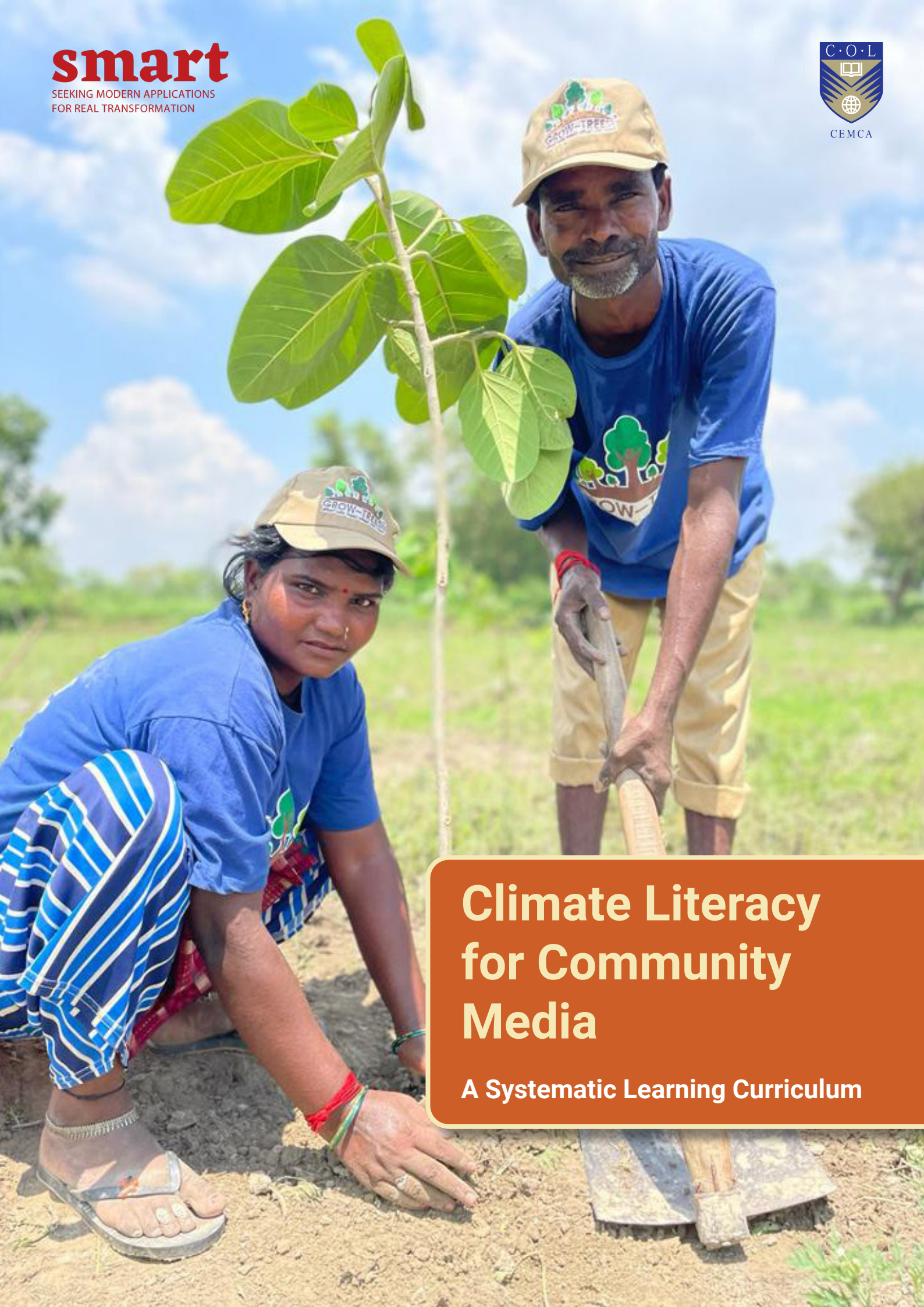


smart

SEEKING MODERN APPLICATIONS
FOR REAL TRANSFORMATION



Climate Literacy for Community Media

A Systematic Learning Curriculum

The Commonwealth Educational Media Centre for Asia (CEMCA) is an international organisation established by the Commonwealth of Learning (COL), Vancouver, Canada, to promote the meaningful, relevant and appropriate use of Information and Communication Technologies to serve the educational and training needs of Commonwealth member states of Asia. CEMCA was granted diplomatic privileges and immunities by the Government of India under Section 3 of the United Nations (privileges and immunities) Act, 1947.

Seeking Modern Applications for Real Transformation (SMART) was set up in 1997 with the mission to empower vulnerable and marginalized communities by creating awareness and providing them with information on issues that impact them. SMART works across the country through a network of civil society organisations and community radios and has a field office in one of India's most backward districts - Nuh, Haryana. SMART has been deeply invested in climate change and climate action for the last three years and has realised the potential of including women in climate action. SMART's approach is anchored in the need to address the information asymmetry by providing critical and timely information through both traditional media and modern media tools (radio, social media, as well as on-ground engagement). SMART uses innovative and engaging methods and tools (like board games and online games), which help enhance knowledge on the subject, create an environment of trust and well-being, help strengthen or build safety and security networks, and connect communities with each other.

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Acknowledgement

'A Systematic Learning Curriculum on Climate Change' for Community Media has been developed by Seeking Modern Applications for Real Transformation (SMART) in collaboration with Commonwealth Educational Media centre for Asia, New Delhi to address the existing gaps in communicating climate change by hyper local media platforms. This would not have been possible without the constant support and guidance provided by Dr. B. Shadrach, Director, CEMCA, India, and Dr. O. P. Dewal, Professor at Indira Gandhi National Open University. Dr. Dewal's insights in building curriculums helped us in putting together the structure of this publication. His insights on the formatting of the content was a very valuable input. We would also like to thank Ms. Monica Sharma, Programme Coordinator for her help and support throughout the development of this Curriculum.

We at SMART hope that this publication is useful to all those who are invested in demystifying the complex concepts of climate change and will be able to inform, educate and empower their communities to mitigate the impact of the changing environment by building resilience and adopting climate friendly practices.

We would like to take this opportunity to thank and acknowledge our community radio partners for helping us test this tool.

About the Systematic Learning Curriculum

Climate Literacy for Community Media — A Systematic Learning Curriculum has been developed by Seeking Modern Applications for Real Transformation (SMART) in collaboration with the Commonwealth Educational Media Centre for Asia (CEMCA). The development of a systematic learning curriculum for community media addressing climate change has been the outcome of extensive deliberations and dialogue, in which Professor O.P. Dewal's inputs and guidance on the structure have been very valuable.

The requirement for such a curriculum arose out of the felt need for an educational resource that can help community media and their communities understand the science behind climate change, its impact on their regions, as well as the importance of mitigation and adaptation measures.

India faces its own set of climate -related challenges such as extreme weather events, water scarcity, air pollution, rapid urbanization and its impact is worst on the most vulnerable and poor. This systematic learning curriculum attempts to simply climate issues and make them more understandable, relevant and relatable, particularly for communities that are living in coastal, drought-prone, and tribal-inhabited areas.

Community media can play a crucial role in raising awareness about climate change, its

causes, and its consequences. This curriculum is an effort to provide effective communication strategies that can help community media to educate and empower their communities. As climate action often requires local action and local solutions- even if the problem is global, the curriculum adopts a 'glocal' perspective, and highlights local initiatives, innovative practices and replicable solutions for addressing climate related issues.

The curriculum has been divided into 10 modules that incorporate information, activities, a quiz and content for development of programmes that can inform, educate and create consciousness about the effect of climate change on everyday life. The curriculum provides definitions, vocabulary, and knowledge that is easy to absorb and disseminate but also underscores the importance of acting now to mitigate climate change.

The curriculum also recognises the need for developing a comprehensive learning programme that fosters skill development in community radio practitioners. We hope that through this curriculum, content creators will gain the necessary resources, content and in-depth knowledge that can facilitate programme conceptualisation, scriptwriting, and audio production. We are confident that through this curriculum they will acquire the confidence, competence and expertise to create content that resonates with their audiences and drives positive change within their communities. Through a robust strategy for community engagement that includes dialogue, collaboration, and community-driven initiatives the curriculum will help promote and support collective, collaborative and participatory driven approaches. This curriculum will further meet the information needs of community media outlets that are required to promote climate conscious behaviour within their communities.

Curriculum Structure

Module 1:

Sustainable Development Goals: Goal 13 and Climate Action

The module begins by examining the evolution of the global development agenda, tracing its roots from the Millennium Development Goals (MDGs) to the contemporary Sustainable Development Goals (SDGs). It aims to bridge the gap between sustainable development, climate action, and community radio. By examining the convergence of these critical elements, we shed light on innovative approaches, best practices, and the transformative potential of grassroots media in shaping sustainable futures.



Module 2:

Climate Change: A Reality in the Indian Context

The module explores the complex relationship between natural disasters and climate change, delving into the causes, impacts, and policy responses that shape our ability to mitigate and adapt to these interconnected challenges. We begin by defining natural disasters, examining their varied forms and the factors that contribute to their occurrence. From geological forces to atmospheric dynamics, we unravel the intricate web of causes that underpins these extreme events.



Module 3:

Intersections of Climate Change

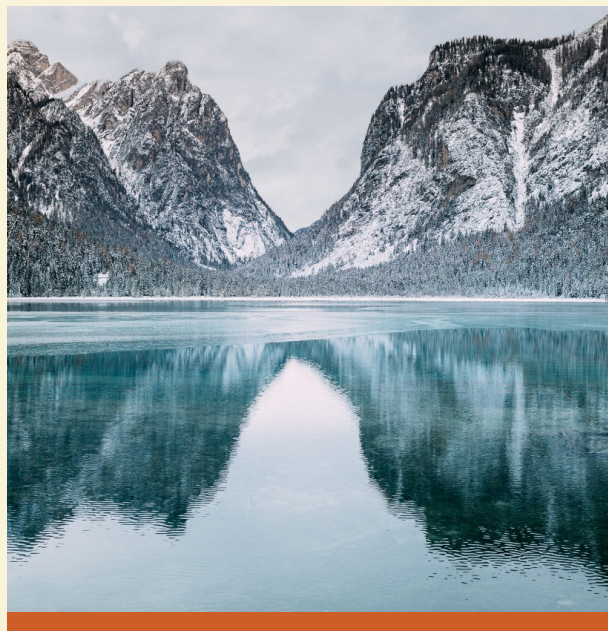
The Sustainable Development Goals are all interlinked. The targets of each of the Goals are aligned and intertwined, just as the impacts of climate change on different sectors are interrelated. The module explores the intersections of climate change and how they affect the goals and targets set by the SDGs. Before we delve into each intersection, we look at a few examples to better understand the impact of climate change across specific social issues and communities.



Module 4:

Vulnerability Zones in India

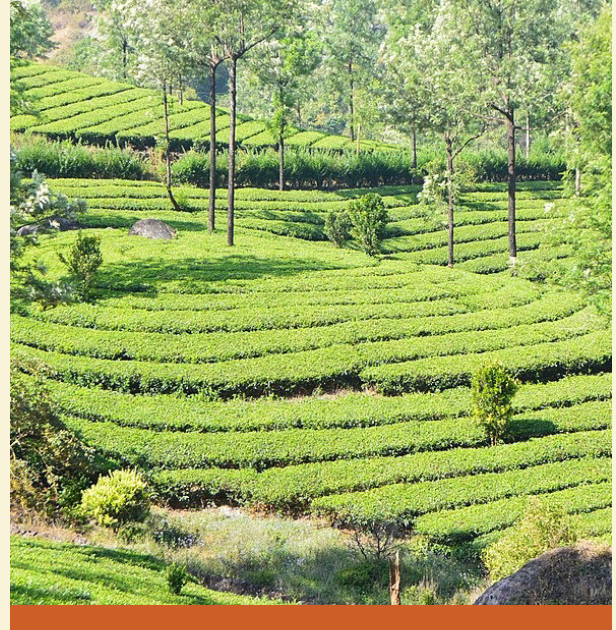
The module begins by examining the profound effects of climate change on India, recognising that its vast geographical expanse and diverse ecosystems give rise to a wide range of impacts—from rising temperatures and changing precipitation patterns to increased frequency and intensity of extreme weather events, such as cyclones and droughts. The consequences of climate change are reshaping the country's landscapes, ecosystems, and livelihoods. It serves as a comprehensive exploration of India's climate vulnerability, impacts, and unique geographical contexts. By taking a look at the key terms, vulnerability factors, and climate-vulnerable zones, we aim to deepen our understanding of the complex climate challenges faced by India. In doing so, we hope to inspire informed action, innovative solutions, and inclusive policies that safeguard India's people, environment, and future generations in the face of a changing climate.



Module 5:

Climate Action and Sustainable Development

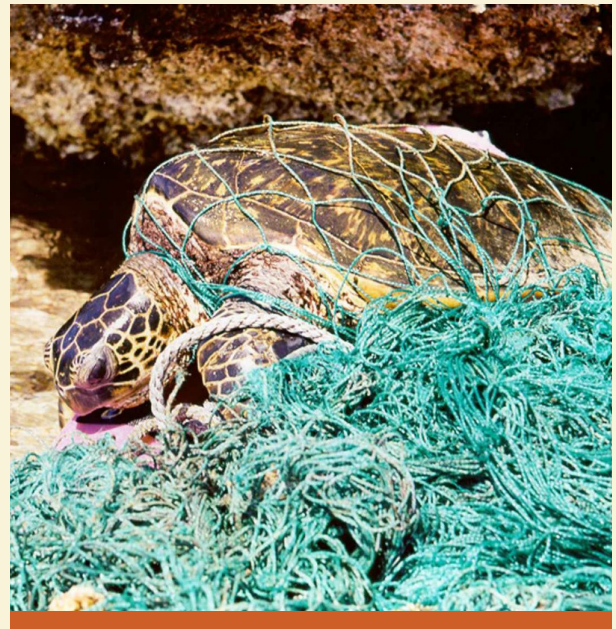
This module explores in detail concepts like sustainable development and climate action, and the linkages between the two. Climate change and its impact have exacerbated inequalities and life-threatening events. It is imperative to take action now to save people and the planet, and build peace for future well-being. The module focuses on climate action, which must become central to all discussions across all areas of development and growth.



Module 6:

Communicating Climate Change to Local Communities

This module highlights the importance of understanding the target audience through research, including demographics, interests, and levels of climate change awareness. Community Radio Stations (CRSs) can then formulate a content strategy that aligns with their mission and goals, aiming to educate, inspire action, or raise awareness. Educating and collaborating with staff and volunteers, featuring diverse perspectives, providing accurate information, and making content relatable and engaging are vital steps in effective communication. Promoting content effectively through various channels and evaluating the impact of climate change initiatives are also emphasised.



Module 7:

Community Action and Climate Solutions

Due to global inaction on climate change, grassroots and community initiatives have emerged as beacons of hope, driving change at the local level. By engaging with local communities, conducting interviews, and embracing participatory journalism, radio content creators can highlight the inspiring work being done by local organisations and individuals. This module explores the power of community-driven initiatives in India, such as Green the Map, The Timbaktu Collective, GreenHub India, and DHARA Sansthan, which serve as examples of collective action and inspire others to take part in the battle against climate change. It also delves into the role of radio content creators in encouraging community action, providing information on how individuals can get involved, employing positive messaging techniques, and engaging youth in creating a sustainable future.



Module 8:

The LiFE Mission

In the face of climate change and its impacts, individuals play a crucial role in addressing the global challenge of environmental sustainability. While systemic change and collective effort are essential, individual actions can significantly contribute to mitigating climate change through their daily choices and behaviours. This module explores the concept of climate refugees or individuals who migrate involuntarily due to climate stressors in their regions, highlighting the urgency of taking action. It then introduces the LiFE Mission (Lifestyle for Environment Mission), a ground breaking global mass movement introduced by India, which aims to inspire and empower individuals to make sustainable lifestyle changes. The module delves into the objectives and targets of the LiFE Mission, emphasising the importance of individual behaviour change and community engagement.



Module 9:
Storytelling

The module explores the profound impact of storytelling in the realm of climate change. It delves into the essence of what constitutes a story and how it can be harnessed as a compelling format for communication. It explores the diverse forms that storytelling takes, from traditional oral narratives to contemporary digital platforms, highlighting their unique strengths and potential pitfalls. It also dissects the essential elements that make up a story, revealing the artistry and craftsmanship behind crafting narratives that resonate with audiences.



Module 10:
Developing a Series on Climate Change for Media

This module provides community media with a framework for creating a series of radio programmes on climate change. It covers topics from renewable energy advancements to sustainable agriculture practices, and showcases the inspiring actions individuals, organisations, and governments are taking to mitigate and adapt to effects of climate change.





MODULE 1:

Sustainable Development Goals: Goal 13 and Climate Action

1.0 Introduction

1.1 Learning Outcomes

1.2 Sustainable Development Goals

1.3 Millennium Development Goals

1.4 What is Sustainable Development?

1.5 India and SDGs

1.6 Relevance of this Curriculum

1.7 Community Radio

1.8 Climate Action: SDG 13

1.9 Introducing Climate Change

1.10 What is Climate Change?

1.11 Some Definitions

1.12 Summary

1.13 Activity

1.14 Quiz

1.15 References

1.0 Introduction

In an era marked by interconnected global challenges, the pursuit of sustainable development has become a paramount goal for societies worldwide. At its core, sustainable development seeks to harmonise economic growth, social well-being, and environmental prudence to ensure a prosperous and equitable future for all. This chapter explores the vital intersection of sustainable development, climate action, and the influential medium of community radio.

We begin by examining the evolution of the global development agenda, tracing its roots from the Millennium Development Goals (MDGs) to the contemporary Sustainable Development Goals (SDGs). The MDGs laid the foundation for international efforts to combat poverty, hunger, and disease, while the SDGs provide a comprehensive framework for addressing a broader range of challenges, including climate change.

This chapter aims to bridge the gap between sustainable development, climate action, and community radio. By examining the convergence of these critical elements, we shed light on innovative approaches, best practices, and the transformative potential of grassroots media in shaping sustainable futures.

1.1 Learning Outcomes

After reading this unit, you will be able to:

- Define and explain the concept of sustainable development
- Discuss the UN's Sustainable Development Goals
- Understand the importance of community radio
- Explain the concept of climate change
- Explain in detail the goal of Climate Action of SDG 13



Climate Action is the need of the hour

The 17 Goals are:



1.2 Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a cohesive and integrated package of global aspirations that the world commits to achieving by 2030. Building on the accomplishments of their predecessors, the Millennium Development Goals (MDGs), the SDGs have been formulated to address the most pressing global challenges that can only be resolved through a collaborative effort and partnerships between countries that can together work towards the most economic growth, environmental sustainability, and social inclusion, for the well-being of people across the globe. Setting ambitious targets, the spectrum of the 17 SDGs and 169 targets ranges from poverty eradication, human health and sanitation to urban settlements and safeguarding the global ecosystems on which humanity depends for survival.

India became one of the 193 signatories on introduction of the SDGs. This framework includes 17 broad goals that cannot be viewed in isolation, as they are all interconnected. The SDGs consist of 169 targets and 232 indicators, which provide a roadmap for countries to achieve sustainable development in all aspects of living. The indicators have been developed to provide information on a given phenomenon. They encompass a shared focus on economic, environmental, and social goals and enjoy sufficient consensus for nations to work on them.

The SDGs aim to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. The goals address a range of issues including poverty, hunger, health, education, gender equality, clean water and sanitation, affordable and pollution-free energy, decent work and economic growth, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions, and partnerships for the goals.

The SDGs recognise that human activity is pushing crucial global ecosystem functions past a dangerous threshold, and the forces altering Earth's ecosystems are both global and local, with irrevocable impacts. Thus, it is essential to recognise that the SDGs cannot be achieved in isolation. They require a collaborative effort from governments, civil society, the private sector, and individuals to ensure that sustainable development is achieved at the local, national, and global levels.

The SDGs are a follow-up effort to the Millennium Development Goals (MDGs) that were in effect from 2000 to 2015. On September 25, 2015, a resolution was adopted by the UN General Assembly, titled “Transforming Our World: The 2030 Agenda for Sustainable Development”, which basically provides a plan of action for People, Planet, Prosperity, Peace and Partnership.

1.3 Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) were developed to address social priorities globally, such as poverty, hunger, disease, education, gender inequality, and environmental degradation. However, the official development assistance by rich countries did not meet the targets set by the MDGs. The Rio+20 Summit in June 2012 marked a significant shift in focus towards what became the Sustainable Development Goals (SDGs).

The MDGs set out goals mainly for developing countries, to which rich countries added assistance through finance and technology. In

contrast, the SDGs are “universal goals” that apply to all countries and “involve the entire world, developed and developing countries alike”, “taking into account different national realities”.

Millennium Summit

The Millennium Summit was held on September 6-8, 2000, at the United Nations Headquarters in New York with 149 heads of state, government and other high-ranking officials from over 40 countries in attendance. The Millennium Declaration was unanimously adopted.

