CLIMATE CHANGE, FOOD SECURITY, NATIONAL SECURITY and ENVIRONMENTAL RESOURCES

GLOBAL ISSUES & LOCAL PERSPECTIVES

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Preface

This book adopts an exegetical approach as well as a pedagogic model, making it attractive agriculture and environmental economics teachers, professional practitioners and scholars. It is eschews pedantry and lays bars the issues in such clarity that conduces to learning. The book elaborates on contemporaneous climate change, food security, national security and environmental resources issues of global significance and at the same time, is mindful of local or national perspectives making it appealing both to international and national interests. The book explores the ways in which climate change, food security, national security and environmental resources issues are and should be presented to increase the public's stock of knowledge, increase awareness about burning issues and empower the scholars and public to engage in the participatory dialogue climate change, food security, national security and environmental resources necessary in policy making process that will stimulate increase in food production and environmental sustainability.

Climate Change, Food Security, National Security and Environmental resources: Global issues and Local Perspectives is organized in four parts. Part One deals with Climate Change with Six Chapters, Part Two is concerned with Food Security with Nine chapters, Part Three deals with National Security with Five Chapters, while Part Four pertains Environmental Resources, has Five Chapters.

Ahmed Makarfi / Eteyen Nyong

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Chapter 24

Environmental Communication: The Media and Climate Change Issues

Triumph-Aruchi Eteyen Nyong

Introduction

Human activity has caused a variety of change in different forcing agents in the atmosphere and land surface. A large number of greenhouse gases have increased overtime from anthropogenic origin. Atmospheric aerosols have diverse and complex influences on the climate. Human activity has modified the land cover and changed the surface albedo. Some of the gases and aerosols are directly emitted to the atmosphere whereas others are secondary products from chemical reactions of emitted species. The lifetimes of these different forcing agents vary substantially. Anthropogenic land cover change has a direct impact on the earth radiation budget through a change in the surface albedo. It also impacts the climate through modification in the surface roughness, latent heat flux and river runoff (Geiger *et al*, 2017).

The environment has become one of the most critical research areas in the twenty-first century. Along with this trend, Environmental Communication (EC) is also becoming popular. It is the pragmatic and constitutive vehicle for the understanding of the environment as well as the relationships humans have with the natural world. In Africa, environmental communication includes increased connectivity and fast communication on environmental issues, raising awareness of environmental issues, facilitating collaborations and participatory environmental communication, facilitating two-way communication and dialogue on environmental matters, facilitating environmental activism, and promoting environmental education.

Communication is so vital to the individual, organisation and nation particularly in this era of digitalisation and new media. Communicating the intricate and systemic nature of environmental concerns is always complex and demanding, thus, a default in communication could be hazardous. Nation flows using different ways of communication which helps to increase awareness and better understanding of the environment. There is no communication without an environment, and life

on earth can either be saved or destroyed with communication Environmental communication and issues related to the environment like climate change is in the province of public communication, which confers a responsibility on individuals towards their fellow-citizens. That responsibility, according to Pavelle & Wilkinson (2020) is connected with the many ways in which we can reach men and assist them. This perspective provides a justification for environmental journalism and information management to equip citizens with a broad knowledge of the environment if they are to deal with the problems satisfactorily.

EPA (2021) posits that the preponderance of environmentalists and many lobbyists have generated a phenomenal need for environmental-related information. He further states that: "The amount of viral information that are related to either sustain the momentum of current environment efforts or are necessary to mobilise public opinion to become aware of and identify key environmental issues are still grossly inadequate" The import of this is that, considering the enormity of environmental problems facing the globe, the public needs to be given a deliberately planned and sustained output of environment-related information, that can contribute to the promotion of a healthy environment. Hence, the need for environmental communication, the main aim is to educate the concerned audience on how to best respond to these threats.

When communicating on issues related to climate change, you must ask the following questions; do people understand the message that climate scientists are trying to communicate? Is it feasible to influence people to care actively about the environment? Environmental communication could arguably show us the way to achieve this (Waititu, 2021). Communication about the dangers posed by climate change may help people better prepare and raise their chances of survival in the event of a crisis. Firstly, our understanding of the environment and our roles within it cannot be separated from the need to communicate with others. Communication is necessary almost in every aspect of our communication as a skill-based process, defines how to improve our abilities to send and decode massages. Though scientists have recognised many actions between animals that can be characterised as "communication," humans are the only ones to employ environmental communication with each other, and in such richness (Antonopoulos et al. 2019).

