

1. Rising global temperatures can lead to more frequent and intense:
 - a) ice storms
 - b) tornadoes
 - c) heatwaves
 - d) tsunamis
2. The melting of glaciers contributes to:
 - a) reduced sea levels
 - b) decreased freshwater availability
 - c) cooler ocean temperatures
 - d) increased polar ice coverage
3. Ocean acidification primarily impacts:
 - a) forest ecosystems
 - b) freshwater resources
 - c) coral reefs and marine life
 - d) desert habitats
4. Which ethical principle emphasises the rights and well-being of present and future generations in climate decision making?
 - a) intergenerational equity
 - b) environmental stewardship
 - c) global equity
 - d) technological responsibility
5. The ethical principle that highlights the need to promote sustainable development that balances environmental, social, and economic aspects is known as:
 - a) ethical sustainability
 - b) common but differentiated responsibilities
 - c) environmental justice
 - d) holistic development
6. What ethical principle emphasises the importance of involving all stakeholders, especially those who are most affected by climate change, in the development and implementation of adaptation strategies?
 - a) inclusive adaptation
 - b) environmental stewardship
 - c) technological responsibility
 - d) access to knowledge

7. Which term refers to people who are forced to migrate due to the impacts of climate change, such as sea-level rise and extreme weather events?
 - a) environmental refugees
 - b) climate migrants
 - c) climate exiles
 - d) intergenerational migrants
8. The intentional spread of misinformation to cast doubt on climate science is an ethical concern related to:
 - a) technological solutions
 - b) environmental justice
 - c) climate denial
 - d) intra-generational equity
9. Ethical discussions surrounding climate change often focus on ensuring fairness and equal treatment for:
 - a) developed countries
 - b) marginalised communities
 - c) corporations
 - d) intergenerational migrants
10. Which ethical principle emphasises the responsibility of individuals and corporations to reduce their carbon footprint and contribute to climate solutions?
 - a) environmental stewardship
 - b) intra-generational equity
 - c) common but differentiated responsibilities
 - d) global equity

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Unit 7

Identifying the role of institutions and governance structures in promoting climate change adaptation, mitigation, and justice

Introduction

In Unit 7, you will learn how local and international organisations are involved in climate change actions. The unit focuses on four components:

1. climate change governance
2. the role of international organisations in tackling climate change issues
3. the role of local institutions in climate change adaptation, mitigation, and justice
4. institutions and governance structures involved in promoting climate change

Upon completion of this unit, you will be able to:



Outcomes

- analyse the role of institutions and governance structures in promoting climate change adaptation, mitigation, and justice
- identify the key institutions in promoting climate change adaptation, mitigation, and justice
- implement actions that promote climate change adaptation, mitigation, and justice



Watch

Unit 7:

<https://youtu.be/Z4Sp7dFh8o4>



Terminology

Climate change governance:

Climate change governance deals with both mitigation and adaptation actions whilst at the same time trying to devise effective ways of managing the consequences of these measures across the different sectors.

International organisations:

Various climate initiatives and agreements are done at the international level, co-ordinated by the UNFCCC, especially through different Conferences of the Parties (COPs).

Local institutions:

Local institutions include local governments, local agencies, civil society institutions (producer organisations, co-operatives, savings and loan groups) and private institutions (NGOs and charities, private businesses providing insurance or loans).

7.1 Climate change governance

Climate change is a major challenge for human society in the 21st century and an important issue in the context of sustainable development governance. As the density of institutions in global climate governance increases, so does the potential for overlap and interaction between the various elements of institutions. The current global climate governance issue is no longer solely a state-centric governance model but presents a complex manifestation of multiple mechanisms (Zhang & Bai, 2023).

Global climate governance was formalised through the UNFCCC in 1992 with the purpose of promoting opportunities and prompt action to address climate change. It involves different institutions, state and public administrative systems, and private actors, including the business sector, as well as civil society and non-governmental organisations. Climate change governance deals with both mitigation and adaptation actions whilst at the same time trying to devise effective ways of managing the consequences of these measures across the different sectors (Knieling & Leal Filho, 2014).

By dealing with mitigation and adaptation actions, climate change governance also aims to reduce the causes of anthropogenic climate change globally. This is done through the adoption of measures that either lower the release of carbon emissions or remove carbon emissions currently in the atmosphere, while adjusting locally to the impacts of both anthropogenic and natural climate change through initiatives that prevent



or minimise harm as well as exploit opportunities generated by changes to the climate system (Alberton, 2022).

To tackle climate change issues, both local and international institutions are involved.

7.2 The role of international organisations in tackling climate change issues

Various climate initiatives and agreements are done at the international level, co-ordinated by UNFCCC, especially through different Conferences of the Parties³ (COPs). COPs are yearly conferences held in the framework of the UNFCCC. They serve to assess progress in dealing with climate change. A COP brings together the 197 nations and territories — called Parties — that have signed onto the Framework Convention. They assess the climate situation and determine climate measures and agreements to be implemented by all countries. For example, in 2015, at COP21 in Paris, the Paris Agreement included that mitigation policies should be oriented towards the internationally recognised goal of limiting the increase in global average temperature to well below 2°C by 2100, and preferably to 1.5°C, compared to pre-industrial levels.