Millennium Declaration

The Millennium Declaration affirms member states’ faith in the United Nations and its Charter as indispensable for a more peaceful, prosperous and just world. The collective responsibility of the governments of the world to uphold human dignity, equality and equity is recognised, as is the duty of world leaders to all people especially children and the most vulnerable.

The world leaders who gathered at the Summit committed their nations to a new global partnership to reduce extreme poverty, and set out a series of time-bound targets with a deadline of 2015 that became known as the Millennium Development Goals.



Planting trees is important to restore ecosystem services in urban areas

1.4 What is Sustainable Development?

The term 'sustainable development' was first defined in a 1987 report, "Our Common Future". It is also known as the Brundtland Report after Gro Harlem Brundtland who chaired the World Commission on Environment and Development (WCED) of the United Nations. The report defined it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Since then, the term has been widely used across media.

United Nations (UN)

The United Nations is an international organisation founded in 1945. It is currently made up of 193 member states. Each of the 193 member states is part of the General Assembly. States are admitted to membership of the UN by a decision of the General Assembly upon the recommendation of the Security Council. The United Nations came into being following the devastation of the Second World War, with one central mission: maintenance of international peace and security. Other key areas of work are: promotion and protection of human rights, delivery of humanitarian aid, promoting sustainable development and upholding of international law.

1.5 India and the SDGs

India played a prominent role in the formulation of the United Nations Sustainable Development Agenda 2030 and much of the country's National Development Agenda is mirrored in the Sustainable Development Goals (SDGs). The progress of the world in achieving the SDGs largely depends on India's progress.

India has made notable strides towards achieving the SDGs since their adoption in 2015. The national development objectives are aligned with the SDGs, and the government has launched various programmes and initiatives to address them. These measures have helped

India achieve significant progress in reducing poverty, improving health and education, promoting gender equality, and providing access to clean energy and water.

India has demonstrated remarkable progress in reducing poverty, with the poverty rate declining from 45% in 1993 to 28% in 2019. India has also made progress in promoting renewable energy and has set ambitious targets for its expansion. The government aims to achieve 40% of its installed capacity from non-fossil fuel sources by 2030, which will help the country meet its SDG targets on affordable and clean energy. The country has also launched several initiatives to promote sustainable urbanisation, including the Smart Cities Mission and the Atal Mission for Rejuvenation and Urban Transformation (AMRUT).

However, despite this progress, India faces significant challenges in achieving several SDGs, including those related to climate change, inequality, and sustainable consumption and production. Addressing these challenges will require significant investments in infrastructure, education, and health care, along with strong policies and partnerships to promote sustainable development at all levels and the involvement of local communities in taking a deep interest in these goals.

1.6 Relevance of the Curriculum

The Sustainable Development Goals are people's goals. Unlike the MDGs, the SDGs have been shaped by citizens and therefore need citizen participation if we want to come closer to achieving them by 2030.

The biggest challenge to the success of the SDGs is: 'How to communicate the SDGs and how to build the stake of people who can be the change makers.' There is a need to work towards demystifying the goals, localising them and linking them to the aspirations of communities, and further to those of households, families and individuals.

The importance of content development to

ensure citizen engagement and community empowerment in policy processes and development projects has been paramount. There is enough research-based evidence to show that community-driven approaches lead to sustainable impact and local empowerment, provided they are communicated in a manner that creates awareness and motivation and stimulates action. Thus the key to success in achieving the SDGs is to engage with citizens and to partner with organisations that actually work on the ground with people, marginalised groups and women for promoting community engagement.

Community media could be a significant player as they deal in community outreach, particularly through community radio, and work in rural and semi-urban spaces. They engage deeply with communities, particularly marginalised and vulnerable groups that include women, children and other underserved populations—lending a voice to the voiceless.

1.7 Community Radio

Community radio can contribute effectively in furthering the SDGs, as it plays a crucial role by creating awareness regarding access to information and knowledge, enabling community participation and facilitating an active development process through governance, civic participation and dialogue.

This curriculum has thus been designed for community radio reporters, practitioners, volunteers and independent community media practitioners, to help them formulate content. SDG 13 (Climate Action) has been used to enable community media to reimagine the way stories can be told, content developed and communicated for positive action. It further elaborates on the need for and ways to engage with different actors and stakeholders, map policies and initiatives at the level of both central and state governments, and provide ideas for designing content and outreach campaigns.

Community radio works in small geographies of 10-15 km and reaches around 100,000-300,000 people, depending on population density.

A low-input-high-output medium of mass communication, community radio is best placed to reach out to communities whose contribution is crucial for achieving the SDGs. It is best placed to act as a catalyst in achieving the SDGs at a local level, as it can effectively engage with stakeholders—from providing information and awareness on best practices, to facilitating debate, discussion, opportunity for partnership and creation of networks. The engagement of communities is done through awareness-raising campaigns at both national and subnational levels, mobilising and building partnerships with different local stakeholders, bringing together all sections of society, boosting their participation and ensuring that diversity is embraced (drawing knowledge, legitimacy, participation and enhanced effectiveness from local people across culture, gender and origin).

1.8 Climate Action: SDG 13

Climate change has been recognised by the UN as one of the main accelerators of all other global trends pertaining to food security, water scarcity, and chaotic urbanisation. Development agenda across the globe is closely interlinked with climate agenda. It has been estimated that almost 154 of the 169 targets of the SDGs are aligned with climate action.

Thus this curriculum has chosen Goal 13 of the Sustainable Development Goals (SDGs): Climate Action, as the template to help community media build content around the SDGs as well as other themes.

Goal 13 focuses on the need to take urgent and ambitious action to combat climate change and its impacts. The goal recognises the need to reduce greenhouse gas emissions and limit global warming to well below 2°C above pre-industrial levels, while also enhancing the capacity of countries to adapt to the impacts of climate change.

To achieve this goal, countries need to adopt and implement policies and measures to reduce emissions from all sectors, including energy, transport, and agriculture, as well as to increase

the use of renewable energy and improve energy efficiency. Countries also need to enhance their adaptive capacity and resilience to climate change, particularly with regard to vulnerable and marginalised communities.

It is apparent that meeting the objectives of SDG 13 will require global to local or 'glocal' cooperation, partnerships, and significant investments in clean and sustainable technologies as well as capacity building for developing countries. By taking action pertaining to climate change, countries can not only help protect the planet but also promote sustainable economic growth and development, improve public health, and ensure a better future for generations to come. However, to enable participation of communities it is important to break the targets down and simplify them to facilitate action.

1.9 Introducing Climate Change

Chendamangalam, a village in Ernakulam district of Kerala, has a vibrant handloom culture.

For generations, weaving has been the main source of livelihood for the people of this village. Ramla Gopalan, a 55-year-old woman, has been weaving cloth ever since she can remember. The serene village reverberates with the sounds of looms from early morning till late evening. The brightly coloured threads and newly woven cloth hanging in every verandah are a delight for any visitor. But Ramla was caught off-guard in August 2018. A devastating flood destroyed her livelihood. Within a few minutes, all her stock, her loom and her threads were floating in the waters of the overflowing Periyar river. The village roads disappeared and the houses were half submerged in muddy water.

No one had ever witnessed such devastation. It took Ramla months to rebuild her life. Many people died. The flood changed life in the village forever. Now, at the onset of June the entire village becomes alert. They take precautions and are better prepared for such disasters. They reduce their stock, store it higher, and try to dispose of their products

quickly. Climate change is a reality and like many other communities worldwide, the people of Chendamangalam are victims of the adverse effects of climate change.

1.10 What is Climate Change?

Climate change is a reality. It is not just an environmental issue but an all-encompassing threat, to health, to agriculture, to peace and security, to the livelihoods of millions as well as to animal life on Earth. Climate change manifests itself in many ways and is experienced by every living being, though not equally. Throughout the world, the economically disadvantaged and less privileged—those who have contributed the least to the root causes of climate change—are the most likely to suffer from its worst impacts. The consequences of climate change now include, among others, acute drought, water scarcity, devastating wildfires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity.

Climate change is generally understood as rising temperatures or warmer temperatures, but it also includes sea level rise, changes in weather patterns like drought and flooding, and much more. Human-induced climate change is a continuous process, and is not easy to reverse. It is not a problem for the future, but it is already affecting our planet and our lives. Most of the things that we depend upon and value—water, energy, transportation, wildlife, agriculture, forests, wetlands, marine life, ecosystems, and human health—are experiencing its effects. Further, the health of all, particularly of the most vulnerable groups—children, the elderly, people with morbidities, the poor and underprivileged—are being impacted. Fossil fuels—coal, oil and gas—are by far the largest contributor to global climate change, accounting for over 75% of global greenhouse gas emissions. Greenhouse gas emissions, such as methane and carbon dioxide, that trap heat in Earth's atmosphere, are the main cause for global warming. Needless to say, there is an urgency to take action to reduce the risks global warming poses.

1.11 Some Definitions

Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as “a change of climate which is attributed directly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods”.

Climate change intersects with various social, economic and environmental challenges. Resilience, adaptation and mitigation measures will help cope with the impact and develop solutions that take a holistic view of the interconnected challenges that communities are facing.

Climate Resilience

Climate resilience is a crucial approach to minimising the harms of climate change. It involves developing systems that can anticipate and reduce the impacts of extreme weather events and rising sea levels, thus creating more resilient communities.

Climate Adaptation

Climate adaptation involves using all available skills and technologies to respond to the changes caused by climate change. This can include measures such as building seawalls to protect coastal communities, implementing water conservation measures to address droughts, and using new technologies to monitor and predict the impacts of climate change.

Climate Mitigation

Climate mitigation involves reducing the threats that cause climate change, such as greenhouse gas emissions. By investing in renewable energy, promoting sustainable transportation, and implementing other measures to reduce our carbon footprint, we can curb our contribution to climate change and protect the planet for future generations.

Climate change is a critical issue that requires immediate action from governments, businesses, and individuals worldwide. We must work together to reduce greenhouse gas emissions and invest in sustainable solutions to mitigate the effects of climate change and protect our planet for future generations. The SDG goals have been crafted to achieve precisely this.

1.12 Summary

This module explores the intersection of sustainable development from the viewpoint of community media. It begins by tracing the evolution of the global development agenda from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs). It emphasises the importance of community radio in promoting sustainable development and discusses the role it can play in creating awareness, facilitating dialogue, and engaging local communities.

The module highlights the interconnected nature of the 17 SDGs, which address a wide range of issues such as poverty, health, education, gender equality, clean energy, sustainable cities, and climate action. It also discusses the MDGs, which preceded the SDGs and focused primarily on social priorities in developing countries. It also acknowledges the challenges India faces in achieving certain SDGs and the importance of community engagement and empowerment in promoting sustainable development. Additionally, the module emphasises the importance of community media, particularly community radio, in advancing the SDGs.

1.13 Activity

- Visit your local Disaster Management Authority and conduct an interview with the lead of operations there regarding the protocols established in case of an impending disaster.
- Prepare a list of all potential stakeholders involved in mitigating the climate crisis in your community.

- Host interviews with all stakeholders to highlight their roles and protocols to be followed during disasters.

1.14 Quiz

Fill in the blanks in the following statements:

1. The SDGs are ____ in number and have ____ targets covering different issues.
2. The aim of the UN is to maintain _____ and security.
3. ____ of the 169 targets of the SDGs are aligned with climate actions.
4. Climate resilience means to _____ the damage from climate change.

Answers at the end of this curriculum

1.15 References

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MODULE 2:

Climate Change: A Reality in the Indian Context

2.0 Introduction

2.1 Learning Outcomes

2.2 Some Definitions

2.3 Anthropogenic Causes of Climate Change

2.4 Impact of Climate Change

2.5 Disasters

2.6 Natural Disasters

2.7 Policy Developed to Tackle Climate Change

2.8 Summary

2.9 Activity

2.10 Quiz

2.11 References

2.0 Introduction

This chapter explores the complex relationship between natural disasters and climate change, delving into the causes, impacts, and policy responses that shape our ability to mitigate and adapt to these interconnected challenges. We begin by defining natural disasters, examining their varied forms and the factors that contribute to their occurrence. From geological forces to atmospheric dynamics, we unravel the intricate network of causes that underpins these extreme events.

It serves as a gateway to understanding the intricate connections between natural disasters, climate change, and the policies developed to address these challenges in India. By highlighting the causes, impacts, and responses to these interconnected issues, we aim to inspire informed action and foster a deeper understanding of the critical role we all play in shaping a sustainable and resilient future for generations to come.

Sandeep, a resident of Raini village in Chamoli district, Uttarakhand, has been unable to have a restful night since February 7, 2021. This is a quiet village, famous for the Chipko movement of the 1970s, when rural environmental activists, predominantly women, protested against the

felling of trees by forming human chains around them. The 70-odd families of the village were roused from slumber by cries of “Bhago! Bhago!” (Run! Run!) and the shocking sight of a glacier breaking and tumbling. Sandeep rushed out of his ancestral home, which, like most other houses, was swept away with belongings, memories and savings by an unprecedented flash flood. A ferocious mass of rock, ice and dust came rolling down the slopes, gobbling people, houses, trees, temples and power projects.



Deforestation is one of the major reasons for climate change

Experts are not too sure, but they attribute this disaster to a massive Glacial Lake Outburst Flood (GLOF) at Chamoli. The disaster is clear evidence of the combined effects of disproportionate construction of infrastructure, global warming, ice melting and reduced snowfall. Mountain hazards like glacial lake outburst floods, torrential floods, debris flows, landslides, and avalanches are common in this region, and climate change is leading to an increase in the frequency and severity of such events.

2.1 Learning Outcomes

After reading this module, you will be able to:

- Identify natural disasters and how they are linked to climate change
- Define the causes of natural disasters
- Understand the anthropogenic causes of climate change
- Identify the major causes of global warming
- Analyse the impacts of climate change
- Enumerate the policies developed to tackle climate change.

2.2 Some Definitions

Before we move ahead, it is important to understand the following concepts that are used for disasters in mountainous regions.

Glacial Lake Outburst Flood

A glacial lake outburst flood (GLOF) is a release of meltwater from a moraine or ice-dam glacial lake due to dam failure and often results in catastrophic flooding downstream, with major geomorphic and socioeconomic impacts. A GLOF incident involves sudden releases of water, and can be a series of events lasting hours or days, and can lead to downstream river discharges, causing floods, large-scale landscape changes and can even alter regional climate.

Landslide

A landslide is a form of mass wasting that involves the movement of a large area of land under the force of gravity. This often happens in mountainous regions that are not covered by snow. It is a recurring event in young mountains that have loose gravel and few trees.

Avalanche

An avalanche is a type of landslide that occurs in snowy regions and can also be called a snowslide. It occurs when a cohesive slab of snow that is lying upon a weaker layer of snow breaks away and slides down a steep slope. It can rapidly grow into a large mass of snow. It moves very fast. On its way down, it gets bigger due to the entrainment of more snow. Moreover, when an avalanche moves very fast, some of the snow mixes with air and forms a powder snow avalanche.

Debris Flows

Debris flows are fast-moving landslides that cause huge harm to life and property because they move with speed and destroy objects that come in their path. They often strike without warning. They can carry large items such as boulders, trees, and cars along with them.

Torrential Rains

Though there is no formal definition of torrential rains, the National Weather Service (NWS) defines heavy rainfall as rain that accumulates at a rate of 0.3 inches or more per hour.



Torrential rains wreak havoc in populated areas- destroying property and lives.

2.3 Anthropogenic Causes of Climate Change

Anthropogenic causes of climate change are human activities that add greenhouse gases to the atmosphere, which leads to an increase in global temperatures. The primary human activity that emits greenhouse gases is the burning of fossil fuels for industry, agriculture, and transportation.

Today, fossil fuels—coal, oil and gas—are the largest contributors to global climate change. These fossil fuels are used in a wide variety of human activities and have been leading to harmful greenhouse gas emissions (carbon dioxide, methane, nitrous oxide) from different sources. The impact of several human activities such as fossil fuel burning, mining, deforestation, transportation, waste generation, traditional agricultural practices and keeping cattle, and using home appliances like refrigerators can be felt far and wide.

Some of the major causes of greenhouse gas (GHG) emissions are:

- **Power generation:** The process of generating electricity and heat using fossil fuels leads to gaseous emissions. These harmful gases are responsible for trapping the sun's heat in the atmosphere, eventually leading to rise in atmospheric temperature.
- **Manufacturing:** Production of goods in large industries also leads to emissions. These industries also use fossil fuels to produce energy for making products like cement, iron, steel, electronics, plastics, etc.
- **Deforestation:** Trees are storehouses of carbon. Thus, clearing of forests for different purposes like agriculture, industrial production, and housing leads to greater accumulation of greenhouse gases in the atmosphere. The destruction of forests limits nature's ability to clean the atmosphere.
- **Transportation:** Most vehicles run on fossil fuels. Due to the combustion of petroleum-based products like gasoline, road vehicles are major contributors to emissions.

- **Food production:** Producing food leads to emission of carbon dioxide, methane and other greenhouse gases through various processes such as clearing of forests for agriculture, grazing by cattle, production and use of fertilisers, and use of energy to run farm equipment, etc.
- **Excessive consumption:** Today's trend of consuming more than one needs also leads to wasteful practices and contributes to emissions in different ways. A primary example of this is fast fashion—buying clothes to be trendy and not according to need. Food waste by hotels and restaurants also contributes to global warming. According to the Food and Agriculture Organisation (FAO), global food loss and waste contribute to around 8% of total GHG emissions.

2.4 Impact of Climate Change

The impact of climate change encompasses a broad range of effects as a result of changes in Earth's climate patterns. These effects manifest across various sectors and systems, such as the environment, ecosystems, human society and the economy. Gaining an understanding of the impact of climate change is crucial as it enables us to develop strategies to mitigate its effects and adapt accordingly, thereby fostering a sustainable and resilient future.

Let us look at some of the impacts of climate change:

- **Rising global temperatures:** Regions across the globe are experiencing unusual and unprecedented spells of hot weather that cover large areas. Many places are seeing a substantial rise in mean temperatures with sudden increase in instances of heat waves, especially in areas which did not experience such extreme weather earlier.
- **Severe and frequent storms:** As a result of shifting rainfall patterns, storms have become more frequent in different parts of the world. A rise in mean temperature of the oceans has contributed to this phenomenon since cyclones, hurricanes and typhoons feed on warm waters on the ocean surface.

- Increased droughts: Change in availability of water resources due to climate change is causing water shortages in already water-stressed regions and leading to increase in frequency of agricultural droughts and expansion of deserts, turning vast regions into uninhabitable wastelands.
- Loss of species: Climate change is leading to an imbalance in ecosystems' flora and fauna, posing risks to the survival of species on land and in water. The world is witnessing an alarming acceleration in species loss. Around one million species are on the brink of extinction within coming decades.
- Food scarcity: Water scarcity due to changing rainfall patterns, increasing droughts and loss of land due to climate change are among the reasons that have contributed to a rise in hunger across the world. Decreasing agricultural productivity is leading to less and less food for growing populations. Changes in the snow and ice cover in Arctic regions have disrupted food supplies from pastoral activities.
- Displacement of populations: Climate change is one of the leading causes of poverty among coastal populations. Frequent natural disasters are pushing people to move away from their homelands, causing stress on resources in the regions they migrate to.

Discussed above are a few major impacts of climate change in the present scenario. Some easily visible impacts are frequent epidemics and health issues, expanding oceans, melting glaciers, water scarcity, prolonged droughts, changing patterns of rain and snowfall, ocean acidification, changes in animal migration and lifecycles, changes in plant lifecycles, warmer oceans, damaged corals, to name a few.

India is the seventh most vulnerable country with respect to climate extremes. It has traditionally been vulnerable to disasters on account of its geoclimatic and socioeconomic conditions. Rapid population growth and unplanned development have contributed to the changing face and frequency of disasters. Major disasters like the cyclone in Paradip, Odisha, in 1999, the

Gujarat earthquake in 2001, the tsunami in 2004, and the floods in Surat, Mumbai, Chennai, Kerala, Srinagar, Nainital and Chamoli have compelled the country to rethink its disaster mitigation strategies.

The period from 1999 to 2005 was transformational and a period of affirmative action. Lessons from the Odisha cyclone and the Gujarat earthquake led to a paradigm shift in the government's approach to disaster management. In 2005 the Disaster Management Act was brought in and the National Disaster Management Authority (NDMA) was formed. State and District Disaster Management Authorities—the SDMAs and DDMAs—were set up. A National Disaster Framework for effective early warning, disaster mitigation, preparedness and response, and institutional mechanisms at all levels and across sectors was laid down.

Disaster risk reduction was an integral part of India's economic development and growth story. National, State and District Disaster Response Funds were constituted to meet the expenses towards mitigation, rescue and relief. India invested hugely in satellite technology, radar technology, supercomputers and other state-of-the-art methodology for weather observation and monitoring of the skies, earth and oceans. The Indian National Centre for Ocean Information Services (INCOIS), the Indian Meteorological Department and the Indian Space Research Organisation (ISRO) have strengthened early warning systems across the region with the help of remote sensing techniques.