To state our case properly, it is imperative that we define our terms to enhance homophily. The two terms that bear definition here are environmental communication, the media and climate change.

Environmental Communication

The environment consists of natural, biological, physical and man-made or socio-cultural and economic systems. It embraces global and economic relations and interaction and when considered by a human perspective, including inanimate objects such as soul, air, rocks and animate beings including animals' plants. This concept is seen from different perspectives attests to the complexity of the concept as it means different things to different scholars. While to some, the environment is simply about resources to be consumed or exploited, to others it is about problems that occur as a result of environmental interactions. The varying conceptions of the environment are perhaps a reflection of the way human beings view the issues based on the resources based at their disposal. Such resources include language, signs, symbols, knowledge or experience, among many others.

Communication is, therefore, important in the manner in which people conceive of the environment. This is perhaps due to the ubiquitous nature of the environment and, therefore, people must discuss, write, and transmit information relating to the environment. Communication is related to the environment as it takes place within the environment. As a process in the lives of people, it occurs wherever people find themselves. Therefore, the understanding of human communication relating to the environment is the basis for the conception of environmental communication (Bhanye & Maisiri , 2023).

Environmental communication has to do with any type of environment-related information it is a practical discipline that enables understanding of complex environmental issues and strengthens the role of individuals and organisations in environmental governance. It serves to raise awareness, change behaviour, influence public opinion, advocate for policies, address conflicts and pass legislation. So, environmental communication aims at educating the public about overcoming environmental threats. It suggests how the public should react to the changes affecting our environment and nature's well-being. What can be stated about the flow of environmental communication in the midst of the ever-increasing flow of information? (Chung *et al*.2020). The

citizens' involvement in environmental management and protection depend largely on their level of awareness about environmental issues. By increasing availability of and access to environmental information, citizens can become an important non-state actor against the environmental degradation and climate change. Environmental communication therefore, is the application of communication approaches, principles, strategies, and techniques to environmental management and protection. Simply put, it is the deliberate exchange of environmental information, knowledge and even wisdom is the dissemination of information and the implementation of communication practices that are related to the environment.

The concept of environmental communication has numerous definitions. Allen (2020) defines it as a conscious communication effort to bring people to knowledge of environmental problems around them, encourage them to desist from actions that are harmful to the environment; and sensitise them to show greater commitment to activities aimed at safeguarding the environment. Harris (2019) conceives environmental communication as all forms of communication aimed at enlightening the public about environmental issues and trends. Cox & Hansen (2018) defines environmental communication as the pragmatic and constitutive vehicle for our understanding of the environment as well as our relationship to the natural world. The Environmental Communication Resource Centre (ECRC) sees the concept as the communication of environment-related messages to various audiences by all means through all channels: personal, organisation or mass media (Harris, 2019).

The Media: The media is best defined by the roles they play in society. They educate, inform and entertain through news, features and analysis in the press. They also produce documentaries, dramas, current affairs programmes, public service announcements, magazine programmes and other forms of programming for radio and television. The media is a conduit through which voices, perspectives and lives are brought into the public sphere.

In the last decade, Africa has witnessed a massive growth of on-line media, which is being exploited by both urban and rural communities to access and deliver information for social and business purposes. The media are powerful tools to change the narrative and simplify and dejargonise the language of climate change. It can play an integral role in shaping public opinion and create a ripple effect by influencing behaviour and attitudes, spreading awareness and

sharpening knowledge about climate change. Media houses globally are recognising this and proactively altering the terms they use to communicate the urgency for action more effectively. For example, many now use climate crisis or climate emergency rather than climate change to express the pressing need for action (William, 2022).

The media according to Zhang & Skoric (2018) also plays a critical role in facilitating social change and shaping public opinion and attitudes. The media, through its reporting, can put a spotlight on critical developments that impact negatively and positively on people's lives, as well as bringing to the fore issues that are often ignored and voices that are marginalised. The media's agenda-setting function often influences debate, thinking and priorities within society.

Types of Media: Your audience will determine your choices in the types of media to utilise or engage on conveying your messages across.