Below is a description of COP26, which took place in Glasgow in 2022, as a case study (United Nations, n.d.).

COP26: Together for our planet

The UN Climate Change Conference in Glasgow (COP26) brought together 120 world leaders and over 40,000 registered participants, including 22,274 party delegates, 14,124 observers, and 3,886 media representatives. COP26 did produce new “building blocks” to advance implementation of the Paris Agreement through actions that can get the world on a more sustainable, low-carbon pathway forward.

What was agreed?

Recognising the emergency

Countries reaffirmed the Paris Agreement goal of limiting the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C. They recognised that the impacts of climate change will be much lower at a temperature increase of 1.5°C compared with 2°C.

³ See <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>.



Accelerating action

Countries recognise the urgency of action “in this critical decade,” to reduce the carbon dioxide emissions by 45 per cent if we are to reach net zero around mid-century.

Moving away from fossil fuels

Countries ultimately agreed to a provision calling for a phase-down of coal power and a phase-out of “inefficient” fossil fuel subsidies. This is because coal, oil and gas are the main drivers of global warming.

Delivering on climate finance

Developed countries were urged to respect their promise to deliver USD100 billion a year for developing countries.

Stepping up support for adaptation

The Glasgow Pact calls for a doubling of finance to support developing countries in adapting to the impacts of climate change and building resilience. This would significantly increase finance for protecting lives and livelihoods, which so far has made up only about 25 per cent of all climate finance (with 75 per cent going towards green technologies to mitigate greenhouse gas emissions).

Completing the Paris Rulebook

This is especially about the norms related to carbon markets, which will allow countries struggling to meet their emissions targets to purchase emissions reductions from other nations that have already exceeded their targets.

Focusing on loss and damage

Acknowledging that climate change is having increasing impacts on people, especially in the developing world. A new “Glasgow dialogue” was launched to discuss arrangements for the funding of activities to avert, minimise, and address loss and damage associated with the adverse effects of climate change.

New deals and announcements

- **Forests:** 137 countries decided to halt and reverse forest loss and land degradation by 2030. CEOs from more than 30 financial institutions with over USD8.7 trillion of global assets committed to eliminate investment in activities linked to deforestation.
- **Methane:** 103 countries, including 15 major emitters, signed up to the Global Methane Pledge, which aims to limit methane emissions by 30 per cent by 2030, compared to 2020 levels. Methane, one of the most potent greenhouse gases, is responsible for a third of current warming from human activities.
- **Cars:** Over 30 countries, six major vehicle manufacturers, and other actors, such as cities, set out their determination for all new car and van sales to be zero-emission vehicles by 2040 globally and 2035 in leading markets, accelerating the decarbonisation of road transport,



which currently accounts for about 10 per cent of global greenhouse gas emissions.

- **Coal:** Leaders from South Africa, the United Kingdom, the United States, France, Germany, and the European Union announced a ground-breaking partnership to support South Africa — the world’s most carbon-intensive electricity producer — with USD8.5 billion over the next three to five years to make a just transition away from coal to a low-carbon economy.
- **Private finance:** Private financial institutions and central banks announced moves to realign trillions of dollars towards achieving global net zero emissions.

Source: United Nations. (n.d.). *COP26: Together for our planet*. Accessed 7 July 2024 at <https://www.un.org/en/climatechange/cop26>

Within the international arena, the European Union (EU) has been a prominent player as an advocate for the ratification of international agreements and the commitment to emissions reductions targets. Under the UNFCCC (1992), the EU had already committed broadly to limit GHG emissions, while under the Kyoto Protocol (1997), it extended this to a specific reduction objective of 8 per cent on 1990 levels (though with differentiated obligations for Member States) under the first commitment period (2008–2012) and to a further 18 per cent reduction, resulting in a total 20 per cent reduction of GHG emissions on 1990 levels by 2020 under the second (2013–2020).

Under the Paris Agreement, the EU and its Member States jointly committed to a 55 per cent GHG emissions reduction domestically by 2030, compared to 1990. The Paris Agreement shifts from the top-down approach of agreed national targets adopted under the Kyoto Protocol to the bottom-up system in which parties submit “progressive” Nationally Determined Contributions (NDC) every five years according to a ratchet or ambition mechanism.

Despite this international agreement on the importance of combating climate change, emissions have continued to rise, and the world is on track to achieve a dangerous level of global warming with direct social and economic consequences, as the Sixth Assessment Report, *Climate Change 2022: Impacts, Adaptation and Vulnerability*, released in February 2022 by the Intergovernmental Panel on Climate Change (IPCC), dramatically confirmed. The IPCC clearly reinforced the urgency of climate change action at multiple governmental levels and called for efforts far beyond current international, supranational, national, and sub-national commitments (Alberton, 2022).



Activity 7.2 The aim of the Conference of the Parties (COP) is to assess the effects of measures introduced by the parties to limit climate change within the goals of the UNFCCC. Indicate the key highlights from COP27 and COP28 for climate change action.