To support these efforts, in 2006, the National Disaster Response Force (NDRF) was formed. With its 12 battalions stationed across the country, this purely humanitarian force has both experience and expertise to respond to disasters. India is perhaps the only country to have a dedicated force both at the national and state level to handle repeated as well as one-off calamities.

Under the National Cyclone Risk Mitigation Programme, India strengthened its disaster

Sources: <https://www.worldbank.org/en/news/feature/2013/06/19/india-climate-change-impacts>
<https://www.un.org/en/climatechange/science/causes-effects-climate-change>

management capabilities. The loss of human life on account of cyclones, though a regular feature, particularly in the Bay of Bengal with Cyclones Fani and Bulbul in 2019, Amphan in 2020, Tauktae in 2021 and Mocha in May 2023, has been reduced considerably due to better preparedness and disaster mitigation response.

2.5 Disasters

A disaster is any natural or human-generated calamitous event that causes great loss or misfortune to human life and destruction of nature, private property or public infrastructure and assets. It can be relatively sudden like an earthquake or an oil spill or can unfold over a longer period, such as the Covid-19 pandemic or climatic disruption. The severe droughts, wildfires, floods, landslides, and volcanic eruptions are examples of natural disasters that could be precipitated by human activity. The effects of disasters can be immediate, localised or widespread and the impact can last for a long period.

The causes of disasters can be natural or anthropogenic.

2.6 Natural Disasters

Disasters that are catastrophic and occur as a result of natural processes on the planet are called natural disasters. Floods, storms, tsunamis, and earthquakes are examples.

Causes of Natural Disasters

Some extent of climate change can be attributed to natural causes such as:

- Periodic changes in Earth's distance from the sun
- Fluctuations in solar radiation
- Emissions from volcanic eruptions.

There can be several causes of natural disasters, including human actions over centuries:

Global warming: Leads to rising sea levels, changes in temperature, warmer weather, affects life on land and underwater, and results in larger, more frequent hurricanes, tropical storms, landslides and other calamities.



Changing weather patterns triggered by climate change has led to frequent natural disaster events across the globe

Natural activities in Earth's crust: Tension can build up inside Earth's crust due to natural processes, and is released through earthquakes.

Tectonic movement: Relocation or colliding of the plates on the mantle underlying Earth's surface can lead to earthquakes, volcanic eruptions, and tsunamis.

Deforestation: Felling of trees for various activities such as construction, agriculture or grazing can lead to an increase in natural disasters. Forests help mitigate floods and droughts and retention of natural groundwater resources, and their destruction disturbs the environmental equilibrium.

Soil erosion: Soil degradation results in loss of land fertility, less produce, and increased hunger and food insecurity, besides landslides that are disastrous for both nature and humanity.

Seismic activity: The frequency and severity of earthquakes in a certain location are referred to as seismic activity.

2.7 Policy Developed to Tackle Climate Change

The drastic changes in the environment require urgent, collective and sustainable action. Governments, civil society organisations and citizens have to work together to combat climate change. India has implemented national policies and measures in order to achieve the five targets under Goal 13 of the SDGs. On June 30, 2008, India launched the National Action Plan for Climate Change (NAPCC). The document presents a comprehensive plan that seeks to empower the nation in responding to climate change and improving the environmental sustainability of India's developmental trajectory. It encompasses eight National Missions:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission for Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a Green India
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change.

Along with NAPCC, several centrally sponsored/ central sector schemes and programmes have also been introduced by the government to focus on specific targets under SDG Goal 13.

2.8 Summary

This module provides an overview of the relationship between natural disasters and climate change, focusing on understanding their causes, impacts, and the policies developed to address climate change. It explores the linkages between climate change and natural disasters such as hurricanes, floods, and droughts.

The module also addresses the major causes of global warming, which is closely linked to climate change. It explores the role of greenhouse gases, particularly carbon dioxide, in trapping heat within Earth's atmosphere, leading to a rise in global temperatures. It examines the impacts of climate change on various aspects of society and the environment. It highlights the vulnerabilities of different regions and communities to the effects of climate change, including sea level rise, extreme weather events, food and water scarcity, and ecosystem disruption. Finally, the module identifies the policies and initiatives developed to tackle climate change at the global, national, and local levels.

(Source: <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2021/dec/doc202112101.pdf>)

2.9 Activity

- Discussing changes in the environment around you can help convey the impact of climate change. The climate has always been changing, but this has accelerated in the past 200-plus years. Document some local and indigenous knowledge systems that have evolved over time in your region to deal with the changing climate.
- Hold a group discussion with elderly members and youth of your community and ask the elders to talk about the changes that they have noticed around them—in the weather, land development, flora and fauna, and cropping patterns. Get the youth to discuss these also. Let the youth deliberate on actions. Try to get the community to take ownership by resolving to restore old water bodies, forest land, water conservation systems, use organic fertilisers, develop a compost pit, etc.
- Based on the area you are located in, think of a possible natural disaster that your area/region might face. For instance, a flood or an earthquake. Make a list of the vulnerable populations in your area/region that will be affected; for example, people with disabilities, senior citizens, cattle, etc. Make a list of all possible disaster preparedness measures that would be required to bolster resilience to face the disaster. Find out the SDMA's action plan, if any: for example, the Karnataka government has a Heat Wave Action Plan 2018. Find out if your state has any such action plans.

2.10 Quiz

Fill in the Blanks

1. _____ are fast-moving landslides that cause huge harm to life and property.
2. Two major causes of global warming are _____ and _____.
3. In 2005 the _____ was brought in and the National Disaster Management Authority was formed (NDMA).
4. On June 30, 2008, the _____ was launched. It encompasses _____ national missions to combat climate change.

Answers at the end of this curriculum

2.11 References

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MODULE 3:

Intersections of Climate Change

3.0 Introduction

3.1 Learning Outcomes

3.2 Interlinking SDGs and their Targets with Climate Change

3.3 Gender Equality and Climate Change

3.4 Poverty and Climate Change

3.5 Health and Climate Change

3.6 Oceans and Climate Change

3.7 Forests and Climate Change

3.8 Summary

3.9 Activity

3.10 Quiz

3.11 References

3.0 Introduction

The Sustainable Development Goals, as discussed in the initial sections, represent a transformative agenda adopted by the United Nations to address pressing issues of global concern. A unique characteristic of these goals is that they are all interlinked. The targets of each of the Goals are aligned and intertwined, just as the impacts of climate change on different sectors are interrelated. Some examples are: Drought can reduce food production and affect human and livestock health and increase inequalities (Goals 13, 1, 2, 3, 10, and 15); floods lead to spread of disease, and damage ecosystems, water supply, infrastructure, education and jobs (Goals 13, 3, 4, 7, 8, and 12) and so on. Breaking the cycle of poverty would automatically lead to more income, better nutrition and possibility of quality education for children, prevent migration and reduce inequalities which is Goal 10. This chapter explores the intersections of climate change and how they affect the goals and targets of the UN SDGs.

Reena, 25, sits on the porch of her dilapidated house in the Sunderbans and spends hours staring at the ocean. Her parents were among the 72 people who lost their lives in cyclone Amphan in 2020. The Sundarbans, the vast mangrove delta at the mouth of the Bay of Bengal, is witness to one of the fastest rates of

coastal erosion in the world. The sea level has risen by an average of three centimetres over the past two decades. Reena has seen many homes being swallowed by the rising waters in the past few years. The intrusion of the sea has degraded the soil and reduced the yield from the small piece of land owned by her family. The dwindling fish stock has robbed her and the community of an alternative source of sustenance, pushing them into poverty. Forced migration has led Reena to pull her children out of school, depriving them of basic education that could ensure a better future—thus perpetuating a cycle of limited opportunities due to forced migration. Women like Reena end up bearing the brunt of climate change; the extra burden of caring for her family falls on her shoulders.



Survival of forest ecosystems is crucial to sustaining life on Earth.

In stark contrast, Rajasthan, with its scanty vegetation and desert climate, has borne the brunt of climate change-induced drought and water scarcity for decades. The Council on Energy, Environment and Water (CEEW) reports that over 90% of Rajasthan's districts are vulnerable to drought, forcing people to travel several kilometres to fetch water. Summer would see a huge exodus of people to cities. However, not wanting to give up, the residents of Badi Dani village came together and teamed up with a grassroots-level organisation, Gravis, to work on watershed management. They began with restoration of natural ponds that had dried up because of scanty rainfall. They extended the embankment, removed the silt and increased the retention capacity of water bodies in their area. The Bartasar pond was the first to be restored as part of the restoration project by the community. Today it has not only become a valuable source of water for humans and animals, but is also a resting site for migratory birds.

Both these stories are examples of the interconnectedness of the impact of climate change and other social, economic, and environmental issues. While one is a story of despondency, the other is a story of hope, restoration and not only finding a solution to the problem of water scarcity but also conserving the biodiversity of the region.

3.1 Learning Outcomes

After reading this unit, you will be able to:

- Understand the linkages between Goal 13 and other SDGs
- Relate climate change with other SDGs like Gender Equality, Poverty, Health, Life on Land and Life on Water.



An integrated approach to find sustainable solutions is the need of the hour.

3.2 Interlinking SDGs and their Targets to Climate Change

The interlinked nature of SDGs is a crucial theme when tackling climate change. It is because of this overlap of goals and targets under the SDGs that an integrated approach to sustainable development is required so as to avoid potential conflicts and maximise the benefits arising from solutions devised to fight climate change. Efforts to achieve these goals require a collaborative venture involving the government at both state and central level, civil society, business, academia, communities and individuals at all levels. Why should we look to collaborations? Because they enhance the effectiveness and efficiency of interventions while making sure that no goal is acted upon at the cost of another.

Now that we know the importance of these interlinkages, let us look at some of them in more detail.

3.3 Gender Equality & Climate Change

SDG 5 – Gender Equality

Goal 5 of the SDGs aims to achieve gender equality by targeting social, cultural, economic and political issues that affect women unfairly. The nine targets under this goal focus on ending all forms of discrimination, violence, and harmful practices against women, recognise the value of unpaid care and domestic work, ensure equal opportunities for work and leadership, and provide universal access to health and reproductive rights.

Gender equality is a fundamental human right, and a necessary foundation for a peaceful and sustainable world. In simple words, it means providing all individuals, regardless of their gender, with equal respect, opportunities, and rights, ensuring everyone has an equal chance to thrive and be treated fairly in all aspects of life.

Linking Gender and Climate Change

Gender inequality refers to the unequal treatment, opportunities and rights that individuals face based on their gender. Discrimination against women encompasses various forms of unfair treatment and prejudice based on gender. Gender inequality has left women with less economic, political and legal clout and hence they find it difficult to cope with—and are more exposed to—the adverse effects of climate change. Gender roles, religious and cultural norms limit women’s abilities to access help and make decisions. For example, in disaster situations, the clothes they wear and/or their responsibilities such as caring for children could hamper their movement in times of emergency.

Their experience as caregivers is sidelined when it comes to decision-making in emergency situations. In cases of displacement of the family, due to several reasons, the burden of caregiving is borne by the women of the family while men assume the role of earning. With limited decision-making and economic

power, women suffer the most. Disparity in access to basic rights such as education and livelihood opportunities also renders women more vulnerable to climate change as they are often poorer, receive less education, and are not involved in the decision-making process due to their secondary status in the household.

Women and girls are also prone to facing higher health risks during climate emergencies. In situations of disaster- or displacement-induced emergencies, they may be more vulnerable to gender-based violence, including sexual assault and exploitation. Limited access to reproductive health care services, such as prenatal and postnatal care, can also increase maternal mortality rates.

Gender-based Solutions in Climate Action

Gender equality ensures women are given equal opportunities in all aspects of life, whether it is education, livelihood or their personal lives. Viewing impacts of climate change from the gender perspective is important as climate change affects women differently and more



Participation of women in decision-making ensures inclusive participation in climate action

intensively. Gender-based solutions play a crucial role in climate action as they recognise these differential impacts and aim to create more effective and inclusive climate policies and initiatives. Linking targets of Goal 5 with those of Goal 13 can be the first step.

Solutions to impacts of climate change in the form of adaptation and mitigation strategies should be governed by principles of gender responsiveness and equality. Women's suffering and vulnerability increase in situations of water scarcity, disasters, displacement, loss of livelihood, unemployment, food insecurity and so on. Their presence and participation in decision-making can help representation of their views, ensuring that solutions adopt a gender perspective. For example, even at the panchayat level, discussion on steps towards sustainable methods of irrigation in farming should include women since rural women account for around 80% of the agricultural workforce.

Reorienting funding for gender equality actions to improve women's access to resources and including gender issues in climate and biodiversity commitments can be other ways.

Additionally, by engaging men and addressing harmful gender norms, gender-based solutions encourage greater collaboration and shared responsibility in climate action.

3.4 Poverty & Climate Change

SDG 1 – End Poverty

Poverty is a state or condition in which a person or community lacks financial resources for a minimum standard of living. It deprives people of living a dignified life by making choices of their own. To measure it, a specific minimum expenditure is decided, which is required to purchase a set of goods and services necessary to fulfil basic human needs.

Globally, countries use different measures for measuring poverty; however, the underlying principle remains the same. The Global Multidimensional Poverty Index, developed by

the United Nations Development Programme and the Oxford Poverty and Human Development Index, goes beyond income as an indicator and uses 10 indicators spread across three dimensions: Health, Education and Standard of Living. According to the 2022 report, 111 countries are home to 6.1 billion people, out of whom 1.2 billion (19.1%) are identified as multidimensionally poor.

Owing to the urgency of addressing the issue of poverty, the SDGs have set Goal 1 as: Eradicating poverty in all its forms by 2030. It has defined seven targets and 14 indicators under this head. This goal seeks to devise a model of economic growth which is inclusive of the poorest of the poor and the most marginalised sections of society. Governments across nations have formulated ambitious programmes in their efforts to reduce poverty. (Global Multidimensional Poverty Index, OPHI, 2022.)

Linking Poverty and Climate Change

Consistent development efforts aimed at poverty reduction are often hindered by inter-sectional development issues. Climate change is one of the serious challenges that threatens to undo decades of development efforts undertaken to reduce poverty. According to the Johannesburg Declaration on Sustainable Development, "The adverse effects of climate change are already evident. Natural disasters are more frequent and more devastating and developing countries are more vulnerable. While climate change is a global phenomenon, its negative impacts are more severely felt by poor people and poor countries." Due to lack of access to basic necessities and very low financial capacity, those below the poverty line have little or no capacity to cope with climate change-induced extremities. The vulnerabilities these populations face get amplified by climate change, pushing them further below the poverty line. An example of this is access to drinking water. Clean drinking water is gradually becoming a limited natural resource, owing to pollution of water bodies by human activities.

Climate change (in the form of changing rainfall patterns, droughts and floods) will further reduce

this availability and the most vulnerable and poor will be impacted the most due to the already present hurdles in accessing basic necessities. Poor populations are more vulnerable to climate change also because of their high dependence on natural resources.

Climate Solutions with Focus on Poverty

Owing to the correlation between the impact of climate change and other development issues such as poverty, the solutions should have a multipronged approach. SDGs 1 and 13 in themselves address this inter-relatedness. One of the targets of Goal 1 is building resilience of the poor and vulnerable and reducing their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.

Adaptation and mitigation strategies to cope with the current climate variabilities should then be framed in the context of poverty reduction. This will help in breaking the vicious cycle of poverty and environment degradation.

It has been seen that impoverished communities often resort to unsustainable practices such as deforestation for fuelwood or overexploitation of natural resources. By providing alternative livelihood options, promoting sustainable agriculture and investing in clean energy solutions, climate action can offer pathways out of poverty while mitigating the environmental impacts caused by poverty-driven activities. This integrated approach not only helps alleviate poverty but also contributes to the overall resilience of sustainability in communities and ecosystems.



Impoverished communities face the brunt of Climate Change the most.

3.5 Health & Climate Change

SDG 3 – Good Health and Well-being

Health is one of the most important markers of human development. Good health ensures an individual opportunities to work, perform activities for leisure and live a life of dignity and conscious decision-making. The 13 targets with 28 indicators set by SDG 3 cover all issues related to health, aiming at good health and well-being for all. The targeted issues include maternal mortality, neonatal mortality, spread of epidemics such as AIDS, tuberculosis, malaria and neglected tropical diseases, premature mortality from non-communicable disease, prevention and treatment of substance abuse, road accident deaths, universal health coverage, and deaths from hazardous chemicals.

Factors that lead to the health and well-being of all would involve several components such as individual behaviour, heredity, occupation, local environment, and access to healthcare facilities. Not to forget that the biosphere provides the ecosystem for survival, hence it plays a crucial role in providing the essential support needed for sustaining life.

Linking Health and Climate Change

The well-being of populations, including all living species, relies on access to sufficient food and water, protection against infectious diseases, and the physical safety and comfort ensured by stable climatic conditions. So any alterations in climate are likely to impact these fundamental conditions, resulting in enduring negative consequences for human health and overall well-being.

The impact of climate change on health can be direct—floods, storms as threats to life; or indirect—through changes in the ranges of disease vectors, water-borne pathogens, water quality, air quality, food availability and quality. It also leads to undermining of the

social determinants for good health such as livelihoods, equality and access to health care and social support structures. According to the World Health Organisation (WHO), climate change is the single biggest health problem faced by humanity. For example, increasing temperatures as a result of climate change have taken thousands of lives across regions. Most of the excess deaths during times of thermal extremes are in persons with pre-existing disease, especially cardiovascular and respiratory disease. The very old, the very young and the frail are the most susceptible. The recent COVID-19 pandemic which took millions of lives, is another example.

Similarly, many diarrhoeal diseases vary seasonally, suggesting sensitivity to climate. In India, like in other tropics, diarrhoeal diseases typically occur during the rainy season. Both floods and droughts increase the risk of vector diseases and infections. To work towards ensuring healthy lives and well-being of all, policies and programmes designed to achieve Goal 3 have to align with the targets of Goal 13.

Climate Solutions with Focus on Health

Climate solutions with focus on health are vital for safeguarding public well-being and reducing the impact of climate change on health. In India, where population density, inadequate health care infrastructure, and vulnerable populations are present, addressing health risks associated with climate change is of utmost importance.

India has been grappling with high levels of air pollution, particularly in cities like Delhi. Shifting energy use for electricity generation, transportation, buildings and industry away from combustible fuel sources such as coal, natural gas, petroleum and wood toward cleaner alternatives will help reduce greenhouse gas emissions along with the burden of disease due to air pollution.

Making significant changes in the way we produce and consume food can also help tackle climate change and bring health benefits. Two important changes are reducing food waste and shifting towards more plant-based benefits. By

doing this, we can decrease greenhouse gas emissions due to activities like manufacturing fertilisers, clearing land, and rearing livestock. These changes would not only help the environment but also improve nutrition and food security, which are important for our health. Food-related problems like not having enough to eat, poor nutrition, and unhealthy diets contribute to many diseases worldwide and cause almost eight million premature deaths every year. ("Global Burden of 87 Risk Factors in 204 Countries and Territories, 1990–2019: A Systematic Analysis for the Global Burden of Disease", 2019 study, The Lancet, 2020.)

By prioritising health in climate solutions, countries can not only protect their populations but also realise significant economic benefits.

3.6 Oceans & Climate Change

SDG 14 – Conserve Marine Ecosystems

SDG 14 is focused on protecting life in water. Through its 10 targets using 10 indicators, it aims to achieve sustainable management of marine ecosystems and reduce pollution through international scientific collaboration, as well as enhanced research and exploration efforts. The targets are based on issues such as reducing marine pollution of all kinds, strengthening resilience of marine protection systems, minimising impact of ocean acidification, conservation of coastal and marine areas, and sustainable use of marine resources, among others.

Linking Oceans and Climate Change

Oceans hold an astonishing 97% of Earth's water and serve as a habitat for 99% of all living organisms. Marine-dependent communities worldwide rely directly on the oceans for their livelihoods. In terms of biodiversity, the oceans house more than 200,000 identified species,

although the actual number could potentially be in the millions. The richness and importance of marine life calls for its preservation at all costs. However, human activities have led to rapid decline in the quality of ocean life.

Unregulated fishing has resulted in rapid depletion of numerous fish species. Rising temperatures due to climate change induced by human activities are having disastrous effects on ocean ecosystems. Warmer waters are leading to coral bleaching, causing loss of one of the most diverse and sensitive habitats on the planet. Sea level rise due to melting glaciers and expanding oceans is causing coastal erosion, floods in low-lying areas, salinisation of freshwater sources, threat to coastal infrastructure, agriculture and human settlements. Important marine and coastal ecosystems such as mangroves, salt marshes and sea grasses, that serve as carbon sinks, are also under threat.

Thus, linkages between climate change and oceans have wide-ranging impacts on both marine ecosystems and human populations. The preservation of global marine ecosystems becomes an issue of utmost importance as oceans play a pivotal role in maintaining the habitable state of our planet.