Mass Media– Print (newspapers, magazines), TV, and radio. Despite the sharp decline in newspaper readership globally, newspapers are still an important source of news in Africa. Politicians, policy makers and others still refer to newspapers for information and to gauge public opinion. However, the penetration of newspapers is still hampered by low literacy levels and poor distribution networks. Radio remains the most important source of information for both urban and rural communities. It also has immense capacity for wider coverage and ability to integrate a diverse range of programme forms (Zhang & Skoric, 2018).

Community Media - Community media is important because of its ability to focus and cover issues within a particular community. For example, journalists who work for community radio stations are often from the community. However, community radio stations have limitations of geographical coverage, they are poorly resourced and their journalists and editors are not trained (Lin, 2019).

New Media – This is an area of startling growth in Africa, which has seen people accessing and disseminating information in ways that were inconceivable a decade ago. People are using new media (internet, email, blogs, SMS platforms, etc.) to access and disseminate social, political and economic information. New media also offers new ways to develop partnership with

telecommunication companies to disseminate critical issues from research that can change people's lives (Pavelle & Wilkinson, 2020).

Climate Change : Climate change which is often confused with 'global warming' and 'greenhouse effect' is much more than these and the definitions of the concept also vary depending on the author.

The United Nations Framework Convention on Climate Change (UNFCCC) defined climate change as climate alterations that are directly or indirectly caused by human activities over and above natural variation (United Nations, 2022). On the other hand, IPCC defines it as a statistically significant variation in either the state of climate or it's variability persisting for an extended period of time typically a decade or more (IPCC, 2021). While the former definition sees climate change as a change occurring only as a result of anthropogenic causes, the later. Field not links the cause of change to either nature or human activities. This is an indicator of the lack of agreement even among experts in the definition of climate change.

The concept, climate change should not be confused with "global warning" or "greenhouse effect" though they are related. Global warming refers to measurable increases in the average temperature of the earth's atmosphere, oceans and landmass brought about by rising levels of heat-trapping gasses known as greenhouse gasses (carbon dioxide, methane, nitrous oxide, among others) in the atmosphere. Greenhouse effect, however, is the capacity of these gasses in the atmosphere to trap heat emitted from the earth surface, thereby insulating and warming the planet. Without the thermal blanketing of the natural greenhouse effect, the earth's climate would be about 33"C (about 59"C) cooler and thereby too cold for most living organisms to survive. Scientists, therefore, maintain that a high build-up of greenhouse gasses in the atmosphere causes global warming (increase in average temperature).

The main culprit in this progressive increase in global warming which leads to climate change is the increase in the volume of greenhouse gasses (GHG) in the atmosphere at very rapid rate. According to IPCC, 2021) the extraordinary increase in the volume of GHG can be seen as:

1. The amount of carbon dioxide (CO_2) had increased by about 35%.

2. Global atmospheric methane gas increased by 142.2% from 1750-1990.

3. Nitrous oxide concentrate increased by 18% from 1750-2005

4. All the three GHGs increases far exceed the natural range of the last 650,000 years.

What is emerging from the above information is that CO2/in the atmosphere is increasing especially around the period of industrial revolution which began around the 1750s (IPCC,2021).

Impacts of Climate Change: Climate change manifests in various forms namely, floods, storms, melting ice bergs, heat waves, drought among others. It is likely to have considerable impact on the lives of people since the climate is varying from what they have been used to for a long time.

One remarkable thing to note with the literature on climate change impact is that it can be negative or positive. That is, according to Geiger *et al* (2017) some regions of the world are benefiting from some aspect of climate change compare to others who lose. For instance, changes in temperature or rainfall do benefit dome regions as they contribute to increased productivity (in agriculture) increased resource availability (like water) decreased hazard (like floods) , and decreased climate related expenditure (example, heating expenses, snow removal cost). On the other hand, sine regions do experience adverse effects such as decreased agricultural output, increased water scarcity (drought), increased climate related mortality and morbidity owing climate change. Some scholars however, observed that there is a strong reluctance on the part of scientists to discuss climate change in terms if both its winners and losers as only the losing side is emphasized in the discourse of climate change impact. However, analysing climate change impact from the perspective of the losers and winners does not overshadow the fact that the overall process of anthropogenic climate change is largely negative and deleterious to human beings and other species on earth.

Since most climate scientists and other stakeholders are more concerned with the negative aspects of climate change, numerous reviews of the climate. Change impacts are related to health. According to World Health Organisation (2023). In the early 1990s, not much was known about the impact of climate change on health. However, in recent years, numerous assessments of the potentials and observed risks of climate change on human health have been made.