7.3 The role of local institutions in climate change adaptation, mitigation, and justice

Local institutions contribute to climate change adaptation, mitigation, and justice through various ways, including information gathering and dissemination, resource mobilisation and allocation, skills development, and capacity building, providing leadership, and networking with other decision makers and institutions. Local institutions can be public, private, and civic, as well as formal and informal (Agrawal et al., 2008):

- *local public institutions*: local governments, local agencies
- *civil society institutions*: producer organisations, co-operatives, savings and loan groups
- *private institutions*: NGOs and charities, private businesses providing insurance or loans

Local institutions create awareness of climate change issues, raise voices for action, and influence policy makers to integrate climate risks and actions into development planning across sectors and from national to local levels, to make development more resilient to climate change. They play the following roles (Agrawal et al., 2008):

- *Shaping the impact of climate change on communities*: Making proper arrangements to reduce its effects on the livelihoods of residents in the region.
- *Shaping the way communities respond to climate change*: Providing frameworks within which households and collectives choose adaptation practices.
- *Acting as intermediaries* for external support to adaptation, and media through which external interventions reinforce or undermine existing adaptation practices.

Selected cases of local institutions in Africa

Over the past decades, several organisations, funding agencies, and alliances have implemented numerous climate change adaptation and resilience-building projects in many African countries. Many of these projects and programmes focus on improving reliable and accurate climate information, while others focus on community-level capacity-

building training, schemes, and incentives. Below are examples of identified local institutions/initiatives (Kweyu et al., 2023):

- In 1963–1964, equatorial floods led to a hydromet⁴ data sharing agreement signed in 1967 by several countries within the Nile basin, including Uganda. The agreement aimed to improve accessibility to real-time data, knowledge, tools, and partnerships and enhance transboundary co-operation.
- Technical Cooperation for the Promotion and Environmental Protection of the Nile Basin (TECCONILE) was launched in 1993 by several countries, including Uganda and Tanzania.
- The Nile Basin Initiative (NBI) was established in 1999 to promote interaction and shared understanding of basin issues among experts and recommends an all-inclusive co-operation mechanism to address common challenges. NBI monitors climate change explicitly and forecasts the possible impacts on water security.
- The African Flood and Drought Monitor (AFDM) is an example of recent climate change forecasting models that various governments can utilise for development planning and disaster preparedness.
- The Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC), based in Nairobi, provides climate monitoring, prediction, and early warning to various socio-economic sectors in the Greater Horn of Africa Region, including Kenya, Tanzania, and Uganda.
- Organisations such as the Tanzania Meteorological Authority (TMA), the Uganda National Meteorological Authority (UNMA), and the Kenya Meteorological Department (KMD) are responsible for collating data from different weather stations, analysing it, and communicating the resulting information to the public in utilisable formats. Weather and climate formats include forecasts for temperatures and rainfall on a daily, weekly, or seasonal basis. Climate communication also provides end-users with tailored climate-related information and knowledge products in a timely way.
- The Rwanda Environmental Management Authority co-ordinates and oversees all aspects of environmental management for sustainable development in the country (Nkundabose, 2020).

Source: Kweyu et al., 2023.

⁴ The term “hydromet” refers to hydrological and meteorological hazards — i.e., extremes of weather, water, and climate (World Bank, 2017).



7.4 Institutions and governance structures involved in promoting climate change solutions

Climate change is a current global issue that involves many actors working collaboratively and inclusively to find solutions. There are multiple organisations at local, regional, and international levels urging consumers, community activists, policymakers, artists, families, and others to step up and, hopefully, save the planet. For example, the UN Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change act at the international level. Below are descriptions of 25 exciting organisations working to solve the climate crisis (Reser, 2020).

1. Arab Forum for Environment and Development (AFED); Arab Region

AFED's mission is to promote environmental education and provide space for environmentalists to come together. They advocate for sustainable development and influence planners, decision makers, businesspeople, civil society, and media.

2. Asia Pacific Adaptation Network (APAN); Asia-Pacific Region

To build more resilience against the consequences of climate change, APAN supports adaptation across Asia and the Pacific Region. APAN provides resources and tools for planning, financing, and building adaptive societies. For example, it has publications on coastal zone management that can help coastal communities reduce damage from sea-level rise.

3. C40 Cities, International

C40 brings together a network of megacities from around the world, allowing them to drive climate action through collaboration and knowledge sharing. New York City, Johannesburg, Hong Kong, Sydney, Tokyo, London, and Mexico City are just some of the cities on the list that have committed to the climate targets established in the Paris Agreement.

4. Caribbean Community Climate Change Centre (CCCCC); Caribbean Region

The CCCCC works to co-ordinate the Caribbean region's response to climate change by identifying solutions. The centre offers several tools and resources to help users take appropriate action in their communities. They also carry out several projects to address issues caused by climate change across the Caribbean region focusing on strengthening climate resilience in health, regional planning for climate-compatible development, and coastal protection for climate change adaptation.



5. Climate Alliance; International

Made up of municipalities and districts, regional governments, nongovernmental organisations (NGOs), and other organisations, Climate Alliance is one of the largest European city networks dedicated to climate action. The Alliance promotes actions to slow climate change in both European municipalities and the Amazon River basin.

6. Climate Action Network (CAN); International

CAN is a global network of more than 1,300 environmental NGOs. With hubs in regions including West Africa, South Asia, Latin America, and Eastern Europe, the network promotes governmental and individual action to address the impacts of climate change. CAN's working groups address a variety of issues, such as agriculture, science policy, and technology.