Climate Solutions with Focus on Oceans

The threats to oceans and marine life addressed by Goal 14 are important in the context of the impacts of climate change on oceans. While formulating solutions to these threats, countries will also work towards helping oceans and coastal ecosystems with nature-based climate solutions. We know that oceans play an important role in balancing Earth's carbon cycle. As carbon dioxide in the atmosphere increases, the oceans absorb a lot of it. Certain types of ecosystems called "blue carbon" ecosystems play a crucial role. Examples are mangroves, seagrass meadows and kelp forests. They are 10 times more effective at storing carbon than some terrestrial forests. They also play a crucial role in protecting coastal infrastructure and communities from climate impact, including extreme weather events. Since warming of the oceans leads to change in climate and

weather patterns, serious attention needs to be given to reducing marine pollution and ocean acidification (which warms water.)

An integrated ocean planning and protection approach will help countries design efficient and sustainable climate responses and achieve SDG 14. By bringing together climate dimensions and supporting adaptation and mitigation measures, integrated ocean planning can also play an important role in helping achieve SDG 13.

3.7 Forests & Climate Change

SDG 15 – Protect Terrestrial Ecosystems

The survival of land ecosystems is crucial for sustaining life on Earth. Forests help in regulating other ecosystems, protect biodiversity, play an important role in the carbon cycle, and supply goods and services that can drive sustainable growth for humans. They are one of the most effective carbon sinks, absorbing approximately 2.6 billion tonnes of carbon dioxide every year. However, the combined forces of deforestation, desertification and other human activities pose significant challenges to these ecosystems. With around 1.6 billion people relying on forests for their livelihoods, effective action for preserving biodiversity and restoring lost forests is urgently needed.

SDG 15 emphasises the imperative need for action to halt the degradation of terrestrial ecosystems. It aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss. There are 12 targets and 14 indicators for SDG 15. They are based on issues and themes such as conservation and restoration of terrestrial and inland ecosystems, preventing deforestation, combating desertification, preserving mountain ecosystems, programmes for halting biodiversity loss, equitable sharing of benefits from genetic resources, action against poaching and trafficking of protected flora and fauna, etc.

Linking Climate Change and Forests

The impact of climate change is direct, disastrous and cascading on forest ecosystems. Since forest ecosystems are conservatories of millions of life forms and important sources of raw material for human activities, any damage to these ecosystems as a result of climate change will impact all associated communities and life forms.

Rising temperatures, change in rainfall patterns, and increased frequency of extreme weather events impact forest ecosystems. Droughts, heat waves and wildfires are becoming more prevalent, leading to forest degradation, increased tree mortality and changes in composition and distribution of flora and fauna. These changes in forests not only affect biodiversity but also have implications for carbon storing. Forest-dependent communities, including indigenous peoples, often bear the brunt of the impacts, facing displacement, loss of livelihoods, and disruptions of cultural practices tied to forest resources. Addressing these changes and impacts as a result of climate change is important to come up with comprehensive approaches to reduce greenhouse gas emissions, promote sustainable land use practices and conserve and restore forest ecosystems.

Climate Solutions with Focus on Forests

Policies and programmes designed by countries to achieve targets under SDG 15 are interrelated with the goals mentioned in SDG 13 since preservation of terrestrial ecosystems helps in mitigating several impacts of climate change, such as loss of vulnerable species of plants and animals, soil erosion, droughts and floods, forest fires, etc. India's government is taking several measures to achieve targets under SDG 15. They include policies and programmes such as the National Mission for a Green India, the National Afforestation Programme, compensatory afforestation and rigorous plantation drives across states.

Programmes targeting deforestation are crucial as deforestation and loss of tree density decreases the carbon assimilation capacity. Therefore, the larger the green cover of the forest and the older and healthier the trees are, the better is the capacity to sequester carbon. Inability to address land ecosystems-related issues will only aggravate the frequency and intensity of climate change impacts such as unprecedented rains in monsoons and severe droughts. Achieving the SDG 15 targets is important to combat climate change as land ecosystems play a crucial role in providing solutions to the impact of global warming.

As the 16 goals are linked to climate change, content creators can explore the linkages, and make a series of episodes by linking the targets of each goal to those of SDG 13. As climate change and disasters affect the poorest and most vulnerable groups they exacerbate the existing inequalities within and across countries. A balanced development agenda that looks at protecting the environment, managing resources in an equitable manner, preserving ecosystems as well as supporting institutional systems for effective use and access to natural resources can lead to a measurable reduction of inequalities. On the contrary, lack of access to natural resources can contribute to furthering inequalities in all sectors.

3.8 Summary

This module explores the interconnections between climate change and the Sustainable Development Goals (SDGs) set by the United Nations. The SDGs represent a comprehensive agenda aimed at addressing global challenges, and their targets are interconnected, just as the impacts of climate change on various sectors are intertwined.

The module then delves into specific intersections with the first intersection between gender and climate change highlighting how gender disparities and cultural norms limit women's abilities to cope with climate change impacts. It emphasises the need for gender-based solutions in climate action to ensure women's empowerment, participation, and

protection from gender-based violence. The chapter also addresses poverty and climate change, noting that the adverse effects of climate change disproportionately affect the poor. It highlights the importance of integrating poverty reduction strategies with climate adaptation and mitigation efforts, promoting sustainable practices, and providing alternative livelihood options. Further, the text explores the intersection of health and climate change. By considering these interlinkages, collaborative efforts involving various stakeholders can maximise the benefits of climate solutions and avoid potential conflicts between different goals and targets.

3.9 Activity

- In collaboration with the local sarpanch, conduct a survey among women in your community/village to understand the specific challenges they face. After identifying their difficulties, investigate prevalent climate change-related issues in the region such as water scarcity and soil degradation. Engage in discussions with the women, seeking their perspectives on these environmental concerns and their impact on their lives. By comparing their responses with those of men in the region, gain insights into the differing viewpoints and experiences related to these issues.
- Find the nomadic communities in your city/ state. Interview them to find out if changes in cropping, grass cover, presence of water and so on have resulted in altering of habitats and professions.
- If you are located in a drought-prone area, find out more about the Drought Management Plan, initiated by the Ministry of Agriculture. Involve local officers, experts and scientists from the agriculture department. Include segments on soil protection, conservation and improving soil fertility, water harvesting and climate resistant agriculture.

3.10 Quiz

Mark the following statements as true or false:

1. Goal 5 of the SDGs aims to achieve gender equality. (True/False)
2. Poverty means having the financial resources for a minimum standard of living. (True/False)
3. Protecting life in water is SDG Goal 14. (True/False)
4. Shifting to clean energy will help in decreasing greenhouse gas emissions, increasing the burden of disease from air pollution. (True/False)

Answers at the end of this curriculum

3.11 References

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MODULE 4:

Vulnerability Zones in India

4.0 Introduction

4.1 Learning Outcomes

4.2 India and Climate Change

4.3 India's Vulnerability Map

4.4 Summary

4.5 Activity

4.6 Quiz

4.7 References

4.0 Introduction

India, a land of rich diversity and vibrant cultures, stands at the forefront of the global battle against climate change. As one of the most populous countries and with a rapidly growing economy, India faces unique challenges and vulnerabilities in the face of changing climate. This module delves into the key impacts of climate change on India, explores the associated terms related to extreme weather events, unveils the nation's vulnerability, and highlights the climate-vulnerable zones within its borders.

We begin by examining the profound effects of climate change on India, recognising that its vast geographical expanse and diverse ecosystems give rise to a wide range of impacts. From rising temperatures and changing precipitation patterns to increased frequency and intensity of extreme weather events, such as cyclones and droughts, the consequences of climate change are reshaping the nation's landscapes, ecosystems, and livelihoods.

This module serves as a comprehensive exploration of India's climate vulnerability, impacts, and unique geographical contexts. By shedding light on the key terms, vulnerability factors, and climate-vulnerable zones, we aim to deepen the understanding of the complex climate challenges faced by India. In doing so, we hope to inspire informed actions, innovative solutions, and inclusive policies that safeguard India's people, environment, and future generations in the face of changing climate.

Omkar Bhosle, a 50-year-old, was once an affluent farmer in Wadwani tehsil of

Maharashtra's Beed district. He owned orange and mango orchards, a small farmstead, and cattle. His children were studying in a boarding school. The future seemed assured. But over the past few years, the region has started experiencing water scarcity. His produce was not as juicy as earlier, the price he got was not as good as earlier. By 2021, Bhosle's financial position started deteriorating. In August 2021, he had to borrow ₹3 lakh from friends and relatives to arrange for water tankers to irrigate his orchards. But, unable to afford more tankers, he was left with no option but to get rid of 110 out of 202 mango trees in one of his orchards. If the dry spell continues, he will have no option but to destroy the orchards.

Bhosle is not alone. Hundreds of farmers in Aurangabad, Nashik, Hingola, Parbani, Latur and Nanded districts have been destroying their crops as they cannot afford to buy water for



According to UN World Water Development Report 2023, 80% of people living under water stress lived in Asia

irrigation. They are also facing a shortage of fodder for their cattle, resulting in a 50% drop in the price of cattle. (Fictionalised but based on a true story.)

Water scarcity has been a long ongoing crisis in Maharashtra and farmers continue to be at the receiving end of the drought problem. Overexploitation and continuous extraction of groundwater for irrigation has resulted in depleting water levels in dams and reservoirs and a falling water table. According to the Intergovernmental Panel on Climate Change (IPCC)'s latest report, over the next few years Maharashtra is expected to face the twin challenges of water scarcity and flooding, adding to poverty and health risks.

4.1 Learning Outcomes

After reading this unit, you will be able to:

- Understand the impacts of climate change on India
- Define and explain extreme weather events
- Acknowledge India's vulnerability to climate change and discuss its key factors
- Identify India's climate-vulnerable zones.

4.2 India and Climate Change

India, with its vast geographical size, diverse ecosystems, and large population, faces high vulnerability to the impacts of climate change. Multiple reports and assessments provide evidence of these vulnerabilities and emphasise the need for urgent action. Some of the most pervasive effects of climate change are:

4.2.1 Rising Temperatures and Heat Waves

The "Heat Wave in India" report highlights the increasing frequency and intensity of heat waves in the country, which have detrimental effects on human health, agriculture, and water resources

(Heat Wave in India – NIDM). Environmental scientists have predicted that global temperatures and the frequency and intensity of heat waves will increase in the 21st century as a result of climate change.

High air temperatures will affect human health and even lead to deaths. Extended periods of high day and night temperatures create cumulative physiological stress on the human body which exacerbates the top causes of death globally, including respiratory and cardiovascular diseases, diabetes and renal disease.

Heat waves can often trigger public health emergencies, and result in excess mortality, and cascading socioeconomic impacts (e.g. lost work capacity and labour productivity). They can also cause loss of health service delivery capacity, where power shortages which often accompany heat waves, can disrupt health facilities, transport, and water infrastructure.

4.2.2 Changing Monsoon Patterns

Monsoons are crucial for India's agriculture and water resources. Climate change is altering monsoon patterns, resulting in changes in rainfall distribution, timing, and intensity. The Indian Meteorological Department's "Climate Profile of India" report provides insights into the rapidly changing rainfall patterns and their implications for agriculture and water availability. It has also been observed that in the past few years there has been a shift towards more frequent dry spells and more intense wet spells during the monsoon season. The monsoon withdrawal period has also shifted from mid-September to late September or early October.

4.2.3 Vulnerable Coastline

India's long coastline makes it highly susceptible to sea level rise. India has an almost 7,500-km-long coastline and sea level rise could have major consequences for the millions of people living along the coastline. While gradual erosion of the coastline, subsidence and inundation of deltas are a long-term concern for people living close to the sea, the immediate concern is over the combined impact of tropical cyclones and

sea level rise. Storm surges and tides bring saline water into agricultural fields and people's homes, destroying public infrastructure and communication networks. This results in long-term damage, including decrease in soil quality.

4.2.4 Water Scarcity and Droughts

India has 18% of the world's population but, but only 4% of its water resources, making it among the most water-stressed countries in the world. According to a 2022 report by NITI Aayog, millions of Indians face high to extreme water stress; and dependence on an increasingly erratic monsoon for water increases the challenge. Climate change is further likely to worsen this pressure on water resources.

Declining groundwater levels due to overexploitation impacts irrigation and water supply to rural industries and households. From Himachal Pradesh to Kerala, communities are witnessing acute water scarcity which can be attributed to declining water sources, rapid population growth, poor infrastructure, leakages in supply pipelines, poor sanitation and drain maintenance. All this affects agriculture, livelihoods, and water resource management—thus underscoring the need for sustainable solutions.

4.2.5 Glacier Retreat

The formation of glaciers is a natural and self-regulating process of snow and ice accumulation and ablation. However, in the Himalayan range, fast retreating and melting glaciers could lead to formation of moraine-dammed lakes (natural freshwater reservoirs which are naturally dammed by material accumulated from a glacier) that may burst, causing devastating flash floods. Reduced snowfall and receding glaciers are impacting the whole of the Hindu Kush-Himalayan region. The depletion could also lead to shortage of water for household purposes and irrigation.

Rapidly-receding glaciers increase the risk of flooding in summer and eventually lead to drought as the ice disappears. This phenomenon is affecting the lives of millions of people who

live downstream and whose main source of subsistence is agriculture in the river basins.

4.2.6 Extreme Weather Events

In 2022, the Delhi-based non-profit, Centre for Science and Environment (CSE) and Down to Earth magazine's Data Centre tracked the extreme weather events that took place throughout the year in India. It was found that the country, on the whole, experienced extreme weather events on 314 out of the 365 days. This means that at least one extreme weather event was reported in some part of the country on each of these days.

Generally, extreme weather events are associated with large-scale destruction and losses. But the reality is that extreme weather events—events that are abnormal in terms of location or intensity—are, in most cases, local occurrences that are now becoming normalised. Going by the definition of extreme weather events, such as heavy rain, floods and landslides, in 2022 they occurred on 214 days in the year; this was followed by lightning and storms (185 days); heat waves (66 days); cold waves/cold days (46 days); cloudbursts (11 days); snowfall (4 days); and cyclones (3 days).

Some Definitions

It is important to understand the definitions of what we term extreme weather events:

- 1. Lightning:** Lightning is an electrical discharge caused by imbalances between storm clouds and the ground, or within clouds themselves. Lightning can set off building or farm fires, damage electrical equipment, and electrocute humans and livestock. Lightning often knocks out power lines and sends powerful electrical surges through electrical and phone lines. In your home, they can burn out appliances and other electronics.
- 2. Storms: They include**
 - a) Dust storms** — Sand and dust storms usually occur when strong winds lift large amounts of sand and dust from bare, dry soil into the atmosphere. Visibility reduces to around 1 km during dust storms.

b) Hailstorms — A hailstorm is a thunderstorm that produces ice of various dimensions as precipitation. Hailstorms can cause serious damage to crops, property, birds and animals. Hail can damage aircraft, homes and cars, crops, and livestock.

c) Thunderstorms — A thunderstorm is a heavy rain shower accompanied by thunder and lightning. These are usually short but the strong winds can cause damage to trees.

- 3. Heat wave:** A heat wave is declared when the maximum temperature of a station reaches at least 40°C or more in the plains and at least 30°C or more in hilly regions. These conditions signify a certain rise in temperature at a given place with respect to normal climatological value.
- 4. Cold day / Cold wave:** A cold wave constitutes a rapid fall in temperature and extremely low temperatures for an extended period. Cold day conditions occur when the maximum temperature drops by 4.5-6.4°C below average. If the deviation is more than 6.4°C, then it is considered a severe cold day. Cold wave conditions occur when the minimum temperature drops by 4.5-6.4°C below normal. Similarly, severe cold waves occur when the minimum temperature drops by more than 6.4°C below normal.
- 5. Snowfall:** Precipitation in the form of solid particles of snow is snowfall. This is a hydrological hazard where a large amount of snow can affect transport, crops and people.
- 6. Cloudburst:** It occurs when there is very heavy rainfall (100 mm per hour) over a localised area. It is accompanied by strong winds and lightning.
- 7. Cyclone:** Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation. Cyclones are usually accompanied by violent storms and bad weather. The air circulates inward in an anticlockwise direction in the northern hemisphere and clockwise in the southern hemisphere. Cyclones are classified as: (i) extratropical cyclones (also called temperate cyclones) and (ii) tropical cyclones.

Keeping in mind that out of 365 days, some parts of India experience extreme weather

conditions on more than 300 days, there is an urgent need for adaptation and mitigation strategies in the country. The trends of temperature rise, altered precipitation patterns, sea level rise, increased cyclone frequency, and the vulnerability of coastal areas substantiate this. Prioritised interventions in vulnerable states and districts are crucial to safeguard the environment, infrastructure, agriculture, and well-being of communities across the country. It is imperative that effective measures and policies be implemented to address the specific challenges posed by climate change in different regions of India.

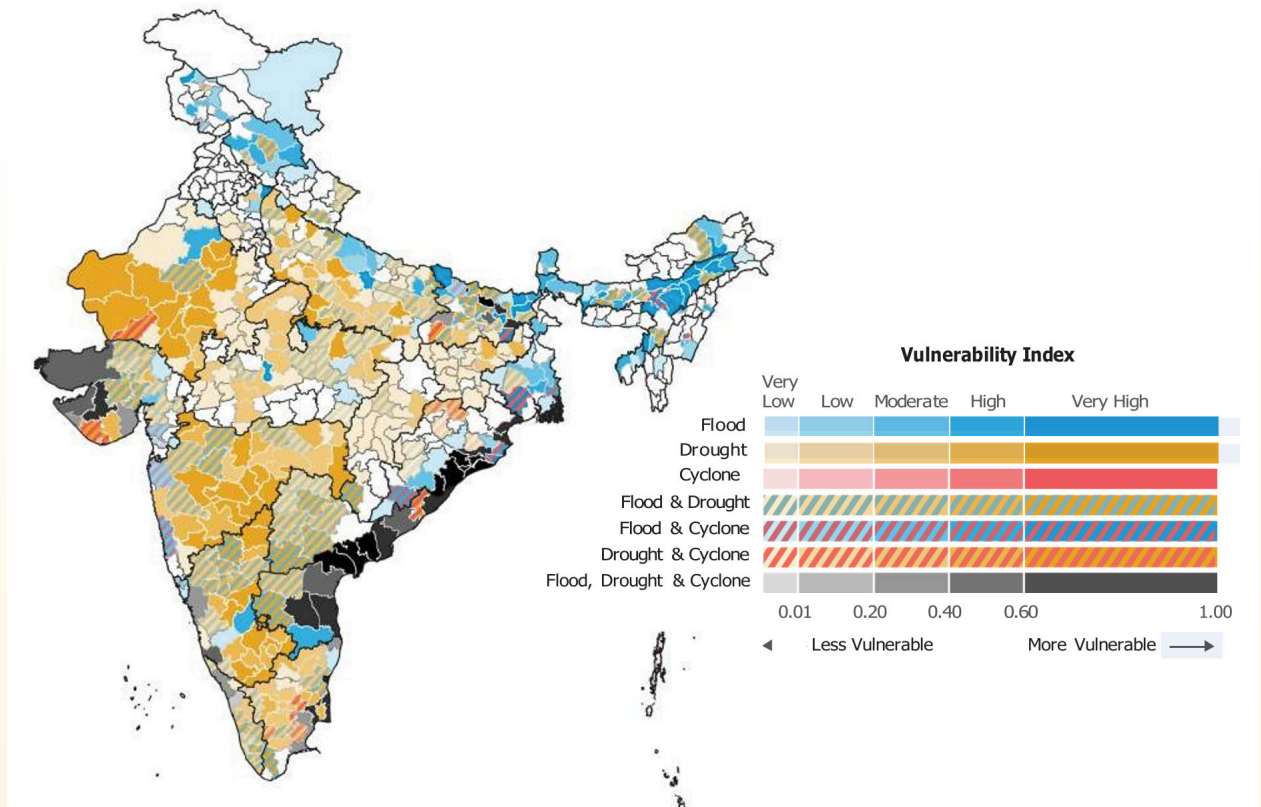
4.3 India's Vulnerability Map

It is important to note that climate vulnerability is not limited to these states. Other states also face specific climate risks and vulnerabilities that require attention and mitigation strategies. Local factors, socioeconomic conditions, and adaptive capacity play a crucial role in determining the extent of vulnerability and the effectiveness of climate change adaptation measures in each state.

4.4 Summary

This module discusses in detail the impact of climate change in the Indian context. It addresses the effects of climate change in India such as rising temperatures, changing monsoon patterns, vulnerable coastline, water scarcity and droughts, glacier retreat, and so on. By understanding the effects of climate change, steps can be taken in the right direction to identify vulnerable areas and region-specific climate solutions.

Since a majority of India's geographical area is prone to extreme weather events, definitions relating to them have been discussed in the module—lightning, storms, heat wave, cloudburst, etc. Because of the frequency of extreme weather events in different parts of the country, there is an urgent need for adaptation and mitigation measures.