Accordingly, WHO (2023) adopted a climate change health model to analyze the impact of climate change on human health. Climate change manifests in regional weather changes by causing floods, droughts, storms heat waves, among others. These directly or indirectly interact with pathogenic micro-organisms and their transmission dynamics, attic and eco-system hydrology, socio-economic and population factors.

Another area where climate change profoundly impacts is on agriculture. Greenpeace (2021) states that climate change can be beneficial but it is more of a threat to agriculture production. He maintains that weather and climate elements such as solar radiation, temperature, moisture, humidity, and wind normally have salutary effects on agriculture and are often unnoticed and unappreciated. However, climate change also induces drought, wind storms or floods which do h negative consequences on agricultural production and as such climate change offers a resistance to agriculture. Accordingly, Ojo (2023) highlights five implications of climate change on agriculture these are:

1. Increased rainfall and rising air temperature
2. Increased rainfall intensity and variables
3. Changes in agro-climatic and agro- ecological zones
4. Impacts on agricultural system
5. Implications of the rise of sea level on agriculture

All these, In the long run have detrimental effects on agriculture.. Such detrimental effect no doubt has numerous implications on the lives of people socially, politically and economically (Ojo, 2023). In their efforts to analyse the implications of climate change, Brown et al (2021) suggest a link between climate change and security in Africa. Climate is threat to institutional peace in Africa because of the following reasons:

1. Effects of climate change have the capacity to reshape the productive landscape on the continents and exacerbate food, water and. Energy insecurities.
2. Climate change could lead to destabilising and unregulated population movement which can be felt beyond internal boundaries.
3. Climate change-related diseases can trigger short term disease eruptions that can affect large numbers of people.

4. Climate change may lead to extreme natural disasters affecting all sectors if the society including the security sector.

Solutions to Climate Change Issues: The following have been listed as the solutions to climate change: reduction of industrial emission of greenhouse gases, planting of more tress, introduction of energy efficient technologies, halting deforestation, promoting family planning/ population control, reduction in energy consumption, and less driving of carbon emitting vehicles. These suggestions according to IPCC (2021) are generally categorised into two: mitigation and adaptation.

Mitigation: One of the solutions identified for climate change is mitigation. By this, is meant the reduction of the effects of global warming (and hence climate change) through the reduction of GHGs emission and the use of carbon sequestration (a reservoir that stores some carbon containing chemical compounds indefinitely (Molina et al 2019).

Mitigation implies the adoption of policies and practices that aim at reducing GHGs emissions by reducing energy waste or switching to cleaner energy sources say wind, nuclear, geo-thermal, solar among others. In fact, many counts have consciously adopted mitigation measures to reduce GHGs emission as a result of the negative effects of climate change.

Globally, the united nations enacted a treaty called the United Nations Framework Convention on climate change (UNFCCC) to provide a structure to help stabilize GHG concentration at a level that will help to avert deleterious anthropogenic climate change effect in 1992.

Adaptation: Adaptation to climate change is concerned with the extent to which individuals or societies adjust to cope with the impact of climate change. There are numerous definition of the adaptation in the literature. For instance, Adger (2021) define adaptation as all changes that reduce the adverse effects of climate change. Burton et al (2018) also define adaptation all responses that au be used to decrease vulnerability to climate change. However, a more comprehensive definition of adaptation is advanced by the IPCC (2021) that sees adaptation as the adjustment in ecological social and economic system in response to actual and anticipated climatic stimuli and their effects which include measures to reduce vulnerabilities as well as take advantage of climatic opportunities. NEST (2021) gave numerous examples of possible adaptation measures such as:

*Salt Water Intrusion***:** construction of dykes, barrages, storm surge barriers and storm diversion channels; resettlement of affected peoples; adoption of new building technologies; changes in transportation routes.

*Drought and Desertification***:** land rehabilitation; reduction of biomass burning; forest management; resettlement among others.

*Water Resources***:** producing water, recycling, changing location and height.

Health: improved sanitation and immunisation; control of disease vector population; strengthening health care delivery systems, improving public awareness on health impact of climate change, among others.

Coastal Areas: resettlement; sand filling; modification of land use, among others.