7. Climate Cardinals; International

With the belief that every person has the right to basic environmental education, Climate Cardinals' mission is to translate climate information into the native languages of those who don't speak English. With the help of 6,000+ volunteers, this youth-led organisation has worked in over 40 countries globally and helped 350,000 people understand climate change.

8. Climate Collaborative; USA

Focused on natural foods businesses concerned about climate change, the Climate Collaborative breaks climate action down into three simple steps: commit, act, impact. To date, Climate Collaborative has tracked the public climate commitments of more than 760 companies. It offers a variety of resources and support to these businesses to help them reach their goals.

9. The Climate Group; International

Climate Group is working toward net-zero emissions by 2050 by holding organisations accountable for climate commitments they make. International business and government leaders come together to make commitments during Climate Week NYC. Then, Climate Group holds them accountable by sharing the actions they've taken and connecting them to other groups with similar objectives.

10. Climate Justice Alliance (CJA); USA

CJA brings together frontline, community-based organisations to lead the just transition from an extractive economy to a regenerative one. The 70 member communities are small grassroots organisations working locally to fight climate change with traditional ecological knowledge. CJA unites these members to scale up their impact nationally.



11. Earth Justice; USA

Earth Justice uses the power of the law to protect communities' and the planet's health. With offices across the US, their work has helped to save wild lands, halt destructive logging and mining, and encourage more sustainable farming policies. Their sustainable food and farming programme strives to improve worker safety, promote climate-friendly farming practices, and reduce pollution by factory farms.

12. Environmental Defense Fund (EDF); USA

EDF uses strategic partnerships, scientific and economic research, and advocacy to strengthen laws and policies that improve the environment and public health. To do so, EDF takes on a wide variety of cases, ranging from overfishing and food contaminants to pollution from the oil and gas industry.

13. Environmental Working Group (EWG); USA

EWG researches how consumer products impact human health and the environment. A wide range of experts at EWG make it easier for consumers to understand the environmental impact of the products they purchase. EWG also annually releases the "Clean Fifteen" and "Dirty Dozen," which list produce (fruits, vegetables) with the least and most pesticide contamination, respectively.

14. Friends of the Earth; International

Friends of the Earth uses the collective voice of grassroots members to speak truth to power and advocate for living in harmony with nature. They've caught the attention of large corporations and government agencies worldwide to insist that the rules of our political and economic systems must change if we are to combat the climate crisis.

15. Gender CC; International

Gender CC was created as a result of the UNFCCC. It acknowledges that women play an important role in fighting climate change. This global network of organisations, experts, and activists are working to integrate gender justice into climate justice through raising awareness and empowering women.

16. Greenpeace; International

Greenpeace is a global organisation founded in 1971. It uses peaceful protest and strategic communication to highlight environmental issues and promote solutions. Now in more than 50 countries, Greenpeace works to



halt deforestation, protect ocean health, stop nuclear testing, and more. Through solutions rooted in social justice, they hope to help communities disproportionately impacted by climate change.

17. Health and Environment Alliance (HEAL); Europe

HEAL works to shape laws and policies that protect planetary and human health and raise awareness about the benefits of mitigating climate change. Their goal is to create a toxin-free, decarbonised, and climate-resilient future. With over 90 member organisations, HEAL represents 200 million people across the 53 countries in the European region.

18. Indigenous Environmental Network (IEN); International

As part of the indigenous environmental justice movement, IEN formed in the US after tribal grassroots youths and indigenous leaders gathered to discuss environmental assaults on lands, waters, communities, and villages. Today, it connects indigenous communities nationally and globally to protect sacred sites and natural resources, and support a just transition, carbon pricing, and the Green New Deal.

19. La Via Campesina; International

A grassroots network of more than 180 international organisations and 200 million farmers, La Via Campesina fights for food sovereignty and better management of the world's resources. The group promotes agroecological farming techniques that work with the earth and help to mitigate climate change.

20. Natural Resources Defense Council (NRDC); International

With simple online actions anyone can take, plus three million members and an international staff of experts, NRDC safeguards people, plants, animals, and natural systems. By making strong partnerships across the United States, Canada, China, India, and Latin America, NRDC is pushing for climate solutions like solar power, electric vehicles, and national limits on carbon emissions.

21. Nature Friends International (NFI)

With 350,000 active members across the world, NFI advocates for environmentally and socially just tourism and protects natural and cultural heritage sites. It also provides activities and materials for experiencing nature and climate justice, such as an [informative quiz](#) about sustainable tourism.

22. Oceanic Global; International

Oceans [store carbon](#) and are integral in the fight against climate change. That is why Oceanic Global combines grassroots initiatives with industry



solutions to shed light on humanity's essential relationship with the ocean. Through regional hubs in New York, Hamptons, Los Angeles, London, and Barcelona, Oceanic Global offers educational programming and community partnerships. The Blue Standard is their tool to help industries find sustainable vendors and improve their operations to keep the ocean healthy.

23. South Durban Community Environmental Alliance (SDCEA); South Africa

This group of 19 affiliate organisations advocates for clean air, clean water, healthy soil, and environmental justice in Durban, South Africa. Durban is a model city of sustainable development, and SDCEA regularly liaises with the community, provincial and local governments, industry, and commerce to promote a healthy, safe, and sustainable environment.