Key Facts about India's Vulnerability to Climate Change

- Approximately 80% of India's population lives in highly vulnerable, disaster-prone zones.
- The southern zone of India is more vulnerable to extreme climate events, which manifest as floods, droughts and thunderstorms.
- Out of the total districts in the eastern and western zones of India, 59% and 41%, respectively, are highly vulnerable to extreme cyclonic events.
- The states located in India's northeast are more vulnerable to floods, while states in the southern and central parts are more vulnerable to extreme drought.
- Assam, Andhra Pradesh, Maharashtra, Karnataka and Bihar are highly vulnerable to extreme climate events such as floods, droughts and cyclones, according to the Climate Vulnerability Index (CVI).
- The reasons for the high vulnerability are exploitation of the eco systems, lack of infrastructure planning and human-induced climate change.

The last section of the module includes a vulnerability map of India that provides information about regions that are prone to climate change. It talks about focusing on local factors, socioeconomic conditions and adaptive capacity to understand the extent of vulnerability in these regions.

4.5 Activity

- Interview an official from your local Forest Department, discussing climate change and its impact in your area. Use the above information to understand the vulnerabilities faced by your state and what measures can be taken to address them. Enquire about the problems faced by the flora and fauna in the region as well.
- If you are situated in a coastal area, interview relevant authorities and organisations for practical tips and suggestions on resilience measures in coastal areas such as building coastal defences, managed retreat, preservation of natural defences such as mangroves, short-term emergency evacuation, etc.
- Prepare a plan on flood management (what to do if a flood is likely to hit your area, how to prepare for evacuation, emergency kits, saving animals during floods, safeguarding important documents).

4.6 Quiz

Fill in the blanks in the following statements:

1. Climate change has led to a _____ in the monsoon pattern in India.
2. A heat wave is declared when the maximum temperature in a region reaches at least ____ or more in plains and ____ in hilly areas.
3. _____ are caused by atmospheric disturbances around a low-pressure area accompanied by violent storms and bad weather.
4. India's long _____ makes it highly vulnerable to the impact of sea level rise.

Answers at the end of this curriculum

4.7 References

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MODULE 5:

Climate Action and Sustainable Development

5.0 Introduction

5.1 Learning Outcomes

5.2 What is Climate Action?

5.3 Why Do We Need Climate Action?

5.4 Climate Action Initiatives

5.5 Link between Sustainable Development and Climate Action

5.6 Role of Community Media Practitioners in Promoting Sustainable Development

5.7 Summary

5.8 Activity

5.9 Quiz

5.10 References

5.0 Introduction

India is one of the 196 signatories to the Paris Agreement signed on December 12, 2015, which was finally put into action in November 2016. All the signatories committed to take action to address climate change. Governments, businesses, inventors, and infrastructure companies agreed to adopt greener technologies. There was consensus regarding rising global temperature, which was already 1.1°C higher than pre-industrial levels. There had been an increase in natural disasters owing to glacier melting and sea level rise, such as flooding and droughts that were destroying lives and livelihoods, forcing millions of people to leave their homes and settle in other places. This put pressure on already stretched infrastructure, pushing people into poverty and limiting access to health, education, and employment.

Climate change and its impact have exacerbated inequalities and life-threatening events. There is a need to take action now to save the human race and the planet. Climate action has to become a central theme in all discussions across all areas of development and growth. This is the time to build partnerships, hold discussions, and involve communities in taking collective actions that can help preserve and conserve the environment and build resilience by adopting mitigation strategies.

It is important to look at solutions that are not just a quick-fix for the problems but also provide long-term ways of dealing with climate change. This module explores, in detail, climate action and its linkages with sustainable development.

5.1 Learning Outcomes

After reading this module, you will be able to:

- Define climate action
- Understand its intersection with sustainable development
- Identify the link between climate action and sustainable development
- Recognise the role of community media in promoting climate action.



Scarcity of fresh waterbodies in the world adds another layer of challenge to the ecosystem

5.2 What is Climate Action?

Climate action refers to steps taken to mitigate and adapt to the impacts of climate change. It primarily aims at reducing greenhouse gas emissions, protecting ecosystems, and building resilience in communities. Goal 13 of the SDGs is about climate action. Through its five targets with eight indicators, Goal 13 urges signatory countries to combat climate change.

As discussed in Module 1 in detail, Goal 13 provides certain ways through which climate action can be undertaken, such as:

- Strengthening resilience and adaptive capacity regarding disasters.
- Making policies on the impact of and solutions for climate change.
- Raising awareness about climate change, and adaptation and resilience mechanisms and practices.

5.3 Why Do We Need Climate Action?

Climate action is imperative, a matter of survival because the current trajectory of climate change is life-threatening for vulnerable communities, wildlife and ecosystems. If no action is taken to reduce and reverse the damage being caused to life, land, water and the atmosphere, it is likely to soon become irreversible and render our planet an uninhabitable place.

Some reasons for the urgency of climate action:

- By reducing greenhouse gas emissions, global warming can be curbed.
- Reducing deforestation and encouraging afforestation will help to preserve the environment and biodiversity.
- Reducing use of plastic will help to save oceans, rivers, livestock and prevent urban flooding.
- Recycling waste and reusing products to reduce production has a cyclical effect on climate change.

- Reducing use of fossil fuels will help to reduce extreme climate events that lead to vector-borne diseases and increase the burden on health infrastructure and resources.
- Reusing, treating and recycling water will help to reduce water scarcity which causes conflict and becomes a threat to global stability and security.
- Learning to live in peace furthers the well-being of all—wars and conflict lead to geopolitical and social issues such as migration which have a bearing on sharing of resources between regions, and global food supply.
- Collaboration for collective action, involving governments, businesses and communities, to combat the impact of climate change is essential as it is a global problem that has to be addressed locally.

5.4 Climate Action Initiatives

Collective action plays an important role in combating climate change. A collective approach can speed up the pace of climate action. Such initiatives should target reduction of emissions, tackle concerns such as jobs and gender equality, unlock finance for climate resilient practices, build sustainable infrastructure, and encourage the use of nature-based solutions.

International organisations such as the United Nations and its various agencies play the role of a convener to encourage people to collaborate and take actions. However, using adaptation and mitigation strategies that are contextualised can ensure better results. To understand climate action initiatives better, let us take a look at a few examples:

1. **Energy:** India has set a target for net zero emissions by 2070. In order to achieve this, it has upgraded its action plan against climate change.
 - It aims to put forward and propagate a healthy and sustainable way of living based on traditional values of conservation. One of the initiatives India has put forward is LiFE - 'Lifestyle for Environment'.

- It has set a target of achieving about 50% of combined electric power installed capacity from non-fossil fuel-based energy resources by 2030 with the help of clean technology and financing from internationally contributed funds.

2. Infrastructure: Several initiatives taken by India highlight the country's commitment to building climate-resilient infrastructure across different sectors. To mention a few:

- **Smart Cities Mission:** An initiative of the Union Housing and Urban Affairs Ministry launched in 2015 and aimed at promoting cities that provide a core infrastructure and offer a decent quality of life and a clean and sustainable environment using 'Smart' Solutions. (Smart City Mission Statement & Guidelines, June 2015.)
- **Climate Adaptation Fund:** Set up by the Union government in 2015, the National Adaptation Fund for Climate Change aims to meet the cost of adaptation to climate change for states and Union Territories that are particularly vulnerable to the adverse effects of climate change.

3. Agriculture: Initiatives taken by India in the agricultural sector demonstrate the country's commitment to building climate resilience.

- **National Mission for Sustainable Agriculture:** It is part of one of the eight missions under the National Action Plan on Climate Change (NAPCC). It aims at making agriculture more productive, sustainable and climate resilient by promoting location-specific integrated/composite farming systems, water and soil conservation measures.
- **National Innovation on Climate Resilient Agriculture (NICRA):** This is a research and development programme initiated by the Indian Council of Agricultural Research (ICAR). The programme focuses on developing and promoting climate-resilient agricultural technologies, practices and crop varieties with the aim of enhancing the adaptive capacity of farmers, minimising climate risks and increasing productivity.

5.5 Link between Sustainable Development and Climate Action

Interlinking sustainable development and climate action is important to ensure a sustainable and clean future for ourselves and future generations.

We know that all actions have certain consequences and repercussions. Steps taken under climate action might sometimes lead to unintended consequences and trade-offs. A trade-off, in simple terms, is any situation where making one choice means losing something else, usually giving up a benefit or opportunity. For example, promoting large-scale renewable energy projects might result in the displacement of local communities or ecological damage in a particular area. For instance, some of the well-documented effects of large-scale renewable energy projects can be:

- **Habitat loss:** Energy sources take away space from plants and animals.
- **Wildlife destruction:** Renewable energy sources can stress animals and even kill them. Wind turbines spin with great force and may harm birds and bats.
- **Land damage:** Construction of renewable energy sources damages the land's natural layout and destroys plants.
- **Displacement:** Displaced people are sent to live elsewhere when renewable energy sources are built on their homes.

Similarly, making sustainable consumption choices, such as buying locally produced goods or reducing single-use plastic, can contribute to climate action. However, these choices might come with a trade-off in terms of availability, cost, or convenience compared to easily accessible and cheaper options. Sustainable development offers a broader framework to assess and manage these trade-offs, ensuring that climate action does not compromise other aspects of human well-being and ecological integrity.

A core principle of sustainable development is resilience-building. Resilience enhances the capacity of communities, ecosystems, and economies to withstand and recover from climate-related shocks. Failure to devise climate-resilient practices and programmes could leave communities ill-prepared to cope with the increasing impacts of climate change, which would further lead to disruptions in the social, economic and natural order.

5.6 Role of Community Media Practitioners in Promoting Sustainable Development

Community participation is a vital tool for sustainable community development. It must be encouraged in all stages of the community development process—right from identification of problem areas, planning, project implementation, management and evaluation. Involvement of the community in discussions around development enables everyone—from the community to administration—to be better

informed, leading to a holistic approach in decision-making. It also enables them to participate in development projects that affect their lives.

Community participation can be defined as a process whereby members of participating communities mobilise themselves to participate in groups as community members for the common purpose of addressing problems with a view to improving living conditions in the concerned communities. In the context of sustainable development, the role of the community and its active participation cannot be overlooked. When the community comes together to deliberate, participate and look for solutions that will ensure a sustainable and safe future for itself, the actions arising from this process are long-lasting and effective.

Various social organisations within the community play an important role when it comes to promoting sustainable development in the context of climate change. These include non-profit organisations, civil society groups, self-help groups, and community media. Community practitioners play a vital role in promoting sustainable development by actively engaging with communities and implementing

Case Study: Climate proofing India's road network to ensure resilience

The August 2018 Kerala floods, marked as the worst monsoon floods in over a century, highlighted, yet again, the vulnerability of India's transportation infrastructure. Torrents of rain loosened soil from hilltops, leading to landslides which engulfed entire villages and caused loss of property including destruction of more than 10,000 km of Kerala's roads. This hampered critical relief efforts, leaving thousands in distress and cut off from access to emergency services.

Since roads form a part of essential infrastructure, on which communities depend for access to other basic services such as health, education and livelihood, ensuring resilient roads became important. Once the floodwater receded, the local government—with support through the Rebuild Kerala Development Program—began rebuilding the road sector. To ensure resilience of the transport network, a systems-wide approach was followed and a climate-informed GIS-based Road Maintenance Management System (RMMS) was established with a dedicated RMMS and climate cell to create a plan and manage road maintenance in the state.

The Kerala Highway Research Institute (KHRI) has been assigned by the Public Works Department (PWD) to conduct geo-mapping of vulnerable road network zones in the state. This data will be regularly updated and given to the PWD's road designers to implement enhanced design techniques and eco-friendly solutions.

strategies for positive change. Since they are a part of the community, they possess a deep understanding of community dynamics, social issues and environmental concerns prevalent in their area. This enables them to facilitate meaningful dialogue, build trust and mobilise community members.

Community radio, through its regional connection and understanding of the local community, educates its community about the importance of sustainable development, the environmental and social impacts, and the benefits for the community—using the local language and citing examples from the community itself. Not only is the community reached through radio, there is also direct engagement with different groups through practices such as narrowcasts (playing the episodes on your phone or an audio system for a captive audience) and group discussions. Closed and intimate conversations help in explaining complex issues related to climate change in a simpler and direct manner. Direct engagement also helps the community media amplify the problem shared, eliciting greater participation from the community in looking for local solutions.

Another important role played by community media is that of mediation. They serve as facilitators, bridging the gap between

community members, local authorities and other stakeholders. They facilitate participatory decision-making, ensuring that the voice of the community members is heard.

5.7 Summary

This module explores the concept of climate action and its intersection with sustainable development. It begins by defining climate action, which encompasses efforts and measures taken to mitigate and adapt to climate change. The module delves into the relationship between climate action and sustainable development. It explains how sustainable development aims to meet present needs without compromising the ability of future generations to meet their needs in turn.

The module further explores the link between climate action and sustainable development—highlighting how climate change affects various aspects of sustainable development, including poverty eradication, access to clean energy, sustainable agriculture, resilient infrastructure, and ecosystem preservation. Finally, the module focuses on the role of community media in promoting climate action. It highlights the unique position of community media as trusted sources of information and catalysts of change within their communities.



Climate conscious action needs collective efforts for amplified and long-lasting results

5.8 Activity

- Social maps help in developing a broad understanding of social reality, via social stratification, demographics, settlement patterns, social infrastructure, etc. List stakeholders involved in responding to climate disasters: Aaganwadi workers, panchayat members, kiosk owners, Krishi (agriculture) offices, Accredited Social Health Activists (ASHAs), community radio, the collector or district commissioner, and other individuals or groups. The objective of the activity is to understand how these stakeholders function and interact when it comes to dealing with climate-related problems. You will need chart papers, pens or markers.
- Instructions for the activity:
 1. Divide participants into three groups, with each group consisting of three-four members.
 2. Each group should think about the people, offices, or other support agents they would approach regarding climate-related issues.
 3. They should also come up with solutions and possible escape routes if needed.
 4. Next, they need to draw a basic or rough structure of the village on the chart paper, including the solutions they identified.
 5. After completing the social map, each group should analyse it together.
 6. Encourage a full discussion with local analysts to gain insights and understanding.

7. Finally, each group shares its findings and insights with the rest of the participants.

5.9 Quiz

1. Climate action refers to the steps taken to _____ and _____ to the impacts of climate change.
2. _____ is a vital tool for sustainable community development.
3. A core principle of sustainable development is _____.
4. Climate action can reduce _____ and curtail _____.

Answers at the end of this curriculum

5.10 References

- <https://www.endangered.org/how-renewable-energy-impacts-biodiversity/>
- <https://smartcities.gov.in/themes/habikon/files/SmartCityGuidelines.pdf>
- <https://blogs.worldbank.org/endpovertyinsouthasia/indias-road-resiliency-why-climate-proofing-indias-road-network-vital-secure>
- <https://www.eajournals.org/wp-content/uploads/Community-Participation-as-a-Tool-for-the-Promotion-of-Sustainable-Community-Development.pdf>



MODULE 6:

Communicating Climate Change to Local Communities

6.0 Introduction

6.1 Learning Outcomes

6.2 Communicating Climate Change

6.3 Guidelines for Effective Communication

6.4 Summary

6.5 Activity

6.6 Quiz

6.7 References

6.0 Introduction

This module aims to address this challenge by focusing on communicating climate change for collective action, with special emphasis on integrating participatory approaches for sustainable development practices. The module highlights the importance of educating and mobilising audiences to confront the climate crisis, providing guidelines sourced from organisations like the United Nations to ensure the dissemination of authoritative and verified scientific information. It emphasises the need to convey both the problems and the solutions, empowering individuals and linking climate change to justice. Mobilising action is another key aspect, urging the audience to recognise the urgency of the situation and emphasising the opportunities presented by sustainable practices. The module also emphasises the importance of understanding and respecting the unique values and needs of each community, promoting community-based climate action projects and amplifying local success stories. By utilising various communication platforms and engaging in partnerships, content creators can effectively spread the word about climate action and inspire positive change.

On the morning of June 17, 2023, like every day, Mukul Singh left for his fields at 6 am, carrying a flask of water and his lunch. He usually spent four to five hours in the field, then rested for a few hours under the big peepal in the corner

of his field, ate his lunch and then went back to work, before returning home by 4 pm. But on this day, after leaving the house, he was not feeling too good. The temperature had been soaring, almost touching 44°C. Living in Ballia, Uttar Pradesh, Singh and his family were used to hot summers but the past week had been unusually warm and humid, both during the day and night. Usually, summer was associated with hot winds during the day that cooled down at night. But the heat and humidity together were unbearable. Mukul Singh decided to head back home. He was drenched in sweat. He drank a glass of water, but still felt restless. He lay down under the fan, but didn't feel better. That night he bathed three times, to cool his body. By 6 am he was exhausted, and suddenly fell on his bed, unconscious. His family took him to a nearby health centre, where he was declared dead. Like many others in their fifties and sixties, Mukul Singh had succumbed to the unprecedented heat wave. (Adapted from newspaper reports.)



Urging communities action to act collectively against local issues is an importance step for building resilience

The month of June 2023 has been particularly bad in pockets across India: some districts have coped with unprecedented floods, others have witnessed loss of life due to extreme heat and humidity. The biggest challenge of climate change is communicating that what happened to Mukul Singh and hundreds of other people is a result of climate change, but without creating undue anxiety among people. How do we, as community media, tell stories that educate, create awareness and enhance the ability of people to mitigate, adapt, and learn about the early warning systems, and the need to reduce the impact of climate change?

6.1 Learning Outcomes

After reading this module, you will be able to:

- Identify strategies of communication that will convey the message without causing anxiety
- Understand effective means of communicating climate change messages.

6.2 Communicating Climate Change

Communicating climate change is about educating and mobilising audiences to take action to confront the climate crisis. Everyone can play a part by raising their voice, sharing solutions, and advocating for change—shaped by different experiences, cultural contexts, and underlying values. The key challenge of communicating climate change is that for most people it is far away and distant, happening elsewhere. To mobilise action it is important to contextualise the change and present it as a ‘here and now’ phenomenon that is already impacting people and ecosystems, taking away livelihoods, forcing people to migrate, taking away lives, destroying biodiversity, endangering flora and fauna and animal species, and more. However, only negative stories may not work as they create pessimism. Thus, the right balance needs to be maintained while communicating climate change. For community media it is imperative to showcase the impact of climate action as well.

Climate change is a complex process, and many of the scientific terms are difficult to understand. The key to effective communication is to skip the jargon and simplify the terms so that all can understand—instead of global warming, just say that temperatures will get warmer, or that winters will be shorter, the sea level will be higher, etc. Once the concepts are explained and people begin to understand, more complex terms can be introduced.

To communicate climate change the United Nations Department of Global Communications, in consultation with the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Programme (UNEP), and the World Meteorological Organisation (WMO), as well as ACT Climate Labs, Climate Action Against Disinformation (CAAD), Conscious Advertising Network (CAN), TED Countdown, and the Yale Program on Climate Change Communication, has produced certain guidelines, which can be used to create informed messaging on climate change.

6.3 Guidelines for Effective Communication

To make a communications product such as a video, podcast, article or graphic on climate change valuable, effective, and reliable it would be pertinent to keep in mind the following tips, that have been borrowed/adapted from the guidelines:

Use Authoritative, Verified Scientific Information

WHY?

- Misinformation and disinformation are widespread on the issue of climate change—and they are major obstacles to progress in tackling the climate crisis. Deceptive or misleading content distorts the perception of climate science and solutions, creates confusion, and often leads to delays in

action or even harmful action. “Rhetoric and misinformation on climate change and the deliberate undermining of science have contributed to misperceptions of the scientific consensus, uncertainty, disregarded risk and urgency, and dissent,” according to the Intergovernmental Panel on Climate Change (IPCC).

HOW?

- Check your sources. When sharing facts and figures, make sure they come from a reliable source, that is science-based (consistent with the latest scientific consensus) and objective (not biased or influenced by financial or political incentives). Gather information from peer-reviewed articles (reviewed by experts in the same field prior to publication) as they can be trusted to provide the most reliable information. A uniquely authoritative source is the UN’s IPCC, whose comprehensive assessments are written by hundreds of leading scientists, with contributions from thousands of experts, and endorsed by its 195 member countries.
- Stop misinformation. Things you post online can spread very fast. Think before you share something on social media. Check the source, find out who made it, what sources it is based on, who paid for it, and who might be profiting from it. If you detect misinformation among your followers, rebut it by sharing a counter to it.
- Beware of greenwashing (presenting a company or product as environmentally friendly when they actually aren’t). Double-check if options suggested to reduce carbon footprint actually deliver on their climate promises. Avoid promoting brands and products, and provide information to enable your audience to make informed choices. When taking on work that is financially rewarding, be careful to challenge the proposition to make sure it promotes sustainable behaviour.
- Use trusted messengers. Breaking down the science behind climate change is complex, but the right messengers can get the audience engaged. As an established content creator, you may already be a trusted messenger for your audience. Often the most impactful climate communications come from people who can share lived experiences, can place their research in the local context and who are equally affected.



The key challenge to communicating climate issues is the disconnect between knowledge and experiences

Convey the Problem and the Solutions

WHY?