Energy: tree planting for fuel wood and other purposes; protection of sensitive energy production facilities; development and utilisation of renewable energy sources; solar wind, among others (NEST, 2021).

The Media and Climate Change Reportage

The mass media in general have been noted to be important avenues for translating scientific issues into popular discourses and amplifying claims of risk. Discourse of issue on climate change may likely affect the manner in which climate change mediated information is consumed or translated. Climate change is a global issue that is receiving the attention of people everywhere around the globe. One of the social institutions that are expected to also reflect this attention is the mass media. The mass media are among the areas where climate change issues are being reflected. The mass media importance in climate change discourse can obviously be viewed from the perspective of framing, magnifying and generally influencing social cognitions which in turn may influence actions and policies relating to climate change positively or negatively. This review is primarily concerned with media and their representation of climate change. By media of climate change, they involve the institutions, technologies, messages, audience, professionals, and the context through which climate change information is gathered, processed, transmitted, and appropriated. Climate change media therefore range from personal hand held media, the internet to traditional and modern means of communication and related messages.

Climate communication reporting is the process of gathering and disseminating information about climate change to the public (Zhang & Skorie, 2018). This can be done through a variety of channels, including news media, social media, and educational materials. The goal of climate communication reporting is to raise awareness of climate change, explain its causes and effects, and encourage people to take action to address it. This can be a challenging task, as climate change is a complex and often abstract issue. However, it is essential that climate communication reporting be accurate, balanced, and accessible to a wide audience. Communication about climate change occurs daily in news media, TV ads, social media, popular culture, and other sources. Select one example that interests you from a news report about rising sea levels, a documentary on food scarcity or acidification of oceans, a TV show about electric cars, an ad for organic clothes, or a local event. Find an example that uses both pragmatic and constitutive functions that is, communication that may educate, alert, persuade, and so on, while also subtly creating meaning and orienting your consciousness.

Communicating climate change: There is no "one-size-fits-all" approach to the challenges of communicating about climate change. Each of the many challenges presents a new opportunity to improve the way we present climate change information and the actions required to fight it. The key is to communicate climate change in a way that resonates with your audience specifically. Find out what they need to make a personal connection with climate change and motivate them to take action. And remember to not overwhelm them with the scale of the problem. With an issue as complex as climate change, people need to know there are solutions to dealing with it, and that they can be part of those solutions.

Climate communication can demystify climate change and create awareness in a language that can be understood, empathised with and acted upon. Enforcement of the climate action plan requires better coordination across departments, along with leveraging community leaders and influencers to improve uptake of programmes. A change in behaviour will only come from mainstreaming climate change into all levels of the system and concentrated communication efforts (Christensen & Nilsson, 2018). Climate change is as real and tangible as any other social issue and not another trend or hash tag for social media. The need of the hour is climate

communication to demystify climate change and create awareness in a language that can be understood, empathised with, and acted upon.

Political will and government support can also play a major role in encouraging action among communities. The government is working on addressing climate issues across levels from the Centre to the district level through the National Action Plan on Climate Change and state-specific adaptation plans. However, neither of these includes a significant focus on communication about climate change to the public. Also, despite the existence of these comprehensive plans, implementation remains suboptimal.

Conventional media is the primary source of spreading awareness. But it is important that new age media also be adopted to convey that climate change is real and happening right before our eyes. Extreme unpredictable weather, higher temperatures and changed rainfall patterns are being experienced by populations globally, regardless of whether this is recognised as 'climate change' by them. Data-heavy climate change reports provide evidence of this and are readily available for all to access. However, the question remains as to how many people are able to decipher these documents and are they reaching those most vulnerable to climate change? (Christensen & Nilsson, 2018).

The communication gap between scientists and communities can lead to inaction and incorrect action in adaptation and mitigation efforts. Thus, creating a need for consistent, clear and simple climate communications. Communities often talk about climate change based on lived experiences and stories. Unfortunately, these are rarely captured by mainstream media. The narrative around climate change remains dominated by the politics and policies around it. Conventional media remains the primary source of spreading awareness. But it is important that new age media and creative paths also be adopted to convey that climate change is real and is happening right before our eyes. Social media, documentaries and audio/visual storytelling through maps, poems and art are all crucial to reaching the masses and provide valuable information as regards climate change and its diversity. Different audiences relate to different mediums. So, all available means should be leveraged to meet the larger goal of telling stories and demanding mitigation and adaptation action (Leon- Anguiano , 2022).