24. World Wildlife Fund (WWF); International

WWF is an international nonprofit that helps local communities access cutting-edge conservation science to protect natural resources. Local WWF chapters all around the world are tackling climate change by preparing for potential future disasters and studying how these changes will impact ecosystems and wildlife.

25. Zimbabwe Small Holder Organic Farmers' Forum (ZIMSOFF); Zimbabwe

ZIMSOFF works to improve the lives of smallholder farmers across Zimbabwe who are practising sustainable agriculture. With over 19,000 members and four regional clusters, they fight for food sovereignty, land justice, and environmental justice at local, national, regional, and international levels. Through the support of agro-ecology, organic agriculture, and open-pollinated varieties, they hope to support more environmentally friendly agricultural practices that will help mitigate climate change.

Other organisations that contribute substantially to climate initiatives include 350.org, Citizens' Climate Lobby, Extinction Rebellion, Fridays for Future, Julie's Bicycle, Our Kids' Climate, Project Drawdown, Rainforest Action Network, Sunrise Movement, and Union of Concerned Scientists.

Unit summary



Summary

This unit focused on the role of institutions and governance structures in promoting climate change adaptation, mitigation, and justice, and on the key institutions for promoting climate change adaptation, mitigation, and justice. The following points are worth noting:

- Climate change is a major global challenge for human society. Therefore, climate governance is no longer solely a state-centric issue. The structures of climate change governance are at local, regional, national, and global levels.
- The international organisations dealing with mitigation and adaptation measures and at the same time formulating effective ways of managing the consequences of these measures range across different sectors.
- Local institutions drive awareness of climate change issues, raise voices for action, and influence policy makers to integrate climate risks and actions into development. They also implement different projects to tackle climate change effects.
- Climate change advocacy involves multiple organisations gathering consumers, community activists, policymakers, artists, families, and other to step up and save the planet.

Assignment



Assignment

Identify two organisations working on climate change issues in your region or subregion and describe how they contribute to promoting climate change adaptation, mitigation, and justice.



Assessment



Assessment

Multiple-choice questions

1. Climate change governance addresses which of the following areas?
 - a) mitigation only
 - b) adaptation only
 - c) both mitigation and adaptation
 - d) economic growth strategies
2. What is the main purpose of the UNFCCC?
 - a) promoting global economic growth
 - b) addressing global poverty
 - c) promoting opportunities and prompt action to address climate change
 - d) establishing international trade agreements
3. What does “COP” stand for in the context of climate change conferences?
 - a) carbon offset programmes
 - b) climate oversight panels
 - c) Conference of Parties
 - d) climate observation protocols
4. What is the internationally recognised goal for limiting the increase in global average temperatures as stated in the Paris Agreement?
 - a) 3 degrees Celsius
 - b) 2 degrees Celsius
 - c) 1 degree Celsius
 - d) 1.5 degrees Celsius
5. Why is the involvement of informal institutions important in climate change adaptation?
 - a) Informal institutions can mobilise more funding and resources.
 - b) Informal institutions are more efficient in information dissemination.
 - c) Informal institutions can leverage traditional knowledge and practices.
 - d) Informal institutions have better connections with international organisations.



6. How do local institutions contribute to climate change adaptation and mitigation?
 - a) by providing leadership and networking with other local institutions
 - b) by gathering and disseminating information about climate change
 - c) by allocating resources and mobilising funding for climate projects
 - d) all of the above
7. Which of the following activities are NOT carried out by local institutions in the context of climate change?
 - a) capacity building and skills development
 - b) providing leadership and decision making at the national level
 - c) networking with other decision makers and institutions
 - d) resource mobilisation and allocation
8. Which statement is true about the role of local institutions in climate change adaptation?
 - a) Local institutions have no influence on policy makers at the national level.
 - b) Local institutions act as intermediaries for external interventions that reinforce existing adaptation practices.
 - c) Local institutions do not shape the impact of climate change on communities.
 - d) Local institutions discourage communities from responding to climate change.
9. What role do local institutions play in shaping the way communities respond to climate change?
 - a) They provide external support and funding for climate change projects.
 - b) They make arrangements to reduce the effects of climate change on livelihoods.
 - c) They act as intermediaries for external support to adaptation.
 - d) They reinforce existing adaptation practices.
10. Which organisation is a global network of environmental NGOs, with regional hubs in different parts of the world?
 - a) Climate Collaborative
 - b) Climate Group
 - c) Climate Cardinals
 - d) Climate Action Network

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Unit 8

Developing skills in effective advocacy and policy engagement in climate change education

Introduction

In this unit, you will learn different ways of developing climate change advocacy and strategies to engage people in climate change action. The unit focuses on three components: 1) the importance of advocacy in climate change; 2) tips for climate change advocacy and action; and 3) strategies for engaging people and communities about climate change.

Upon completion of this unit, you will be able to:



Outcomes

- understand the importance of advocacy in climate change
- explore ways and opportunities for advocacy and action about climate change adaptation, mitigation, and justice at the international, national, and local levels
- develop strategies to engage various actors in activities for climate change action



Watch

Unit 8:

<https://youtu.be/IMbduqIkaLg>



Terminology

Climate change advocacy:

Advocacy in the fight against climate change consists of mobilising public support, driving policy changes, encouraging responsible behaviour, empowering vulnerable communities, fostering innovation, countering misinformation, and promoting international co-operation.