Explaining the scale of the climate crisis is important, but it can seem overwhelming, leading people to lose interest and tune out. Climate change is one of the greatest challenges humankind has faced. It is daunting, but the battle against climate change is far from lost. The worst impacts can still be averted if we act now. A good way around disillusionment and “crisis fatigue” is to convey a hopeful message focused on the solutions. This helps people feel empowered and motivated to engage.

HOW?

- Tell a story—make it real. Presenting data alone may numb the audience. Making it relatable, local, and about shared experiences can make all the difference. Individual stories build an emotional connection, get the audience to care, and make shared global challenges seem less overwhelming. You don’t even need to lead with the word ‘climate’ but start with a related issue that is important to your audience. Air pollution, for instance, which cities like Delhi are tackling by introducing e-vehicles. Or new job opportunities offered by clean energy projects, like the women in Gujarat who are engaged in building solar panels.
- Empower people. Let people know that they have the power to effect change. Individual action and systemic change go hand in hand. Individuals can help drive change by shifting consumption patterns and demanding action by governments and corporations. Small steps by a large number of people can help persuade leaders to make the big changes we need. And the more people act now and speak up for change, the bigger the pressure on leaders to act.
- Link it to justice. Climate change is not just about science, it is also an issue of justice. The poor and marginalised are often hit the hardest by increasing climate hazards like floods, droughts, and storms. Those who contributed the least to greenhouse gas emissions are often the most affected by it. And financial commitments of support

by wealthier countries have not been met. Solving the climate crisis also means addressing injustice and inequity, which can create opportunities for all.

- Avoid stereotypes. Poorer countries and underserved communities, including indigenous peoples who have protected the environment for generations, are often portrayed solely as victims of climate change, rather than positive agents of change. The same is often the case for women and girls. Make sure to highlight the voices, expertise, innovations, positive action, and solutions of people from all walks of life and communities from all parts of the world.

Mobilise Action

WHY?

- We need all hands on the deck. Cutting greenhouse gas emissions to net zero by 2050, and halving them by 2030, requires nothing less than a complete transformation of how we produce, consume, and move about. Surveys indicate that a majority of people around the world want their governments to take action and most citizens in advanced economies are willing to make changes in their own lives.

HOW?

- Convey urgency. Make it about now. Many misinformation narratives present climate action as something that is necessary, but only in the future. Make sure you let people know what needs to happen right now in order to solve the climate crisis, and that action can’t wait. Studies have also shown that explaining the human causes of climate change increases public support for urgent action.
- Focus on the opportunities. Get your audience excited about the prospects of a sustainable world. Addressing climate change will bring about an abundance of opportunities—green jobs, cleaner air, renewable energy, food security, livable coastal cities, and better health. Are there climate initiatives in your community that face resistance? Showcase their benefits to rally support. Reframing the issue to focus on the prospects of a better future can galvanise action.

- Make it relevant. Meet people where they are—and avoid technical jargon. Limiting global warming to 1.5°C, for example, can be hard for people to relate to. Frame the issue in a way that will resonate with your local audience, by linking it to shared values like family, nature, community, and religion, for instance. Safety and stability—protecting what we have—were also found to be highly effective for creating a sense of urgency.
- Engage youth. The global youth climate movement has played a powerful role in driving action and holding leaders accountable. Featuring the voices of youth will make your content more relatable to young people and get more youth involved in demanding change. But avoid presenting climate change as a problem only for future generations. It is hitting hard right now, and action is needed right now.

Content creators must remain sensitive to the needs of the community and remember that each community is unique and their values are important. Listen carefully to your audience, and modify actions and discussions accordingly. By listening to your audience, you will be able to craft climate change messaging that resonates with your community. Promotion of community-based climate action projects, collective declarations, taking of pledges, involving local influencers and publicising commitments through public events are effective ways of guaranteeing a positive response and action. It is always good to include local success stories that highlight local climate change initiatives, as community-driven projects have the potential to inspire others to further this change.

Amplifying the stories that are confined to specific areas can help knowledge and information flow across boundaries. The use of social media platforms, websites, local events and partnerships with other organisations helps spread the word about climate action and how it is helping in mitigating the risks of climate change. Community media attracts a diverse audience, including young individuals, adolescents, and adults. This module will raise awareness among community media about the importance of catering to different audience segments through formats that can meet the needs of the different segments of society, and

continue to inspire all—irrespective of age, class, social and economic status.

Community media, being embedded in the community itself, has the advantage of not only knowing the community, but also having insights into the sensitivities, culture and practices of the community. Climate change is a universal issue and affects everyone, even if unequally, because some may be more vulnerable as compared to others; therefore, it is of paramount importance that everyone works towards finding solutions to the problem that has been created by human beings.

6.4 Summary

This module focuses on the challenge of effectively communicating climate change without creating undue anxiety. It explores how community media can educate, raise awareness, and enhance the ability of individuals to mitigate and adapt to climate change. It emphasises the importance of integrating participatory approaches for sustainable development practices.

The module discusses the need to simplify complex scientific terms and avoid jargon to effectively communicate the climate change crisis. It addresses the importance of countering misinformation, avoiding green washing, and using trusted messengers to engage the audience effectively. Conveying both the problems and the solutions is essential in climate change communication.

The module suggests telling stories that make the issue relatable and showcasing the positive impact of climate action. It highlights the empowerment of individuals, the connection between climate change and justice, and the importance of avoiding stereotypes in communication. Finally, the module underscores the importance of understanding and respecting the unique values of each community. It encourages community-based climate action projects, amplifying local success stories, and using various communication platforms and partnerships to spread awareness and inspire positive change.

6.5 Activity

- Gather twenty people and divide them into groups of five or pairs. Assign each group or pair a specific climate change topic or issue such as renewable energy, deforestation, sustainable agriculture, etc. Provide them a specified 30 minutes to brainstorm and plan their radio show segment on the assigned topic. Encourage participants to consider engaging content, informative discussions, interviews with experts or community members, impactful stories and the like to make their radio show engaging and effective. Once the planning phase is complete, allocate a specific time slot for each group or pair to present their radio show segment. After each presentation, provide constructive feedback and encourage discussion among the participants. Finally, have a group reflection session where participants can share their experiences, insights, and lessons learned from creating the radio shows.
- Curate a list of all the government schemes formulated to tackle climate change at the international/national and state levels.
- If your state has declared a plastic ban, check what products are banned and find out if those products still circulated or not.

6.6 Quiz

1. One effective guideline for communicating climate change is the use of _____ and _____ scientific information.
2. WMO stands for _____.
3. UNFCCC stands for _____.
4. UNEP stands for _____.
5. CAAD stands for _____.

Answers at the end of this curriculum

6.7 References

- <https://caad.info/what-is-climate-disinformation/>
- <https://www.iied.org/search?k=communicating%20climate%20change%20practitioners%20guide>
- https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter14.pdf
- <https://www.un.org/en/climatechange/communicating-climate-change>



MODULE 7:

Community Action and Climate Solutions

7.0 Introduction

7.1 Learning Outcomes

7.2 Community Action and Climate Change

7.3 Identifying Community-Based Climate Solutions

7.4 India and Collective Action for Climate Change

7.5 Strategies of Developing Community-based Messaging

7.6 Summary

7.7 Activity

7.8 Quiz

7.9 References

7.0 Introduction

Climate change is a global challenge that necessitates the participation of individuals, local groups, and national authorities. Despite the slow progress in international negotiations, grassroots and community initiatives have emerged as promising avenues for social innovation and transformative processes at the local level. Communities, with their traditional knowledge and experiences as stewards of natural resources, offer valuable insights into managing limited resources and addressing climate risks. Community media plays a crucial role in amplifying community-based climate solutions, showcasing successful initiatives, and fostering community action. Identifying these solutions involves shifting the focus towards grassroots and local approaches, breaking silos, and learning from one another's experiences. By starting small and making sustainable choices, individuals can contribute to collective efforts. By sharing local stories and programmes, communities can be inspired to take similar actions, participate, and support local organisations addressing climate change. Effective communication and mobilisation strategies, including public consultation, information and outreach, positive messaging, youth engagement, and simplified participation, enable communities to work collectively towards climate action.

In the interiors of Mahewa ward in Gorakhpur, Uttar Pradesh, a community faced the daunting challenge of monsoon flooding. This community, consisting of poor and marginalised people, was acutely vulnerable to the harsh impacts of climatic hazards such as floods, cyclones, altered rain patterns, and heat waves. However, hope arrived in the form of a transformative project called Community-Based Micro-Climate Resilience. The project aimed to empower the community by involving it in the construction process itself. With a fusion of improved building materials, innovative designs, and indigenous knowledge, this initiative sought to create sustainable and resilient structures in developing countries. Low-cost materials were carefully chosen, ensuring not only cost-effectiveness but also reduced carbon emissions, addressing both economic and environmental sustainability.



Collective action is vital for employing sustainable solutions

One of the project's key principles was minimisation of energy use. The infrastructure incorporated energy-efficient practices, promoting conservation and reducing the burden on the community's limited resources. Moreover, locally sourced materials were utilised, providing economic benefits to the community while also reducing the carbon footprint associated with transportation. As the project progressed, it became clear that its impact went beyond the physical structures. The community members involved in the construction process developed a profound sense of ownership and pride. They became ambassadors of change, helping others in the vicinity embrace the new designs and adopt sustainable practices.

The success of Community-Based Micro-Climate Resilience reverberated throughout Mahewa ward. The once-vulnerable community now stands tall, their resilience shining through the storm clouds. The project's replicable and cost-effective technologies proved instrumental in building sustainable housing, serving as an inspiration for other communities facing similar challenges. Mahewa has become a testament to the power of community engagement, indigenous knowledge, and innovative thinking. With every passing monsoon season, the community has not only celebrated the absence of flooding but also its newfound strength, unity, and determination to create a brighter future.

7.1 Learning Outcomes

After reading this module, you will be able to:

- Understand the need for community-based solutions to climate change
- Identify some of the community-based campaigns run by India
- Recognise strategies to facilitate community-based interactions on climate change.

7.2 Community Action and Climate Change

The first step towards community engagement for climate action is to create awareness among

communities as they can then drive change by mobilising efforts to combat climate change, fight injustice and ensure a safer, healthier city for the community as a whole. Climate change has been compounding existing poverty. Its adverse impacts are more striking in developing nations because of their geographical and climatic conditions, their high dependence on natural resources, and their limited capacity to adapt to a changing climate. Within these countries, the poorest, who have the least resources and the least capacity to adapt, are the most vulnerable, according to the IPCC. Changes in the incidence, frequency, intensity, and duration of climate extremes (for example, heat waves, heavy precipitation, and drought), as well as gradual changes in the average climate, are not only threatening livelihoods but are further increasing inequities between the developing and developed worlds.

Climate change is one of the biggest challenges facing our planet today. It is a worldwide concern that necessitates involvement and effort by everyone, ranging from ordinary people to local groups and national authorities. During the late 1970s and early 1980s, there was global consensus on formulating a treaty to reduce carbon emissions. Scientists and political leaders were in complete agreement that something needed to be done. This long chronology of global cooperation has resulted in the creation of the United Nations Framework Convention on Climate Change (UNFCCC). It has also led to the setting up of an international platform, the Conference of the Parties of the UNFCCC (commonly referred to as COP), where the entire world comes together to solve the burning issue of the changing environment.

However, the slow progress in international negotiations aimed at advancing global action on climate change has led to the emergence of grassroots and community initiatives. These organic networks within civil society demonstrate promising prospects for implementing social innovation and transformative processes at the local level, thus driving change from within the very foundation of our societies. Through their experiences and traditional knowledge as stewards of many natural resources, it is they who can

offer valuable insights into better managing scarce resources and mitigating climate risks. They also have the capacity to adapt to climate shifts, and participate in decisions that can have profound implications for people and the planet. Community media can play a vital role by amplifying community-based climate solutions and best practices, encouraging community action on climate change, and showcasing successful community-based initiatives.

7.3 Identifying Community-Based Climate Solutions

Community-based climate solutions refer to teaching, informing, and engaging the public to take action to tackle the climate crisis. All content generated should adopt a paradigm shift in reporting on climate change by shifting focus to solutions that start at the grassroots and local community level rather than only highlighting problems that need to be resolved at the government or global level. Breaking silos and sharing and learning from one another and building on local solutions will help in mitigating the impact of a global problem.

At the same time, communities face challenges and barriers to tackling a huge global problem

like climate change through local action. However, the phrase ‘think global, act local’ resonates well in this case. People and communities can and have made a difference through their actions and greener as well as cleaner choices. There is a need to start small—like replacing a plastic straw with a reusable one, or replacing a plastic bag with a cloth bag, or segregating waste, making your own compost, not throwing leftovers, etc. This can make environmental action easy and attractive—particularly if it can be linked to people’s individual beliefs and values.

Community action can be effective if it appeals to people’s sense of community rather than just addressing a climate emergency. Local or, rather, hyperlocal networks can bring about more sustainable results because of the shared sense of ownership, commitment and accountability.

The gargantuan nature of the issue of climate change can be numbing. Just the thought of how one person’s actions could possibly make a difference when the problem affects the globe can prevent individuals from even trying. Therefore, motivating the community by focusing on actions with local results and tangible benefits can make a difference. Empowering people to take action by highlighting the many things—big and small—that people can do to improve their environment and mitigate causes and effects of climate



Bringing back demand for local produce and products is one step closer to sustainability

change at a local level can reinforce the belief that individuals can make a difference. There have been many instances when community action has delivered real impact in terms of waste reduction and reuse and redistribution of food, furniture, clothing, toys and similar materials. And in doing so it has generated wider benefits like improving health and well-being, increasing community pride and supporting skills, training and jobs. Engaging people's values and their sense of identity, sharing knowledge and making the conversation on climate action part of everyday life can drive behaviour change and make going green more visible and mainstream.

Communication through mediums such as storytelling, sharing of best practices and encouraging conversations can provide valuable insights into the challenges and opportunities faced by affected communities, as well as the solutions they have developed. Community media can also play an important role in identifying community-based climate solutions through the idea of participatory journalism and investigative journalism, where citizens inform their fellow communities about local issues affecting them on a day-to-day basis. This will help empower people, engage youth and convey urgency. Additionally, they can collaborate on projects that work towards climate action and use several platforms such as radio and social media to gather information on community-based climate solutions and share it with their audience.

7.4 India and Collective Action for Climate Change

India has seen a rise in small-scale, community-driven initiatives that are actively addressing climate change and making a difference in people's lives. Some examples of such initiatives are:

- **Green the Map:** Green the Map is an initiative that upcycles waste materials into

fashionable and sustainable products. They work with local artisans and craftswomen to transform discarded materials like tyres, textile waste, and plastic into unique and eco-friendly products. This initiative promotes sustainable fashion, reduces waste, and provides livelihood opportunities.

- **The Timbaktu Collective:** The Timbaktu Collective is a community-driven initiative in Andhra Pradesh that focuses on sustainable agriculture, natural resource management, and climate change resilience. They work with small farmers to promote organic farming, agroforestry, and water conservation techniques. The initiative also emphasises the empowerment of women and marginalised communities in rural areas.
- **GreenHub India:** GreenHub India is a youth-led organisation that promotes environmental education and conservation. It conducts workshops, awareness campaigns, and tree plantation drives in schools and communities. The organisation also focuses on promoting sustainable practices like waste management, energy conservation, and water conservation.
- **DHARA Sansthan:** DHARA Sansthan is a community-based organisation in Rajasthan that works towards water conservation and revitalisation of traditional water harvesting structures. They engage with local communities to restore and maintain traditional ponds, stepwells, and other water bodies, ensuring sustainable water management and mitigating the effects of drought.

These initiatives showcase the power of community-driven efforts in addressing climate change, promoting sustainable practices, and improving the lives of people in India. Showcase these successful community-based initiatives to the community. Run stories or programmes on each initiative and encourage people to share their own experiences and actions. It is important to say how the community can get involved in similar projects and initiatives. This could include information on volunteering opportunities or ways to support local organisations working on climate change issues.

7.5 Strategies of Developing Community-Based Messaging

The following strategies have been reported by the California Environmental Protection Agency as creating more effective and positive messaging for the topic at hand:

- **Public Consultation:** A process that involves the general public, which provides feedback and inputs on matters that affect it.
- **Public Deliberation:** Allowing more informed discussions to take place among various stakeholders, promoting a collaborative approach to problem-solving. The open dialogue and respectful exchange of ideas allows people to reach solutions for the collective welfare.
- **Public Information and Outreach:** Plays a crucial role in keeping citizens informed and involved. By disseminating accurate and accessible information, it empowers individuals to make informed decisions.
- **Positive Messaging:** The focus on inspiring, uplifting, and empowering audiences fosters a sense of hope and possibility. It aims to promote constructive behaviour, instill confidence, and drive positive change within individuals and communities. While climate change is an alarming problem, we need to ensure our messaging is positive and lays stress on the solvability of the crisis.
- **Youth Engagement:** This allows younger people to have a voice in important matters. An empowered youth will actively participate in shaping their future, voice their concerns, and drive innovative solutions to address pressing global challenges, particularly climate change.
- **Become Part of the Solution:** This means taking responsibility and actively contributing towards positive change. It empowers individuals to channel their skills, ideas, and efforts towards creating a better world.

- **Making Participation Easy:** This involves removing barriers and simplifying processes to encourage more engagement of all members of the community. By making things more user-friendly, people can actively contribute their perspectives and ideas, leading to creative solutions.

In conclusion, communicating stories about community action can play an important role in inspiring, motivating and mobilising individuals and communities to lead initiatives that identify and promote community-based climate solutions and encourage community action on climate change. By amplifying and highlighting such stories, content creators can help raise awareness and inspire others to take action.

7.6 Summary

This module discusses the importance of community engagement in combating climate change and highlights the need to create awareness among communities as the first step. It recognises that communities, especially in developing nations, are disproportionately affected by climate change due to their reliance on natural resources and limited adaptive capacity. It explores the concept of community-based climate solutions, which involve teaching, informing, and engaging the public to take action against the climate crisis. It suggests shifting the focus from highlighting problems to showcasing local solutions and empowering individuals to make greener and cleaner choices.

Finally, the module presents strategies for developing community-based messaging, including public consultation, deliberation, information and outreach, positive messaging, youth engagement, and making participation easy. It concludes that by communicating stories of community action, content creators can inspire and mobilise individuals and communities to identify and promote community-based climate solutions, ultimately encouraging community action on climate change.

7.7 Activity

- For one month, read your local newspaper and look for headlines about climate change. Find solutions to climate change that individuals and communities are already implementing in the country. Learn about the strategies they use and apply them to address the most urgent climate change issues in your area.
- If you live near the beach, organise a beach observance visit and make a list of items you find discarded on the beach, followed by a beach clean-up.
- Organise a compost workshop for residents and grow your own vegetables in your locality.

7.8 Quiz

1. Two strategies to create community-based messaging are _____ and _____.
2. _____ is a community-based organisation in Rajasthan that works towards water conservation and revitalisation of traditional water harvesting structures.
3. An initiative in India that upcycles waste materials into fashionable and sustainable products is _____.
4. _____ or, rather, _____ networks can bring about more sustainable results because of the shared sense of ownership, commitment and accountability.

Answers at the end of this curriculum

7.9 References

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MODULE 8:

The LiFE Mission

8.0 Introduction

8.1 Learning Outcomes

8.2 The LiFE Mission

8.3 List of Actions

8.4 Summary

8.5 Activity

8.6 Quiz

8.7 References

8.0 Introduction

The LiFE Mission recognises the vital connection between demand, supply and policy in driving behaviour change towards sustainability. It advocates for individuals to demand sustainable products and services, businesses to supply them, and policymakers to create a supportive environment through regulations and incentives. This holistic approach aims to catalyse a profound transformation in the way we interact with our environment.

As a visionary initiative, the LiFE Mission stands at the forefront of harnessing the power of individuals to combat climate change and environmental degradation. By blending individual actions with collective efforts, this movement harbours the potential to leave a lasting and remarkable impact on India's journey towards a sustainable and resilient future. It aims to push individuals to embark on a transformative path, to embrace sustainable practices, preserve our planet, and secure a brighter tomorrow for generations to come. This module will help readers gain a better and deeper understanding of the LiFE Mission.

Sushmita Sahani's family had been living in a village named Satabhaya, on the coast of the Bay of Bengal. In the past few years, the family has noticed that the sea was slowly rising and gradually eating up the fields, homes, tubewells and temples. They had realised that the soil was gradually turning saline and the rising sea level had placed almost 384 villages at very high risk. The government of Odisha then relocated the families from Satabhaya to Bagpatia. This

is Odisha's first resettlement colony for climate migrants—that is, people who leave their homes due to climate-related factors, such as climate-induced droughts and floods.

Sahani's family was among many who left Satabhaya in 2018, when the sea was just 10 metres away from their home. Out of the cluster of seven villages, only four were left as three had already been submerged. Though resettled in Bagpatia with housing security, the 571 families have been stripped of their source of livelihood. Moving inland also meant a loss of their fields and agricultural land, access to freshwater or marine fish and prawns, honey from mangrove forests, as well as agricultural produce which gave them food security. They lost access to pasture lands, which allowed them to keep cows and buffaloes for milk. For the Sahani family it was devastating. They lost 12 acres of agricultural land, and were given only a tenth of an acre of land on which they built



LiFE Mission stands at the forefront of harnessing the power of individuals to combat climate change

their house. Most of the men, including Sahani's husband and two sons, are now working in a plywood factory in Kerala. From being farmers and fishermen, they have been turned into daily wagers. This is the beginning of climate migration—people being forced to leave their stable lives and livelihoods because of changes in the ecology on account of climate change. (Adapted from newspaper reports.)