Other barriers resulting in inaction include a lack of motivation and the belief that individual action cannot bring about a difference. This arises from a lack of awareness and information on the issue. We can overcome this by starting young and introducing climate awareness and action as a part of school curricula. This will help foster a spirit of responsibility and encourage action that reduces the impact of present and future changes and variations in climate. As the impacts of climate change intensify, young climate activists are increasingly joining the movement and leading discussions, demanding action and inspiring others. Encouraging community engagement is key to augmenting citizen-led transitions and increasing participation in climate action at the local level. The Sustainable Development Goals do embed public participation in their agenda. But this has yet to be achieved in practice. A strong engaging campaign can get people interested and aware and lead to more participation and problem-solving as a community. It is people who depend on natural resources, who are most vulnerable to climate change but are also the best suited to lead the movement as they understand the land better than anyone. This is increasingly being recognised by policymakers who are now incorporating this traditional and indigenous knowledge into adaptation plans.

The Role of Communication in Addressing Climate Change: On the surface, climate change communication can be seen as informing, educating, and warning, persuading, mobilising, and solving its problem. At a deeper level, climate change communication is shaped by our different experiences, mental and cultural models and underlying values and worldviews. Communicating on climate change is about educating and mobilising audiences to take action to confront the climate change crisis. Climate change encompasses global warming but refers to the broader range of changes that are happening to our planet including: rising sea level, many place have experienced changes in rainfall, resulting in more floods, drought or intense rain as well as more frequent and severe heat wave. The planet's oceans and glaciers have also experienced changes- oceans are warming and becoming more acidic, ice caps are melting and the sea level is rising (EPA, 2021).

Communicating on climate change is very effective; it 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. If you are creating a communications product such as a video, a podcast, a written article, or a graphic on climate change keep in mind the following tips to make it a valuable, effective, and reliable piece of content.

Principles that guide climate communication reporting

*Use clear and concise language***.** Climate change is a complex issue, so it is important to use language that is easy to understand. Avoid jargon and technical terms, and explain complex concepts in a way that is accessible to a lay audience. Analytic content (such as trend analyses, forecast probabilities, and ranges of uncertainty) can still help us people absorb facts and can be valuable tools, but traditional statistical presentations of climate change data rarely instill the sense that it is an immediate challenge and many audiences leave without the matching motivation to do anything about it. This might be because the language of terms used are too complicated to understand or are not known to the audience, or that stats and graphs rarely instill the sense that climate change is an immediate challenge as well as a future one. .Communicators should, whenever possible, avoid using jargon, complicated scientific terms, and acronyms. Instead, use words that will make sense to the audience: “Sometimes only a scientific term is sufficient for getting a point across. In that case, it is important to thoroughly define the term for the audience. Communicators should remember, however, that stringing together too many scientific terms and acronyms may cause the audience to spend their time and mental energy deciphering vocabulary instead of absorbing the overall point.”. Here are some examples of how to avoid jargon and technical terms:

a) Instead of saying: "The farmer used aeroponics to grow his crops."

Say: "The farmer used a method of growing crops in which water and nutrients are misted into the air, so the roots of the plants can absorb them directly."

b) Instead of saying: "The study found that there was a correlation between climate change and the decline of small holder farmers."

Say: "The study found that climate change was linked to the loss of income and productivity for small farmers."

d) Instead of saying: "The government is implementing a policy of afforestation to help mitigate climate change."

Say: "The government is planting trees to help reduce the amount of carbon dioxide in the atmosphere."

Be objective and balanced. It is important to present all sides of the climate change debate fairly and accurately. You have to be objective and balance your reportage, emphasise and express things as perceived without distortion of personal feelings, insertion of fictional matter, or interpretation. Avoid exaggerating the risks of climate change or downplaying its impacts. You can also alance climate change stories with scientific information. Despite evidence from the social sciences that the part of the brain that processes experiences has a greater part to play in motivating us to take action, most climate change communication remains geared toward the analytical processing system.

Avoid exaggeration: This could involve using language that is clear and concise, and avoiding terms that are likely to alarm or frighten farmers. It is also important to avoid making predictions about the future, as these can be difficult to verify.

Be inclusive. Climate change affects everyone, so it is important to make sure that climate communication reporting is inclusive of all voices. This includes people from different backgrounds, cultures, and genders.