Policy engagement in climate change:

Ways that various actors involved in climate change and policymakers connect and explore common interests at various stages in their respective activities and policymaking processes.

Climate change education:

Helping people understand and address the impacts of the climate crisis, empowering them with the knowledge, skills, values, and attitudes needed to act as agents of change.

8.1 Importance of advocacy in climate change

Advocacy is essential in the fight against climate change, as it mobilises public support, drives policy changes, encourages responsible behaviour, empowers vulnerable communities, fosters innovation, counters misinformation, and promotes international co-operation. By combining efforts from individuals, organisations, and governments, advocacy can significantly contribute to mitigating the impacts of climate change, whilst helping build a more sustainable future for all. Advocacy plays a crucial role for several reasons, detailed below (Rouzer et al., 2023):

1. **Raising awareness:** Advocacy efforts help raise awareness about the seriousness of climate change, its causes, and potential solutions. By informing the public and decision makers, advocacy can create a sense of urgency and mobilise support for action.
2. **Driving policy change:** Effective advocacy can influence policymakers and governments to implement climate-friendly policies and regulations. This may include measures to reduce greenhouse gas emissions and support sustainable practices. Advocacy can also lead to the adoption of international agreements and commitments to combat climate change on a global scale.
3. **Encouraging corporate responsibility:** Climate advocacy often targets businesses and industries, encouraging them to adopt sustainable practices and reduce their carbon footprint. By advocating for corporate responsibility, businesses can be compelled to invest in renewable energy, improve resource efficiency, and consider the environmental impact of their products and services.



4. **Empowering communities:** Advocacy efforts can empower communities that are disproportionately affected by climate change, such as vulnerable populations in developing countries or low-income neighbourhoods in industrialised nations. By amplifying the voices of these communities, advocacy can help ensure that climate policies are equitable and considerate of their unique challenges and needs.
5. **Fostering innovation:** Climate advocacy can drive investment in the research and development of clean technologies and sustainable solutions. By creating demand for green alternatives, advocacy can accelerate the transition to a low-carbon economy and foster innovation in renewable energy, transportation, agriculture, and other sectors.
6. **Combating climate denial:** Advocacy efforts can counter misinformation and disinformation campaigns by promoting accurate and evidence-based information about climate change, thereby facilitating a more informed public discourse.
7. **Building international co-operation:** Advocacy can encourage international co-operation and dialogue, leading to agreements and collaborative efforts to tackle climate change on a global scale.

8.2 Tips for climate change advocacy and action

Climate advocacy and action are crucial for addressing the challenges of climate change. Climate advocacy and action require sustained effort and collaboration. Every individual contribution counts, and together, we can make a significant difference in combating climate change and creating a more sustainable future. The following are some tips to effectively engage in climate advocacy and take meaningful action (Zhang, 2020):

1. **Educate yourself:** Stay informed about climate science, the latest research, and the impacts of climate change in your region and globally. Understanding the facts will help you communicate more effectively and make informed decisions.
2. **Set clear goals:** Define your climate advocacy goals. Whether it's promoting renewable energy, reducing emissions, protecting forests, or supporting climate policies, having clear objectives will guide your efforts.
3. **Engage and collaborate:** Join or support existing climate advocacy groups and organisations. Working with others who share your passion for climate action can amplify your impact and provide valuable resources and expertise.
4. **Communicate effectively:** Tailor your messages to resonate with your target audience. Use clear and compelling language to convey the urgency and importance of climate action. Be respectful and open to dialogue with those who may have different views.



5. **Influence policy:** Engage with policymakers at local, regional, and national levels. Attend public meetings, make phone calls, and use social media to advocate for climate-friendly policies and legislation.
6. **Support renewable energy:** Transition to renewable energy sources such as solar, wind, and hydropower for your home or business. Advocate for renewable energy adoption in your community, and support policies that promote clean energy development.
7. **Reduce your carbon footprint:** Make lifestyle changes that reduce your carbon footprint. Use energy-efficient appliances; walk, bike, or use public transportation, when possible; reduce waste; and make sustainable consumer choices.
8. **Promote sustainable practices:** Encourage businesses and industries to adopt sustainable practices. Support companies that prioritise environmental responsibility, and advocate for corporate sustainability initiatives.
9. **Mobilise youths and future generations:** Engage young people in climate advocacy and empower them to take a leadership role in climate action. Their voices can be powerful agents of change.
10. **Support climate research and innovation:** Advocate for increased funding and support for climate research and innovative solutions. Technological advancements and scientific insights are crucial in addressing climate challenges.
11. **Vote for climate:** Use your voting power to elect leaders who prioritise climate action and support climate-friendly policies. Participate in elections at all levels of government, and research candidates' stances on climate issues.
12. **Practise resilience and adaptation:** In addition to mitigation efforts, advocate for measures that help communities adapt to the impacts of climate change, such as building climate resilience and enhancing disaster preparedness.

8.3 Strategies for engaging people and communities about climate change

Involving communities in climate action is the best way to hold governments (local and national) to their climate responsibilities and to inspire individuals to change their own behaviour.