8.1 Learning Outcomes

After reading this module, you will be able to:

- Identify the LiFE Mission and its objectives
- Recognise individual actions that can be taken to mitigate climate change
- Understand the importance of simple actions.

While as yet there exists no comprehensive definition of a climate refugee, a generally accepted definition is: those individuals who migrate involuntarily due to climate stressors in their region. This movement is not voluntary. These are forced migrations that are not movements of individuals who move out in search of better lives, but are collective migrations that become essential and unavoidable on account of environmental changes that take place over years.

Climate change is not a new phenomenon, the world has been experiencing its impact. However, the rapid rate at which we are currently suffering its impact presents not only a serious global challenge but also has frightful consequences for society as it impacts not just food and water security, health and well-being, lives and livelihoods but the global economy as a whole. As seen in many cases, including that of Satabhaya, the local ecosystems are no longer able to sustain the local population and cope with the stresses of climate change, and this leads to climate migration. This migration then stresses the ecosystems and infrastructure at the new location. Lack of space, services and poor living conditions lower the quality of life. As more people rely on fewer resources, conflicts and violence occur.

Thus, to avoid such situations, while systemic change and collective efforts are essential, individuals can contribute significantly to mitigating climate change through their daily choices and actions. Fostering these actions and incorporating them into the day-to-day activities of citizens is essential to undo some of the most harmful effects of climate change. Remember, individual actions may seem small but collectively contribute to a larger impact. Leading by example and inspiring others can create a ripple effect and encourage broader changes towards a sustainable future. Furthermore, community-led inclusive climate adaptation and mitigation measures can help communities develop resilience.

8.2 The LiFE Mission

The LiFE Mission or Lifestyle for Environment Mission is a groundbreaking global mass movement for individual and collective behaviour change that was introduced by India at the 2021 UN climate change conference (COP 26). The mission aims to bring to the fore individual behaviour change in order to address climate change and ensure environmental sustainability. With a target of mobilising over one billion Indians, the LiFE Mission seeks to inspire and empower individuals to make lifestyle changes that align with the environmental costs associated with their actions. Within the purview of the mission, the period from 2022 to 2028 has been designated as the timeframe to make 80% of urban and rural spaces in India environmentally friendly. The government believes that inspiring small changes in individual behaviour, if observed consistently, can lead to a big impact on climate change. It aims to nudge individuals and communities to practise a lifestyle that is synchronous with nature and does not harm it.

To effectively implement the LiFE Mission, a comprehensive programme has been designed with specific actions that have been categorised into different LiFE actions. These actions prompt individuals and groups to adopt environmentally responsible behaviour.

The LiFE Mission was launched in the 75th year of India's independence, with a comprehensive list of 75 individual LiFE actions across seven categories. These actions are easy to measure, as well as to practise, by individuals, communities and institutions, with minimal supply-side dependencies. They are non-disruptive of ongoing economic activity and can lead to the well-being of the economy.

LiFE has built upon environment-friendly traditional practices. Several unique water harvesting techniques, compatible with the different contexts and local conditions, are being practised and encouraged across India. These include the stepwells of Gujarat and Rajasthan, the underground tanks (tankas) of Tamil Nadu, the check dams (johads) of Rajasthan and the zabo system of Nagaland that deposits water in pond-like structures on terraced hillsides. Clayware, for example, is commonly used for cooking and serving purposes. India has always adopted biodegradable plates and utensils to cook and serve food. Some examples are sal tree leaf plates and bowls, clay pots for cooking (handis) and serving tea and soft drinks in clay pots (kulhads). Other traditional Indian practices of bucket baths, hand washing and sun drying of clothes, adaptive architectural forms that minimise electricity consumption, as well as a dietary preference for plant-based foods and millets have served as the foundations of LiFE.

8.3 List of Actions to be Adopted

Saving Energy

1. Use LED bulbs/tube lights.
2. Use public transport wherever possible.
3. Take the stairs instead of a lift wherever possible.
4. Switch off vehicle engines at red lights and railway crossings.
5. Use bicycles for local or short commutes.
6. Switch off irrigation pumps after use.
7. Prefer CNG/EV vehicles over petrol/diesel vehicles.

8. Carpool with friends and colleagues.
9. Drive in the correct gear. Keep your foot off the clutch when not changing gears.
10. Install a solar water heater or solar cooker on rooftops.
11. Disconnect appliances from plug points when not in use.
12. Use biogas for cooking and electricity needs.
13. Keep air conditioner temperatures at 24°C.
14. Prefer pressure cookers over other cookware.
15. Keep your electronic devices in energy-saving mode.
16. Use smart switches for appliances that are used frequently.
17. Install community earthen pots for cool water.
18. Defrost fridge or freezer regularly.
19. Run outdoors instead of on a treadmill.

Saving Water

1. Adopt cultivation of less water-intensive crops like millets.
2. Participate in recharge of rural water bodies through the Amrit Sarovar Scheme.
3. Practise crop diversification. Move from rice and wheat cultivation to pulse and oil seed cropping system.
4. Use efficient water saving technologies (like micro-irrigation, bunds, farm ponds, zero tillage, direct seeded rice, alternate wetting and drying, etc).
5. Create rainwater harvesting infrastructure in homes/schools/offices.
6. Use drip irrigation systems created with waste materials wherever possible.
7. Reuse water from washed vegetables to water plants and for other purposes.
8. Pre-soak heavy pots and pans before washing them.
9. Do not discard unused stored water every time there is fresh water in taps.

10. Use buckets instead of hose pipes to water plants, wash floors, vehicles.
11. Fix leaks in flushes, taps and pipes.
12. Use water-efficient fixtures for taps, showerheads, flushes.
13. Invest in a water meter for your house to measure water consumption regularly.
14. Reuse water drained from AC/RO for cleaning utensils, watering plants, etc.
15. Opt for a water purification system that wastes less water.

Reducing Single-Use Plastic

1. Use cloth bags for shopping instead of plastic bags.
2. Carry your own water bottle whenever possible.
3. Reuse glass and plastic containers as storage boxes.
4. Participate in and mobilise participation for clean-up drives of cities and water bodies.
5. Opt for non-plastic, eco-friendly cutlery during gatherings and events.
6. Turn off running taps when not in use.
7. Use menstrual cups instead of sanitary napkins.
8. Use recycled plastic over virgin plastic wherever possible.
9. Use steel/recyclable plastic lunch boxes and water bottles.
10. Cut the poly bags used for milk, buttermilk, etc. only partially to avoid plastic bits from mixing with biodegradable waste.
11. Opt for bamboo toothbrushes and neem combs.

Adopting Sustainable Food Systems

1. Include millets in diets through Anganwadi, mid-day meal and PD schemes.
2. Compost food waste at home.
3. Create kitchen gardens/terrace gardens at home/school/office.
4. Prepare organic manure from cow dung and use it on farms.
5. Opt for locally available and seasonal foods.
6. Use smaller plates for daily meals to save food waste.

Reducing Waste (Swachhata Actions)

1. Contribute cattle waste, food waste, and agricultural waste to biogas plants (provided under GOBARdhan scheme).
2. Practise segregation of dry and wet waste in homes.
3. Use agricultural residue, animal waste for compost, manure and mulch.
4. Recycle and reuse old newspapers, magazines.
5. Feed unused and uncooked vegetable leftovers to cattle.
6. Set printer default to double-side printing.
7. Repair, reuse and recycle old furniture.
8. Buy paper products made from recycled paper.
9. Donate old clothes and books.
10. Do not discard waste in water bodies and in public spaces.
11. Clean up after your pets defecate in public places.

Adopting Healthy Lifestyles

1. Encourage use of millets in food, and indigenous herbs and medicinal plants for nutrition and well-being.
2. Prefer consuming natural or organic products.
3. Start biodiversity conservation at community level.
4. Plant medicinal plants such as neem, tulsi, giloy, mint, curry leaves, ashwagandha, etc. within household premises.
5. Practise natural or organic farming.
6. Plant trees to reduce impact of pollution.
7. Avoid purchasing products/souvenirs made from hides, tusks, fur of animals.
8. Create and volunteer at community food and clothes banks, and at animal shelters.
9. Initiate and/or join green clubs in your residential area/school/office.

Reducing E-Waste

1. Repair and use electronic devices rather than discarding them.
2. Discard gadgets in nearest e-recycling units.
3. Use rechargeable lithium cells.
4. Opt for cloud storage over a pen drive/hard drive.

8.4 Summary

This module discusses the LiFE Mission, a global mass movement introduced by India to promote individual and collective behaviour change for addressing climate change. The mission aims to mobilise over one billion Indians to make lifestyle changes that align with environmental sustainability. The module provides a list of 75 individual actions across various categories, including energy saving, water saving, reducing single-use plastic, adopting sustainable food systems, reducing waste and adopting healthy lifestyles. These actions are designed

to inspire and empower individuals to make environmentally responsible choices and contribute to combating climate change.

8.5 Activity

- Hold a discussion with a few members of your community on “Pro-Planet People”. Help the group members understand the concept of “Pro-Planet People”—individuals who are involved in protecting the environment. They have made conscious efforts to change their lifestyles by incorporating simple actions that are extremely positive for the climate.
- If you live in a city, pick a nearby ward and map large apartment blocks and find out how they are managing sewage. Where is it discharged? Does your city stipulate the Sewage Treatment Plant Rule for apartment blocks with 20 or more units? Find out if your state has a State Sanitation Policy.
- Understand the sustainable housing landscape in India and its problems. Pay attention to the India Cooling Action Plan and the various components of green buildings. Prepare a document arguing the case for making it mandatory for buildings to go green. You can interview architects working on sustainable building designs and décor.

8.6 Quiz

1. The LiFE Mission was launched in _____.
2. Mention any two actions individuals can take to conserve water.
3. Mention any two actions individuals can take to reduce e-waste.
4. LiFE Mission stands for _____

Answers at the end of this curriculum

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MODULE 9:

Storytelling

9.0 Introduction

9.1 Learning Outcomes

9.2 What is a Story?

9.3 Why is Storytelling an Effective Format?

9.4 Ancient Forms of Storytelling in India

9.5 How to Tell a Story

9.6 Elements of a Story

9.7 Climate Change and Storytelling

9.8 How to Measure Impact

9.9 Summary

9.10 Quiz

9.11 References

9.0 Introduction

In the contemporary world, where the challenges of climate change loom large and pressingly, the need for effective communication and engagement has never been greater. It is within this context that the power of storytelling emerges as a transformative force. Stories have the ability to captivate, inspire, and mobilise people in ways that raw data and statistics cannot. They provide a framework for understanding complex issues and connect us on an emotional level, fostering empathy and a shared sense of purpose. This chapter explores the profound impact of storytelling in the realm of climate change. We delve into the essence of what constitutes a story and how it can be harnessed as a compelling format for communication. We explore the diverse forms that storytelling takes, from traditional oral narratives to contemporary digital platforms, highlighting their unique strengths and potential pitfalls. Moreover, we dissect the essential elements that make up a story, revealing the artistry and craftsmanship behind building narratives that resonate with audiences.

Ansari, a resident of Maganpur, a hamlet in the eastern corner of Jharkhand's Ramgarh district, today earns ₹750 a day as compared to ₹150 a few months ago. Ramgarh is one of the state's top five coal-producing districts and yet a third of its population is "multidimensionally poor" across all the social parameters—

education, health and sanitation, and other standard of living indices. All other means of livelihood—agriculture, service industry, forests and fisheries—have been demoted in favour of mining. Maganpur has five coal mines in its vicinity. However, it is not the only source of subsistence. Over 300 families like Ansari's have started their own tailoring businesses. One afternoon, when Ansari and his wife, Fatima, were stitching blouses for a West Bengal wholesaler on their electric sewing machine, and trying to meet their deadlines, the electricity supply went off. It did not come back for the next three days. This led to a huge loss of income and credibility for Ansari. Even on normal days, the power supply was irregular, and their sewing machine would remain idle, preventing them from tackling their state of poverty.



Storytelling is one of the most powerful and effective tools of communication

Things changed in 2020 when a sustainable energy company from Bengaluru and a local NGO told them about solar energy. However, they did not have the money to buy the panels. The NGO then helped him secure a bank loan of ₹15,000 to install two solar panels on his roof. The day the panels were installed, there was tremendous excitement in the village. For days that was all people talked about. Now Ansari and his wife have 24-hour electricity supply. They soon bought another sewing machine. Each of them can earn over ₹750 per day. Their success inspired others in the village to install solar panels on their small roofs. By the end of 2022, fifty such panels had been installed. Some houses share the power generated.

Today the landscape of the village looks different with houses, banks and block offices having a silvery, gleaming skyline. The people have not only been able to improve their income considerably but have also been able to shift to use of renewable energy.

9.1 Learning Outcomes

After reading this module, you will be able to:

- Define what a story is
- Identify the effectiveness of storytelling as a format
- Recognise the different forms of storytelling
- Understand the different elements of a story
- Understand the link between climate change and storytelling.

9.2 What is a Story?

Everything is a story or everything has a story. Be it your studio, the audio equipment, the bricks in the wall, the tree in your courtyard, the stream flowing in your village, everything and everybody around you has a story. With all these stories comes audio—a voice or a sound.

Words bring stories alive. Ever since people began to communicate stories have been used to strike up conversations, to get an idea across,

create influence, advocate an idea or just get to an audience. They help in connecting with people and presenting a point of view in a manner that resonates with the audience; they help in bonding with listeners. They evoke emotions of anger, empathy, love, disgust, concern, curiosity and more. A good story should be told in a manner such that it leaves some important messages behind, which inspire positive action, and make people think.

9.3 Why is Storytelling an Effective Format?

A story is the most powerful communication tool to share information, that conveys the message in a simple, meaningful and emotional manner. As community radio practitioners, all of us must have done a number of programmes on radio, conducted hundreds of interviews, and used startling data such as how many people die daily because of lung diseases, or how many children die on account of waterborne diseases, or how many people lose their homes and turn into refugees because of war, conflict, or climate change. But all these are easily forgotten. What stays with the audience are the stories of pain, horror or exultation.

Before the printing press came into being, stories were the only way to pass life lessons from one generation to another. From the oral tradition to cave paintings and drawings, stories revolved around familiar everyday activities like fishing, farming and harvesting, events like weddings, childbirth, commerce and markets, and the elements of nature—water, fire, land, mountains, and so on. People could relate to these aspects and also understand the message.

Today, things have changed. There are more technology-savvy ways of storytelling—like multimedia art, films, video, animation, reels, comic strips, etc. By adding sound effects to these one can make a short story long, a boring story interesting and a good story effective. With mindful preparation and practice, the ability to share stories can become very impactful.

9.4 Ancient Forms of Storytelling in India

India is a land of stories galore. Being a large country with a diverse culture, every region has its own storytelling form. While some narrate, others employ props like puppets, masks and even musical instruments, while yet others use the medium of dance and music. The Panchatantra, folk stories, and stories told by grandmothers are all part of Indian storytelling. We will look at storytelling forms that can be used by community media to share stories on climate change and action.

We have all grown up on folk tales of the old bad man, or the giant who lives in the hills, kings and queens, the smart pigeon, the wise crow, the brave hunter, and the cunning fox. The stories inspired us, taught us the value of collective action, of resilience, and wresting solutions amid crises. Every state has its own storytelling culture and tradition.

Here are a few:

Katha is an Indian style of religious storytelling. It often involves professional storytellers who recite Hindu religious texts such as the Puranas, the Ramayana or Mahabharata, followed by commentary. Katha recitations sometimes take

place in households, involving smaller stories related to the genre with a moral at the end of the story.

Purana-Pravachana is a lecture about scriptures in which the pauranika is a spiritual interpreter of the scriptures. These stories generally have a religious theme, usually the life of a saint or a story from an Indian epic. The storyteller is seen as a teacher who is familiar with ancient texts in Sanskrit and other dialects. S/he interprets the religious and mythological texts of the past for the present generation. Music is used sparingly. Reading the scriptures and presenting their meaning is the method used by pravachan storytellers.

Dastangoi is a medieval storytelling tradition. It involves the recitation of stories from epics revolving around themes of adventure, magic, bravery, famous people, poets, historians, monarchs, or historical incidents. Popular themes include stories of Amir Hamza, Bagh-o-Bahar, Manto, Mirza Ghalib, and so on.

Kathakalakshepam literally means “narrating the stories of ancient text in a manner comprehensible to the common people”. It is storytelling with anecdotes, in Sanskrit, Tamil and Hindi. In these tales, a storyteller proficient in classical music interweaves the main story with music, dance and digressions. The enthusiastic performer narrates, enacts and comments on episodes and themes from Indian mythological lore.



Innovative ways of storytelling can be used by community media to share stories on climate change

The **Harikatha Kalakshepam** storytelling tradition belongs to Tamil Nadu. Harikatha means 'Story of the Lord'. In this tradition, the story is told in an extempore form. Solo performers tell the stories using wooden planks called chappalakkattai and voice modulations to portray the characters from the stories. The stories are mostly based on *Meenakshi Kalyanam*, *Sita Kalyanam* or *Rukmini Kalyanam*. Important elements of this tradition are music, knowledge of various subjects and use of words and facial expressions to make the story interesting.

Burra Katha is an oral storytelling tradition prevalent in Andhra Pradesh. A burra is a drum, shaped like a human skull. The performance involves three people—the narrator who also dances, the second performer who brings in humour to make the audience laugh, while the third person talks about social and political issues.

Villu Paatu is a similar folk narrative tradition popular in Tamil Nadu. The stories are accompanied by a stringed instrument resembling a bow which is placed on an inverted earthen pot. The stories are of heroic ballads and the performing art form is also used to propagate social welfare programmes such as AIDS awareness, family planning and election information.

Pandavani is a popular storytelling tradition of Chhattisgarh. It was usually performed by men of the Pardhi community but now women perform too. It is the narration of various events of the *Mahabharata*, performed by a singer accompanied by some musicians. There are two kinds of Pandavani, known as Vedamati and Kapalik. Teejan Bai is one of the most popular Pandavani performers.

Kaavad is a 400-year-old oral storytelling tradition of Rajasthan. The Kaavad is actually a wooden shrine with multiple panels decorated with images of gods and goddesses, and saints and so on. There are multiple panels in the Kaavad. The shrine is made by the Suthar community while the Kaavadiya Bhats or the storytellers recite the story in songs interspersed with narratives.

The **Kirtan** in Maharashtra is one of the most

popular arts of storytelling. It is performed by a single or more persons, called kirtankar, who are accompanied by a group of musicians on the harmonium, tambori, tabla, manjeera, mridang and other instruments. It involves singing, acting, dancing, and storytelling. However, unlike any other performing art, it is basically pure glorification of God and godly acts. Increasingly, it is being used to spread welfare messages and involve communities who can easily sing along.

Community media content developers can explore the traditional popular forms of storytelling in their region/district or state and build their stories in those formats.

9.5 How to Tell a Story

Many of us have a problem coming up with a true story. We are unsure about using our or someone else's personal experience to tell a story. But often the best stories are those that are personal or an account of someone close and known well.

A constant struggle for community media pertains to ensuring that your audience engages with you. How to plan a story strategy and make it engaging and relevant?

A good story should have the following elements:

Tips for making the narrative interesting: A narrative can be effective and interesting if the storyteller and narrative creator is able to answer the following questions:

- Why do you want to tell a story?
- What do you want your listeners to learn from your story?
- What is unique about your story?
- How does it relate to the everyday lives of your listeners?
- Do you have enough material to sustain the attention of your listeners?
- Does your story have the elements of storytelling?

If the answer to all the questions is a YES, then you are ready to tell your story.