Be solutions-oriented. Climate communication reporting should not just focus on the problems of climate change. It should also focus on the solutions that are available. This includes highlighting the work of individuals, organisations, and governments that are working to address climate change.

By following these principles, climate communication reporting can help to raise awareness of climate change, explain its causes and effects, and encourage people to take action to address it.

Tips on impactful climate communication reporting

Climate communication reporting is an important part of the fight against climate change. By following these tips, you can help to make your reporting more effective and impactful. Knowledge, it is said empowers. Therefore, the success of environmental protection and

management must necessarily hinge on public education, awareness and training. This is because the duty of protecting and managing the environment rest with everyone (Leon- Anguiano *et al* 2022). To enlighten, educate, and raise awareness of the public, the media must be involved in campaigns on environmental issues, particularly the issue of climate change which is the focus of this study.

Use authoritative scientific information: Misinformation and disinformation are widespread on the issue of climate change – and they are major obstacles towards 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, 2021).

How to use authoritative scientific information

*Check your sources***.** When sharing facts and figures, make sure they come from a reliable source, which is science-based (consistent with the latest scientific consensus) and objective (not biased or influenced by financial or political incentives). Peer-reviewed articles (reviewed by experts in the same field prior to publication) generally provide the most reliable information. A uniquely authoritative source is the UN's Intergovernmental Panel on Climate Change, 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. Pause before you share something. 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 using the 'Fact, Myth, Fallacy' model that can help convey your message in a way that will stick.

Beware of green washing: (presenting a company or product as environmentally friendly when they actually aren't). Double-check what the company is really doing to reduce their carbon footprint and deliver on their climate promises, and only promote genuinely sustainable brands that meet certain minimum criteria. When taking on work that is financially rewarding, be careful to challenge the assignment to make sure it promotes sustainable behaviours.

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. If you bring in other messengers, consider respected scientists (whose articles refer to peer-reviewed scientific journals or studies conducted by reputable research institutions or universities), weather presenters, and medical doctors, all of which are widely trusted. Often the most impactful climate communications also come from "people like me" who are affected and care.

Convey the problem *and* the solutions : 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 fight 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, helping people feel empowered and motivated to engage.

How to Convey the Problem and the Solution

Tell a Story – make it real. Make climate change vivid through visual imagery and experiential scenarios Telling and sharing stories is one of the most important tools we have to show climate change is happening and we can do something about it. Stories are how we make sense of the world we live in and help us to share facts, knowledge and experiences about the causes and effe**cts** of climate change**.** Presenting data alone may numb the audience. Make it relatable, local, and personal. Individual stories can forge an emotive connection, get the audience to care, and make shared global challenges seem less daunting. 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 some cities are tackling by introducing soot-free buses. Or new job opportunities offered by clean energy projects. Or power outages during raining seasons by installing solar power.

*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 marginalized are often hit the hardest by increasing climate hazards like floods, droughts, and storms. Those who contributed the least to greenhouse gas emissions are too often affected the most. 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 by people from all walks of life and communities from all parts of the world.

Mobilise Action : We need all hands on 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 to Mobilise Action

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 galvanize 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 frames for creating a sense of urgency.

Deliver climate messages by trusted groups and Youths. According to Zhang & Skorie (2018), Yale law professor Dan Kahan, a researcher in the science of science communication. Kahan argues that beliefs are shaped by the social groups people consider themselves to be a part of and scientific evidence does sometimes contradict some groups' values. To make your climate change messages effective, individuals need to feel that the perceptions of the risk of climate change positively match with those of their social group. The global youth climate movement has played a powerful role in driving action and holding leaders accountable. Featuring 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.

Conclusion

Conclusively, environmental communication is in the province of public communication which confers a responsibility on individual towards their fellow-citizens. This responsibility is connected with the many ways in which we can reach men and assist them. This perspective provides a justification for environmental journalism to equip citizens with a broad knowledge of the environment if they are to deal with the problems satisfactorily. Not only these, teachers,

preachers, business managers and all shades of leaders, therefore, ought to position themselves to make this knowledge available to all.

Communicating on climate change is very effective; it 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. All hands must be on deck to save our environment, and everyone must participate actively to achieve a safe environment for all, be it individuals, social groups, the media, the government and everyone, the environment belongs to us and we all can make it a better place.

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