Engaging people and communities about climate change requires thoughtful strategies that consider their unique needs, values, and perspectives. Here are some effective strategies for engaging people and



communities about climate change (Muller & Wood, 2021; Wu & Lee, 2015):

1. **Education and awareness campaigns:** Develop informative and accessible materials to raise awareness about climate change and its impacts. Utilise various channels such as social media, websites, community workshops, and public events to disseminate information.
2. **Storytelling:** Share personal stories and experiences of individuals and communities impacted by climate change. Storytelling humanises the issue, making it relatable and inspiring empathy and action.
3. **Localise the issue:** Connect climate change to local issues and concerns that resonate with the community. Highlight how climate change affects their daily lives, livelihoods, and natural surroundings.
4. **Engage community leaders:** Collaborate with local leaders, religious figures, educators, and other influential members of the community. They can help amplify the message and garner support for climate initiatives.
5. **Hands-on projects:** Involve people in practical and tangible climate-related projects. Organise community clean-ups, tree-planting drives, or energy-saving workshops to encourage participation and ownership.
6. **Empower youths:** Engage young people through schools, youth organisations, and student-led initiatives. Youths are often passionate about climate issues and can drive change within their families and communities.
7. **Use art and culture:** Incorporate art, music, and cultural events to convey climate messages creatively. Artistic expressions can capture emotions and transcend language barriers, fostering a deeper connection with the issue.
8. **Partnerships and collaborations:** Work with local NGOs, businesses, and government agencies to create a united front for climate action. Collaborative efforts can pool resources and expertise and reach a broader audience.
9. **Focus on solutions:** Present climate change as an opportunity for positive change and innovation. Showcase success stories of communities implementing sustainable practices and achieving positive outcomes.
10. **Interactive workshops and training:** Organise workshops on sustainable practices, energy efficiency, composting, and other climate-related topics. Hands-on training can empower individuals to take action in their daily lives.
11. **Offer incentives:** Provide incentives or rewards for climate-friendly actions. For example, offer discounts for using public transportation or rewards for reducing energy consumption.



12. **Address concerns and misconceptions:** Be prepared to address common concerns and misconceptions about climate change. Provide accurate information and foster open and respectful dialogue.
13. **Celebrate achievements:** Acknowledge and celebrate the efforts of individuals and communities in taking climate action. Recognising progress can reinforce positive behaviour and inspire others to follow suit.

Unit summary



Summary

In this unit, you learned the importance of advocacy in climate change, various tips for climate advocacy and action, and different strategies for engaging people and communities about climate change. It is important to note the following:

- By combining efforts from individuals, organisations, and governments, advocacy can significantly contribute to mitigating the impacts of climate change and building a more sustainable future for all.
- Every individual contribution counts in combating climate change and creating a more sustainable future. People need to set clear goals, influence policy, reduce their carbon footprint, and mobilise youths and future generations.
- Engaging people and communities about climate change requires thoughtful strategies that consider their unique needs, values, and perspectives. Use different strategies such as education and awareness campaigns, engaging community leaders and youths, forming partnerships and collaborations among stakeholders, and addressing concerns and misconceptions.

Assignment



Assignment

Consider your concerns about climate change issues and their impacts on your community, then describe the most appropriate tips for climate advocacy and action, and strategies for engaging people in the community about climate change. Begin by exploring your own behaviour and then branch out to others and the wider community.

Assessment



Assessment

Multiple-choice questions

1. What is one of the reasons advocacy is essential in the fight against climate change?
 - a) It fosters misinformation and disinformation campaigns.
 - b) It mobilises public support and drives policy changes.
 - c) It discourages responsible behaviour among individuals.
 - d) It focuses solely on international co-operation.
2. What are some of the key actors involved in advocacy for climate change?
 - a) governments only
 - b) organisations and governments only
 - c) individuals, organisations, and governments
 - d) international organisations exclusively
3. What is the importance of educating oneself about climate science and impacts?
 - a) It helps individuals reduce their carbon footprint.
 - b) It enables effective communication and informed decision making.
 - c) It allows individuals to engage with policymakers.
 - d) It promotes renewable energy adoption in communities.
4. What is one-way individuals can support renewable energy?
 - a) engaging with policymakers at all levels
 - b) promoting sustainable practices among businesses
 - c) transitioning to renewable energy sources for homes or businesses
 - d) encouraging young people to participate in climate advocacy



5. How can individuals effectively communicate about climate action?
 - a) by using complicated scientific language to convey urgency
 - b) by tailoring messages to resonate with target audiences
 - c) by advocating for corporate sustainability initiatives
 - d) by solely engaging in dialogue with like-minded individuals
6. What role can individuals play in climate advocacy and action?
 - a) They can only support existing advocacy groups.
 - b) They can only engage in climate research and innovation.
 - c) They can make lifestyle changes to reduce their carbon footprint.
 - d) They can exclusively focus on building climate resilience in communities.
7. What is the purpose of utilising storytelling in climate change engagement?
 - a) to highlight success stories of communities implementing sustainable practices
 - b) to acknowledge and celebrate achievements in climate action
 - c) to humanise the issue and inspire empathy and action
 - d) to provide accurate information and foster open dialogue
8. How can engaging community leaders contribute to climate action?
 - a) by organising workshops on sustainable practices and energy efficiency
 - b) by providing incentives or rewards for climate-friendly actions
 - c) by amplifying the climate message and garnering support within the community
 - d) by addressing common concerns and misconceptions about climate change
9. What role can youths play in climate change engagement?
 - a) They can provide incentives for climate-friendly actions.
 - b) They can celebrate achievements in climate action.
 - c) They can drive change within their families and communities.
 - d) They can only participate in hands-on projects like tree-planting drives.
10. How can art and culture be incorporated into climate change engagement?
 - a) by organising workshops on sustainable practices and energy efficiency
 - b) by providing incentives or rewards for climate-friendly actions
 - c) by using artistic expressions to convey climate messages creatively
 - d) by celebrating the efforts of individuals and communities in taking climate action