9.6 Elements of a Story

- 1. Plot:** You should have a good plot. Because it defines what the story is all about and what the audience will experience. It sets up the motivations, challenges and goal, and the path people are taking to fulfil them. Example: The tale of Ansari, a tailor, who was barely able to make two ends meet, and how his life changed.
- 2. Characters:** Characters are the elements that are affected by the plot. To build a strong story, the characters have to be well-defined and consistent across the entire story because the audience can only believe and empathise with the characters if they can relate to them and trust them and the story. Example: Ansari and his wife, Fatima. Their life, description of their house, the village, their neighbours, etc.
- 3. Context:** The context of the story. Where is it leading? Where is it located? These are important elements as they help people relate with the surroundings, the place, and the reality of the situation. Example: Maganpur village, where people are poor, despite the district being rich in mines. The district fares low on all social parameters. Three hundred households are dependent on tailoring. Business comes from big towns. There is a demand for their skill but electricity is an issue.
- 4. Climax:** It is how you tell the story. Are you able to evoke feelings—of pain, joy, empathy, concern, tension, anticipation and so on. They should be built into the narration. It is important to build up the story to this point and then arrive at the resolution stage. Example: One day they have an order to deliver and are working hard. But the electricity goes off. And does not return for three days. Ansari and Fatima lose face, lose credibility and lose business.
- 5. Solution:** The solution-based approach works well. It gives positivity and hope. It inspires and motivates and can lead to action, behaviour change and the feeling of 'I can do this too'. Example: A company that is dealing with inexpensive solar panels reaches out through an NGO. They are able to organise a loan, and the panels are installed.
- 6. Message:** For all stories that are told to bring about behaviour change or provoke action, the story needs to leave behind a message. Example: Solar panels can reduce dependence on power supply, can change your life, can help increase your income and contribute to climate action.
- 7. Narration/Presentation:** This is the most critical aspect of storytelling. How do you narrate the story? How can you take the audience along with you? How can you stir the imagination of the listeners/your audience so that they can visualise the characters? Conjure up scenes of Madanpur, what the village looks like, what kind of house Ansari has, where his sewing machine is placed, what his terrace looks like, how they installed the solar panels, the joy on their faces when they could increase their income, the curiosity of neighbours, and what the village looks like now. All this is possible through good storytelling skills and the use of sound effects.

9.7 Climate Change and Storytelling

Stories should not talk only about the negative aspects but also provide solutions. They should ooze hope. Narratives about how the world will come to an end, cities will be submerged, poverty will increase, livelihoods will be impacted, unemployment will rise, everyone will have to migrate, and so on create anxiety, but may not hike awareness as they lead to despondency. It is important to share stories of people who have taken action to reduce the impact of climate change, who are now better adapted and have built resilience. A good story can take its listeners on an emotional journey and encourage them to share their own stories.

In summary, every story on climate change should follow these guiding principles.

- **People First:** Put people first! Understand your audience's experiences, knowledge and social contexts, use their wisdom and build the plot and characters around them.
- **Strong Values:** Connect with the values of the audience, spark empathy and be relevant to what is already going on in their lives.

- **No Ambivalence:** Show people that their action is needed, doable and worth it. Too much fear, confusion or apathy surrounding the climate crisis creates emotional numbing and feelings of hopelessness.
- **Positive Action:** Emphasise solutions and benefits. Inspire and empower your audience with clear ways in which everyone can contribute to solutions.

9.8 How to Measure Impact

The key principle is that if stories resonate and connect with your audience, then they are indeed successful. Once the targeted audience is identified, their needs assessed, and their priorities determined, developing content and communicating it becomes easy. Keeping the community and its values central, collecting information on their views on climate change and related matters like environment, energy, water, irrigation, agriculture, livelihoods and so on and incorporating it in the narrative makes the community a stakeholder. Thus, it is important to frame your stories with a message that can resonate well with the entire community.

9.9 Summary

Everything is a story, or everything has a story. This module emphasises the power of storytelling as a communication tool and explores various storytelling traditions in India. It highlights the effectiveness of storytelling in conveying messages, engaging audiences, and evoking emotions. The module discusses the importance of planning a story strategy, making narratives interesting, and incorporating elements such as plot, characters, context, climax, solution, message, and narration/presentation. It also emphasises the role of storytelling in addressing climate change, focusing on positive action and inspiring audiences. The module concludes by discussing the guiding principles for climate change stories and the importance of measuring impact by connecting with the audience and incorporating their views and priorities in the narrative.

9.10 Activity

- Look for climate champions in your region and document their stories.
- Identify a good story teller from your area/ community. Organise a story telling session and discuss the strengths/ highlights of his/ her presentation
- Make a list of all the days that are related to climate change or action and tell the story of each day. Why it is celebrated, what the purpose is, who started it and what the activities around it are.

9.11 Quiz

1. _____ and _____ are two elements of a story.
2. Pandavani is a popular storytelling tradition of _____.
3. _____ and _____ are the most critical aspects of storytelling.
4. _____ in Maharashtra is one of the most popular arts of storytelling.

Answers at the end of this curriculum

9.12 References

- <https://www.un.org/en/climatechange/communicating-climate-change>
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MODULE 10:

Developing a Series on Climate Change for Radio Media

10.0 Introduction

10.1 Learning Outcomes

10.2 Communication Matrix

10.3 Episode Prompts

10.0 Introduction

The current climate crisis is an extremely complex problem which cannot be addressed by any entity on their own—governments, businesses, communities, activists, advocates or individuals. Sustainable solutions require harnessing the power of collective action. The workshop held by SMART in Chennai in January 2023 ensured that representatives of the Government of Tamil Nadu, activists, advocates, businesses, foundations and so on who are invested in climate action, community and community media came together to collaborate, co-create and build a model for collective action. Twenty-five climate change advocates came together and understood the contexts of the local conditions and climate vulnerability of each district represented by them. They then mapped the vulnerabilities to climate change in terms of both the communities and the impact. They divided themselves into groups to further maximise their resources for research and for developing generic as well as specific communication strategies. Finally, they comprehensively covered aspects of problems, policy and people and built content to address climate change for the state of Tamil Nadu as a whole.

Co-creating content with multi-stakeholders helps in widening the lens through which issues are perceived and discussed, brings in diversity and helps build stronger bonds between

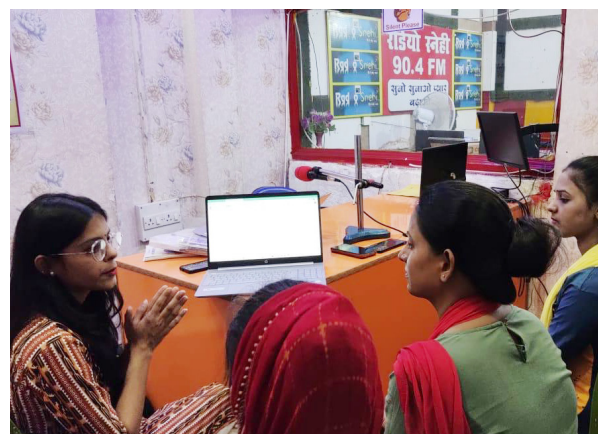
people—leading to deeper engagement and opportunities for resolving issues of common concern.

Collaboration brings together a diverse pool of individuals from various backgrounds, researchers, activists, policymakers, and media to build a well-rounded understanding of climate change. By blending knowledge and perspectives, radio programmes can present a balanced view of the complex issue, enhancing audience engagement and credibility.

10.1 Learning Outcomes

After reading this module, you will be able to:

- Develop comprehensive audio episodes on climate change
- Understand the messaging that goes into developing audio episodes.



Collaboration brings together diverse ideas leading to innovative solutions

10.2 Communication Matrix

In this module, the effort is to share ideas for a series of episodes/articles or any other form of content that can create awareness on the critical issue of climate change and its impact on people, peace, prosperity and the planet. The proposed ideas aim to inform, inspire, educate and empower the audience to take action in the face of this global crisis. It explores the scientific realities, societal implications, and individual stories that shape the climate change narrative. Through expert interviews, captivating stories, and immersive soundscapes, one can unravel the intricate web of interconnected issues, from rising temperatures and extreme weather events to biodiversity loss and the plight of vulnerable communities.

The proposed series is not just about highlighting the challenges but also about showcasing the incredible solutions and innovations being pursued worldwide. From renewable energy advancements to sustainable agricultural practices, our effort is to showcase the inspiring actions individuals, organisations and governments are taking to mitigate and adapt to climate change. The table below lists the possible themes for stories or programmes along with a brief on what can be included for an impactful story and the possible impact that each of these can have on the audience.

Theme	Indicative Message	Behaviour Change Sought
Understanding SDGs and Climate Change	<ul style="list-style-type: none"> ■ Climate change means a change of climate which is attributed directly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. ■ Sustainable development can be defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’. ■ Development needs of the present need to be met in an environmentally conscious manner. The SDGs have been formulated to address the most pressing global challenges that can only be resolved through a collaborative effort and partnerships between countries working together towards the most economic growth, environmental sustainability, and social inclusion, for the well-being of people across the globe. ■ There are 17 SDGs and 169 targets. ■ The goals address a range of issues including poverty, hunger, health, education, gender equality, clean water and sanitation, affordable and clean energy, climate action, life below water, life on land, and peace. ■ SDG 13 – on climate action – addresses climate change. It focuses on the need to take urgent and ambitious action to combat climate change and its impacts. 	<ul style="list-style-type: none"> ■ Build an understanding of the Sustainable Development Goals. ■ Identification and linking of the 17 SDGs for sustainable practices. ■ Understand what climate change is and how to make our environment sustainable.

Theme	Indicative Message	Behaviour Change Sought
Climate Change and its Impacts	<ul style="list-style-type: none"> ■ Climate change has led to various effects across domains: ■ Rising Global Temperatures: Regions across the globe are experiencing unusual and unprecedented spells of hot weather over large areas. Many places are seeing a substantial rise in mean temperature with a sudden rise in instances of heat waves, especially in areas which did not experience such extreme weather. ■ Severe and Frequent Storms: As a result of shifting rainfall patterns, storms have become more frequent in different parts of the world. A rise in the mean temperature of the oceans has contributed to this phenomenon since cyclones, hurricanes and typhoons feed on the warm waters of the ocean surface. ■ Increased Drought: Changes in the availability of water resources due to climate change are causing water shortage in already water-stressed regions and are leading to an increase in the frequency of agricultural drought and expansion of deserts, turning vast regions into uninhabitable wastelands. ■ Loss of Species: Climate change is leading to an imbalance in ecosystems' flora and fauna, posing risks to the survival of species on land and water. ■ Food Scarcity: Water scarcity due to changing rainfall patterns, increasing droughts and loss of land due to climate change are among the reasons that have contributed to the rise in hunger across the world. ■ Displacement of Populations: Frequent natural disasters are pushing people to move away from their homeland, causing stress on resources in the regions they migrate to. ■ Increasing natural disasters are causing widespread loss of life and property. Disasters that are catastrophic in nature and occurring as a result of natural processes on the planet are called natural disasters. Floods, storms, tsunamis, and earthquakes are just a few examples. ■ Global warming, natural activities in Earth's crust, tectonic movement, deforestation, and soil erosion are some of the causes of natural disasters. 	<ul style="list-style-type: none"> ■ Understand how climate change impacts our surroundings. ■ Identify natural disasters and how they are linked to climate change. ■ Understand what natural disasters are. ■ Understand the causes of natural disasters.
Understanding Ecosystems	<ul style="list-style-type: none"> ■ An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscapes, work together to form a bubble of life. ■ There are different types of ecosystems – biotic and abiotic. ■ Ecosystems are being threatened due to climate change. ■ Biomes are large sections of land, sea, or atmosphere. Forests, ponds, reefs, and tundra are all types of biomes. ■ Identify the biome that you are in and discuss it. 	<ul style="list-style-type: none"> ■ Understand what an ecosystem is. ■ Recognise the different biomes that exist. ■ Identify the ecosystems/ biomes.

Theme	Indicative Message	Behaviour Change Sought
Biodiversity and Climate Change	<ul style="list-style-type: none"> ■ Biodiversity is the sum of all life on Earth. Every single individual life form, from the smallest bacteria in the soil to the largest whale in the sea, is a component of Earth's biodiversity. ■ Habitat loss is the largest threat to biodiversity because of climate change. ■ Biodiversity loss is caused by man-made factors such as deforestation, unplanned land use patterns for agriculture, housing etc. ■ Understand indigenous species of plants and animals found in your area. ■ Highlight the linkages between species of flora and fauna. ■ Talk to experts and map the species of flora and fauna that are endangered in your area. ■ Discuss the biological lifecycle. ■ Biodiversity needs to be discussed because it houses all forms of life on the planet. 	<ul style="list-style-type: none"> ■ Understand what biodiversity is. ■ Recognise the threat that climate change poses to biodiversity. ■ Identify local species of plants/ animals found in regions.
Climate Change and Its Interlinkages	<ul style="list-style-type: none"> ■ Climate change is interconnected with other problem areas. ■ The targets of each SDG are aligned and intertwined. ■ Drought can reduce food production and affect humans and livestock health and increase inequalities (Goals 13, 1, 2, 3, 10, 15). ■ Floods lead to spread of disease and affect ecosystems, water supply, infrastructure, education and jobs. ■ Gender: Women and girls are also prone to facing higher health risks during climate emergencies. In situations of disaster- or displacement-induced emergencies, they may be more vulnerable to gender-based violence, including sexual assault and exploitation. Limited access to reproductive health care services, such as prenatal and postnatal care, can also increase maternal mortality rates. ■ Poverty: Due to lack of access to basic necessities and very low financial capacity, those below the poverty line have little or no capacity to cope with climate change-induced extremities. The vulnerabilities these populations face are amplified by climate change, pushing them further below the poverty line. An example of this is access to drinking water. ■ Health: The impact of climate change on health can be direct—floods, storms as threats to life—or indirect, through changes in the ranges of disease vectors, water-borne pathogens, water quality, air quality, and food availability and quality. It also leads to undermining of the social determinants for good health such as livelihoods, equality and access to health care and social support structures. ■ By considering these interlinkages, collaborative efforts involving various stakeholders can maximise the benefits of climate solutions and avoid potential conflicts between different goals and targets. 	<ul style="list-style-type: none"> ■ Understand the need to link SDGs and their goals. ■ Discuss the link between gender equality and climate change, poverty and climate change, health and climate change. ■ Develop programmes on interlinkages between SDGs and climate change.

Theme	Indicative Message	Behaviour Change Sought
India's Increasing Vulnerability to Climate Change	<ul style="list-style-type: none"> ■ As one of the most populous countries and with a rapidly growing economy, India faces unique challenges and vulnerabilities in the face of a changing climate. ■ Some of the most pervasive effects of climate change are: <ul style="list-style-type: none"> • Rising temperatures and heat waves • Changing monsoon patterns • Vulnerable coastline ■ Glacier retreat: Rapidly-receding glaciers increase the risk of flooding in summer and eventually drought as the ice disappears. This phenomenon is affecting the lives of millions of people who live downstream and whose main source of subsistence is agriculture in the river basins ■ Extreme weather events: Increased occurrence of lightning, storms, hailstorms, thunderstorms, heat waves, cold waves, snowfall, cloudbursts, cyclones, etc has been noticed ■ Key facts that need to be highlighted include: 80% of India's population lives in climate-vulnerable zones; southern India is more vulnerable to extreme climate events; Assam, Andhra Pradesh, Maharashtra, Karnataka and Bihar are highly vulnerable states 	<ul style="list-style-type: none"> ■ Understand how extreme weather events are increasing due to climate change. ■ Understand India's vulnerability to climate change and discuss its key factors. ■ Identify India's climate-vulnerable zones.
Climate Action	<ul style="list-style-type: none"> ■ Climate action refers to steps taken to mitigate and adapt to the impacts of climate change. It primarily aims at reducing greenhouse gas emissions, protecting ecosystems, and building resilience in communities. ■ Goal 13 of the SDGs relates to climate action. ■ Climate action is not just the need of the hour; it is a matter of survival because the current trajectory of climate change is life-threatening to vulnerable communities, wildlife and ecosystems. ■ Some simple actions one can adopt include: Buying locally produced goods, reducing single-use plastic, thrifting clothes, practising waste segregation at home, etc. 	<ul style="list-style-type: none"> ■ Understand what climate action is. ■ Understand how climate action is related to sustainable development. ■ Incorporation of climate action in day to day life.
Climate Solutions and Community Action	<ul style="list-style-type: none"> ■ Climate change is a 'glocal' problem – it requires cooperation from the global level to the local level. Global actions impact local communities. ■ Community-based climate solutions refer to teaching, informing, and engaging the public to take action against the climate crisis. ■ India has seen a rise in small-scale, community-driven initiatives that are actively addressing climate change and making a difference in people's lives. ■ Discuss local initiatives that have been implemented to combat climate change like GreenHub India. 	<ul style="list-style-type: none"> ■ Recognise climate change as a local solutions-driven problem. ■ Understand the importance of community interventions in climate solutions.

Theme	Indicative Message	Behaviour Change Sought
LiFE Mission	<ul style="list-style-type: none"> ■ Taking individual action for climate change is crucial in addressing the global challenge of environmental sustainability. ■ The LiFE Mission or Lifestyle for Environment Mission is a global mass movement for individual and collective behaviour change that was introduced by India at COP 26 in 2021. ■ It has been designed with specific actions, each categorised into different LiFE actions. ■ Some actions that can be adopted by individuals include: Installing rooftop solar panels to generate renewable energy; using energy-efficient appliances and light bulbs; switching to electric vehicles or promoting use of public transport; collecting rainwater for household use and irrigation; fixing leaks and using water-efficient fixtures; encouraging communities to implement water recycling systems; practising the 3 R's (Reduce, Reuse, Recycle) and promoting waste segregation; advocating composting and organic waste management; reducing single-use plastic consumption and promoting alternatives. 	<ul style="list-style-type: none"> ■ Recognise the importance of individual actions in fighting climate change. ■ Incorporation of the practices shared in daily life. ■ Understand the stakes to expedite climate solutions.
Climate Change and Government Policies	<ul style="list-style-type: none"> ■ Governments, civil society organisations and citizens have to work together to combat climate change. ■ India has implemented national policies and measures in order to achieve the five targets under Goal 13 of the SDGs. ■ The National Action Plan for Climate Change (NAPCC) was launched on June 30, 2008. ■ The document presents a comprehensive plan that seeks to empower the nation in responding to climate change and improving the environmental sustainability of India's developmental trajectory. ■ It encompasses eight National Missions: <ul style="list-style-type: none"> ● National Solar Mission ● National Mission for Enhanced Energy Efficiency ● National Mission for Sustainable Habitat ● National Water Mission ● National Mission for Sustaining the Himalayan Ecosystem ● National Mission for a Green India ● National Mission for Sustainable Agriculture ● National Mission on Strategic Knowledge for Climate Change ● Heat Action Plan 	<ul style="list-style-type: none"> ■ Understand the role the government plays in addressing climate change. ■ Build an understanding of the NAPCC. ■ Recognise the eight missions the government is working on. ■ Talk about what is most significant for your community.

10.3 Episode Prompts

Module 1

- Develop an episode discussing the evolution of the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs).
- Develop an episode talking about SDG Goal 13 and its relevance today. Link it to sustainable development.
- Write an episode on the concept of climate change. Introduce the following terms: climate change, climate resilience, climate mitigation, and climate adaptation in the episode.
- Develop an episode that discusses India's role in achieving the targets of the SDGs. Use examples of policies introduced by India for climate action.

Module 2

- Develop an episode discussing the NAPCC. Focus on the eight national missions under its umbrella.
- Develop an episode on natural disasters and their types. Include the definitions and causes mentioned in the text above.
- Develop an episode discussing climate change and its impacts. Include the policies created to mitigate these changes.
- Develop an introductory episode explaining the anthropogenic causes of climate change.

Module 3

- **Create an episode on the importance of linking the goals of different SDGs with Goal 13:** climate change. Include examples similar to those given in the module.
- Create an episode on the interlinking goals and targets of at least two SDGs—for example, gender and health. The episode should include the following themes:
 - SDGs discussed with their goals
 - The need to interlink the SDGs with Goal 13
 - Climate solutions focusing on the SDGs discussed.

- Develop an episode where you take up local issues where the impact of climate change adversely affected a vulnerable section of your community or a social issue was aggravated as a result of climate change. Discuss the steps taken to address the issues.
- Write an episode on steps taken by local authorities for creating awareness of climate change-related issues—for example, water scarcity, increasing heat waves, drought, etc.

Module 4

- Develop an episode on the key vulnerabilities faced by climate change, including extreme weather events that you face in your community.
- Write an episode on the emergency response mechanisms that are in place in your area—for example, the State Disaster Management Authority and its roles and responsibilities.
- Develop an episode on any one extreme weather event experienced by you or your community.
- Create an episode on the climate-vulnerable zones in India. Discuss in detail the zone in which your district/region falls. Talk about the factors that affect your region.

Module 5

- Develop an episode on climate action. Make sure to include the global nature of the problem and highlight the power of local solutions.
- Develop an episode on initiatives taken by the local authorities regarding climate-related issues such as water scarcity, waste management (look at the Swachh Bharat Abhiyan data of your region), resolution of human-wildlife conflict in the area, and efforts to preserve local diversity.
- Develop an episode on an environmental issue that is prominent in your area. Discuss the causes of this issue and current and future climate actions that can be taken to tackle it.
- Develop an episode on sustainable development using the information given in the module.

Module 6

- Develop an episode on any local initiative taken to mitigate climate change in your community.
- Develop an episode that promotes sustainable practices that can be adopted by communities to fight climate change.

Module 7

- Develop an episode on the LiFE Mission where you discuss the aim and objectives of this unique policy.
- Develop an episode on any five actions that can be adopted to conserve energy.
- Develop an episode on any five actions that can be adopted to conserve water.
- Develop an episode on any five actions that can be adopted to reduce single-use plastic.
- Develop an episode on any five actions that can be adopted to promote waste management or Swachhata Actions.



Developed by SMART in collaboration with CEMCA