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Annexures

Answers

Annex 1: Answers for Unit 1 Quiz

1. C To adjust and respond to the effects of climate change
2. B Implementing water-saving irrigation techniques
3. D Smallholder farmers
4. B Climate adaptation
5. C Collaboration and stakeholder engagement
6. C Solar power
7. B Logging and timber production
8. B Lower energy costs
9. B Transportation
10. D By sequestering carbon dioxide through tree growth

Annex 2: Answers for Unit 2 Quiz

1. B The fair and equitable distribution of the costs and benefits of climate change mitigation and adaptation.
2. C Vulnerable communities are disproportionately affected by climate change but have fewer resources to adapt and recover.
3. C A community-driven initiative that provides solar panels and energy-efficient appliances to low-income households.
4. C By empowering and including marginalised communities in climate policy decisions.
5. C By supporting sustainable development and climate adaptation in developing countries to prevent future crises.
6. D Corporations can influence climate justice through their practices, policies, and support for sustainable initiatives.
7. C A policy that sets emission reduction targets for each industry based on their historical carbon footprint.
8. C Supporting renewable energy projects in developing nations
9. B Implementing policies that prioritise the needs of vulnerable populations
10. B Providing financial aid for clean energy projects and climate adaptation efforts.

Annex 3: Answers for Unit 3 Quiz

1. C Fairly addressing the impacts of climate change and the distribution of mitigation measures
2. B Sharing the benefits of climate protection efforts among all people



3. B Recognising the disproportionate effects of climate disruption on marginalised groups
4. A Engage with diverse actors to address community issues
5. D All of the above
6. C Fostering climate-resilient solutions based on equity and justice
7. C By ensuring representation, inclusion, and protection of the rights of vulnerable communities
8. C Recognising and addressing unequal burdens made worse by climate change
9. D Boosting resilience while improving livelihoods and social and economic well-being
10. B To empower communities to develop targeted, grassroots solutions

Annex 4: Answers for Unit 4 Quiz

1. C Are at a higher risk of adverse health, social, or economic outcomes.
2. C High access to healthcare and essential resources.
3. C They lack resources and support needed to cope with disasters.
4. D Livelihoods, particularly in agriculture and natural resources.
5. A Persons with albinism (PWA)
6. A Address the basic needs of vulnerable populations.
7. C Encouraging the establishment of community-based energy projects.
8. D High dependence on rain-fed agriculture and low economic development.
9. C Increasing frequency and intensity of climate-related risks.
10. C Addressing vulnerable populations' basic needs and access to clean energy.

Annex 5: Answers for Unit 5 Quiz

1. C To identify and implement measures to address the impacts of climate change.
2. B Evaluating historical greenhouse gas emissions.
3. C To reduce the release of greenhouse gas emissions.
4. C Reduction in greenhouse gas emissions and improved sequestration.
5. B To combine strategies to shift towards low-emission development.
6. D By seeking mutually supportive outcomes and avoiding negative trade-offs.
7. D To achieve co-benefits and minimise conflicts between climate and sectoral objectives.



8. D To ensure coherence between climate goals and broader development objectives.
9. B Integrated planning
10. C To evaluate how climate change risks and opportunities affect policy outcomes.

Annex 6: Answers for Unit 6 Quiz

1. C Heat waves
2. B Decreased freshwater availability
3. C Coral reefs and marine life
4. A Intergenerational equity
5. D Holistic development
6. A Inclusive adaptation
7. B Climate migrants
8. C Climate denial
9. B Marginalised communities
10. A Environmental stewardship

Annex 7: Answers for Unit 7 Quiz

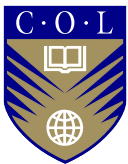
1. C Both mitigation and adaptation
2. C Promoting opportunities and prompt action to address climate change
3. C Conference of Parties
4. D 1.5 degrees Celsius
5. C Informal institutions can leverage traditional knowledge and practices
6. D All of the above
7. B Providing leadership and decision-making at the national level.
8. B Local institutions act as intermediaries for external interventions that reinforce existing adaptation practices
9. C They act as intermediaries for external support to adaptation.
10. D Climate Action Network

Annex 8: Answers for Unit 8 Quiz

1. B It mobilises public support and drives policy changes
2. C Individuals, organisations, and governments
3. B It enables effective communication and informed decision making
4. C Transitioning to renewable energy sources for homes or businesses
5. B By tailoring messages to resonate with target audiences
6. C They can make lifestyle changes to reduce their carbon footprint
7. C To humanise the issue and inspire empathy and action



8. C By amplifying the climate message and garnering support within the community
9. C They can drive change within their families and communities
10. C By using artistic expressions to convey climate messages creatively



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